Minerva’s Army and the Battle for Green Gold:
Leiden University as a Catalyst for the Seventeenth Century Spice Trade

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Abstract

This thesis examines the socio-cultural climate of the Dutch Republic and its primary established knowledge systems that aided in the identification, access, production, use and transmission of plant-based knowledge. A cross analysis of these intellectual exchanges are explored in order to assess their role upon the Dutch Republic’s ascension as leaders of the seventeenth century spice trade. It identifies Leiden University (est.1575) as a key intellectual conduit for the Dutch Republic’s social and economical outcomes during the late sixteenth and first half of the seventeenth century. Three key social factors differentiated the university from its contemporaries and advanced its capacity for knowledge production: (1) a policy of religious tolerance; (2) better inclusive gender relations compared to greater European contemporaries; (3) and pedagogical innovation anchored in humanistic principles. As a result of the relationship between Leiden University and the VOC (Vereenigde Oostindische Compagnie, also regarded as the Dutch East India Company), communication channels that transported and exchanged a variety of knowledge were established between the two organizations. These engendered an influx of intellectual capital that led to the acquisition of ‘green gold.’

Keywords:
History, Science, Medicine, Religion, Education, Economic Botany, Gender, Art

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1The term “the Dutch,” in its singular form, did not exist during the time period of this study. From 1581 to 1795, it was regarded as the Dutch Republic and consisted of seven northern Netherlands provinces— Holland, Zeeland, Groningen, Friesland, Utrecht, Overijssel and Gelderland.

2Within the discourse of commodities exist the categories “blue gold” (water), “white gold” (rubber), “black gold” (oil) and “green gold” (medicinal, pharmacological and dietary plants). See Bruce Robbins, “Commodity Histories,” PMLA, Vol. 120, No. 2 (Mar., 2005), 454.
MINERVA’S ARMY & THE BATTLE FOR GREEN GOLD
Leiden University at the Center of the Seventeenth Century Spice Trade

By Danelle Marqui Brown

1 Jacob Matham, Minerva en Mercurius, 1588. Engraving on paper, h 302mm × w 210mm. The Rijksmuseum, Amsterdam.
Acknowledgments

This thesis evolved from a research paper entitled, “Leiden University’s Impact on the Spice Trade During the Golden Age of the Dutch.” The paper was written during the Fall 2013 semester for HIST E-10c/ World History III: The Age of Empires, 1500-1800. I would like to thank David Nicholson, one of the course’s assistants, for his support and direction during my initial historical investigation. I arrived at the topic of study after reflecting on the new constructs of thought learned during the course, as well as the new discoveries I learned earlier that year.

On 18 May 2013, I attended the opening of the exhibit Wild Medicine: Healing Plants Around the World, Featuring the Italian Renaissance Garden at the New York Botanical Garden (NYBG). A special introductory lecture preceded the event in the Arthur and Janet Ross Lecture Hall at the NYBG. There, Dr. Andrew Weil, physician, botanist, and founder and director of the Arizona Center for Integrative Medicine, received the NYBG’s first H.H. Rusby Award. It was the first time I heard Dr. Weil present.

Prior the lecture, I was not aware that Dr. Weil was a Harvard-trained physician. As a fairly new Harvard student myself, I listened attentively as he discussed his studies at Harvard. It was during his lecture that I first learned of the terms economic botany and ethnobotany. As well, it was the first time that I learned of Harvard’s Herbaria and its Libraries. Given that Harvard’s roster contains seventy libraries, such a reference was

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ii David J. Rogers wrote for a conference for the Society for Economic Botany in 1958, “A current viewpoint is that economic botany should concern itself with basic botanical, phytochemical and ethnological studies of plants known to be useful or those which may have potential uses so far underdeveloped. Economic botany is, then, a composite of those sciences working specifically with plants of importance to [people].” As early as 1947, the publication Economic Botany was established at the NYBG. See “About The Society for Economic Botany,” The Society for Economic Botany. Accessed October 7, 2013. http://www.econbot.org/index.php?module=content&type=user&func=view&pid=2.
very welcomed. I left Dr. Weil’s lecture with a large sense of curiosity.

In August 2013, just before the Fall semester began, I went to Hawaii for the first time to visit my dear friend and her family. Because I stayed at a family’s home, away from the tourist centers of Maui, I was able to experience the land and culture from a non-tourist perspective. Of course I did venture to areas of tourism, but as well I roamed around various areas where many people and modern urban planning were not to be found. I as well signed up for a guided tour to visit waterfalls and learn about plant life in a nearby rainforest. Before my trip, I did not know that it took a pineapple three years to naturally mature for consumption. And to my surprise and confusion, the hauntingly beautiful Banyan trees that I saw for the first time on the Island, were not the ancient native trees I believed them to be—they originated from India.

Learning about Hawaii’s history of horticulture from the locals, coupled with witnessing the remarkable beauty of a wide array of trees and plants from various global regions left me perplexed. I replayed the key “take-aways” I learned from Dr. Weil’s lecture on economic botany and ethnobotany during my days in Maui. But, I began to think about economic botany in a more literal sense—botany as a conduit for economies. I left the island greatly intrigued and disturbed by the history of botany, economics and social disruption. With these thoughts roaming in my head, I began a new semester at Harvard.

As a course requirement, for the world history course I was enrolled in, graduate students were to write a final research paper that demonstrated the ability to conceptually think and investigate a historical topic. Out of the sixteen potential areas of focus offered, two had a scientific extension to their historical narratives—“European exploration and the High Price of Spices” or “Sweet Nexus: Sugar and the Origins of the Modern World (1600–1800).” Since Hawaii’s first commercial sugar plantations were not developed till the 1830s, I was not able to pursue my recent interest in the history of horticulture and commodities as they pertained to Hawaii. Studying the history of the spice trade however
would enable me to not only meet the requirements of the course, but as well conduct an investigation in my concentration—the history of science, technology and medicine.

For the initial phase of the research process, I visited Harvard University’s Herbaria and Libraries, as mentioned and recommended by Dr. Weil at his lecture. Consulting the works within the collection established a great spring board for my studies. When I chose this areas of study for my thesis topic, the Herbaria’s Libraries again served as a great aide. To Judith Warnement, Librarian of Harvard University Botany Libraries and Gretchen Wade, Reference and Collection Development Librarian at the Botany Libraries, I extend my thanks.

I am especially grateful to my research advisor, James R. Morris, MD, PhD, Professor of Biology at Brandeis University and Lecturer in Extension at Harvard University. He has been a victor of patience and an encouraging advocate during my thesis journey. Because my thesis topic was sparked by the idea of economic botany and Harvard University’s Herbaria, I was beyond thrilled when Professor Morris connected me with my thesis director, Donald H. Pfister, Curator of the Farlow Library and Herbarium of Cryptogamic Botany and Asa Gray Professor of Systematic Botany at Harvard University.

Professor Pfister’s experience as an interim dean for Harvard College and dean of the Harvard Summer School, in addition to his scientific knowledge and professorship on Plants and Human Affairs, truly gave vigor to my thesis journey. I am especially grateful to have been able to investigate a social history of botany and academia underneath the guidance of a such a contemporary botanist and educational leader. During the thesis research and writing process, I was often overwhelmed. Professor Pfister’s guidance helped me streamline my research. Furthermore, his encouragement to employ unconventional and creative approaches to my interdisciplinary study helped me to orchestrate and organize a rather multi-dimensional history. I extend many thanks to Professor Pfister.
I would like to thank Dr. Patricia Leavy, a sociologist, women’s studies expert and an internationally recognized leader in arts-based and qualitative research. Along my journey to identify and incorporate creative research methodologies into my thesis process, I serendipitously met the pioneering scholar outside a concert venue as we were on our way to see one of our favorite artists, Tori Amos. Dr. Leavy introduced me to arts-based research (ABR) methodologies, and as a result, ABR enriched this thesis’ historical investigation.

Though I attended a majority of my extension school courses on campus in Cambridge, I did so while living in and commuting from New York City. Since I was unable to fully immerse myself within the Harvard community on campus, due to time limitations, I immersed myself in local academic and professional communities in order to enhance my graduate learning experience and professional development. In January 2014, I officially became a student member of the New York Academy of Medicine (NYAM). Afterwards, I submitted an abstract based off of my twenty-nine-page research paper on Leiden University’s Faculty of Medicine and their influence upon the spice trade to NYAM. The Academy issued a call for presenters for its annual history of medicine night. To my delight, my research was selected. On 22 May 2014, I presented to a public audience, along with four others presenters. Receiving such recognition from NYAM, as well as the general feedback from the audience members, encouraged me to pursue the topic further. Hence, the topic became my area of thesis study.

I have attended lectures and symposiums held at both NYAM and the New York Academy of Sciences (NYAS) for several years. Both institutions fertilized the gardens of my mind. As disseminators of scientific knowledge, they inspired me to pursue graduate studies in the history of science and medicine. I would like to thank the Committee on Admission and Membership of NYAM for electing me as a student member to the esteemed organization. Being a member of the organization since 2014, and an attendee
of events since 2011, greatly enhanced by graduate learning experience. I would like to thank Dr. Jo Ivey Boufford, President of NYAM, and Donna Fingerhut, MS, Director of Fellowship and Trustee Affairs for their generosity and encouragement of NYAM’s fellows and members. As well, the team at NYAM’s rare book library – Lisa O’Sullivan, PhD, Library Director, Arlene Shaner, MA, MLS, Historical Collections Librarian, and Anne Garner, Curator of Rare Books and Manuscripts—have been both especially kind and helpful throughout my research. To them as well, I extend my gratitude.

I would like to thank the NYAS for hosting its “Integrating Student Research into the Medical School Curriculum” conference in 2012. Having the ability to listen to chairs from various faculties of medicine from across the country speak on the state of medical education was invaluable. NYAS greatly shaped my general historical, medical and scientific interests.

To my friends and family, I thank them for understanding that between September 2012 and January 2016, my ability to socialize for leisure was greatly challenged due to the juggle of grad school, part-time work and growing a business. To my mom, Dana Brown, I thank her for letting me ramble random historical, scientific and religious narratives, over the phone when I needed to talk out and organize my thoughts. And to my dear friend, Harvard graduate, Eileen O’Connor, I thank her for her friendship and support. Knowing my quest for knowledge and career goals, she encouraged me to pursue graduate studies at the Harvard Extension School. She has empowered me to follow my not-so random, but quirky dreams.
# Table of Contents

Acknowledgments ........................................................................................................ v

List of Illustrations ..................................................................................................... xi

I. Introduction ............................................................................................................. 1

II. The Botanist and His Green Maiden ................................................................. 11

III. Minerva’s University ......................................................................................... 27

IV. The Great Battle Begins ..................................................................................... 53

V. Minerva’s Wise Army .......................................................................................... 67

Minerva’s First Rank: The Faculty of Medicine and its Pupils ............................. 68

Minerva’s Second Rank and Linguistic Lieutenants:  
The Faculty of Law and Language Studies ............................................................. 92

Minerva’s Third Rank and Achilles Heel:  
Reneging Ideologies and Faculty of Theology ..................................................... 97

VI. Trading Identities and Values ............................................................................ 102

VII. Spicewives and Labor ....................................................................................... 115

VIII. A Pedagogical Reformation ............................................................................ 135

IX. Conclusion .......................................................................................................... 155

Appendix ..................................................................................................................... 162

Bibliography ............................................................................................................... 171
List of Illustrations

1 Jacob Matham, Minerva en Mercurius, 1588 ................................................................. iv
2 Willem de Haen, Hongersnood onder de Leidenaren, 1574, c.1612–1614 ......................... 29
3 Adriaen Thomasz Key, Portrait of William I, Prince of Orange, 1579 ............................... 29
4 Artist unknown, St. Barbara’s Convent, Date unknown .................................................. 33
5 Artist unknown, Scene of Leiden University Student Working, c.1600-1601 ..................... 33
6 Artist unknown, Inauguration of Leyden University 8th February 1575, 1575 .................. 36
7 Artist unknown, Optocht bij de inwijding van Universiteit van Leiden, 1575 .................. 36
8 Various unknown artists, Logo Study of University Emblems, Various dates ....................... 38
9 Philips Galle and Hugo Favolius, Weefkunst, 1574 ....................................................... 39
10 Isaac Claesz van Swanenburg, Het spinnen, het scheren van de ketting..., c.1594–1596 .......... 39
11 Willem Isaacsz van Swanenburg and Andries Clouck, The fencing school, 1610 .......... 47
12 Willem Isaacsz van Swanenburg and Andries Clouck, Bibliothek..., 1610 ............... 47
13 Hendrick van Balen and Lucas van Uden, Minerva among the Muses (Detail), c.1620s ...... 51
14 Otto van Veen, The Batavians Surround the Romans, c.1600-1613 .............................. 51
15 Hendrik Cornelisz Vroom, The Return to Amsterdam, 1599 ....................................... 59
16 Artist unknown, VOC logo, 1602 ................................................................................ 59
17 Artists unknown, Spice box, 1600 ................................................................................. 65
18 Jan Jansz van de Velde (III), Still Life with a Porcelain Dish with Pepper (Detail), 1647 .... 65
19 Johann Gelle after E. van Panderen, The medical practitioner..., 1609 ......................... 73
20 Willem Isaacsz van Swanenburg, Jan Cornelisz van ‘t Woudt and Claes Jansz.Visscher (II), Anatomisch theater van de Universiteit Leiden, 1610 ........................................ 73
21 Artist unknown, Marie de Brimeu, princess van Chimay, 1615 .................................. 76
22 Dirck Cluytk and Carolus Clusius, Index Stirpium (Detail from manuscript), 1594 ......... 80
23 Jacob de Gheyn (II), Hortus Botanicus (Detail), 1601 ................................................... 85
24 Student unknown, Hortus Publicus Academiae Lugduno (Detail), 1601 ......................... 85
25 Jacob de Gheyn (II), Portrait of Carolus Clusius, 1601 ................................................. 87
26 Artist unknown, Exoticorum libri decem (Frontispiece), 1605 ...................................... 88
27 Cornelis Koning and Laurens Reael, Portrait of Jacob Arminius, c.1609–1671 ............ 100
<table>
<thead>
<tr>
<th>No.</th>
<th>Artist/Title</th>
<th>Reference/Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Pouwels Weyts the Young, <em>The National Synod of Dordrecht</em>, 1621</td>
<td>100</td>
</tr>
<tr>
<td>29</td>
<td>Claes Jansz Visscher (II) and Pieter Bast, <em>Profile View of Amsterdam (plate 4)</em>, 1611</td>
<td>118</td>
</tr>
<tr>
<td>30</td>
<td>Nicolaas Verkolje, <em>Apotheosis of the Dutch East India Company</em>, c.1702–1746</td>
<td>118</td>
</tr>
<tr>
<td>31</td>
<td>Artist unknown, <em>Bazaar van Bantam</em>, c.1596-1598</td>
<td>123</td>
</tr>
<tr>
<td>33</td>
<td>Franciscus Hackius, <em>De medicina Indorv (Frontispiece detail)</em>, 1642</td>
<td>133</td>
</tr>
</tbody>
</table>
Chapter I

Introduction

Organization of this study

This thesis contains seven primary chapters and a conclusion. Chapter II establishes the setting for the sixteenth century spice trade, the European study and acquisition of Asian plant-based knowledge, and extracts underlying religious and gender politics that gave rise to such conditions. Chapter III surveys the establishment of Leiden University and the social conditions in which it was founded, as well as introduces Leiden University’s patron goddess Minerva—goddess of wisdom, war and the arts. In order to establish context for the Dutch Republic’s entry into the spice trade, chapter IV provides a sketch of the political tension between the Portuguese Empire and the Dutch Republic. Chapter V examines roles in which some faculty and students of Leiden University contributed to the production, curation, and dissemination of knowledge pertaining to the trade of plants and spice trade relations. Through a lens of religious, cultural and labor dimensions, chapter VI surveys the Dutch Republic’s activities in the Spice Islands and the social obstacles it faced during its attempts to acquire spices. Chapter VII provides a sociological sketch of the various gender and labor roles within Southeast Asia and their roles in the rise and decline of the Dutch Republic’s spice trade. Chapter VIII examines existing and newly established knowledge systems and revolutionaries at Leiden University and accesses their influence upon shifting pedagogies within Leiden University and greater Europe. Chapter IX reviews the key tenements of this research and cross-references to the spikes and declines that contributed to the Dutch Republic’s position of power within spice trade.
Context and the need for this study

Spices themselves are distinct derivatives of plant life that are deeply connected to both the history of science, commerce and social histories. Spices were and still remain studied, cultivated, used and disseminated by people. However, traditional scholarship on the subject of the sixteenth and seventeenth century spice trade is primarily conducted through the lens of economics, nautical technology and empire expansion. It is only recently that scholars such as Harold J. Cook and A.M.G Rutten have begun to assess the role of botany, medicine and commerce as they relate to the history of the spice trade. There is a void within the literature that identifies correlations between the production and circulation of scientific knowledge and its effect upon social and economical outcomes. As a result, the spice trade’s historiography remains fragmented.

Though it was not till Arber Hill’s 1937 textbook, *Economic Botany*, that momentum was generated for the burgeoning study of plants and their correlation to economics, this does not suggest that the practice of economic botany was not taking place during the Age of Exploration and prior. The spice trade did not merely consist of a small network of international merchants and suppliers; it consisted of a complex network of players such as botanists, physicians, purveyors, lawyers and translators from various geographic, religious and gender backgrounds. How and where were they trained, where did they come from and how did they become connected? How did they interact with each other? For those key players in the Dutch Republic, who were involved in the spice trade, a great common denominator was that they were affiliates of Leiden University (est. 1575).

Prevailing, yet fragmented, renderings of the spice trade are superficially rooted in a lack of social and cultural literacy amongst scholars. Self-contained histories, ones that exclude investigations of “other” characters’ (i.e. classified by religious affiliation, gender, nations) narratives and contribution to a given history, permeates English scholarship. Such bias omits key epistemological and social aspects affiliated with both
science and trade. As American physicist, feminist and historian of science Evelyn Fox Keller highlighted, “gender and science are socially constructed categories” and in order to fully grasp the complex interwoven dynamics, one must locate “the development of science in its social and political context.”¹ But to her argument of socially constructed categories, the role of religions must be added. Hence, it is important to collectively investigate and assess the social trifecta that shapes intellectual knowledge production—science, gender and religion.

Both the history of the spice trade and the history of Leiden University are rooted in the history of religion. Leiden University was built amid the social landscape of the Dutch Revolt and the Protestant Reformation. It would be remiss to approach its history without investigating the social dynamics that rendered its environment. How did social and cultural wars shape the university’s policies and methods for teaching? How did religious dynamics shape the university’s social construct during its foundational period and in subsequent years? We must also bear in mind that the Vereenigde Oostindische Compagnie (VOC) traded within and habited various regions in Asia. How did cultural assimilation and/or cultural clashes affect the transmission of plant-based knowledge and production of spice commodities? A cultural studies approach—situating a particular study within the broad discourse of multiculturalism—should be applied to the study of science and knowledge transmission, especially since both areas of studies are transient and contains various geographical and sociological players.

Social historian Peter Burke’s *A Social History of Knowledge* (first edition 2000) makes the argument that the sociology of knowledge is a fundamental aspect of any comprehensive history. However, as sociology is transient, this suggests that historians must invest extra effort to explore various microsociologies. Burke uses the phrase “spatial distribution of knowledge” to denote “the places in which knowledge was

discovered, stored or elaborated as well as those to which it was diffused.”² But there lies a conundrum. What constitutes knowledge? The answer to this question has been debated and explored through millennia. For the sake of clarity within this study, I will use the term “plant-based knowledge” to denote information used for the identification, acquisition, cultivation, use and dissemination of plants, particularly spices. This study ultimately investigates the spatial distribution of plant-based knowledge, the knowledge which enabled its transmission and the social politics of plant-based knowledge.

According to Burke’s presentation of the various structures of knowledge, sixteenth and seventeenth century Leiden University can be categorized as a great ‘epistemological community’³ for the Dutch Republic. The university was a social conduit of knowledge production. It cultivated and orchestrated the circulation and dissemination of various forms of knowledge, especially plant-based knowledge. As well, the university can be classified as a ‘seat of knowledge.’ Seats of knowledge range from traditional locales such as monasteries, universities, libraries and hospitals to the more modern coffee-houses, bookstores, and offices.⁴ Compared to contemporary cities of the time, Leiden had the most exceptional and diverse array of ‘seats of knowledge,’ with its university serving as its central seat. However, what distinguished Leiden University from its contemporaries was its various internal ‘islands of innovation’⁵ (i.e. its library, anatomy theater and observatory).

The VOC, also referred to as the Dutch East India Company, was initially established in 1602 on a 21-year charter and ran through 1799. Through this multi-dimensional business institution, the Dutch Republic dominated the spice trade for the majority of the seventeenth century. In conjunction with the VOC, Leiden University

³ ibid, 8.
⁴ ibid, 54.
⁵ ibid, 41.
extended its spatial distribution for the curation and circulation of plant-based knowledge overseas, in the Spice Islands and throughout Asia.

Adopting methodologies from the field of sociology in order to render a social history

The spice trade’s history, though anchored in science and trade, is a social history. Therefore, its investigation requires qualitative research methodologies. Ethnography is central to the science of sociology. According to Clifford Geertz, social anthropologists do ethnography in order to produce ‘thick descriptions’ so they are able to produce renderings of a particular group of people. Ethnographical practices such as conducting genealogies, interviewing, mapping, observing, journaling and other engaging forms of data capturing are crucial for conducting historical research.

Philosopher Michael Foucault observed, “Natural history is nothing more than the nomination of the visible.” Conversely, the late art historian E.H. Gombrich regarded visual imagery of the early modern period as a form of “illustrated reportage.” From this point of view, we can look at visual arts as a form of social and naturalistic documentary. Both the city of Leiden and its university are rich with visual and textual artifacts. Building upon Burke’s structures of knowledge, and referring to Gombrich’s concept of images as “illustrated reportage,” we should consider works of art as creative social transporters of knowledge.

Therefore, I adopted arts-based research (ABR) practices, traditionally utilized for sociological studies, for this socio-historical study. Scholar Patricia Leavy, PhD defines such practices as follows:

Arts-based research (ABR) practices are [a] set of methodological tools

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used by qualitative researchers across the disciplines during all phased of social research, including data collection, analysis, interpretation, and representation. These emerging tools adapt the tenets of the creative arts in order to address social research questions in holistic and engaged ways in which theory and practice are intertwined. Arts-based practices draw on literary writing, music, performance, dance, visual art, film, and other mediums.⁹

Historical understanding is influenced by one’s ability to identify, comprehend, articulate and render historical narratives from the assessment of audial, verbal and visual presentations, extracted from the presentation of primary sources. Collective-memory and understanding of histories are therefore subject to the production of historical knowledge. It is the responsibility of historians to audibly, verbally and visually curate, write and disseminate accurate historical narratives. Scholarship itself is a form of art; we make a body of collective knowledge. The use of ABR practices for this study, assisted in the exploration, organization and presentation of the spice-trade and Leiden University’s historiography. Some forms of art consulted for this study include: architecture, scientific literature, poetry, drawings and paintings, university seals and iconography. Albeit, as with any consulted piece of historical evidence, a thorough and critical analysis must be employed. Visual art was cross-referenced against a variety of primary textual resources.

Art and Science/ Femininity and Masculinity

Contemporary scholarship must not underestimate the reciprocity between art and science, nor overlook their individual legacies. Unfortunately, their separation has been instigated by a rudimentary understanding of humanity’s duality—masculine and feminine heritage. Joan Wallach Scott writes:

The discipline of history, through its practices, produces (rather than gathers or reflects) knowledge about the past generally and, inevitably, about sexual difference as well. In that way, history operates as a particular kind of cultural institution endorsing and announcing constructions of

She goes on to elaborate upon the role of feminist history being the attempt to fill in the gaps existential within incomplete records of a given “traditional” history, as well as critically understanding how the production of such incomplete knowledge was produced and circulated.

Evelyn Fox Keller suggests that the application of a feminist perspective to the subject of science “confronts us with the task of examining the roots, dynamics, and consequences of this interacting network of association and disjunctions—together constituting what might be called the ‘science-gender system.’” More often than not, gender politics exist within the very organization and social management of scientific knowledge. Take for instance the history of botany, which rose to great prominence during the eighteenth century due to the advent of systematic botany. Ironically enough, the acknowledgment of gender differentiations is at the forefront of Linnaeus’ Systema Sexuææ (Sexual System) of Botany.

The system explains that a “distinction of the sexes” exists both within the kingdom of Animals and Vegetables. The very notion of dualistic governance of nature is at the forefront of the institution of botany’s consciousness. Yet, gendered bias, authored mostly by men of the early modern period, shaped a diluted perception of plant-based historical scholarship. Robert Merton viewed science as an activity “involving social collaboration” with the institutionalized goal of certifying knowledge. As an institution, science and history has done a poor job of conducting dualistic and inclusive histories of plant-based knowledge.

Science is “demonstrative knowledge of the necessary and eternal.” Aristotle

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11 Keller, Reflections, 8.

went on to affirm, “it is when a man believes (emphasis mine) in a certain way and the starting-points are known to him that he has scientific knowledge.”  

13 From this point of view, a belief system, as a point of reference, is a key tenement to the formation of scientific knowledge. A human belief system, whether an individualistic or shared structure of belief, is a staple condition of the human experience. Within societies, belief systems were (are) established as a response to humanity’s questions, behaviors and survival needs. Human belief systems were (are) shaped by observational, experiential and pre-existing bodies of knowledge. They pertain to variations of the human experience such as life, health, diet, sex, emotions and death. Therefore, scientific knowledge will exist as long as humanity is in existence.

Aristotle goes on to affirm that art on the other hand is the “knowledge of how to make things,” and “art must be a matter of making, not of acting.” Art therefore, from this point of view, is the ability to create something, whether that be a drawing, a body of written work, a sequence of dance, a ship, a formula or technology/tools. Art can be a manifestation of a wide variety (i.e. a need, an emotion, a belief, a thought).

Humans are dualistic beings who are both thinkers and creators in some degree, just as we all have masculine and feminine qualities, not to be confused with the socially-gendered connotations associated with the biologically descriptive terms male/female or man/woman. We make objects and forms of communication to convey, transport and preserve forms of knowledge. Human belief systems, many of which evolved into organized religion, are the precursors to the formalized fields of science. Therefore, when investigating scientific and social histories, it is imperative to also access the belief system(s) and the collective art(s) it(they) produced in order to better inform our calculations of social histories and scientific knowledge.

The Religious Literacy Project

One of the aims of the *The Religious Literacy Project* (RLP), an initiative of the Harvard Divinity School, is to better societies’ understanding of the complex religious influences that shape collective understanding of modern human affairs, with a special focus on contemporary issues related to conflict and peace.\(^\text{14}\) The initiative has three key arenas of focus: (1) training educators to better understand how religion functions in contemporary human affairs and best practices for teaching about religion; (2) open access resources; and (3) a research initiative to collect data and analyze how religion is taught in K-12 schools in the United States. In May 2015, I received the Religious Studies and Education Certificate, which is jointly sponsored by Harvard Divinity School and Harvard Extension School. The five-course program is designed to create a multidisciplinary foundation for approaching the study of religion in educational settings focused on learning about religion. I simultaneously pursued the certificate to compliment and enhance my graduate studies in the history of science, technology and medicine through the Harvard Extension School. Each area within this field of interdisciplinary study are intertwined with the history or religion.

This thesis incorporates much of the knowledge that I learned during my religious studies through the RLP. Diane L. Moore is the Director for the RLP, as well as a Senior Lecturer on Religious Studies and Education and Senior Fellow at the Center for the Study of World Religions studies at the Harvard Divinity School. She deems that the cultivation of religious literacy is instrumental to shaping an ideal democracy. Moore suggests that implementing a multicultural pedagogy into institutions of learning is both conducive to the promotion of such a democracy and “the skills required to participate as active and informed citizens in our multicultural society.”\(^\text{15}\)


Moore’s *Overcoming Religious Illiteracy: A Cultural Studies Approach*, is a call for the adoption and implementation of multicultural and social constructivist methodologies within learning systems and classrooms. It contains a collection of modern case studies to exemplify how such methodologies can be implemented successfully and their beneficial outcomes. This history of sixteenth and seventeenth century Leiden University, exemplifies how multicultural pedagogies impact and shape multicultural societies.

However, as is both evident in modern and a greater historical context, such an implementation process is met with great structural and social challenges that require a contingency plan for shifting dynamics. I would categorize school policies, teacher workload and access to knowledge as some conduits of structural challenges. The social challenges are cultural and/or behavioral. They are shaped by employee cultures, shifting parental/teacher/student relationships and most importantly the relationship with one’s self. The latter affects a teachers’ capacity to learn, contextualize and teach. This thesis contributes to the on going research being conducted to assess and ideate on best practices and solutions for a better multicultural society and education system. As too, this study addresses the omission and manipulations that have taken place within historical and scientific scholarship, due to religious biases and cultural illiteracy.
Chapter II
A Botanist and His Green Maiden

Science—demonstrative knowledge of the necessary and eternal/Ethics VI.3
“…Again, every science is thought to be capable of being taught, and its object of being learnt. And all teaching starts from what is already known, as we maintain the Analytics also; for it proceeds sometimes through induction and sometimes by syllogism.”

“…Scientific knowledge is, then, a state of capacity to demonstrate, and has the other limiting characteristics which we specify in the Analytics; for it is when a man believes in a certain way and the starting-points are known to him that he has scientific knowledge, since if they are not better known to him than the conclusion, he will have his knowledge only incidentally.”

Art—knowledge of how to make things/Ethics VI.4
“…All art is concerned with coming into being, i.e. with contriving and considering how something may come into being which is capable of either being or not being, and whose origin is in the maker and not in the thing made; for art is concerned neither with things that are, or come into being, by necessity, nor with things that do so in accordance with nature (since these have their origin in themselves).”

…Art, then, as has been said, is a state concerned with making, involving a true course of reasoning, and lack of art on the contrary is a state concerned with making, involving a false course of reasoning; both are connected with the variable.”

Aristotle, The Nicomachean Ethics

Garcia de Orta (c1500-1568) was one of the first great European physicians and botanists versed in Asian plants. As well, he authored Colóquios dos simples e drogas he cousas medicinais da Índia (Colloquies on the Simples and Drugs of India) (1563). Created within a climate of technological printing advancements, empire expansion and cultural infusion, Orta’s Colóquios serves as a pivotal point within the history of botany. It went on to influence the likes of great botanists and physicians such as Cristóbal Acosta (c.1515 – 1594), Carolus Clusius (1526 –1609), Jacob Bontius (1592–1631) and Willem Piso (1611-1678). Made up of fifty-nine colloquies, the written dialogues:

16 Aristotle, Nicomachean Ethics, 140-142.

17 Juan Pimentel and Isabel Soler of the Consejo Superior de Investigaciones Científicas, Madrid
written during Orta’s time in the Portuguese ruled Goa, India—immerses readers into a storytelling experience that incorporates a variety of subjects, including the history of plants and precious stones, their location and uses, as well as a survey of plant experts. The two dominant voices throughout the work are those of Orta himself and the visiting Spanish physician named Ruano. Ruano professed to Orta that he came to Goa “with a great desire to know about the medicinal drugs (such as are called the drugs of pharmacy in Portugal) and other medicines of [India], as well as the fruits and spices.” Furthermore, he wished to learn their various names, sources and uses in different languages.

In 1886, Count de Ficalho was the first to suggest that the invented character of Ruano within Colóquios was Orta’s alter ego. Fontes da Costa of the New University of Lisbon suggests otherwise. She concludes that Ruano “stands in for the European humanist scholar who would be particularly interested in what the Portuguese physician had to say.”

It is logical to explore the dimensions of the relationship between Orta and Ruano. Their presence and dialogue are most frequent within the text. However, scholarship’s

and Universitat de Barcelona observed: “Between pedagogy and entertainment, dialogue offered an unrivalled way to exploit the dialectic between ancient and modern, to reinforce the rhetoric of novelty and to gain adepts for the cause of modern science. The Colóquios share this spirit, although it is worth remembering the importance of the dialectic method in scholastics and the Summulae logicales (the mediaeval handbook of the time, against which the humanists themselves loosed their arrows), a text which was always mindful that dialectics was “the art of arts, and the science of sciences.” See Juan Pimentel and Isabel Soler, “Painting Naked Truth: The Colóquios of Garcia Da Orta (1563),” Journal of Early Modern History 18, no. 1-2 (2014): 111.

18 The text regards Ruano as a renowned figure in both Salamanca and Alcala. Orta attended medical school in both cities. See Orta, Colloquies, 1.


lack of attention towards the social and intellectual dynamics between that of the “SERVANT GIRL” penned into the work, and Orta, is a prime example of the gender politics that exists within scholarship written on histories of science.

Sir Clements Markham’s introduction of the English translation, _Colloquies_, briefly mentions Orta’s “intelligent servant girl Antonia.” However, Orta only calls her by her name on three occasions compared to the eighteen times he names “SERVANT GIRL” in his colloquial format. Of those mentioned in the 508 pages of _Colóquios_, including a variety of plant experts and intellectuals, the “SERVANT GIRL” has the most dialogue within the text, a distant third from Orta and Ruano. The name “ANTONIA” is only listed twice in colloquial form—in the eighth and twelfth colloquies. In the latter her dialogue is a mere, “Here they are.” In the former Antonia says, “Here is the tree of the small ones, and see here is the seed, and here is what they sell in the drug shop. For you told me to bring them altogether.”

It is assumed that “ANTONIA” and “SERVANT GIRL” are the same person. This raises a perhaps unanswerable question, “Why did Orta interexchange the use of her name with that of her social role?” Conceivably, Antonia’s name could have been replaced with the word “Girl” or “SERVANT GIRL” during editions and translations. Such a concept can only be reduced to speculation however. If it were the case that two different females were included in Orta’s collected dialogues, it would show that more than one female held plant-based knowledge on Orta’s property. The work does reveal on multiple occasions that Orta had several servant girls. Conversely, given the frequency of the “SERVANT GIRLS”’s presentation in the text, and Markham’s brief description of

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22 See Sir Clements Markham’s introduction in Orta, _Colloquies_, xiii.


24 Orta, _Colloquies_, 54.

25 As Orta’s original works are believed to have been burned by the Portuguese Inquisition, an investigation to track down to circulation of his work is extremely limited.
“ANTONIA,” the existing evidence suggests that they are one in the same.

As historical scholarship often consults literary sources for its primary investigations, the field can benefit from applying comparative literature methodologies towards its research. Such methodologies, anchored in a cross-cultural approach, should be adapted into a cross-sex and cross-gender approach to historical investigations—sex serving as a biological marker and gender as a social marker. The results can better produce gender inclusive histories.

Many of Orta’s and Ruano’s plant-based conversations were engendered by the “SERVANT GIRL.” Whether Orta conversed with fellow physicians, merchants, or a variety of indigenous healers such as hakins (Muslim practitioners) and vaydas (Hindu and Ayurvedic practitioners), she was often there, a silenced shadow standing on the periphery of historical time. She initiated dialogues and on occasion aided the comprehension of their context by presenting the very plant that was under discussion. The label ascribed to her—“SERVANT GIRL”—coerces readers to assume her role to merely be Orta’s domestic female servant. As well, her age is unclear. She may have been a teenager or a young adult woman. It is clear that domestic services were amongst the female’s responsibility within Orta’s household. For instance, when an order of curcas from Malabar arrived at Orta’s home in Goa, she asked “Does your worship wish that they should be dished up in tamarind juice with the fowl, or thrown into the mutton?” Orta responded, “In both cases you can use it, and meanwhile bring me a little green “AÇAFRAM DA TERRA.” Within his response however, as well as the subsequent conversation, one of the female’s obscured skills can be detected. She could identify


27 Orta, Colloquies, 164-165.

28 According to Orta, the Canarese name for Acafram da Terra was “ALAD”. The footnote for “ALAD” mentions that it is Turmeric, also regarded as yellow-wood in Sanskrit; haridra in Malay, kunhei’ in Persian; karkum in Hebrew. See Orta, Colloquies, 163-165.
different types of plants.

Orta was in the midst of talking to Ruano about the medical properties of “AÇAFRAM DA TERRA,” when “SERVANT GIRL” came to alert him about the arrival of the curcas. Her announcement was delivered just as Orta was explaining to Ruano how the great Avicenna commended its use for a variety of things such as the eyes and the soothing of itch. Orta even recommended to Ruano that he bring back some açafram da terra with him for use in Portugal. But, Ruano’s curiosity became more intrigued by the subject of curcas, as the subject was raised by the “SERVANT GIRL.”

“What sort of things are these curcas,” Ruano asked? 29 To which Orta replied, “They are white grains larger than filberts with a rind… They have them in Malabar … But as they do not concern the question of medicine let us pass on without saying more about them.” 30 At the end of Orta’s closing statement, “SERVANT GIRL” returned with both the green and dry “AÇAFRAM DA TERRA,” as well as its root. 31 “Inside it is yellow and outside it looks like ginger” Ruano proclaimed! 32 “The root neither burns nor is very bitter when green, yet it burns, though its great humidity prevents one from feeling it.” 33 Curious to learn more of its properties, Ruano asked Orta to sequester additional knowledge regarding the properties of “AÇAFRAM DA TERRA.” He asked that Orta consult local physicians to further extract properties of the plants. He does not directly ask the “SERVANT GIRL” what she knew of the plants in the written colloquies, though he does allude on several occasions to Orta that he spoke of plants with some of his servant girls. The girls’ dialogues are only alluded to.

In the instances where Ruano’s curiosity is peaked by something one of the girls

29 Orta, Colloquies, 164-165.

30 ibid.

31 ibid., 166-167.

32 ibid.

33 ibid.
said on the subject of plants, he consistently goes to Orta to illicit insight.\textsuperscript{34} Such actions convey that the females were not the finite trusted authority on such matters. Ruano’s actions do leave room to suggest that females were considered worthy of speaking to on manners pertaining to spices and other types of plants, but as well projects the notion that they should not be considered the final voice on the matter.

If Fontes da Costa’s critique is correct, such a perspective was meant to convey the general consensus of the European humanist perspective on gender and their role within the ownership and acquisition of plant-based knowledge. On the other hand, though she only has eighteen passages, Orta’s inclusion of the “SERVANT GIRL” in \textit{Colóquios} reveals that he entrusted her to watch over his valuable property and to comprehend a wide variety of plant-based knowledge. He sent her on runs to the local apothecary on his behalf.\textsuperscript{35} Perhaps she even went with him on runs to the druggist. How else would the command, “Girl, bring those leaves that I brought in my pocket, from the druggist’s shop” be viewed as a logical request?\textsuperscript{36} Though Orta partially includes a female voice in his text, the role of females in the acquisition and dissemination of plant-based knowledge remains vague.

Is the omission and lack of depth granted to the green maidens’ dialogue a question regarding the issues of documenting oral histories, an issue of gender and social politics in the history of knowledge, or perhaps a combination of both? One might go further and ask were Orta’s servant girls more than mere servants. Were they green maidens from whom Orta on occasion consulted for botanical knowledge? These questions are not meant to take away from Garcia de Orta’s genuine intelligence nor cultural worth. However, exercising such a train of thought is important for developing stronger critical thinking skills in regards to the history of plant-based knowledge.

\textsuperscript{34} Orta, \textit{Colloquies}, 308-309; 323.

\textsuperscript{35} ibid., 176.

\textsuperscript{36} ibid., 203.
From *Colóquios*, we can conclude that Orta was versed not only in Portuguese, Spanish, Hebrew, Latin, Greek, Arabic, but he as well displayed knowledge of other Asian languages. As is evident in some of his commentary within *Colóquios*, Orta made it his business to learn the native tongue of those living in Goa and Arabic, in order to learn from the local social-make up and scholars of old. He as well relied on Latin translations. Orta’s intelligence renders him worldly and knowledgeable. However, as a Portuguese Jewish academic, physician and botanist living during the early to mid sixteenth century, Orta faced great turbulence within his lifetime.

Early fifteenth century Lisbon held a prominent Jewish community, several of which graduated from and held full professorship in the Faculty of Medicine at its university.37 Such was the socially acceptable existence prior the Catholic Crown’s explosion of the Jews from Iberia in the later fifteenth century. Afterwards, Jewish people in the region were rejected from their pre-existing social and economical structures. When social expulsion ripples through the fabric of a society or region, the rocks responsible for the disruption are often masked in a veil deemed religious or racial. Take for instance the social scene of Constantinople prior its fall in 1453 and the social and economical disruption that followed after the Ottoman Empire’s conquest.

Prior the fall of Constantinople, its ruling power was Christian and Venice was the trading center and the spice trade center for all of the European world. Europeans had been captivated consumers of spices far beyond the early modern period. Spices were both economically, socially and culturally important plants for not only empires, but as well a diverse range of individuals. Their legacy, from the stand point of culinary, medicinal and ritualistic use, is long. One merely needs to look within the bible. However, prior the eighteenth century’s introduction of Linnaean plant taxonomy, and even into the twenty-first century, there is not a universal agreement of what constitutes

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a spice. It varies according to the prerogative of industry (i.e. chef, chemist, historian, botanist, etc.), language and also gender. Such reasoning does not reside in scientific factors, but instead in a variety of social factors.

According to modern botany, within the kingdom of Plantae reside plants, trees, shrubs and vines. Both have flowering species, leaves and roots. But what distinguishes trees, shrubs and vines from other plants is their woody perennial stems. Unlike other plants, they have bark, branches and twigs. Some produce seeds/fruits, buds, gums, resins and stigma. It is from certain species of woody perennials, indigenous to tropical climates, that spices are derived. The spices derived from the tropics of Asia were most prized. Herbs on the other hand, according to the modern botany, are derived from plants based in temperate climates, devoid of woody stems.  

Conversely, the Herb Society of America writes:

> Botanists describe an herb as a small, seed bearing plant with fleshy, rather than woody, parts… the term refers to a far wider range of plants. In addition to herbaceous perennials, herbs include trees, shrubs, annuals, vines, and more primitive plants, such as ferns, mosses, algae, lichens, and fungi. They [herbs] are valued for their flavor, fragrance, medicinal and healthful qualities, economic and industrial uses, pesticidal properties, and coloring materials (dyes).  

Here lies a long held example of the dissimilar narratives circulating within the general collective discourse on plant-based science and history. It complicates the tracing of their existence within historiographies.

Nevertheless, there is unanimous agreement that during the spice trade of the early modern period, Pepper, cinnamon, cloves, mace and nutmeg were the top spices in demand. When the Ottoman Empire took over Constantinople, their conquest forced European hands to establish new routes and sources of spices. The immediate challenge that stood between Europeans and spices were nautical in nature. How were they literally

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to transport themselves to a new source of spices?

As the son of the Roman Catholic King John I, Prince Henry (1394 –1460), also known as the Duke of Viseu or Henry the Navigator, is understood to have sparked Portuguese exploration of Africa and nautical technology.\(^{40}\) It is said that his astrological chart\(^{41}\) greatly influenced his decision to launch a campaign throughout Portugal that advocated for the development of exclusive shipbuilding techniques and nautical navigation skills.\(^{42}\) The Prince as well was an avid patron of education, haven donated several houses that served as the base structures for the eventual University of Lisbon. He even established new courses in the discipline of astrology and arithmetic.\(^{43}\) A court astrologer casted Prince Henry’s horoscope in March 1394 and later in life. Prince Henry’s chronicler, Gomes Eanes de Zurara, analyzed his horoscope, and presented his destiny in oceanic exploration in his *Crónica dos Feitos de Guiné* (1453).

By 1488, the Portuguese successfully overcame the nautical challenges that inhibited their access to spices. They crossed the Cape of Good Hope, granting them a lucrative new source of spices. A decade later, the Portuguese explorer, Vasco da Gama, expanded upon the empire’s success and led the Portuguese to India for the first time. Eventually, the Casa da Índia (c.1434), the Portuguese economic institution and center for royal trade in Lisbon, flourished due to the trade of cinnamon, cloves and pepper. By 1500, Lisbon had replaced Venice as Europe’s center for the trade of spices.\(^{44}\)

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\(^{42}\) It is suggested that much of the commentary surrounding Prince Henry’s relationship to astronomy, mathematics and nautology is based upon an elaborated myth. As well, it has been dismissed that an exclusive school for the sole purpose of teaching navigation is fabricated. The first mention of the legend is said to have taken place posthumously in London, 1625. See W. G. L. Randles. “The Alleged Nautical School Founded in the Fifteenth Century at Sagres by Prince Henry of Portugal, Called the ‘Navigator’,” *Imago Mundi* 45 (1993): 21.

\(^{43}\) Farelo, “Garcia De Orta and the Faculty of Medicine at Lisbon,” 219.

\(^{44}\) Brierley, *Spices*, 46.
During the same year of Lisbon’s ascension as European spice victors, Garcia de Orta was born just under 150 miles outside the city in a town named Castelo de Vide. He was born to a Jewish family that recently converted to Catholicism. Like many Jewish people of the Iberian Peninsula, they converted to Christianity in 1497 in order to stay within their home and region. Orta had just reached teenhood when the first teaching opportunity for a New Christian, post the Expulsion, was granted. In 1513, the Faculty of the Arts at the University of Lisbon made Master Filipe chair of Astronomy. Five years later, the Faculty of Medicine hired the New Christian Agostinho Henriques Micas (d. 1525) to their staff, after the death of João do Rego. It is important to note that the only way we know of these New Christians’ identities is because of later inquisitional records.\footnote{Farelo, “Garcia De Orta and the Faculty of Medicine at Lisbon,” 222.} Regardless the case, it appears that the new appointments of the few New Christians paved the way for other New Christians to re-enter the realm of academia post the Expulsion.

The history of Portugal’s academic power, during the early modern period, is embedded within deep rooted mythologies. Some have suggested that the University of Lisbon aided in the growth of overseas medicine, where as other have shown such claims to be unsubstantiated.\footnote{Those who suggest a great pedagogical influence include Artur Moreira de Sá. \textit{O Infante D. Henrique e a Universidade}. Lisbon: Comissão Executiva das Comemorações do Quinto Centenário da Morte do Infante D. Henrique, (1960), 90; and those who disagree include Randles (1993) and Farelo (2015), 219.} Mário Farelo of the New University of Lisbon argues that there is little historical evidence that links Portugal’s seamen and crew to that of its university, nor was the university an intellectual magnet for scholars or students alike. The idea that its faculty was encouraged to expand their thinking due to recent discoveries overseas does not carry merit for they and the majority of the academia of the time, adhered to the knowledge of ancient authorities such as Galen and Avicenna verses any new or foreign voices. Furthermore, little is known about the Faculty of Medicine’s curriculum. Hence, one cannot build a substantial argument.
Farelo suggested that the University of Lisbon was seen as a temporary safe-haven for New Christians in the growing turmoil of religious intolerance. Many New Christian students studied at the University of Salamanca in Spain, which was a perpetuator of humanistic thought. As the increase of New Christians grew in the major city’s University of Lisbon, it appears to have signified opportunity and acceptance for other New Christians. Many students from the University of Salamanca eventually transferred into the undergraduate and doctorate medical program at the University of Lisbon. Such students included: Álvaro Fernandes (1512), João Leão (1525), Pedro Nunes (1532), António Luís (1533), Manuel Reinel (1533), Duarte Gomes (1534), Aires Vaz (1534) and Luís Nunes de Santarém (1535). This exemplifies that even when forced to assimilate underground, exiled communities can establish communication networks despite oppressive external social forces.

Between the ages of fifteen and twenty-five, Garcia de Orta studied medicine, arts and philosophy at the Universities of Alcalá de Henares and Salamanca in Spain, where humanism thrived. By 1526, he moved to Lisbon where he practiced medicine. Around the year 1530, the nearly thirty-year-old Orta was granted the position of lecturer of natural philosophy at the University of Lisbon, and later a lecturer in logic. By the time he turned thirty-five, he was appointed as a royal doctor to King João III. Many eager Portuguese students of medicine may have only dreamt of achieving such professional accolades. Why then would Orta eventually pick up and leave it all behind?

The Portuguese Inquisition firmly established itself in Lisbon in 1536. Afterwards, the University of Coimbra (est. 1290) absorbed the University of Lisbon the following

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47 Farelo, “Garcia De Orta and the Faculty of Medicine at Lisbon,” 223.

48 Humanism was a movement that consulted classical texts in their original language in order to re-engage and learn from the content, instead of consulting medievalists’ commentaries and translations of the said texts.

49 Farelo, “Garcia De Orta and the Faculty of Medicine at Lisbon,” 222.

year. Orta most likely instinctually felt the earliest signs of its social/political ripples. Many New Christians were under suspect and many eventually fled to Antwerp by the mid 1540s. Before the New Christians’ mass exodus, with his accumulated funds, Orta left behind his practice and lectureship in Lisbon and headed to the Portuguese Empire’s eastern capital of Goa in 1534.

The port city of Goa, residing on the western coastline of India, had been seized by the Portuguese in 1510. It soon became a central axis of trade and knowledge. In addition to being a physician there, Orta maintained his own garden and traded spices and drugs with market correspondences. He was successful too. He had a rather large home, a staff and also held the lease to the island of Bombay.51 It was there in Goa that Orta spent the remainder of his life and wrote Colóquios. It appears to have been written for a diverse audience type, which included academics, physicians and merchants alike. The work exemplifies the various roles of plant experts (i.e. growers, hunters, traders and healers) from different walks of life. It as well directs seekers of commodities, such as spices and medicinal plants, to their viable sources. His work is arguably the catalyst for the modern field of economic botany.52

Fontes da Costa highlights that Colloquies was the first European book written on Asian botanical and medical knowledge. It also is one of the earliest works to critique Western scholarly medical knowledge from the standpoint of observation and experience.53 Orta emphasized the importance of utilizing sensorial observation in addition to considering textual and oral knowledge. The importance of one’s senses in the quest to obtain plant-based knowledge is ever-present in the work. To illustrate, on many occasions in Colóquios, Orta makes it a point to proclaim when he held some form of

51 Orta, Colloquies, ix, 193, 323, 238.

52 Paula Susan De Vos defines the field to be a “practice of studying the botanical properties of plants that may be of used human society and cultivating them for profit.” See Paula Susan De Vos, “The Science of Spices: Empiricism and Economic Botany in the Early Spanish Empire.” Journal of World History 17, no. 4 (2006): 400.

53 Farelo, “Garcia De Orta and the Faculty of Medicine at Lisbon,” 224.
plant life with his own hands, tasted with his own mouth, smelled with his own nose, saw with his own eyes or heard mention of plant-based knowledge with own ears.

Throughout Colóquios, Orta as well provides Ruano with commentary on the sources, production, identification, values and properties of various plants. For instance, he named the island of Ceylon as the most fruit bearing and best island in the world, where great amounts of cinnamon could be found. He announced that when the Portuguese came to the land, “they took counsel to cut and sterilize many trees, such as nutmegs, cloves, and pepper.” Of the various plants mentioned within the Colloquies, relating to spices include: Cardamom (Elettaria Cardamomum), Canela (Raveusara aromatic), Cinnamon (Cinnamomum verum), Cloves (Syzygium aromaticum), Cravo (Caryophyllusaromaticus), Edoaria (Curcuma aromatic), Folio Indo (Cinnamomum Tamal), Ginger (Zingiber officinale Roscoe), Maca e Noz (Myristica fragrans), Mace and nutmeg (Myristica fragrans,) and Pimenta (Piper nigrum/Piper longum).

Orta showcases the conduction of his exhaustive research and adoption of rather unique methodologies for acquiring plant-based knowledge of the time. For instance, on the subject of mace and nutmeg, Orta states that he researched their names in Malay, Malayalam, Persian, Arabic, Turkish and Latin. Throughout the text however, he primarily focuses on the Latin and Arabic presentation of Plantae names. Unlike his contemporary humanist counterparts, Orta displays a mostly positive approval of Arabic authors on the subjects of medicine and plants. He stated, “the Arabs are better authorities and err less than the Greeks.” Orta condemned the “lovers of the Greeks” who “are unreasonable in abusing Avicenna, Abenzoar, Rasis, Isaque, and others who

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54 Orta, Colloquies, 124, 135.

55 ibid., 272.

56 ibid., 13, 25, 104-105.

57 ibid., 436.
cannot be denied to be learned.”\textsuperscript{58} On other occasions, he points out where the Greeks and Ancients fumbled in translations and comprehension of several plants.

Humanist scholars within sixteenth century Europe invested much attention to the then recent Greek and Latin translations of ancients such as Aristotle, Dioscorides, Galen, Pliny and Theophrastus. Orta had grave concern that such translations were laced with error and corruption on the naming of \textit{materia medica}.\textsuperscript{59} He “did not dare to say anything against Galen or against the Greeks” while he was in Spain, but understood that it was “not strange that medicines should be known in one age and not in another, new things being constantly found.”\textsuperscript{60} That is not to say that he did not critique Arabic authors as well. He critiqued a variety of male authors regardless of their social distinction and heritage. His aim was to find truths, wherever they resided.

\textit{Colóquios} was a result of Orta’s early adulthood and nearly three decades of life in India. It is the only work of his that has been passed down through history. Perhaps he did write more than one substantial piece on the subject of science, medicine and philosophy. We may never know. In 1568, Orta was murdered by the Portuguese Inquisition because of suspicion of his true Judaic faith. The following year, because his sister, Catarina, was charged for adhering to her Judaic faith verses Christianity,\textsuperscript{61} the Portuguese Inquisition prosecuted and burned her alive. Catarina had been living in Goa as well. Her death incited the torture of other family members and they were forced into confessing that Garcia Orta was long a crypto-Jew. To add insult to injury, twelve years after his death, Orta’s remains were unearthed and burned in public.\textsuperscript{62} The barbaric actions suggest that if a large majority of his works did exist, and were discovered by the

\textsuperscript{58} Orta, \textit{Colloquies}, 106.

\textsuperscript{59} Materia medica, is a term that originates from Dioscorides’ work, of the same title, and connotes a body of curated wisdom on the subject healing such as medicines.

\textsuperscript{60} See Orta, \textit{Colloquies}, 272-275.

\textsuperscript{61} Documentation for Catarina’s conviction issued by the Inquisition can be found in the National Archives Torre do Tombo, Lisbon under shelf mark PT/TT/TSO-IL/028/01283.

\textsuperscript{62} Documentation for Garcia de Orta’s posthumous condemnation resides at the Portuguese National Library, Lisbon, Codice 203, fl.360v.
Inquisitors, they too were most likely confiscated and/or burned.

The same year that Orta was murdered in Goa by the Portuguese Inquisition, overseas in the Low Countries of Europe, the Council of Troubles, also known as the Council of Blood, was under way. The blood shed was of those many Protestants from across several provinces that were persecuted for their religious affiliation, by order of the Spanish Catholic Crown. But on 23 May 1568, seven provinces rose up together against the Crown and launched what came to be known as the Dutch Revolt. It was as if the ghost of Garcia de Orta made his way to join the Dutch Republic in their fight against their oppressors, Inquisitors.

The seeds of Orta’s plant-based knowledge were soon planted into the academic and economical minds of the Dutch Republic. The harvest of such knowledge, in addition to the unique pedagogical conditions at the Dutch Republics’ famous academic institution, Leiden University (est. 1575), served as a collective intellectual army of minds. It aided the Dutch Republic as they went head to head with the Portuguese and the Spanish Crown in war and in trade.

During their Golden Age, the Dutch Republic acquired a bounty of “green gold” and rose amongst the European empires to become the leader of the seventeenth century spice trade. It has been attested such success was due to sound economics, nautical technology and empire expansion. Such an argument is predominately due to the legacy of Prince Henry the Navigator and their influence upon Portugal’s history. Though they are relevant contributors, such factors are not exclusively applicable to other European empires. Though those may have served one empire’s entry into the trade, it should not be assumed a historical standard for measuring the rise of another empire’s entry into an international trade.

There are deep epistemological and social layers affiliated with the trade of spice

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commodities. The spice trade did not merely consist of a small network of international merchants and suppliers; it consisted of a complex network of players such as botanists, physicians, purveyors, lawyers and translators, amongst many others. How and where did they get trained and connected? For the Dutch Republic, within the spice trade network, many key players shared a common denominator—they were affiliates of Leiden University.
Chapter III
Minerva’s University

“We are told that Minerva discovered numbers and arranged them in the order we still observe today… In short, antiquity, that lavish dispenser of divinity, made Minerva the goddess of wisdom… It was for this reason that the Athenians named themselves after her. She was helmeted to signify that the counsels of a wise man are hidden and well-defended…she was fitted with an extremely long lance so that we might understand that the wise man’s arrow strikes far. [She] was also protected by a crystal shield with the head of Medusa on it, thereby showing that all disguises are transparent to the wise man and are always so armed with serpentine wisdom that ignorant people seem turned to stone at the sight of them. The owl was placed in her keeping to indicate that the man of sagacity sees in the darkness as well as in the light…Some authoritative sources, however, assert that the inventions above do not belong to a single Minerva but to many. I shall gladly agree with them in order to increase the number of famous women.”

Giovanni Boccaccio, De mulieribus Clarsi (1374)

The Roman Catholic Spanish crown, the Hapsburgs, inherited seventeen provinces of the Low Countries from the Burgundian crown in 1556. For seven of those provinces—Gelderland, Holland, Zeeland, Utrecht, Overijssel, Frisia and Groningen—the economical and religious strife that was the result of the inheritance became too much to bare. Inflated taxation, bloody prosecution of Protestants and a growing Hapsburg military presence throughout their land gave rise to rebellion. At the battle of Helligerlee in 1568, the seven provinces banded together and led their first victory over the Spanish military. From that point onward, till the signing of the Treaty of Westphalia in 1648, the Dutch Revolt had been unleashed. Although the revolt was launched in the province of Groningen, the band of provinces’ campaign for freedom garnered widespread momentum after the Hapsburg’s attempted siege on the city of Leiden—in the province of Holland—failed in 1574. Its consequence greatly shaped the future of the Republic of the Seven United Provinces.

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Residing east of the Rhine, 12 miles from The Hague and 25 miles from Amsterdam, Leiden was a well-off city with a profitable weaving industry. However, towards the late sixteenth century, a plague hit the city and weakened its social infrastructure. By May of 1574, when the Spanish-led army inhibited the flow of food and water to Leiden’s civilians, in the attempt to starve them to death and acquire their land, the city had already suffered from a depletion of resources. The manipulative military tactics left Leiden stricken with starvation, illness and death. Men, women and children were left to find nourishment by whatever means they could, including eating stray animals amongst the vermin. Lactating mothers were especially physically taxed for they as well were the source of the youngs’ nourishment. Death, as a result of the five-month siege, increased the city orphanage’s roster. Nevertheless, in the face of geological warfare, the people of Leiden maintained great resilience against the Hapsburg’s oppression. Several city physicians and women remained resilient and devoted their left over strength to the attendance of the sick and the deceased. The catalytic agent who eventually brought aid to the city, as well as paved the Dutch Republic’s path towards independence from the Habsburgs was Prince William of Orange.

Prince William of Orange was initially declared stadtholder\textsuperscript{65} of the provinces Holland, Zeeland and Utrecht in 1559 by King Philip II of Spain. As tensions between the Protestants and Catholics grew, he was stripped of his stadtholder title by the Spanish crown, only to have his power reinstated by the provinces of the Netherlands themselves 20 July 1572. Sometime during the summer of 1574, William sent a message via a carrier pigeon to the residences of Leiden alerting them that aide was soon to come. By August, his men followed through with his orders to create dykes, sending water through the city. By October, the water threatened to drown out the Spanish at their camps and flooded the city, enabling ships to sail the delivery of provisions to the people of Leiden. The Hapsburg’s siege was foiled.

\textsuperscript{65} A stadtholder was comparable to a lieutenant and was head of states, in addition to maintaining peace amongst the provinces.
2 Willem de Haen, *Hongersnood onder de Leidenaren (Famine among Leiden)*, 1574, c.1612-1614. Engraving on paper, h 147mm × w 222mm. The Rijksmuseum, Amsterdam.

3 Adriaen Thomasz Key. *Portrait of William I, Prince of Orange*, 1579. Oil on panel, h 48 cm x w 35 cm. The Rijksmuseum, Amsterdam.
As the second largest city in Holland, had Leiden been captured by the Habsburgs, the Spanish crown would have held control of North and South Holland.66

The city soon found itself crowned in fame and victorious mythology. It became regarded as “Lugdunum Batavorum,” the name of an ancient Roman outpost said to have once resided on the very grounds that the city was built upon. The people of Leiden were viewed to be as victorious and resilient as were the Batavians of ancient Rome. As a result, the city was awarded the only academic institution within the provinces of Holland67 and Zeeland. This came by way of the orchestration of William of Orange.

On 29 December 1574, from Middleburg, a province of Zeeland, William wrote a letter to the states of Holland and Zealand deeming it necessary to found a university in either state so that students could be “educated and taught in the proper knowledge of God and in all proper, honest and free arts and sciences.”68 The Prince of Orange was both strategic and audacious with the foundation the university. Prince William as well presented the idea of a university to the Spanish governor Don Louis de Requesens69 as a political means to obtain peace and absolve tension generated by the Spanish crown’s presence in the land. Just five days after the receipt of William’s letter, the States declared that the city of Leiden would be the site for the new university. On 6 January 1575, a committee “officially” issued the charter for the new university.70


67 The literacy rates within Holland, were exceptionally high, compared to greater Europe in the early modern period. This impart was do in part to the strength of Holland’s long held schola puerilis—Latin School—primary school system. Children of Holland learned the tenets of Latin, Greek and Hebrew at an earlier age compared to children of other countries. Though there were several Latin Schools in the city of Leiden, not all met high academic standards. For its first fifty years of establishment, the university did not involve itself with the development of the city’s Latin Schools. However, in 1625, it interjected by creating the Schoolordre and producing textbooks to be used in city schools to better prepare future students for higher learning. See Willem Otterspeer, “The University of Leiden: An Eclectic Institution.” *Early Science and Medicine* 6, no. 4, Science and Universities of Early Modern Europe: Teaching, Specialization, Professionalization (2001): 327.


69 ibid., 6.

70 Prior to Peace of Munster in 1648, neither Catholics nor Lutheran sovereigns acknowledged degrees from Leiden. In 1582, Philip II officially banned his Catholic subjects from attending and in
presence of legality, the charter was issued with the King of Spain’s seal. It began:

Philip, by the Grace of God King of the two Castiles, Leon, Arragon, Navarre, etc., etc., Count of Holland and Zeeland, etc., etc., after ample deliberation and on the advice of his beloved cousin William, Prince of Orange, count of Nassau, stadtholder and captain-general of Holland, Zeeland, West Friesland and Utrecht.71

Throughout 1575, confiscated property, primarily monastic, was either dispensed as endowments for unmarried daughters unable to enter a convent,72 or sold and gifted to various cities within Holland as a subsidy earned by sacrificially paying the financial tolls of the revolt. Leiden University benefited from these very directives. Such acquisitions however were not exclusively properties that were operated by the church. The university also acquired the rights to a beguinage.

Neither nuns nor members of the church, beguines were laywomen who lived and worked together independently. A beguinage was a community made up of beguines that contained a collection of buildings—including convents, homes, infirmaries and gardens—owned mostly by beguines themselves or sponsors. Beguines made their earnings by working in the textile industry, hospitals or their own infirmaries, as well as teaching.73

Conventional historiographies often ignore the realm of female labor, both inside and outside of the domestic sphere. Art however, as a form of social and cultural history, lends various visual and verbal narratives to such a discussion. Beguine communities had been in existence and acknowledged by the Catholic Church throughout Europe since

1603 Pope Clement VIII went so far as to threaten the excommunication of anyone who enrolled at the university. Nonetheless, once incepted, the university flourished.


73 The most extensive information for beguines as educators come from the great beguinage of Antwerp from around 1526. There they had in total seven beguine teachers and fifty-seven young female students in their care. A general survey of the city of Antwerp from 1576 shows that a minimum 88 schoolmasters and 70 schoolmistresses were registered to teach the cities boys and girls, where as in for example Venice during 1587, the ration of male teacher to female teacher was 250 to one. See Walter Simons, *Cities of Ladies: Beguine Communities in the Medieval Low Countries, 1200-1565* (Middle Ages Series. Philadelphia: University of Pennsylvania Press, 2001), 6-7, 80-8.
around 1200, till their establishments were forced to dissolve hundreds of years later. For various reasons, including fear of heretical prosecution and secrecy, little record nor artwork explicitly linked to these women and their communities remain. The greatest visual representation of their history that resides in the architecture of their communities.

When Leiden University acquired the rights to the Faille-Mantled Beguines’ church, which resided within the beguinage known as St. Agnes Court, statues were implemented protecting the beguines that remained onsite after the city’s disruption. For a time, Leiden University affiliates and beguines were living amongst each other. The concept of women being included within academic circles during the sixteenth and seventeenth century is a subject that receives little attention. This should not suggest that such social and intellectual exchanges did not take place between women and men. Take for instance the history of Anna Maria van Schurman, “the Learned Maid of Utrecht.”

Between 1570-1620, amicorum (‘book of friends’) came to be popular amongst academic communities, especially within Leiden University’s social sphere. Faculty members, students and colleagues filled each owner’s pages with words of wisdoms, coats of arms and drawings. Amicorums were the predecessors of the yearbook and facebook. Today, Leiden University preserves over a hundred such albums. One particular amicorum, that belonged to an early law student from the turn of the seventeenth century, not only renders one of the first drawings of the university’s building, it prompts the question, “Did Leiden University have female students?” The outdoor scene is populated with seventeen people, fourteen of which reside in an area that is demarked by a partial stone wall. The activities taking place in the scene are somewhat

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74 The Great Beguinage had been inhabited by sisters since 1316. It was made of more than forty houses. See Ernest McDonnell, The Beguines and Beghards in Medieval Culture, with Special Emphasis on the Belgian Scene (New Brunswick, N. J.: Rutgers University Press, 1954), 550-551.

75 During the seventeenth century, Anna Maria’s father received the blessings of scholar Gijsbert Voetius to allow his daughter to attend lectures at the University of Utrecht, as long as she resided behind a curtain.


obscure and raise several questions as to what exactly is occurring in the picture (See illustration 5). Nonetheless, there are four women within the group of fourteen, two of which appear to be from a higher-class due to their dress. The image is captioned:

Dear onlooker, this drawing shows you the university of Holland and shows you how the students work themselves to the bone when the wintry north-westerly wind makes it impossible for the ship of the Dionysian god to cut through the Dietsch water.77

In addition to displaying his humanistic influence, via the cultural reference to the Greek pantheon, the law student’s inclusion of women within a scene that was captioned with “the students” raises curiosity. Was the student including the women in his description of “students?” Was such a statement meant as satire to convey that his fellow law students conversed with, wooed or harassed women as a pastime on campus grounds as opposed to actually studying? Whether or not such was the case, the entry in the amicorum clearly conveys a social landscape in which women were a normal part of academic life at Leiden University. Given the time period in which the referenced amicorum was produced, the women are not believed to represent beguines. Though they once lived amongst Leiden University’s staff and students, as beguines began to pass away, their homes were absorbed into Leiden University’s portfolio of properties. Those properties came to serve as lodging facilities for it students and faculty.78

The former beguinage chapel officially opened its doors as Leiden University’s first building on 8 February 1575. Numerous people from all over the provinces of Holland arrived in the city that morning to attend the inaugural celebration. The festivities began with a 7am service at St. Peter’s church. From there, the attendees met with a growing crowd at Leiden’s city hall, the starting point of the university’s elaborate ceremonial procession. The substantial crowd, including faculty members


and city officials followed an allegorical procession that was led by Leiden’s army (see illustrations 6 and 7). The procession was as follows: Lady Sacra Scriptura, accompanied by the four evangelists on a float; a woman dressed as blindfolded Justice riding upon a horse that was dressed as a unicorn and surrounded by various “Roman jurists and soldiery;” a woman dressed as “Medicina” who carried a book and herbs upon a horse and was followed by “Hippocrates,” “Galenus,” “Dioscorides” and “Theophrasftus;” and to complete the horse ridden procession was “Virgilius,” “Cicero,” “Plato,” “Artistoteles,” and last but not least, “Pallas of Minerva.”

The Roman Goddess Minerva, also recognized as the Greek Goddess Athena, is the patroness of wisdom and war. She as well embodies the arts and crafts. Minerva also came to be the symbol of Leiden University. Her legacy within Western civilization stems from Homeric text. However, the oscillation between her Greek presentation verses her Roman presentation throughout the early modern period raises curiosity. During sixteenth century Leiden, both presentations were in the consciousness of the city’s people, take for instance Lucas van Leyden’s engraving of *Pallas Athene* (1528 - 1532). Furthermore, Greek scholarship was highly praised amongst the humanists of Europe. And yet, the Curators of Leiden University, an institution that initially was founded as a Protestant university, anointed a Roman goddess as the patroness—with her owl, lance and shield of Medusa for its visual identity— of the university. This is an apparent contradiction to the Protestant faith, for Minerva is a pagan goddess. Yet, it is a fitting treatment for the growing populace of humanists. All other contemporary universities of the late sixteenth century, with the exception of the Portuguese University of Coimbra, whether they were Catholic or Protestant, adopted explicit Christian figures and symbology such as Jesus, Mary, Saints, Popes and Biblical animals, as well as floral motifs, architecture and

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79 I have come across two versions of the illustrations. The description of the procession referenced in this paper is based off of the illustration that is from the Municipal House at Leiden’s collection. See illustrations 6.

80 The university absorbed the University of Lisbon in 1537, after the Portuguese Inquisition entered Lisbon.
6 Artist Unknown, *Inauguration of Leyden University* 8th February 1575, 1575.
Etching on paper, original from Municipal archives, Leiden.

7 Artist Unknown, *Optocht bij de inwijding van Universiteit van Leiden*, c.1575, 1575.
Etching on paper, h 298mm × w 578mm. The Rijksmuseum, Amsterdam.
simple text to emanate the embodiment of their values within their university’s seal.

Upon the seal of the University of Coimbra is an allegorical representation of Wisdom, who is mentioned in the bible. She was associated with the Seven Liberal Arts as well. Wisdom, also known as Sapientia or Sophia, sits upon her throne within a mandorla holding a specter with a cross, wearing a crown that is meant to signify the kingdom of heaven and is accompanied by an owl. The later is an anachronism for symbolically the owl was not associated with Wisdom as Sapientia or Sophia of Abrahamic texts, but with the goddess of Wisdom in the form of Athena and Minerva. Though the University of Coimbra veered from the use of Mary in its seal, and chose to use another woman, it still aimed to present wisdom in her Christianized form. It is unknown exactly why Leiden University chose a non-Christian person, let alone a female deity to embody the academic institution (see illustration 8). There are several social and cultural conditions however that once analyzed, offer a plausible context for how and why this came to be.

We learn from Ovid’s *Metamorphoses* that the goddess Minerva was challenged to a weaving match by the mortal daughter of a shepherd, the skilled Arachne. Though there are various versions of this tale, central to the variations, Minerva stands center as the most gifted weaver and the source of all others’ exceptional weaving skills. During the sixteenth century, the city of Leiden’s main source of income was from the weaving

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81 “Does not wisdom call out? Does not understanding raise her voice? At the highest point along the way, where the paths meet, she takes her stand; beside the gate leading into the city, at the entrance, she cries aloud: “To you, O people, I call out; I raise my voice to all mankind. You who are simple, gain prudence; you who are foolish, set your hearts on it. Listen, for I have trustworthy things to say; I open my lips to speak what is right. My mouth speaks what is true, for my lips detest wickedness. All the words of my mouth are just; none of them is crooked or perverse. To the discerning all of them are right; they are upright to those who have found knowledge. Choose my instruction instead of silver, knowledge rather than choice gold, for wisdom is more precious than rubies, and nothing you desire can compare with her.” On Wisdom, see Proverbs 8: 1-11.


9 Philips Galle and Hugo Favolius, *Weefkunst (Arachne challenges Minerva to a weaving contest)*, 1574. Engraving on paper, h 206mm × w 248mm. The Rijksmuseum, Amsterdam.

10 Isaac Claesz van Swanenburg, *Het spinnen, het scheren van de ketting en het weven (Spinning, shaving the chain and weaving)*, c.1594–6. Oil on panel, h 137.5cm x w 196cm. The Municipal Museum De Lakenhal, Leiden.
industry. Women made up the majority of its spinning workforce, a lower-status form of work, in addition to wool-combing. However, by the seventeenth century, weaving and wool-combing became the realm of men.

Gender politics are entwined within many written histories on the subject of labor, making it hard to paint a clear picture of the gender ratios within workforces of the sixteenth and seventeenth century time period. Scholars are faced with the challenge of mainly having access to gendered biased historical records on the spinning industry from the time period. Many of the records that exist are derived from registration from heads of house-holds, which were predominantly male led in early modern Europe. Not to say that such sources do not offer some insight to gendered labor operations. For example, a survey of a 1581 registration shows that eighty percent of the spinners employed were women.84 At the same time, we must not exclude the possibility that weaving production had other forms of operations and dispensation outside of domestic governance.

In addition to their work in infirmaries, recall that beguines had been associated with the textile industry. However, beguine labor records rarely present themselves in scholarship. Organizations such the neringen and ambachts, on the other hand show that women were members of such weaving guilds in Leiden at a point in time. In one case for instance, women are shown to have made up a little over one-third of the membership of a group of drapers.85 Eventually, women, with the exception of a few widows, were excluded from membership of labor guilds. This created an invisible gap in the records of development and trade. Yet, evidence of women’s participation in the industry remained visible with in contemporary paintings for a brief period of time (see illustration 10).

For a city inhabited by many weavers of both genders, victors of war and a new university, the use of Minerva—a goddess of the arts (including weaving) war and


85 ibid.
wisdom—to exemplify the university begins to makes sense. But why was not the Greek presentation of Athena adopted instead? Perhaps someone amongst the curation and development team of Leiden University was inspired by the story written on Minerva in Giovanni Boccaccio’s *De mulieribus Claris* (*On Famous Women*).

Boccaccio, a former student of canon law, science and literature, was as well the author of the masterpiece *The Decameron*, which influenced Chaucer’s *The Canterbury Tales*. He initially began the composition for *De mulieribus Claris* around 1361 and most likely worked on it till his death in 1375. However, the work was not printed in Latin till 1473 by Johann Zainer in Ulm. Nevertheless, it did undergo several translations and traveled across Europe in between that time. It went on to influence other writers and thinkers such as the medieval court writer Christine de Pizan.

Pizan’s *Le Livre de la Cité des Dames* or *The Book of the The City of Ladies* (finished by 1405), is perhaps her most famous body of work. Pizan most certainly was familiar with the work of Boccaccio and most likely influenced by his *De mulieribus Claris*. A French translation by author Laurent de Premierfait is believed to have existed by 1405. Where as Boccaccio’s *De mulieribus Claris* only features non-Christian women, Pizan’s *Le Livre de la Cité des Dames* incorporates both Christian and non-Christian narratives by women. But the influence of his presentation of Minerva in *De mulieribus Claris* is present within Pizan’s narrative on Minerva within *Le Livre de la Cité des Dames*. A passage reads:

> The maiden was of such excellence of mind that the foolish people of that time, because they did not know who her parents were and saw her doing things which had never been done before, said she was a goddess descended from Heaven;…..She developed the entire technique of

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86 Otterspeer only mentions Minerva as a representation of the arts and suggested that her presentation of reading a book was, “to stress the course steered by the university between arma et litterae (war and peace, action and contemplation, practice and theory).” See Otterspeer, “The University of Leiden,” 329.

87 Boccaccio and Brown, *Famous Women*, xii–xiv.

gathering wool and making cloth and was the first who ever thought to shear sheep of their wool and then to pick, comb, and card it with iron spindles and finally to spin it with a distaff, and then she invented the tools needed to make the cloth and also the method by which the wool should finally be woven...She wore a helmet on her head which signified that a knight must have strength, endurance, and constant courage in the deeds of arms, and further signified that the counsel of the wise are concealed, secret and hidden.89

Nearly a decade before Boccaccio began *De mulieribus Claris*, his father passed away in the year 1350. As a result, Boccaccio was called back to his childhood home of Florence to care for his younger brother Jacopo. Prestige passed down to him by way of his father. It granted him the privilege of becoming a servant of the Republic. His new inherited role required that he become involved with political matters such as scouting and curating the staff of the University of Florence/Università Degli Studi Di Firenze (est.1321-1473).90 By the end of the fourteenth century, the university was a premiere center for Renaissance Humanism.

During the same year he was appointed a servant of the Venetian Republic, Boccaccio developed a friendship with Francesco Petrarch (1304–1374), a prominent Italian scholar and one of the premiere humanists. A year after they met, on behalf of himself and the University of Florence, Boccaccio hand-delivered a request to Petrarch in Padua. It asked that he become chair of the University of Florence.91 Petrarch declined due to a grudge he held with the city of Florence. Petrarch and Boccaccio however maintained a friendship, in which they discussed poetry, writing and life, till death separated them.92

Between 1360 and 1362, it was Boccaccio who convinced Leonzio Pilato to


take a post at the University of Florence. And while posted at his new position, Pilato translated Euripides, Aristotle, and Homer’s *The Iliad* and *The Odyssey*, resulting in Western Europe’s introduction into Greek Studies.\(^{93}\) It was around the time of Pilato’s appointment at the university that Boccaccio began working on *De mulieribus Claris*, the intermingling of stories on women including those of Roman and Greek goddesses and mortal women. It was not till 1506 however, that the text was printed in Italian in Venice.\(^{94}\) The last edition of the work to have survived from the early modern period is the 1539 Bern edition.\(^{95}\) Nonetheless, at a time when access to the printing press was starting to grow, and humanist circles were very close, could not the likes of humanist circles at Padua or Leiden University have come across translations or circulated copies of either Boccaccio’s *De mulieribus Claris* or Pizan’s *Le Livre de la Cité des Dames*?

Though the cause for migration remains unknown, Padua University was established around 1222 when a group of faculty and students migrated from Bologna.\(^{96}\) By the end of the next century, the university established its areas of studies, which were divided into two schools: (1) *Universitas Iuristarum*, where civil law and canon law were taught; and (2) *Universitas Artistarum*, where astronomy, dialectic, grammar, medicine, philosophy and rhetoric were taught. In 1405, the university was absorbed into Venetian rule. The Venetian Senate invested much attention towards the university. They went so


far as to increase the salaries of the faculty for they believed, “[s]tudents follow famous teachers, and if provisions for this are not made, our studium will be ruined.”

Gasparino Barzizza, professor of rhetoric and “moral authors,” was the first humanist professor posted after the Venetian acquisition.

The initial avenue by which humanistic professors first entered academia was through the avenue of language, rhetoric and poetry, as is evident with the fourteenth century’s Francesco Petrarch and Leonzio Pilato and the fifteenth century’s Barzizza. In time, humanistic views inspired greater shifts within the walls of universities. Twenty-first century scholars such as Paul Grendler and Walter Rüegg say that “humanism was the major agent of change.”

Being that humanism’s birthplace was in Italy, it should come as no surprise that Padua University grew to become a great incubator for humanistic thinking. Though humanistic ideologies flowed throughout the school, the distinguished historian of renaissance education, Paul Grendler, highlights that there was an absence of structure throughout Italian universities. He suggests that the lack further cultivated an environment in which scholars were free to create original research and birthed “Renaissance individualism.”

Humanistic influence soon began to inspire other disciplines outside of language, rhetoric and poetry, including the study of medicine. With the increased attention towards the human body and nature, humanism began to evolve Padua’s medical curriculum. Whereas Padua University evolved to become a university seeped in humanistic governance, humanist principles were at the fundamental heart of Leiden University’s foundational core.

Both Leiden University and other Italian universities were unique compared

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97 Grendler, The Universities of the Italian Renaissance, 23.

98 Barzizza held the position from 1407 to 1421.


to most northern universities for they issued doctorate degrees. Where as Leiden University offered both bachelor degrees and doctorates, Italian universities did away with bachelor degrees around 1400. Hence, such universities were sought out for their advanced learning offerings. Compared to Italian universities like Padua however, Leiden University hired a range of professors from different backgrounds. The university aimed to maintain an equilibrium amongst its staff. It was not the intention of the Curators of Leiden University to have faculties that held similar philosophical or religious backgrounds. The university aimed to create a collective faculty that represented the spectrum of the greater world as they knew it. Italian universities on the other hand lacked faculty senates that oversaw academic development.

The majority of the professors that were hired at Italian schools, albeit famous, were older in age and were granted tenure upon their first contract with a university. As mentioned, it was the Venetian senate that oversaw academic development. And though German universities had special senates sanctioned to created academic policies, funding was limited for academic endeavors. Neither German or English universities during the late sixteenth through mid-seventeenth centuries employed a large quantity of professors of the arts who held advanced degrees, nor did they emphasize the teaching of law and medicine.

Historian Steven Shapin presents the argument, “Italian university professors changed scientific scholarship through innovative research. German universities and professors changed Europe by creating the Protestant Reformation.” On the contrary, a closer assessment of Leiden University’s legacy challenges such a claim. Leiden University and its affiliates not only changed scientific scholarship by employing

102 ibid., 11.
103 ibid., 6-7.
104 ibid., 14.
innovative research methodologies, but they as well amplified the Protestant Reformation and shaped the realm of trade and commerce. As the historian of the Protestant Reformation Bernd Moeller once wrote, “Ohne Humanismus, keine Reformation.”105 In the case of Leiden University, its early inception was anchored in humanism and during its youth, it experienced a reformation. The results were potent.

After the attempted siege on the city Leiden, the city hero and humanist, Janus Dousa, eventually became a poet, a historian and Leiden University’s first librarian in 1585. His appointment and curation of works went on to greatly influence the circulation of knowledge within Leiden University and its social network. However, a designated library was not built till two years after his appointment.

Housed within the vaulted room in the convent of the White Nuns, Leiden’s first library remained there for seven years. Due to its rapid growth, it was later moved to the first floor of the beguine chapel (Faliedebagijnenkerk), next to the new anatomical theater, both of which sat above the new fencing room. With a new library, theater, garden and fencing room, which were at times open to the public, Leiden University became a center of attraction. Although the city of Leiden had established a burgeoning print industry, eventually, printing facilities were established on the university’s grounds in a small building that sat north of the main hall,106 further adding to it academic prestige.

Although the university was initially established as a Protestant university, instances such as the Leiden University’s inaugural procession and adoption the goddess Minerva as its patroness, leads us to think otherwise. It raises the question of whether or not the school was first established as a Calvinist university to serve as a Trojan horse, ultimately aiming to formally bring and celebrate humanistic principles within the Netherlands instead of a particular dogmatic governance.


11 Willem Isaacsz. van Swanenburg and Andries Clouck, *The fencing school of the University of Leiden*, 1601. Etching/engraving on paper, h 333 mm × w 402 mm. The Rijksmuseum, Amsterdam.

12 Willem Isaacsz van Swanenburg and Andries Clouck, *Bibliotheek van de Universiteit van Leiden*, 1610. Etching on paper, h 330mm × w 403mm. The Rijksmuseum, Amsterdam.
The States of Holland and Zeeland initially established Latin, Greek, Hebrew, divinity, philosophy and mathematics as the subjects of lecture at the Leiden University.\textsuperscript{107} It was not till shortly before its inauguration that the fields of law and medicine were added to the university’s roster. By the turn of the century, generally all of the faculty members at Leiden University, with the exception of the faculty of law and medicine, were paid the same amount. Up until the year 1660, the faculty of medicine were the highest paid members and they made slightly more that the faculty of law.\textsuperscript{108} The inclusion of law and medicine proved to be a crucial modification for the university’s foundation. Over the course of the its first 75 years, over 50% of the doctoral degrees granted were by the faculty of law, 40% were granted in the medical sciences, approximately 3% were in philosophy and around 2% were in theology.\textsuperscript{109}

In addition to the University of Padua, the University of Bologna (est. 1088), the University of Siena (est. 1240), the University of Montpellier (est. 1289), the University of Coimbra (est. 1290 and absorbed the University of Lisbon in 1537), the University of Basle (est. 1450) and the University of Barcelona (est. 1450) were amongst Leiden University’s contemporary universities that had long standing medical programs at the time of its inception. Padua, along with the University of Montpellier, stood out from the crowd of competitors for it exhibited greater interest in botanical correlations to the practice of medicine. The Orto Botanico di Padova, the first academic botanical garden, was established at the University of Padua in 1545. Leiden was the second with the establishment of its Hortus botanicus in 1590. And third, the Jardin des plantes de Montpellier was founded in 1593. Academic gardens were a privileged center of plant-based knowledge within academic walls. Oxford University (charter granted in 1248), which opened its botanic garden in 1621, did not receive its first chair of Botany, Robert

\textsuperscript{107} Jurriaanse, \textit{The Founding of Leyden University}, 8.

\textsuperscript{108} Otterspeer, “The University of Leiden,” 329.

\textsuperscript{109} ibid., p.331.
Morison till 1669.110 It was not till 1760 that Cambridge University (charter granted in 1231) established its academic garden.

Within the broad spectrum of Europe, and with its earlier religious tolerance policies, Leiden University stood apart from many other academic institutions. Other universities such as the University of Padua, Siena, Montpellier and Basle—_institutions affiliated with humanism— did however adopt some variation of religious tolerance policies.111 Yet, as exemplified within Padua’s history, loopholes existed. For instance, Padua divided its students into 22 “nations,” and within such geographic and ethnic division, religious discrimination was still able to exist. For instance, Jewish students were deterred from taking public exams and obtaining a doctorate of medicine.112 Furthermore, the cost of a medical degree for non-Catholics was more expensive.113 I have not come across such restrictions within Leiden University’s initial policy of religious tolerance.

Religious turmoil within Western Civilization was a substantial source of intellectual deviation amongst its academic institutions. Take for instance instance the University of Lisbon before it was absorbed into the University of Coimbra, or the University of Oxford. As the oldest university in the English-speaking world, Oxford matriculated many brilliant minds. However, during the Reformation, many of its students fled to the University of Douai in France as an escape from political

110 “He learned his botany while in exile in France during the Interregnum, when he studied with the French king’s botanist and supervised the Duke of Orleans’s garden at Blois.” See Rebecca W. Bushnell, Green Desire: Imagining Early Modern English Gardens (Ithaca: Cornell University Press, 2003), 29.

111 Hilde De Ridder-Symoens within Grell, Cunningham, and Arrizabalaga, Peter Ole Grell, Andrew Cunningham and Jon Arrizabalaga, Centres of Medical Excellence?: Medical Travel and Education in Europe, 1500-1789. History of Medicine in Context (Farnham, England; Burlington, VT: Ashgate, 2010), 69.


and religious turmoil. Douai was a highly influential Catholic institution. Formally inaugurated in 1562, it was founded by King Phillip II of Spain as an attempt to contain the rise of the Protestants. Cambridge University underwent an operational overhaul in the sixteenth century when King Henry VIII moved away from the Catholic Church and decried the teaching of canon Law. And although countries such as Germany had many universities at the beginning of the seventeenth century, due to the political turmoil and tension between the Protestants and Catholics, its various segregated schools were pressed for funding.114

During its foundational years, Leiden University’s unique policy of religious tolerance set it apart from the fractured academic landscape of historical time. Initially, however, Precisians attempted to maintain Leiden University’s affiliation as a Protestant university despite the fact that during its first year, the university only had two students. By the following year, merely fourteen students were enrolled. The States of Holland and Zeeland began to suspect that the university’s initial Calvinistic doctrine was deterring enrollment. Such liberals included William of Orange, Janus Dousa and majority of the urban magistrates. Three years after its establishment, the states of Holland forced the university to abolish its Calvinist governance and open its doors to students of all faiths. Its new policy of tolerance accepted students of every creed “in order that everybody may be spiritually free.”115 Dousa praised William of Orange for allowing Leiden University to be “intellectually free for the cultivation of all the Muses.”116

As soon as the religious tolerance policy was initiated, enrollment grew six fold. William T. Stearn stated that Leiden University’s religious policy of tolerance made it, “the great international university of the seventeenth and early eighteenth centuries and


115 Jurriaanse, The Founding of Leyden University, 15.


14 Otto van Veen, *The Batavians Surround the Romans at Vetera*, c.1600-1613. Oil on panel, h 38cm × w 52cm. The Rijksmuseum, Amsterdam.
thereby extended the influence for good of such men more widely than is immediately apparent.”117 However, though for several years, Leiden University maintained a policy of religious tolerance, it was not always practiced during the Dutch Golden Age. Nevertheless, Leiden’s library and anatomy theater, its diverse makeup of faculty and students, its famed Faculty of Medicine, and especially its botanical gardens made it a widely influential center of learning and exchange.

As the Dutch Republic’s primary ‘seat of knowledge,’ Leiden University amplified the receptivity and circulation of various forms of knowledge, particularly plant-based knowledge throughout the Dutch Republic and its international channels.118 Against the backdrop of the Protestant Reformation, Leiden University’s walls also openly offered intellectual solace for anyone who wanted to learn. Its unique policy of religious tolerance was a contributing factor to its appeal to a wide range of students and faculties from various countries and religious faiths. As a result, the primary epistemological community of the Dutch Republic was as well a great influencer and creator of knowledge for greater Europe.

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118 The city of Leiden was home to many ‘seats of knowledge,’ including an esteemed university, many printing establishments and a new hospital. Just before the turn to the seventeenth century, the former nunnery of Saint Cecilia was converted into a fever shed and asylum for the mentally disturbed. It was not till 1636 that it became the official teaching hospital of Leiden University.
Chapter IV

The Great Battle Begins

“Twas not enough they’d won the field in Netherlands;
They sailed the earth to distant and exotic lands,
As far as shines the sun, resolved the sun would see
Their mighty deeds. Our Holland serves as granary
For all the Indies grow. The North has filled its ships
With Eastern Crops. The Winter Prince who warms his lips
With pepper, guards in these domains the roast
Of all that heavenly fires of summer cook and roast.
Arabia of burning incense gives the best.
Our commerce with the Persians ever keeps abreast;
They trade their silks and all their cotton-ware.
Great Java shares with us her treasures fair,
And China, porcelain. We Amsterdammers journey
Where Ganges casts its waters down into the sea:
Wherever profit leads us, to every sea and shore,
For love of gain the wide world’s harbours we explore.”

A poem written by the Dutch poet Joost van den Vondel (1587–1679)
for Marie de’ Medici, the Queen-Mother of France, on her visit to the VOC chamber at Amsterdam in 1639

Casa da Índia had been the European center for the trade of cinnamon, cloves
and pepper the entire sixteenth century. Between 1571 and 1610 alone, the Portuguese
transported over 1,000 tons of cinnamon, cloves, nutmeg, ginger, and most importantly,
pepper from Sumatra and Java. If there ever were an underdog of seventeenth century
Europe, to be considered the next leaders of the spice trade, it was the Dutch Republic.
By 1600, it had a collective population of around 1.5 million people, whereas Spain and
Portugal had 10 million and France 16 to 20 million. How could a band of provinces,
who were in the midst of an uprising against the royal Spanish crown, eventually grow to

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120 Brierley, *Spices*, 43.

succeed the Portuguese Empire and dominate the great spice trade?

Portugal was not Europe’s only gatekeeper of spices. Such commodities also found their way into Europe through exchange with Ottoman territories. Throughout the sixteenth century, the Ottoman Empire underwent its own age of exploration. When the Turks occupied the port of Aden in 1538, a revival of the Red Sea spice trade incurred. Making substantial profits, they expanded their spice trade routes through the Indian Ocean, to the Red Sea and to Cairo. As a result of such competition, the Portuguese lost potential markets as Islam spread along the trade routes they established. Several territorial battles ensued along the Straights of Malacca between the Portuguese and the Atjeh. To further add to the depletion of Portugal’s power, they were annexed by the Spanish in 1580.122

Two decades after the seven provinces of the Netherlands banded together and launched a uprising against the Spanish, the Republic of the Seven United Netherlands came into formation. The Dutch Republic became governed by the States General, who was under the leadership of William of Orange and Prince Maurice of Nassau—the son of William the Orange. The strength of the new Republic grew under Prince Maurice’s military training. As its military strength increased, so did its mercantile and nautical strength. Eventually the Dutch Republic was able to recover land that was initially confiscated by the Hapsburgs.

United as one through annexation, the Spanish and the Portuguese forced the Dutch Republic to forfeit their port at Antwerp to the Spanish in 1595. As a result of the Dutch Republic’s expulsion from Antwerp, an exodus of inhabitants ensued. Many flurried North to Middelburg in order to re-establish their lives and economies. It was there, by the North Sea, that new wealth and trade began to flourish. To the Portuguese’s

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122 The same year that the Dutch Republic’s enemy annexed Portugal, forming a new alliance of oppression against the the Dutch Republic, was the same year that the Portuguese Inquisition excavated the remains of Garcia de Orta and burned them in public.
chagrin, the Dutch Republic, and even the English, soon earned the status of commendable Europeans components within the spice trade.

The blockade from the port of Antwerp engendered the formation of several mercantile companies within the Dutch Republic. Their business was explicitly Eastern trade. The first was the Amsterdam based ‘From Afar’ company (Compagnie Van Verre). In 1595, it sent a small merchant fleet to the East Indies. The first voyage of its kind provided mediocre results. However, to the Dutch Republic’s advantage, the following year, Jan Huygen van Linschoten, a merchant of the Republic and former secretary to the Portuguese Viceroy in Goa, along with Bernardus Paludanus, Leiden University’s first choice as the prefect of the Hortus botanicus, co-wrote *Itinerario: Voyage ofte schipvaert van Jan Huyghen van Linschoten naer Oost ofte Portugaels Indien* (1596), an account of trade, navigation from Lisbon to Goa and Asian plant life.

As the Viceroy’s secretary, Linschoten had access to classified Portuguese navigational documents (i.e. maps, charts, data sets on currents, etc.) pertaining to the East Indies. Linschoten leaked the documents to all readers in the book he co-authored, *Itinerario*. The code to decipher the navigation of the Indian Ocean was cracked, or more appropriately hacked. As a result, the Dutch Republic, as well as the English, were able to bypass the challenge of figuring out how to get to direct sources of spices. *Itinerario* as well referenced the Portuguese Garcia de Orta’s *Colóquios dos simples e drogas he cousas medicinais da Índia* (1563). Linschoten received a copy of *Colóquios* in 1585. To say the least, Orta’s work greatly informed the content and structure of *Itinerario*. As a result, the body of work offered the Portuguese’s competitors insight for the identification and uses for spice producing plants.125

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123 The British East India Company was established in 1600.

124 Van Linschoten received his copy two years before the issue of printer Johannes van Enden’s edition. After the thirty years’ war, the copy entered the library of Queen Christina of Stockholm, then on to England and then to Leiden where it remains till this day.

125 Brierley, *Spices*, 47.
The knowledge of plants proved to be an invaluable asset in the quest for “green gold.” The famed eighteenth century professor of botany and medicine at Leiden University, Herman Boerhaave (1668–1738) wrote, “Practically no captain, whether of a merchant ship or of a man-of-war, left our harbours without special instructions to collect everywhere seeds, roots, cuttings and shrubs and bring them back to Holland.”126 The same year that yielded the publication of *Itinerario* resulted in five voyages, totaling twenty-two ships, that set out from Holland to explore Asia.127 One of the new companies that led such a quest was the Old East Indies Company at Amsterdam. Many documents from its fifth voyage has been preserved.

In 2002, Adriaan de Jong, on behalf of the Duyfken 1606 Replica Foundation, transcribed and translated the original ship logs from one of its ship named the Gelderland (1601-1603). Within the log resides a letter that was authored by a group of the company’s leadership. It issues instructions to the fleet of five ships that were under the command of Admiral Wolffert Hermanssen, tasking the men upon the ship to conduct the following while at the islands of the Molucos128 and Banda:

….And on understanding the well-being of the said persons and their trade, to see, if it may be advisable to leave one, or two officers with a good sum of rialls of eight, and goods most in demand in Bantum, to obtain a good supply of Pepper there, and await the return of the said fleet.

….The Admiral and his Broad Council shall take care and pains, that as little money and merchandise as possible is left on shore the lands of the Molucos and Banda, and if any room might be lacking in the ships to load spices, shall do all needed, to employ the left over money and merchandise for gemstones, pearls and other wares taking up little space.129

The letter was signed by, “Gerrit Bicker, Reinier Pauw, Jan Jansz. Kaerel, Geurt Dirksz, Vincent van Bronckhorst, Symon Jansz. Fortuin, Albert Symonsz. Joncheyn, Arent ten

126 Stearn, “The Influence of Leyden,” 146.


128 Molucos is a variation for the presentation of the Maluku Islands or the Moluccas.

Grotenhuis.”

The Reinier Pauw (1564–1636) who signed the letter as a company founder, was also the son of Adriaen Pauw, a prominent politician and grain merchant. Like his father, Reinier initially started his merchant career trading salt and grain, as did many Dutchmen during the prime of the Baltic trade.\[^{130}\] He as well was one of Leiden University’s earliest law students and would eventually become the mayor of Amsterdam in 1605. He would go on to be appointed to the same position in 1609, 1611, 1614, 1616, 1617, 1619 and 1620.

In May 1598, ‘From Afar’ made an alliance with Pauw’s Old East Indies Company and sent a greater fleet on voyage to the East Indies under the command of Admiral Jacob van Neck and vice-Admiral Wybrant van Warwyck. It included the ships named Mauritius, Hollandia, Amsterdam, Gelderland, Zeeland and Utrecht, as well as yachts Friesland and the Overijssel. Only two people had died on Van Neck’s ships. When the fleet returned to the Netherlands in July 1599, it brought with it 600,000 pounds of pepper and 250,000 pounds of cloves,\[^{131}\] in addition to substantial amounts of nutmeg and mace. The voyage yielded profits of over 400%.\[^{132}\] In celebration of the extraordinary success, the famous designer/maker of the Armada tapestries and pioneer of Dutch seascape art, Hendrick Cornelisz Vroom, was commissioned to paint the return of Van Neck’s ships to Amsterdam (see illustration 15).

During the Dutch Republic’s infancy within the spice trade, individual profiteering and company mergers led to internal conflict within an already pressed Dutch

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\[^{130}\] Though the Dutch Republic’s involvement in the spice trade is the particular focus of this research, it should be noted that during the sixteenth century, they established great wealth by way of fishing and the Baltic trade. By the seventeenth century, the Dutch Republic’s Baltic Trade superseded that of its spice trade gains. Nonetheless, the spice trade was still a valuable luxury and medicinal market appealing to all of the European empires. Trade from the Baltic countries included agricultural products, wood, pitch, tar, hides and skins. See A. M. G. Rutten, *Blue Ships: Dutch Ocean Crossing with Multifunctional Drugs and Spices in the Eighteenth Century* (Rotterdam: Erasmus, 2008), 39-40.


Republic. In general, mercantile companies had grown in flux throughout Holland during the late sixteenth century. By 1580, a number of cities in Holland saw the establishment of nerings. A nering was a governmentally created institution that was established to provide oversight of an industry. It differed from a guild for its governance pertained to an entire group across the production life-cycle of a particular industry. Nerings were empowered to establish quality standards and issue inspection of production. The first nering, whose industry of focus was bay manufacturing, was founded in the city of Leiden in 1578.

By 1600, roughly half of the regents in Amsterdam alone were large scale merchants. Eventually, companies such as the “First United East Indies Company at Amsterdam,” which was formed between the merger of the New Brabant Company and Pauw’s Old East Indies Company, became absorbed into one large Eastern-trade base company—the United Netherlands Charted East Indies Company, also known as the Dutch Vereenigde Oostindische Compagnie, The Dutch East Company or simply the VOC. It was founded in March 1602 on an initial 21-year charter and sailed the Dutch Republic’s economy to great dimensions.

An immense amount of material exists within VOC archives till this day. Contemporary surveys conducted by Olfert Dapper, Nicolaas Witsen and Francois Valentijn, whose writings are based off sources that have been misplaced in VOC archives, enrich the collective study of the organization. One particular source found on its historiography is John Landwehr’s *A bibliography of publications relating to the Dutch East India Company 1602-1800.* It is an invaluable source for the study of the VOC. It provides a thorough list of publications relating to the organization that ranges from documents created by with the VOC itself, its employees and its opponents.

The idea for the new company came by the recommendation of Johan van

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15 Hendrik Cornelisz Vroom, *The Return to Amsterdam of the Second Expedition to the East Indies*, 1599. Oil on canvas, h 102.3cm × w 218.4cm, The Rijksmuseum, Amsterdam.

16 Artist unknown. *VOC logo*, 1602.
Oldenbarnevelt, the Grand Pensionary of Holland. For the sake of national interest, he suggested that multiple companies should merge to form one united national company. Historian Harold Cook highlighted that the Dutch eventually realized that if they were to band together and directly gain control of the spice trade, they would be able to deplete the Habsburgs of a primary source of their wealth. Perhaps it was a combination of both motivations.

Made up of six chambers—Amsterdam, Zeeland, Delft, Rotterdam, Hoorn and Enkhuizen—and ran by 17 directors known as the Heeren XVII, the VOC rose not only to incredible economic power, it as well gained political and military power. Comparable to a limited liability company, the many VOC investors were only liable for their proportions of investment. Under Oldenbarnevelt’s leadership, the various provinces of the Dutch Republic were invited to buy shares of the newly formed company. Regardless of one’s socio-economic, national, religious or gender background, all were encouraged to buy company stock. The diverse range of investors included Reinier Pauw, the largest investor, two Jews of Portuguese descent and even a maid who bought stock on behalf of her children.

Out of all of the Netherlandish chambers, it was Holland that owned the most shares in the VOC, with Amsterdam being the primary financial center. As well, it had the leading banking system and was richer than all six other provinces combined. The circulatory trail of investments that funneled into the chartered company was unlike


any of the time. As opposed to paying off investors immediately with profits earned, the Heeren XVII reinvested such funds into building and financing operational and military efforts.\textsuperscript{140} They had a substantial start up investment totaling 6.5 million guilders.\textsuperscript{141} With the support of the States-General, shareholders were not paid out until 1610.

Middleburg of Zeeland and Enkhuizen of Holland became major key ports for the VOC’s activity at home in Europe. During its first stage of development, up until around 1610, the VOC’s style of operation was based on a ‘fleet-organization.’ Each fleet was equipped and crewed up for a voyage of up to two or three years. The fleets would sail via the Cape of Good Hope to the Asiatic market. This market encompassed the region from the east coast of Africa to the shores of China and Japan. Once in Asia, the ships had to sail to several regions to obtain the desired commodities before they could return to Europe. To purchase such items, other Asian products were often needed for bartering purposes. The silver and cargo brought from Europe was not valuable enough for their Asian customer. Soon, the system of ‘returning fleets’ became viewed as inefficient operational means for both commercial and technical maritime reasons.

In time, the VOC came to see that establishing profitable trade relationships required a permanent presence at the point of trade so that traded goods could be collected and stored over a long period of time. Such a presence would enable oversight of production and quality of products (e.g. a silk reeling plant in Kasimbazar, Bengal-1653).\textsuperscript{142} The result would as well place merchants in a better position to negotiate prices and quality. By way of privileges obtained from the Mogul empire in 1616, via the efforts of the VOC merchant, Pieter van den Broecke, the Dutch Republic was able to station and operate in Surat. Cook postulates that the station in Surat enabled the VOC to enter

\textsuperscript{140} Cook, \textit{Matters of Exchange}, 64.

\textsuperscript{141} Sum is equivalent to $3,735,634.50 USD.

\textsuperscript{142} C. A. Davids, \textit{The Rise and Decline of Dutch Technological Leadership: Technology, Economy and Culture in the Netherlands, 1350-1800}; vol. 7 (Leiden; Boston: Brill, 2008), 310.
Persia in 1624 and eventually into the Levantine trade.\(^{143}\) And, historian Mehmet Bulut points out that the Dutch Republic in fact already had access to the Levantine trade prior to Broecke’s established relations with the Mogul empire.

The Dutch sailed to the Southeast Asian archipelago at the beginning of their expeditions in order to evade the Portuguese who often traveled northeast from the Cape of Good Hope to Goa.\(^{144}\) Cook highlights that during their earlier interactions in the East, local princes recognized the advantage of welcoming the Dutch to their lands. As they were competitors of the Portuguese, the Dutch could offer the natives protection and alliances from their shared enemy. Letters between the Dutch and Spice Island natives explicitly indicate such desires. For instance, in a letter written by the King of Candi, dated March 20th 1610, it reads:

> Laus Deo Semper,

This letter is for the good fleet of Holland or Zeeland. The King of Candi has heard that Your Honour has arrived here at the Island of Ceylon, with some ships, which makes him very glad and gives him much pleasure...He wants assistance from His Excellency and from you, as far as it is the will of God, to drive the Portuguese out of the country….He promises to give you all you want,—pepper, cinnamon, all sorts of goods, precious stones and good refreshment.\(^{145}\)

The VOC had already proved they were a contender to the Portuguese traders when they established their first trading post in Banten (Indonesia) and surely by the time they established a factory in Japan in 1609.\(^ {146}\) In time, a governor-general was eventually posted at each VOC facility location. As a result of such reconfiguration of best business practices, greater permanency was infused into the VOC’s system of managerial oversight.

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\(^{143}\) The following territories of today make up the region known as the Levant: Cyprus, Israel, Jordan Lebanon, the Palestinian territories, Syria, and part of southern Turkey.


\(^{146}\) The early years of the seventeenth century saw the America’s colonization by the French (1604), the British (1607) and the Dutch (1609). The age of expansion created and fed the elastic bellies of these ambitious empires. Overtime, a quest for power coerced a sense of entitlement.
at its various post establishments.

While in Banten, the Dutch established a solid relationship with Chinese merchants and established the beginning of the Dutch/China Junk Trade. According to Jan Pietersz Coen, then officer of the VOC:

Some time ago, some Chinese, who wish Your Excellencies well, suggested establishing four conditions [monopolies] in all of India: one of nutmeg and mace, one of cloves, one of pepper, and one of silk representing the Chinese trade. The first two monopolies you shall soon acquire, they said, the pepper [monopoly] they believed would be ours upon the occupation of Jambi...and with regard to the China trade, they thought it was up to us to take measures.147

The Heren XVII soon began to seek out a central location from which trade with the Chinese Junks could best take place. They narrowed their search to reside between the Indian Ocean and South China Sea. Such a land station would become a magnet for inter-archipelago trade. In 1619, a VOC rendezvous center was established near the Sunda Strait. The central location was named Batavia. Similar to that which inspired the city of Leiden’s alias name, “Lugdunum Batavorum,” it was a play off of the ancient Roman settlement. In addition to spices, during the infancy of the new port city, the Chinese junks exported great quantities from the Dutch Republic ruled Batavia such as incense, buffalo horns, elephant tusks, drugs and tripang.148

Though the British East Company had already been established in 1600, it did not compare to the complexity and magnitude of the VOC. The VOC was a unique multifaceted powerhouse. It actively recruited not only merchants, but also craftsmen, scholars, medical and scientific practitioners in order to enhance and amplify business operations and profits. The VOC produced its own publications on subject matters such as spices, medicine, theology and wars.149


149 From its inception, till 1662, the VOC solicited independent printers in Amsterdam to print its
Under its first 21-year charter, the company was initially founded to capitalize upon the spices of the Maluku Islands of Indonesia. Soon after its inception however, the VOC grew to dominate the global spice trade for the majority of the seventeenth century. Its hands were in everything and its eyes and ears were everywhere. The States General even empowered the organization to create treaties with rulers overseas on its behalf. As well, they supplied the VOC with military man support. But at the end of the day, it was one large organization made up of thousands of people and led by a few key influencers.

Despite political and religious conflict within the Low Countries, the Dutch Republic quickly broke away from the pack and soon ascended as the leaders of the spice trade. By 1650, it was selling spices acquired from Maluku to the Europeans at a 1700% markup, and to Indians at 1400%, meanwhile collecting all of the profits. How where they able to grab such a foot hold on the sourcing, production and distribution of spice commodities at such a scale?

Scholars traditionally attribute the Dutch Republic’s success to geographic, political and technological advantages. Others such as historians Pamela Long, Joel Mokyr and Kartel Davids, attribute their ascension as technological and scientific leaders to “openness of knowledge.” Long defines “openness” as “the relative degree of freedom given to the dissemination of information or knowledge.” One could say that the openness of knowledge within *Itinerario* enabled the Dutch Republic’s voyages to the Spice Islands. Davids’ and Mokyr’s suggests that urban governmental structures and political decentralization provided the Dutch Republic the necessary conditions for

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152 ibid., 379.
17 Artists unknown, *Spice box*, 1600. 
Silver (metal), h 17.6cm × l 24.0cm × w 319gr. The Rijksmuseum, Amsterdam.

18 Jan Jansz. van de Velde (III), *Still Life with a Beer Glass and a Porcelain Dish with Pepper*, 1647. 
Oil on panel, h 64cm × w 59cm. The Rijksmuseum, Amsterdam.
“openness of knowledge” to flourish. But such is an incomplete argument.\textsuperscript{153}

Davids and Long suggest that the \textit{openness of knowledge} within the Dutch Republic was merely a part of their culture, political organization and merchant mentality. Though they should not be disregarded for their influence upon the Dutch Republic, it is misleading to suggest that it was merely those overarching factors that were the prominent instigators and circulators of innovation and knowledge. Davids does point out that “openness can only make a difference in conduct in conjunction with other factors.”\textsuperscript{154} What he fails to address in his argument is the substantial factor of academic environments. As evident within Leiden University’s history, academic institutions and climates can greatly shape economic outcomes, empires’ stature and the circulation of knowledge and cultivation of innovation.

\textsuperscript{153} Davids, \textit{The Rise and Decline of Dutch Technological Leadership}, 413.

\textsuperscript{154} ibid., 389.
Chapter V
Minerva’s Wise Army

“Gymnastic virgin of terrific mind, dire Gorgon’s bane, unmarried, blessed, kind:
mother of arts, impetuous; understood as fury by the bad, but wisdom by the good.
Female and male, the arts of war are thine, O much-formed, Drakaina (She-Dragon), inspired divine:
over the Phlegraion Gigantes (Phlegranean Giants), roused to ire, thy coursers driving with destructive dire.
Tritogeneia, of splendid mien, purger of evils, all-victorious queen. Hear me, O Goddess, when to thee
I pray, with supplicating voice both night and day, and in my latest hour give peace and health, propitious
times, and necessary wealth, and ever present be thy votaries aid, O much implored, art’s parent,
blue-eyed maid.”

Orphic Hymn 32 to Athena (trans. Taylor) (Greek hymns C3rd B.C. to 2nd A.D.)

By the late sixteenth century, Portugal was the leader of the European spice trade. Nautical expertise and technologies were the empire’s secret weapon. It granted them great advantage over the industry. However, when Jan Huygen van Linschoten leaked their nautical knowledge to the greater European populace in *Itinerario*, Portugal’s advantage had been lost. The playing field had been leveled and it became anybody’s game. The Dutch Republic became the victors. They did so by being able to grasp that the spice trade was an industry that required collaborative efforts and measures across the domains of science, medicine, navigation, engineering, economics, law, linguistics and international relations. It is unlikely that all of the founders and influencers of the VOC were privy to such a concept. Conversely, those VOC members who were also affiliates Leiden University appeared to have shared such ideologies. They as well were trained under a humanistic model of thought.

Within the first seventy-five years of its establishment, Leiden University’s faculty and alumni tremendously influenced the outcomes of the Dutch Republic. The university attracted a wide array of faculty, students, social intellectuals and businessmen from all

over. Due to a combination of experiential and innovative learning methodologies in the form of its academic garden, library and anatomical theater, and most importantly, the implementation a policy of religious tolerance, Leiden University became an international destination.

Prior 1601, the staggering average proportions of foreign students amongst Leiden University’s roster were 41%; on top of that, a 2% increase took place between 1601 and 1625, and by 1650 the percentage of foreigners peaked to 52%.\footnote{Carol J. Summerfield, Mary Elizabeth Devine and Anthony Levi, editors, \textit{International Dictionary of University Histories} (Chicago: Fitzroy Dearborn Publishers, 1998), 518.} In its infancy, the university was a melting pot for culture that encouraged the pursuit of unbiased knowledge, diplomacy and innovation. With such a harmonious and non-bias manifesto, it became an incubator for intellectual prosperity. Even after the Netherlands founded six more universities between 1585 in 1655,\footnote{University of Franeker (1585-1811) University of Groningen (1614), University of Amsterdam (1632), University of Utrecht (1636), University of Harderwijk (1648-1811) and University of Nijmegen (1655-1680).} Leiden University maintained its prestige. Its distinctive heritage is largely attributed to its impressive roster of matriculated and affiliated scholars and especially the faculties of medicine, law and theology.

Minerva’s First Rank: The Faculty of Medicine and its Pupils

For many decades since its foundation, the Faculty of Medicine at Leiden University committed to a Hippocratic philosophy of medicine. The Hippocratic Corpus, a collection of over sixty essays that were compiled by followers of Hippocrates’ methodologies around 250 BCE, and the Galenic philosophies (129-216 CE), set the tenor for medical governance for millennia. Hippocratic philosophy entailed the theory of humoralism,\footnote{Humoralism is a theory that states that the body is composed of four humors that correspond to the four principles of the elements—sanguine (blood), choleric (yellow bile), melancholic (black bile) and phlegmatic (phlegm). Health and disease was determined by the balance or imbalance of such humors. Each held different properties and temperaments and was different for everyone. The aim of the medical paradigm was to heal according to the make up of one humoral system.} encouraged observation and experimentation, and employed the use
of logic to derive solutions. Since the advent resurrection of Greek philosophies in the West during the twelfth century, the general principle of Hippocratic medicine was a universal. Compared to other contemporary medical universities however, Leiden evoked the corpus in the more literal sense. Guillaume de Feugeray was hired as a consultant by Leiden University to help establish the Faculty of Medicine’s pedagogy. He advocated that after medical students’ first year of liberal studies, they were required not only to be able to examine, diagnosis, dissect and transform the bodies of animals and minerals, as well they were expected to conduct an apprenticeship like relationship with a learned doctor and shadow his practice.159

In addition to Hippocrates and Galen, the Faculty of Medicine at Leiden University held in great regard the Greek Dioscorides and Theophrasftus. This is exemplified in the university’s inaugural procession that accompanied “Medicina” with her books and herbs. The department saw great value in the pursuit and development of plant-based knowledge in conjunction with the pursuit of medical knowledge. Nevertheless, the humanist professors within the Faculty of Medicine were open to learn from new avenues of knowledge.

The German physician, Gerard Bontius, was the first active medical professor at Leiden University.160 It was not till September 1578 however that the program received its first student, an Englishman named Jacobus Jaimes.161 The reversal of the university’s initial Protestant governance aided in the growth Leiden University’s medical students. In 1581, university Curators hired the Dutch anatomist, physician and natural philosopher Johannes Heurnius (1543-1601) as another professor of medicine. To ensure that all of its students would reap the value of plant-based knowledge, the faculty then acquired the

159 Cook, Matters of Exchange, 110.

160 Pieter van Foreest (Forestus), nicknamed the “Hollandic Hippocrates,” only attended the inaugural procession on the Leiden University’s opening day. He chose to practice as a physician verses teach.

161 In other literature, Jacobus Jaimes is named as John James who is noted as physician of Queen Elizabeth I’s household. See Stearn, “The Influence of Leyden,” 137.
famed Catholic botanist, Rembert Dodoens in 1582.

As a former court physician to both the holy Roman Emperor Maximilian II and his successor Rudolph II, Dodoens was one of the most prominent herbalists and scholars of the time. During his lifetime, Dodoens’ herbal, *Cruydeboeck* (1554), was the most translated book second to the Bible. He modernized botanical taxonomy by focusing on the biological similarities between plants verses their medicinal properties. However, by no means did he not incorporate medical commentaries upon plants during his professorship at Leiden University.

*Cruydeboeck* was inspired by Leonhart Fuchs’ (1501-1566) *De Historia Stirpium Commentarii Insignes* (“Notable commentaries on the history of plants”) (1542). Fuchs’ work created disruption within the realm of plant-based knowledge for it was the first to produce a large collection of illustrations drawn from live plants. Astonishingly, it had approximately 500 woodcuts to accompany the publication. With *Cruydeboeck* however, Dodoens raised the bar. He incorporated an astounding 800 woodcuts into his herbal. In 1557, both an English and French translation were made by John Gerarde (*A new herball, or historie of plants)* and the Flemish botanist Carolus Clusius. Later, a 1619 English translation of Clusius’ 1557 translation, entitled *A new herbal, or historie of plants* was produced by Henry Lytew.

Compared to the original *Cruydeboeck*, Gerarde’s piece is arranged such that remedies and ailments are the main focus verses the actual history and properties of the various plants themselves. The medical supersedes the scientific as the plants take a back seat role to a variety of potential human conditions. The organization of *Cruydeboeck* however is such that the plants are organized based upon their physiological characteristics, an innovative measure that laid the foundations for later plant taxonomy. Nevertheless, Gerarde’s rendition did attempt to convey the visual strength of *Cruydeboeck*. In order to acquire the very woodcuts that were used in Dodoens’ version,

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162 This addition includes a few plants from both Gerarde’s English and American garden.
the book was published in Antwerp. In total, it includes 870 woodcuts. Of the works just discussed, spices did not constitute a large proportion of their narratives.

After Dodoens’ arrival to Leiden as a professor, three of his works were published, two post-humorously. *Stirpium historiae pemptades sex* (1583), *Praxis medica* (1616; published posthumously) and *Ars medica, ofte ghenees-kunst* (1624; published posthumously). Though general physiological descriptions of black pepper are found in *Cruydebock, Praxis Medica*, which was produced after Dodoens’ professorship commenced and the VOC was established, dove further into the properties of pepper. It named it as an ingredient for the healing of quartan fever. The work also went on to name spices such as cinnamon, nutmeg and saffron, as ingredients for the healing of palpitation of the heart, other spices for a weak stomach, and cardamom for worms. The work is a collection of Dodoen’s lectures on medicine. This indicates that the influx of spices and plant-based knowledge from overseas began to shape and influence medical scholarship.

A.M.G Rutten defined a drug as “a product intended for curing, alleviating, preventing disease or injury in humans;” he further explained that some drugs were “used for industrial as well as medicinal applications,” a term he coined *multifunctional drugs* (MFDs). At the turn of the seventeenth century, pepper, an example of a MFD for it was/is used both in diet as well as in medicine, had an annual European consumption

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166 Ginger and cinnamon are listed amongst the remedies for De imbecillitate ventriculi. See Dodoens, *Praxis*, 422.


rate of 3,000 tons. Pepper also happened to be the most profitable spices for the Portuguese and Dutch Republic during their control of the Spice Islands of the Indies.

In 1589, the Faculty of Medicine’s Curators hired Pieter Pauw, a former student of Bontius and native to the city of Leiden as a professor of both botany and anatomy. Professor Pauw was equally dedicated to the study of the human body as he was to plants. Until his death in 1617, during the winter months, the professor would teach anatomy in the theater for the colder air enabled better preservation of the cadavers and reduced profuse smells compared to the hot summer months. During the summers, he led students in the study of plants outdoors in the garden.

In addition to being a Leiden University alumna, Pieter was a student of the famed Italian surgeon and anatomist, Fabricius while he studied at the University of Padua. Pauw appealed to the Curators for he was knowledgeable about plants, well traveled, well versed in the subject of medicine and had a great social network. Pieter was also the relative of Leiden’s former law student, and eventual investor of the VOC, Reinier Pauw.

Under Pieter’s supervision, both the university’s new anatomy theater and garden and were constructed. Prior the completion of the anatomy theater’s completion, a temporary space was constructed for the purpose of dissections within the the former beguinage chapel as early as 1589, while construction on the permanent space within the chapel was in process. The first anatomy lesson was able to be held in its completed new space by November 1593, though the theater was not officially open to the public.

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169 Brierley, Spices, 29.

170 A 1599 Series lectionum shows that Pauw’s botany classes began at 10:00 AM during the summer term in the Garden. See Claudia Swan, “Medical Culture at Leiden University Ca. 1600: A social history in prints,” Netherlands Yearbook for History of Art / Nederlands Kunsthistorisch Jaarboek 52, no. 1 (2001): 228.

171 Fabricius was also the professor of the famed William Harvey, first known to have comprehend and define in detail systemic circulation and the properties of blood.
19 Johann Gelle after E. van Panderen, *The medical practitioner appearing as a mere human when he has succeeded in curing the sick*, 1609. Engraving on paper, h 29cm x w 36.9cm.
The Wellcome Library, London.

20 Willem Isaacsz van Swanenburg, Jan Cornelisz van ‘t Woudt and Claes Jansz. Visscher (II), *Anatomisch theater van de Universiteit Leiden*, 1610. Etching on paper, h 330mm × w 396mm.
The Rijksmuseum, Amsterdam.
till 1594. This preceded Fabricius’ construction of the permanent anatomy room to the University of Padua by a few months. However, the University of Padua’s anatomical legacy reigns stronger in cultural memory because of its rich and formidable history in the advancement of anatomical knowledge. Both Leiden University and the University of Padua were the only two to European universities to have anatomical theaters for many years.

During the construction of Leiden University’s library and anatomy theater, Pieter went on to hire the Delft born Dirk Cluyt—a naturalist apothecary, gardener and collector of valuable plants—as director of Leiden University’s new Hortus botanicus in later 1593. As well, the Curators actively attempted to persuade Bernardus Paludanus to join its staff as the prefect of the Hortus botanicus. Paludanus was a famed botanist and former student of the University of Padua, home to the world’s oldest academic botanical garden.

Leiden gathered some of its inspiration for the Hortus botanicus by way of the University of Padua’s botanical garden. During his negotiation period with Leiden University, Paludanus sent ground plans of the University of Padua’s gardens from his time as a student to the Curators. Paludanus’ insights into the University of Padua, in addition to his collection of curiosities and knowledge of spices and drugs from India, were a desirable asset for Leiden University’s Curators. It is said that Paludanus turned down the position because his wife did not want to move from their home in Middleburg, Zeeland. Instead, he went on to practice as a physician and became a co-author alongside his colleague, merchant, traveler and historian, Jan Huyghen van Linschoten. Together, they wrote the catalytic Itinerario.

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173 Italian universities used public dissections as a means of learning since the 1300s, however there was not a specific theater established for such a purpose till the sixteenth century.

Despite not being able to attain their first choice for prefect of the Hortus botanicus, the curators were able to fill the position with an even more famous botanist and lawyer in 1593, Carolus Clusius (1526 –1609). Having already developed the Emperor of Vienna’s botanical garden, as well as boasting a stellar network of gardeners, merchants and scholars, Clusius was a compelling candidate. At first, Clusius was not easily compelled to accept the role. It was the convincing of his friends, the influential Princess Marie de Brimeu (c.1550—1605) and Johan van Hoghelande (1546/58-1614) that finally persuaded Clusius to accept the position.

Clusius never married and it is unknown if he had any children. He did have several close intellectual friendships with women, both while he was in Holland and elsewhere. The Digital Special Collections repository of Leiden University contains the Clusius Correspondence database,\textsuperscript{175} which contains the digitization of all surviving correspondences of Clusius. The collection contains over 300 correspondents, twenty-five of which were women. The common denominator which connected the various women, they were all from the social upper class. These exchanges disrupt the general assumption that men only corresponded with other men on intellectual matters. Unlike Clusius correspondences with his male counterparts, which were written in Latin, these exchanges were written in French, German or Dutch, as women often did not have access to formalized academic training in Latin. Unfortunately, little scholarship has been invested towards transcribing and analyzing these letters. While his correspondences with women accounts for less than ten percent of his collective correspondences, all of such letters, with the exception of his relatives, contain in-depth dialogues on the subject of plant-based knowledge, particularly gardening. The exchanges were often accompanied with seeds, bulbs and images. On most occasions however, the conversations remained in the domain of plants of Europe.

Of all of his female correspondences, Clusius communicated with Princess Marie the most. Their friendship is believed to stem back to the late 1560s, with the majority of their exchanges over the years being related to the topics of rare plants, gardens and their maintenance. Their exchanges were not merely dependent on letters. They exchanged drawings of plants as well. As early as 1571, the two began sharing seeds with each other.\textsuperscript{176} As Robert Muchembled and William Monter highlight, for many centuries, the domain of plants and gardens “offered one of the few semi-public domains in which both men and women could legitimately (be seen to) participate.”\textsuperscript{177} What Clusius’ relationship with the Princess Marie Brimeu, and other women presents us with, is a glimpse of the semi-private domain of the exchange of plant-based knowledge between genders.

Born in 1550, Princess Marie not only grew to play a diplomatic role in the reconciliation of the Northern and Southern Netherlands, she as well was an avid gardener and influencer within great Netherlandish circles. Her youth was spent in the Bruges and Malines area of the Southern Netherlands region. At the age of twenty-two, she inherited the country of Mehren from her deceased uncle. Three years after her first husband, Lancelot de Barlaymont died in 1578, she married Charles de Croÿ, Duke of Aerschot and Prince of Chimay. As a recent convert to Protestantism herself, it was the Princess who converted the Duke to Protestantism for a period of time. She as well became a supporter of the Dutch Revolt and was welcomed into the court of Orange. However, de Croÿ converted back to Catholicism, which resulted in the two living separately with the Princess moving to Holland.

Between 1590 and 1593, Princess Marie resided in Leiden with a garden adjacent to what would become the Hortus botanicus. During the time that Pauw and the Curators were planning the garden, she was aware and amongst the discussions of such plans. It

\textsuperscript{176} Florike Egmond, \textit{The World of Carolus Clusius: Natural History in the Making, 1550-1610 Perspectives in Economic and Social History} No. 6. (Routledge: London 2015), 64.

was the advocacy of herself and Hoghelande that persuaded the Curators to invite Clusius as the prefundct of the Hortus. It was the convincing of the Princess that influenced Clusius to accept the role.

Clusius hesitated to join the Faculty of Medicine for his heart did not reside in the practice of medicine as it did in the study of plants. Determined to acquire the famed botanist, the Curators granted him the freedom to not only tend to his own individual work if he agreed to join the faculty, but furthermore he was exempt from the responsibility of teaching students. To these terms, he accepted.

The seasoned botanist had long spent his life independently studying plants. Clusius initially received his law degree from the University of Louvain in 1548. From there he went on to the universities of Marburg, Wittenberg, Basel and Montpellier, where he studied medicine. During his travels to Lisbon in January 1564, Clusius heard mention of a physician turned botanist named Garcia de Orta and picked up a copy of his *Colóquios*. By 1567, a year before Orta’s death, Clusius created an epitomized version of the work entitled, *Aromatum et simplicium aliquot medicamentorum apud indos nascentium historia.*

Before being appointed bailiff to the court of Emperor Maximilian II from 1573-1576, Clusius conducted several years of independent study throughout various countries. It was during his service in Austria, that Clusius was tasked to establish a medical garden. In between his time developing the garden, he translated other plant-based works. As well, he established cordial and intellectual relationships within the sphere of influencers of botanical knowledge and trade across many regions. One such relationship was with Rembert Dodoens, who served as the Austrian Emperor’s physician (1575–1578) while Clusius was conducting his service in Austria.

Clusius’ arrival to Leiden University, and plans to oversee the development of its

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178 The famed Plantin Press in Antwerp, published all of the editions of *Aromatum et simplicium*, which were printed in 1574, 1579 and 1593. The text also appears in Clusius’s *Exoticorum libri decem* (1605).
medical garden, garnered much attention and positioned the university with substantial clout to attract more students. The university also benefited from Clusius’ appointment for his appointment enabled the university access to his diverse social network. Like the Venetian curators of the University of Padua, Leiden University’s Curators saw the value in hiring famous faculty members. To the disappointment of eager matriculated students however, the aged man did not teach them and instead spent most of his time networking outside of the university, attending his own private garden and writing his works.179

Furthermore, it was Cluyt—director of Leiden University’s new Hortus botanicus—who spearheaded the planning and execution of the Hortus, which was completed in September 1594.

As of December 2015, an unpublished manuscript entitled Index Stirpium terrae commissarum sub extremum Septembrem anni 1594 in Lugdunensi Academiae apud Batavos horto by Cluyt and Clusius is available for purchase online for €275 (See illustration 22).180 The thirty-six leaves that make up the index is an inventory of the 1,585 different plants that made up Leiden University’s inaugural garden, which included sugar cane and tomatoes.181 Most of the plants held no medicinal properties however. The manuscript was also accompanied by a scaled plan of the Hortus bontanicus. It is believed to be the earliest example on record for a complete garden catalogue.182

When Clusius ventured away from his new residence in Leiden, it was often to meet friends and part-take in intellectual excursions based on plants. For example,

179 Cook, Matters of Exchange, 118.


182 Historian Agnes Arber noted that John Gerard’s 1596 plant list was deemed the earliest example of a complete garden catalogue on record. See Agnes Arber, Herbals: Their origin and evolution-A chapter in the history of botany 1470-1670 (Cambridge, 1912), 41.
22 Dirck Cluyt and Carolus Clusius, Details from *Index Stirpium terrae comissarum sub extremum Septembrem anni 1594 in Lugdunensi Academiae apud Batavos horto*, 1594. 140 x 172 mm.
Clusius visited Amsterdam both in 1597 and 1599, around the very times that the first and second fleets, which voyaged to the East Indies, returned. While there, he interviewed two natives of India—Abdala from Gujarat and Franciscus Rodriguez from Bengal—who had been on board the expeditions in order to learn about the etymologies and uses for particular plants and fruits.\textsuperscript{183} On other occasions, Clusius would venture to the great trade port of Middleburg, where he would visit Simon and Willem Jasperse Parduyn, two of the richest inhabitants of Middleburg. The brothers were also avid garden owners. Willem was as well an apothecary by trade. When in-person meetings were not possible, the three exchanged seeds and letters.

Not only did Clusius correspond with merchants and purveyors regarding rare and exotic plant life at the ports, he as well was in correspondence with consumers of spices and rare exotic plants. Elizabeth van Arkel (1536-1617), another of Clusius’ female correspondents, obtained green ginger from an unidentified source in Middelburg and wrote to Clusius how she had successfully been able to grow it in her Merkenborch garden by adding extra sand to improve soil aeration.\textsuperscript{184} The several works that Clusius produced, were a collective synthesis of plant-based knowledge he learned on his own, or via his colleagues and scholars of past.

Currently residing in the Jagiellon Library in Krakow, Poland are ninety-three of the 144 volumes that make up the \textit{Libri Picturati}, an exhaustive collection of works written on natural history. Volumes A 16-30 are of great significance for they contain a pristine variety of hand-colored drawings of flora and fauna. They also display water colored illustrations that range from ferns, moss, fruits, spices and to ornamental plants.\textsuperscript{185} These historical artifacts stand without citation of authorship or illustrator.

\textsuperscript{183} Egmond, \textit{The World of Carolus Clusius}, 55.

\textsuperscript{184} See translation of Van Arkel’s letters—19 October 1596, 29 April 1598—in Egmond, \textit{The World of Carolus Clusius}, 45.

Dr. Hans Wegener, a former affiliate of the department of manuscripts of the Prussian State Library, was the first scholar to present the visual collection within the volumes and present the argument that the body of work was commissioned and authored by none other than Clusius.¹⁸⁶ After his codicological analysis of the artworks in volumes A 16-30, Dr. Wegener compared his results to watercolors that resided in Kruydtboeck by Lobelius (1581) and cross-referenced his findings to correspondences on record at Leiden University, in addition to the archives at Arenberg in Edingen. His study entailed the assessment of annotations, monograms and watermarks that frequently accompanied the plant illustrations. Other key indicators that informed Wegener’s theory was the written presentation of cities such as Marseilles, Montpellier and Salamanca within the works, cities known to have been visited by Clusius.

Dr. Wegener’s theory was also supported by the mention of four of Clusius’ friends that were included within the text—the Laurinus brothers, Jacobus van den Eede from Bruges and the pharmacist Peeter van Coudenberghe from Antwerp.¹⁸⁷ When Dr. Wegener began to trace the history of the works’ acquisition, he as well uncovered more evidence supporting the theory that the work came from Clusius. The works entered Prussia by way of the Prussian Elector Friedrich Wilhelm. The Elector received or purchased the collection in 1663 from the Chancellor at Kleve, Daniel Weinmann, who received them from the famed Leiden publisher Christoffel Plantin. Plantin was as well Clusius’ primary publisher.

Dr. Wegener’s research, informed by “illustrated reportage,” offered later historical scholars a spring board. Scholars have since dove further into the historiography of the collections and yielded more expansive findings. Scholar H. Wille of the Museum for the History of Sciences at the University of Ghent identified ¹⁸⁶ H. Wille, “The Discovery of the Scientific Heritage of Karel Van Sint Omaars (1533-1569). The Libri Picturati a 16-30 in the Jagiellon Library in Krakow,” Scientiarum Historia: Tijdschrift Voor De Geschiedenis Van De Wetenschappen En De Geneeskunde 22(1) (1996): 67-68.

several scholars who have since came to the conclusion that Clusius did have some role in orchestrating the works. However, they generally concur that the volumes were not exclusively conducted or commissioned by Clusius alone.\textsuperscript{188} Art historian Claudia Swan further builds upon this theory. Her research led her to conclude that the \textit{Libri picturati A16-30} was owned and orchestrated by the director of the Hortus botanicus, Cluyt.

Cluyt’s students held him in high regard for he utilized useful visual tools to assist in the learning of plants. They served the purpose of teaching the identification of plants to medical students during the winter months when they were unable to access the garden. Swan identifies the said mentioned tools as \textit{Libri picturati A16-30}.

After Cluyt’s untimely death in 1598, Leiden’s medical students petitioned the Curators to grant them access to Cluyt’s visual collection. In the petition, students stated that “six painted books near t leven of all sorts of herbs and flowers, which serve us instead of the garden in the winter,”\textsuperscript{189} were essential for their ability to learn about plant-life. In total, the volumes held a collection of over 1,500 botanical watercolors that were owned by Cluyt.\textsuperscript{190}

Swan’s research reveals that the students’ petition engendered a restructuring of the Faculty of Medicine’s curriculum. As a result of their advocacy for the continuation of Cluyt’s teaching methodologies, the Curators implemented a new standard for medical pedagogy. \textit{Lectura} (reading) for one particular subject was taught in one season exclusively, while the subsequent season was devoted to \textit{ostensio} (Demonstration) (i.e. anatomical texts were studied in the winter and dissections were performed in the

\textsuperscript{188} In general, professional artists such as Jacques de Gheyn II, were hired to conduct illustrations of biological life during the sixteenth and seventeenth century. Only on few occasions did scientific authors illustrate nature via there own hand.


\textsuperscript{190} ibid.
In the students’ eyes, Cluyt was the “most sedulous and intelligent herbalist . . . a very clever, experienced, and diligent simplicist necessary to this university and the likes of which are known to no other.”\textsuperscript{191} As Cluyt left to his twenty-one year old son, Outgaert, “numerous chests with at least 4,000 Simplicia [simples],”\textsuperscript{192} they requested that Outgaert be appointed his father’s successor. Outgaert’s appointment would ensure that Cluyt’s full collection of work would be accessible to the university’s students. Cluyt’s volumes were used by the students for the remainder of the sixteenth century.

Perhaps influenced by Cluyt’s students, and/or the University of Padua’s garden catalogue, the \textit{Hortus publicius}, Pieter Pauw commissioned the \textit{Hortus Publicus Academiae Lugduno-Batavae} (1601) to aide students in the process of learning about the very plants housed in the garden (See illustrations 23 and 24). The visual workbook prompted students to fill in the names of plants that corresponded with their actual placement in the garden’s lots. Rectangles, which were meant to be representative of the 1,400 plots of the garden, proliferate the work so that students were able to fill in the appropriate information as they learned. An index of all of the plants included in the garden are presented alphabetically in the back of the work. Furthermore, to assist students’ memories, prints of Jacques de Gheyn II’s\textsuperscript{194} (1565-1629) illustration of the garden were placed in each copy of the book. Pauw prefaced the work ‘from bed to bed and area to area... the names, etymology, powers, and virtues of the plants, and how they

\begin{footnotes}
\footnote{Swan, \textit{Art, Science, and Witchcraft}, 49.}
\footnote{Swan, “The Uses of Botanical Treatises,” 74.}
\footnote{ibid.}
\footnote{It appears that Pauw’s commission influenced De Gheyn’s new found interest in botanical arts. Between 1600-1604, he produced naturalia art for the first time in his career. His first commission project in the city of Leiden was his commission to engrave a rendition of the Leiden Pesthuys (Plague Hospital), the General Hospital, and the Madhouse in 1595. Over the course of the years, he maintained contact with various faculty members from both within the school of Law and Medicine.}
\end{footnotes}
23 Jacob de Gheyn (II), *Gezicht op de Kruidentuin (Hortus Botanicus) van de Leidse Universiteit*, 1601. Engraving on paper, h 395mm × w 432mm. The Rijksmuseum, Amsterdam.

24 Student unknown, Page detail from Pieter Pauw’s *Hortus Publicus Academiae Lugduno*. 1601.
are used in medicine."\textsuperscript{195} One third of the garden was said to be of medical interest.\textsuperscript{196}

Each plot within the garden contained four large squares (quadra) that were made of twelve to sixteen long beds that held sixteen to thirty-two plants each. In total, the Hortus botanicus measured 30 by 40 meters (roughly 98 by 131 feet). A long gallery alongside the garden’s western edge was established in 1599 to house a collection of exotic plants. This structure, as well regarded as the ambulacrum, displayed a diverse collection including maps, prints, preserved animals and minerals.

The same year of the \textit{Hortus Publicus}’s issue, Clusius published \textit{Rariarum plantarum historia} (A history of Rare Plants) \textsuperscript{1601}.\textsuperscript{197} A year following that, the VOC was formed. Seven months after VOC’s premiere, Clusius issued a memorandum to its apothecaries and ships’ surgeons, by way of the hands of his merchant colleague Dirck van Os, requesting that the men acquire various plant life from their ventures in the Indies.\textsuperscript{198} To his disappointment, their findings were dismal. His dissatisfaction was made clear in the preface to Clusius’s \textit{Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur} (1605).

\textit{Exoticorum}’s title page features a visual allegory of Mother Earth nourishing herself with the milk of her breasts. The image conveys the bounty of life that could be found all over the globe. Additionally, as the work was authored by a faculty member of Leiden University, it includes an image of Minerva. She is accompanied with her traditional shield of Medusa and an owl, along with a new shield of an owl and vacant armor (see illustration 26). The work is organized so that both verbal and visual representation of specimens collected from all around the world were featured. Compared

\textsuperscript{195} Translation from Swan, \textit{Art, Science, and Witchcraft in Early Modern Holland}, 60.

\textsuperscript{196} Cook, \textit{Matters of Exchange}, 119.

\textsuperscript{197} During Clusius’ earlier travels, pre-Leiden days, he translated various works on natural histories and on the subject of Spanish, Portuguese, Austrian and Hungarian flora. \textit{Rariorum} is a combination of those works. Like many of Clusius’ works, it was published by the Plantin Press.

25 Jacob de Gheyn (II), *Portrait of Carolus Clusius from Rariorum Plantarum Historia (Frontispiece)*, 1601. Engraving on paper, h 215mm × w 180mm. The Rijksmuseum, Amsterdam.
to *Rariorum plantarum historia*, which focused on the naturalia from European regions, *Exoticorum* focused on newly discovered plants, animals and natural history from Africa, America, South-East Asia and other regions of the world. Many of the naturalia featured in *Exoticorum* are items that were sent to Clusius from his contacts all around the world.

The New York Academy of Medicine’s edition of *Exoticorum* contains translations of Garcia de Orta’s “*Aromatvm et Simplicivm Aliqvot Medicamentorvm apud Indos nafcentium*,” Christoval Acosta’s (1525–1594) *Aromatvm et Simplicivm Aliqvot Medicamentorvm Historia Liber Primvs*, and Nicolas Monardes’ (1493–1588) *Simplicivm medicamentorvm… and Libri tres, magna medicinae secreta*. It as well includes Clusius’ translations and commentaries on the work of Pierre Pelon (1517–1564). Collectively, this body of work both illustrates and verbalizes what was known on spices and their medicinal properties. Clusius takes his viewer on an exploration and tutorial of the scientific, medical and historical narrative pertaining to many plants and spices, otherwise regarded as *aromatics*.

Clusius did not merely translate the work of Orta and Acosta. He engaged with their work. They are cited as a means to establish a platform constructed of pre-existing plant-based knowledge of the East, to which Clusius built upon by adding his research and commentary. He did criticize Acosta for merely regurgitating Orta’s work. On his translation of Acosta’s clove tree chapter for instance he writes, “I had not thought to translate the chapter on the clove tree for most of its description is taken from Garcia’s...”

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200 Acosta, who wrote *Tractado de las drogas y medicinas de las Indias orientales* (Treatise of the drugs and medicines of the East Indies) in 1578, was similar to Orta in the fact that they were both Portuguese, came from Jewish families that converted to Christianity. Acosta however, lived his live a practicing Catholic and never was underneath the threat of the Inquisition. Unlike Orta, Acosta had greater fame during his life time and the subsequent years. See Al Van Helden, “Acosta, Cristobal,” *The Galileo Project at Rice University* (1995). Accessed November 15, 2013. http://galileo.rice.edu/Catalog/NewFiles/acosta_cri.html.
history of aromatics (like most of the rest of this book).” Clusius went on to express his disappointment with Acosta. He accused him of creating the illusion that he conducted first hand observations of plants.

Orta and Acosta were not the only sources of contemporary knowledge that Clusius was working with. Clusius cited various contemporaries such as his friend, and the first considered candidate for the Hortus bontanicus, Bernardus Paludanus. Also Clusius’ dedication of the three Monardes books to Johannes Heurnius, Petrus Pauw and Aelius Everardus, exemplify Clusius’ collegial relationship with his fellow faculty members.

As was evident in Pauw’s creation of the Hortus Publicus Academiae Lugduno-Batavae, he adopted visual methodologies to teach the nature of plants. As the teaching of anatomy within the theater setting was a visual demonstration as well, Pauw later coalesced the potential of visual illustration within the pedagogy of anatomy. In 1615, he published the Primitiae Anatomicae de Humani Corporis Ossibus. Though the University of Padua professor Andreas Vesalius’ (1514–1564) De humani corporis fabrica libri septem (On the fabric of the human body in seven books) (1543) had already revolutionized the teaching of anatomy in Europe with his creation, Pauw’s 188-page work was the first osteological publication made in the Netherlands. While we know that Pauw once again called on de Gheyn203 to design the accompanying portrait of Pauw in the act of performing an anatomical dissection for Primitiae, it is unclear whether or not de Gheyn and his engraver Andries Stock made the twenty-four in-text anatomical engravings.

Reiner Bontius (1576-1623), son of Leiden University’s first professor of medicine, Gerard Bontius, was one of Pauw’s students. He matriculated at the university

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202 See Peregrini fructus nervis distinctus in Clusius, Exoticorum, 30.

203 The Engraving was made by Andries Stock.
in 1590 and later became both a professor of medicine there and the personal physician of Prince Maurice of Orange (1617-1623). His brother Jacob Bontius completed the same program in 1614 and went on to be a famed physician for the VOC, where as his eldest brother Willem studied under the Faculty of Law at Leiden University and went on to become a professor and governmental official.

Leiden University served as a generational platform for several families’ legacies such as the Bontius, Pauw and Heurnius family. Among the other Pauw relatives at Leiden University were Adriaan Pauw, son of Reinier Pauw. He became a student of law sometime before 1606 and afterwards went on to become an administrator for the VOC and eventually he became an instrumental diplomat for the Dutch Republic. Like Professor Clyut, Adriaan held his own private collection of botanical works. However, his collection was held at his castle in Heemstede. The collection at Heemstede was the finest and largest of his time. Pauw’s library contained 1,555 books on botanical subjects. However, it was open to select visitors. It is noted that even members of the Pauw family had to follow the same protocols of accessing the collection just like the elite patrons who visited the castle’s library. Perhaps it was during his time working for the VOC that he began his avid plant based collection? Maybe his interest was peaked by Leiden University’s library and Hortus bontanicus? Or, perhaps he acquired many works through his father, the primary investor of the VOC?

Other sons of Leiden University’s legacy, included Justus (1587-1652) and Otto Heurnius (1577 –1652), sons of the late professor of medicine Johannes Heurnius (1543-1601.) They both earned medical degrees. In 1624, Justus, sailed on a missionary to the Indies on behalf of the VOC and sent his brother Otto plants, drawings and descriptions of ten species he discovered while in Table Bay. By then, Otto was a professor of

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205 ibid., 13-14

206 Patrick Harries and David Maxwell. The Spiritual in the Secular : Missionaries and Knowledge
medicine at the university.

Otto had a particular interest in biblical sciences. He was very curious of spices and plants that pertained to ritual and thanatology. Otto’s interests in Egyptology and burial techniques opened a door for the investigation of spices’ role in body preservation and ritual. In his spare time, he studied Egyptian and Syrian mummies and artifacts that he had shipped to the university by way of the Dutch merchant David le Leu de Wilhelm (1588–1658). He went on to write his findings in his book *De mummia sive conditura cadaverum* (*On the Mummy and the Preservation of Bodies*).

Otto, along with fellow professor Joseph Scaliger, concluded that Egyptian civilization was older than the Universal Flood. In his *Barbaricae philosophiae antiquitatum libri duo* (*Two Books on the Foreign Philosophy of Ancient Times*) (1600), Otto laid out his theory that Egyptian civilization was the basis for all of human civilization. However, due to religious and political climates at the university at the time, and greater Europe, Otto did not voice much of his opinions on Egyptian medicine, culture and language. He invested his visible energy into other areas. Eventually, he went on to implement clinical medicine at Leiden University in 1636.

Minerva’s Second Rank and Linguistic Lieutenants: The Faculty of Law and Language Studies

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208 Thanatology is the study of death and multifaceted aspects that pertain to it such as preservation of the human body and its decay.


210 Teaching clinical medicine at the city hospital had been advocated for around the foundation of Leiden University. However, due to financial restraints, the Curators and Faculty of Medicine kept on delaying the plans. Upon the establishment of the University of Utrecht in 1636, the university instated the teaching of clinical medicine. As not to allow a neighboring school advantage over its own curriculum, under the threat of perceived competition, Leiden University implanting clinical medicine into its curriculum in 1636.
Historian Paula De Vos highlighted that in order to be a leader within a plant-based trade, empires needed to “find, identify, and categorize new and useful plants; to study their constituent parts, climate, behavior, and nutritional needs; to determine the feasibility of the transplantation; and to devise methods by which to advertise and market their uses for commercial profit.” Such is a very accurate assessment. However, it omits the role that international relations and law plays in cultivating such opportunities. Whether it was intentional or not, the law students and faculty members at Leiden University played various crucial roles within the VOC’s ability to establish and sustain international relations with Eastern countries, the sources of spices.

Leiden University’s most popular area of study during its first seventy-five years was taught by the Faculty of Law. Upon its founding, it was written within the university charter that the university would be empowered with own court of law. Its court was separate from the local bench of law. Should any of the university’s affiliates find themselves involved in a court case, Leiden University’s court of law was eligible to deal with such cases instead of the government.

In 1594, just as the university’s garden and theater were taking off, little did they know that the newly enrolled eleven-year-old student, Hugo Grotius (1583 –1645), would become known as the ‘Mozart of International Law.’ His father was Jan Groitus, a Leiden University Curator and his uncle Cornelis, a professor of law at the university. Hugo’s parents knew at an early age that they had a prodigy on their hands. By age 8, Grotius could translate Greek into Latin. By age 18, he earned his doctorate in secular law from Leiden University and church law from the University of Orléan. As well, he established himself as a lawyer in the Hague and became the official historiographer for the States of Holland.

212 Jurriaanse, The Founding of Leyden University, 12.
VOC officials eventually turned to Grotius to author a treatise\(^\text{214}\) that would justify whatever actions necessary to take on the Portuguese and their power hold of the Eastern seas. The 1602 treatise, the creation of which corresponded to the company’s inaugural year, upheld that the Portuguese had no legal right to blockade Europeans from the spice trade. Several years later, Grotius repurposed some his words from the same treatise to create what is known as *Mare Liberum* (On the *Freedom of the Seas*) (1604). The piece was highly visible during the seventeenth century and greatly altered the realm of international relations and policies.

Meanwhile, back on Leiden University’s grounds, the Frenchman Joseph Justus Scaliger, professor of history and an avid book collector, grew his personal collection of books on the subject of Asian languages. When Scaliger became chair of the Faculty of Philosophy, it was on the condition that he did not have to lecture. He instead spent his time studying, writing and collecting works. Many of the celebrity faculty members were drawn to the university for the access to knowledge it provided. The university’s library benefited from the result of its faculty’s research. Up until his death in 1609, Scaliger acquired 208 personal books and manuscripts on the subject of Asian languages.\(^\text{215}\) He left his collection of works to the university as a gift upon his death. The acquisition of his collection created a surge of linguistic knowledge, resulting in great epistemological and pedagogical changes both within Leiden University’s walls and the greater realm of the Dutch Republic.

In 1612, the university’s former law student, Cornelis Haga (1578 –1654) became the first ambassador of the Dutch Republic to the Ottoman Empire. Haga worked effortlessly to develop and strengthen commercial relations between the Ottoman

\(^{214}\) *De Jure Praedae* is regarded as Grotius’ best work and the year 1605 has been identified as the year that his moral compass began to switch. See Hyma, *The Dutch in the Far East*, 58.

authorities and the Dutch.\textsuperscript{216} Prior to 1612, the Dutch sailed through the Ottoman’s domain underneath the flag of the French and English. By way of Haga’s work, the Dutch Republic were permitted in 1612 three significant capitulations that granted them both economic and political privileges: (1) general security of person and property, (2) extraterritoriality and (3) abolition of collective responsibility.\textsuperscript{217} These capitulations as well granted the Dutch a 2-3\% rate of customs duty compared to the 5\% that the Venetians and French had to pay.\textsuperscript{218} The capitulations issued to the Dutch Republic granted them such privileges. The first privilege was granted in 1612, the second in 1634 and lastly, the third in 1680. Following the inception of the capitulations, by way of the Ottoman Empire, there was a surge of publications published by Leiden University faculty on the Ottoman Empire itself. Haga was responsible for the first two issues of the capitulations. He resigned in 1639 and returned to the Netherlands to work in government. Several of his successors tried to maintain and enhance the valued Ottoman-Dutch relationship.

The Ottoman Empire was the leader of the Levantine trade routes. As well, they were Portugal’s enemy. Historian Mehmet Bulut calls our attention to the that the lack of scholarship surrounding the rich history of Ottoman-Dutch commercial relations.\textsuperscript{219} Dating back to around the 1560s, the Dutch Republic already established some commercial presence within the Ottoman Empire. The tulip was the first item from the Empire to enter the Netherlands.\textsuperscript{220} In 1600, the Dutch Republic had formed an anti-Portuguese political and military alliance with the Muslim Hituese. As a result, the Dutch


\textsuperscript{217} Bulut, “The Role of the Ottomans,” 203.

\textsuperscript{218} ibid., 205.

\textsuperscript{219} ibid., 213.

\textsuperscript{220} Clusius was the first European known to successfully plant and grow tulips in Europe. He did so in his garden in Leiden, a year after his professorship began.
Republic gained the sole privilege to purchase spices from the Hitu.221 This extension of trade with the Ottoman Empire further elevated the Dutch Republic to greater status with in the realm of the spice trade.

A year after the first capitulation was issued, Haga was granted permission by Ottoman authorities to bring with him a traveling mate. He chose Cornelis Pauw, son of the Amsterdam mayor Reinier Pauw and brother of Adriaan Pauw. The consulted sources do not indicate any direct relation between Cornelius Pauw, Leiden University and/or botanical knowledge. As the Pauw family themselves have a rich history in both areas, and several were known to be travelers and intellects with interests in both law and botany, it is plausible that Cornelis Pauw himself accompanied Cornelis Haga to the Ottoman Empire to provide or gather insight to the naturalia and spices of the Levant.

A year before Haga’s resignation in 1639, Levinus Warner matriculated at Leiden University to study philosophy and Hebrew, Middle Eastern and Asian languages. He was a student of the esteemed professor Jacob Golius (1596-1667). By 1655, Warner was named the Dutch Republic representative to the Ottoman Empire till his death in 1665. Being that the Dutch Republic were able to establish such a unique political and economic relationship with the Ottoman Empire, the Dutch Republic’s ability to communicate with fluency and intellectual confidence gave them great advantage over the Portuguese, Spanish, French and British.

The same year that Haga earned privileges from the Ottoman Empire, Thomas Erpenius was appointed the position of professor of Arabic languages at Leiden University. It was only the third type of such an appointment in Europe, the first being appointed at the Sorbonne222 and the second was Jacob Christmann at the University of Heidelberg from 1608-1613.223 In addition to Hebrew, Erpenius taught additional Eastern

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223 Christmann’s studies were anchored in astronomy and accentuated by his knowledge of
languages as well. Shortly after his appointment, he began publishing such works as *Grammatica Arabica* (1613), *Rudimenta Linguae Arabicae* (1620) and *Grammatica Chaldaica et Syria* (1628). Golius, a Leiden University alum, succeeded Erpenius as chair of Arabic studies in 1625. Eventually he was named chair of mathematics as well. He held both positions till his passing in 1667.

Around the same time that Erpenius’ *Grammatica Arabica* was first published, Hugo Groitus became an official spokesman for the VOC in London. Albert Hyma indicated a shift in Groitus’s political demeanor between 1603 and his appointment in 1613, though he did not offer suggestions the exact cause. He pointed out that the new arguments that were presented by Grotius in 1613 against the Portuguese, contradicted his arguments made in *Mare Liberum* (1604). Grotius did acknowledge his contradictions and made claim that the circumstances that existed during the time he wrote *Mare Liberum* were no longer the same. Perhaps what Grotius was referring to was the shifting social alliances that the Dutch Republic were experiencing in the Spice Islands. Or perhaps it was due to the religious and political unrest that was taking shape in Holland?

Minerva’s Third Rank and Achilles Heel: Reneging Ideologies and Faculty of Theology

There is a saying, “One Dutchman, a theologian: two Dutchmen, a Church; three Dutchmen, a schism.” Considering the university’s initial and unique and early policy of religious tolerance, it is a sad irony that religious intolerance crumbled the institution’s social and intellectual foundations. Though the Faculty of Theology was one of the first

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224 Golius first attended Leiden University as a student of mathematics in 1612. In 1618, he began to study Arabic and other eastern languages under Professor Erpenius.


establishments within Leiden University’s legacy, it eventually brewed great turmoil both within and without the walls of the university. Arguably one of the university’s most catalytic professors of the seventeenth century was Jacobus Arminius (1560 –1609). He attended the university as a student of theology in 1576 and then went on to study in Geneva underneath the High Priest of Calvinist orthodoxy, Theodore Beza. Shortly after being ordained a minister in 1588, Arminius began to doubt both his mentor’s and his own understanding of the Scriptures.

Whereas Beza stood firm in his conviction of double predestination, Arminius began to distance himself from the established Calvinist doctrine. He began to view predestination as a non-absolute occurrence. Furthermore, he came to believe that through atonement, salvation was possible for all. By 1591, he publicly vocalized his new and unconventional views. Many Calvinists found Arminius’ views to be offensive. They believed that Calvinism itself was linked to the Low Countries’ fight for independence and the recently deceased William of Orange. Despite the criticisms that Arminius drew from the Calvinist population, he was invited to teach theology at Leiden University in 1603. Respected by his students and supported by many, Arminius remained teaching at the university till he passed away in 1609.

Arminius’ death coincided with the establishment the Twelve Years’ Truce (1609-1621). The Truce was the first form of acknowledgment from the Hapsburgs that acknowledged the Dutch Republic’s independence. The temporary disengagement of arms and military force, initiated by the Spanish crown and negotiated by Oldenbarnevelt, was not a sympathetic gesture. The Hapsburgs had their own internal battles to address and needed to conserve and redirect resources and efforts for the time being. What could have been a time for strengthening the sense of unity within the Low Countries instead turned into a time of divisive turmoil.

227 Double predestination is the concept that before Adam and Eve committed sin, God had already designated who were the dammed, and the saved, amongst the human race.

Arminianism, the teachings and ideologies of Arminius, left a great impact on his many followers. Even beyond his death, Arminius’s views fractured the Protestant Church from within the walls of Leiden University. In 1610, Arminians followers presented a remonstrance to the States of Holland and Friesland that included five articles that refuted key claims of Calvinism. Their key arguments were: (1) salvation or condemnation is conditional upon the authenticity of a man’s faith; (2) atonement is achievable for any man of good faith; (3) seeing through God’s will is only possible with the aide of the Holy Spirit; (4) grace is unconditionally existent, and in its true presence, it is not irresistible; and (5) a person of faith may resist sin, but that does not prevent them from falling from Grace. Regarded ever after as the Remonstrants, a political group of people who stood by the teachings of Arminius, they rose up in protest and conviction to keep Arminius’s works and their shared beliefs alive for all to hear and learn.

Among those at Leiden University who held Remonstrant beliefs, and was a friend of Arminius himself, was the prodigy scholar, Hugo Grotius. For a period of time, Groitus was the acting Attorney General of Holland during the beginning of the Calvinist and Remonstrants controversy. In response to the growing political and cultural situation, he drafted an edict, Decretum pro pace ecclesiarum around 1613. In it he presented his views that there should be a separation between church and state and that disputes between theological doctrines should be resolved in private verses state council.

With no diffusion of tension in sight, collision of Calvinistic and Arminian views imploded to the point of unbearable social disruption. It spanned across several provinces. The powerful statesman, and leader of the VOC, Johan van Oldenbarnevelt and the new stadtholder, Prince Maurice of Nassau, were drawn in by the Church to address and diffuse the situation. Maurice was aligned with the Calvinists and Oldenbarnevelt, was aligned with those who shared theological ideas in Arminianism, the Remonstrants. By 1618, Maurice led his military against the Remonstrants and their leader, Oldenbarnevelt.

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launching a civil war. He then took the initial step and called the Synod of Dort, which was attended by Switzerland, Germany and England theologians as well.

Ultimately, the international Synod officially condemned the Remonstrant views.\textsuperscript{230} The final blow, Oldenbarnevelt was murdered by judicial decree at the conclusion of the Synod. The Remonstrants were excommunicated from the official Church of the Dutch Republic and greater Dutch Republic society. As a result, many professors, students and Remonstrants sympathizers fled from Leiden University and the region in order to escape tension. Several years later, Athenaeum University (est.1632) in Amsterdam took advantage of the religious turmoil facing Leiden University and hired Remonstrant sympathizers.\textsuperscript{231} Grotius was arrested and sentenced to life in 1618, but he and his family were able to flee and escape to Paris in 1621.\textsuperscript{232}

Rutten has characterized the Dutch Republic’s legacy to be, “rooted in God-fearing, Calvinistic merchants, well-versed in the Scriptures, who thoroughly disliked the Catholic Spaniards and Portuguese.”\textsuperscript{233} As is evident from the conflict between Calvinist and Remonstrants however, not all of the Dutch Republic were Calvinists. In fact, the first great leader of the VOC was killed because of his non-Calvinistic beliefs. It was an unfortunate irony that Leiden University, once a conduit for religious tolerance became a conduit of intolerance. The effects of the internal religious turmoil that was born out of Leiden University seeped into the greater sphere of the Dutch Republic.

\textsuperscript{230} MacCulloch, \textit{The Reformation}, 378.

\textsuperscript{231} J. L. Price, \textit{Dutch culture in the golden age} (London: Reaktion Books. 2011), 156.

\textsuperscript{232} \textit{De Jure Belli ac Pacis} (On the Law of War and Peace, 1625), Grotius’ famed work, was written during his exile in Paris. The work discusses ideal an ideal system of laws and moral duties for nations and the relationship between nations.

\textsuperscript{233} Rutten, \textit{Blue Ships}, 39-40.
Chapter VI
Trading Identities and Values

“As the exchangeable values of commodities are only social functions of those things, and have nothing at all to do with their natural qualities, we must first ask, What is the common social substance of all commodities? It is Labour. To produce a commodity a certain amount of labour must be bestowed upon it, or worked up in it. And I say not only Labour, but social Labour.”

Karl Marx

Historian Harold Cook highlights that the success of the Dutch revolt was enabled by the provinces ability to work with each other to manage the national debt. This was partially achieved because the majority of people that made up the Dutch Republic, including capitalists, were taxed. Very few people received tax exemptions in the late sixteenth century through the mid-seventeenth century. But in addition to the management of debts, the capital and fiscal gains acquired underneath the oversight of nerings and Oldenbarnevelt’s leadership of the VOC, greatly contributed to the Dutch Republic’s economic rise. It goes without question that the VOC was a primary economical driver for the Dutch Republic during the seventeenth century. However, in 1618, Oldenbarnevelt was executed.

During the Twelve-Years Truce, various states and cities within the Dutch Republic wanted to ignore the call to temporarily haul expansion overseas. The desire to grow overseas was especially strong amongst the Amsterdam chapter of the VOC. Historian Julia Adams suggests that it was Oldenbarnevelt’s resistance to

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235 Cook, Matters of Exchange, 60.
expand during the time of the truce that led to his death.\textsuperscript{236} Adams’s brief exploration of Oldenbarnevelt’s execution within her survey of patrimonialism omits the social landscape—seeped in religious tension—that set the stage for his death. It is important to recall that Oldenbarnevelt was not only the long held leader of the VOC, but he was as well elected leader of the Remonstrants.

Three years after Oldenbarnevelt’s death, the West Indies Company (WIC), a comparable international trade company, similar to the VOC, was chartered in the Dutch Republic in 1621. It was orchestrated by the Flemish merchant and diplomat Willem Usselincx (1567–1647). Its domains of interest were American and West African trade. Its charter explicitly cited piracy as part of its mission.\textsuperscript{237} The WIC was ruthless and less structured than the VOC. Its establishment had draining effects upon the Dutch Republic’s economy, as well as a seemingly negative influence upon the VOC’s operations. Its establishment solidified a new form of internal mercantile competition within the Dutch Republic.

During the first twenty-one years of the VOC’s issued charter, shareholders were not granted many rights or say in the Company’s operations. Upon the charter’s renewal in 1623, new clauses empowered them with more rights and for the first time limited some of the rights of VOC directors.\textsuperscript{238} Bewindhebbers were the governing administrators for a given chamber both within the VOC and WIC. During the VOC’s first charter, their term was unlimited. However, upon the renewal, bewindhebbers’ terms were capped with a three-year service period and only eligible for re-election after a three-year period.\textsuperscript{239} With the creation of the new role of “extraodinaire bewindhebbers” in 1647, a window within the VOC was created so that more merchant-elites from across the seven

\begin{footnotes}
\item[237] ibid., 336.
\item[238] Parthesius, \textit{Dutch Ships in Tropical Water}, 35.
\end{footnotes}
various provinces and VOC chambers were able to penetrate the infrastructure of VOC management. In general, the WIC far exceeded the amount of bewindhebbers compared to those in the VOC. A surge of various managerial styles and complex power dynamics became the symptom of the influx of various merchant administrators into and amongst company leadership.

Just as the merchant-elite class of Venice, from the pre-1543 era, held great power within the then center of the European spice trade, so too did the merchant elites of the Dutch Republic in the seventeenth century. Their political and economical influence upon the States and overseas was substantial. But as historian Julia Adams suggests, the strength of the Dutch Republic’s political and economic position, from both a domestic and international standpoint, suffered as a result of the merchant elites’ contradicting policies.

Adams’ critique on the various policies that merchant elites—members of the VOC and the WIC—had instated, adequately shows a correlation between their operational fees, contradicting policies, the wars they engendered and the growing rate of provincial dept. Citing Marjolein Hart’s research, Adams shows that during 1621, Holland’s provincial debt was 1.5 million guilders, yet by 1650 it was 130 to 140 million guilders. This period of time overlapped with conflict between the Calvinist and Remonstrants, the decline of the Baltic trade, the social disruption of the Thirty Years’ War and Spain’s transatlantic trade. Economic historian Jan de Vries called this period of European economic distraught, “the Age of Crisis.” Nonetheless, the Dutch Republic stayed afloat and made advancements while their European contemporaries were parallelized. That is not to suggest that the Dutch Republic’s economy was not stressed as

\[240\] Within the history of commerce, apothecaries were not only the wealthiest individuals, but as well they were the most influential groups within Italian cities. See Cook, Matters of Exchange, 31.


well. Between 1630 and 1660, the VOC especially underwent a period of expansion and reorganization in Asia which greatly impacted its economy.

Within the twentieth and twenty-first centuries, from both a social and academic standpoint, the term “Asian” serves as a catch all phrase to categorize a wide range of people and cultures. There are far too many layers to unpack within this investigation to explain the reasoning for such geographical and cultural illiteracy. It was only after WWII that the term “Southeast Asia” entered popular vernacular. The term unjustly dilutes the fact that it represents ten sovereign nations verses a mere unified region. Nonetheless, terminology such as “Southeast Asia” and “Asia” are variably interwoven within a variety of social and historical scholarship. For the purposes of this study, however, geological and cultural distinction will be made in as transparent a manner as possible.

Taylor Gelman suggests, the “Dutch trading company was the means of diffusing in Europe the results of systematic observations and investigations conducted by Asians.”243 In this line of thought, the Dutch Republic established not only channels for the trade of commodities, but as well streams for plant-based and medicinal knowledge. However, the trade of such knowledge was by no means an equal distribution of currency. Corporate mindsets, rather than intellectual and ethical mindsets, soon gained influence amongst the Dutch Republic. Furthermore, at the intersection of the Spice Islands, especially between the sixteenth and seventeenth centuries, resided a cross-cultural infusion of peoples from both Asia and Europe. The cultural clashes in Asia ensued against the backdrop of a stressed European economy and blind ambition. It goes without saying that this complex combination of social disruption created great strife for the natives of Asia and eventually European nations and their economic structures. The social costs were colossal.

Economies are not merely made by the rate of currency exchanges. Economies are built upon a spectrum of “costs” and “value” systems. In general, the strength of

a particular economy is dependent upon factors such as the cost of and efficiency of training, labor, production of commodities/product and consumer demand. For instance, the “value” of spices fluctuated over the course of the middle ages and the early modern period. By the turn of the fourteenth century, King Edward saw it viable to tax the spice anise for it held strong cultural worth and could help raise funds to pay the cost of repairing London Bridge.244 For the Dutch Republic, its economy was greatly shaped by an international trifecta. Whereas Leiden University became the Dutch Republic’s epicenter for knowledge, and Amsterdam the epicenter for commerce, Batavia of the Spice Islands became a great foreign epicenter for spice trade labor.

Prior the arrival of the Arabic and European communities, especially the latter, social labor roles in the Spice Islands, within the realm spice production, followed a particular rhythm and order for the cultivation of the plant-based products. As a result, those various participants along the chain of production were intellectual owners of plant-based knowledge. The same people could as well have held knowledge of ways to use their final products for either medical, culinary or ritualistic purposes. However, there were specialized knowledge bearers who were versed in such information. Nonetheless, the chain of plant-based knowledge was interconnected.

The early producers of spices produced them for their own needs and to serve their immediate community network. The advent of spices as a commodity came into being as the social, sensorial, physical, and cultural value of such substances spread through various social and global networks beyond their communities. Karl Marx once suggested that commodities themselves are fixed values.245 He wrote, “A commodity has a value, because it is a crystallisation of social labour.”246 He went on to establish that values’ were relative based on the required labor and social investment infused into them.

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246 ibid.
Of course aspects of greed infiltrate the system of value and cost establishments, but Marx’s point to social-labor constructs is instrumental to the study of the spice trade.

For the VOC, the labor pool in Batavia was diverse. It consisted of Chinese men who were imported by Chinese entrepreneurs, who worked in tandem with the Dutch and Sudanese people, who were sold by their chiefs from west Java. Several scholars suggest that the VOC did not attempt to control organized labor within the Spice Islands, for the benefit of their fiscal aims. The depths and the extent by which they were involved within the social dynamics of labor are often removed from the socio-historical narratives written on the plant-based spice trade. However, it is recognized that the portability of slave labor and exploitation of foreign lands served as fuel for the Dutch Republic’s economy.

As historian Jan Luiten van Zanden affirms, “the payment of labour was insufficient to reproduce labour power.”247 Julie Berger Hochstrasser argues that the Dutch Republic did have some recollection that the cost of commodities/production came at a expensive social cost, hence the markup imposed on pepper.248 This position is supported by classical economist David Ricardo’s labor theory of price.249 However, what neither Hochstrasser or Ricardo dive into within their commentary are the religious extensions that are affiliated with the realm of “social.”

Various religions existed within the regions of the Spice Islands. Hinduism, Buddhishm, Islam and other local indigenous belief systems were in relatively close proximity to one another. An islands’ faith was dictated by the particular rulership of the region. As Taylor highlights, because Indian and Chinese merchants did not often sail


and settle upon eastern Indonesian shores, their religions did not greatly influence the locals belief systems. However, Arabic and European merchants and governance did, resulting in the eventual permeation of Islam and Christianity into the local belief systems of the Spice Islands.

Islam’s presence within the Spice Islands had been in existence long before Portuguese’s arrival. But as historian Ingrid Saroda Mitrasing highlighted, the early Muslim visitors made their entrance and presence into the region with the intention and purpose of commerce, whereas the Europeans’ entry came with the intention of monopolies and conquer. By the time the Dutch Republic arrived, a diverse cultural melting pot of various belief systems was present. This ultimately had great affect upon trade relations, social acclimation and conversion outcomes.

As the Portuguese once faced, the men of the Dutch Republic eventually were met with the challenge of converting overseas natives to Christianity. Clergymen were met with resistance from the various Islamic, Hindu, Buddhists and other indigenous belief systems within the Asian lands. They were not well-versed in the natives’ customs. As a solution for the enhancement of religious conversion and negotiation, a special training seminary—Seminarium Indicum—was established at Leiden University in 1622. Its purpose was for the training of clergy for overseas practice. However, in 1632, the Seminarium Indicum was closed because the VOC directors could not sustain the funding necessary to keep the seminary in operation. Nevertheless, the study and practice of languages served as an invaluable tool for the Dutch Republic’s endeavors overseas. They aided business communications throughout Asia and provided the Dutch Republic a firm level of control within the spice trade.

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250 Taylor, “Meditations on a Portrait,” 32.


As early as 1603, a Dutch/Malay dictionary was in circulation amongst the Dutch Republic. It was authored by the Dutch merchant, Frederik de Houtman (1571-1627). In 1601, he had been imprisoned by the Sultan Alauddin Riayat Syah (r.1589-1604) of Aceh, and while in prison he learned basic Malay terms and phrases. Throughout the seventeenth century, there were an array of Christian texts that were published in the Netherlands in the Malay language for the intention of use in Southeast Asia. It was also the only “foreign” language used within VOC churches and church schools established in the Spice Islands. Consequentially, as Malay was used as a streamlined communication tool, many other native dialects in Batavia, and surrounding areas where the VOC established stations, began to fade away. The use and knowledge of language was a double edge sword. It enabled the Dutch Republic to have better communication privileges with the natives of the lands, in order to fulfill their ultimate economical needs. However, it came at the expense of the loss of various social identities amongst the natives. In addition, oppressing the natives’ comprehension of Christian scriptures and European axioms in their native tongue, left them at a disadvantage.

Clergymen came to be invaluable members of the company for they not only provided their spiritual services for the VOC’s personnel, but they as well provided missionary services. One of Leiden University’s earliest alumna to go to Batavia was Justus Heurnius (1587-1651/2). Justus initially followed the footsteps of his father Johannes Heurnius, professor of Medicine at Leiden, by obtaining his medical degree from Leiden. Verses becoming a practicing physician however, he traveled throughout Europe, became intrigued with theology and enrolled as a theological student in the city of Groningen. For about fours years, he served as a pastor in Kalslagen before he was sent to Batavia in 1624 on behalf of the VOC. His mission was to add structure to the

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established Church in the Indies.

Shortly after his arrival, Heurnius saw that the Chinese population within the territory was large and of great value for the Dutch Republic. Over the course of his years in Batavia, he worked alongside a Chinese schoolteacher to create the first Dutch-Latin-Chinese dictionary (1628). The following year, Heurnius sent two complete copies to Professor Jacobus Golius, professor of Arabic languages and mathematic at Leiden University and one incomplete copy to his brother Otto Heurnius, professor of medicine at Leiden. Heurnius knew little Chinese himself and is believed to have used Latin, and possibly Portuguese, to communicate with the Chinese schoolteacher while making the work. The book is not without error. Nonetheless, it established a foundation for greater communication between the Dutch Republic and the Chinese. During this same time period, no similar works were produced by either the Portuguese, French nor the English empires to the extent in which the Dutch Republic invested in the development of strengthening communication dynamics between themselves and the inhabitants of the Spice Islands.

For a brief period, Justus was met with opposition from members of the VOC’s government while in Batavia. He was initially banned from his initial duties as a reformer. By the time the VOC shut down the seminary at Leiden, his power was restored and he expanded his religious mission to nearby Ambon for several years. Heurnius was posted in Ulat, an island of Saparua that is east of Ambon, in 1633. A year later, he translated the gospel of Matthew and other scriptures into the Saparua language, Uliassische taal. He wrote of his accomplishment to the VOC chamber in Amsterdam, as well as the use of his materials by the people of the land. However, the translations or additional records of their existence have not been found.256

255 After Golius’ death in 1667, his entire book collection, including Heurnius’s two copies, were auctioned off. They ended up in the British Library in London and the Bodleian Library in Oxford. The third copy that Heurnius sent in 1629, was sent to his brother Otto and resides in the Netherlands today. Unlike the other two copies that were sent to Golius, it does not include the Latin translations.

Heurnius headed back to the Netherlands in 1639, where he, along with other colleagues, translated the bible into Malay.\(^{257}\) Several years after Heurnius translated scriptures into Uliassische taal, an entry was made in the Resoluties van de Heeren XVII on 9 March 1648 that acknowledged their decision to print *‘ABC en gebedenboek in de Uliassere taal overgezet,*’ a book that contained the Uliasser alphabet and prayers.\(^ {258}\) Unfortunately, there is no trace of these said copies in historical record either.

Heurnius’ mention of translating scripture into the native tongue of immediate inhabitants suggests that at least some believed that translation greatly aided in the communication and sincere comprehension of religion, conversion and business. But as the VOC were the main financers of such linguistic works and efforts, as far as publication and implementation goes, it would appear that the “cost” of implementing and teaching Christianity in various languages in order to better reach the diverse inhabitants was too high.

With the exception of our awareness of Heurnius’ translations of scripture into Uliassische taal, and the mention of a printed Uliassische taal work in the 1648 VOC letter, the only other known attempt to veer outside of the standardized Malay language was not till 1678. It was then that the collected sermons of Reverend Franchois Caron were published by the VOC in Amsterdam after his many years of service in Ambon. He advocated the importance of outreach to the people of Maluku in their local language regardless of their religion.\(^ {259}\) Caron’s history exposes an integral aspect of trade relations and social structures overseas.

The VOC wielded power not only in an economic or militaristic sense, but as well in international and social sense. For instance, prior to 1640, an explicit Siamese


\(^{258}\) Collins, “Language Death in Maluku,” 262.

law rendered that children born to women within the jurisdiction of the kingdom were
demed subjects and forbidden to leave the kingdom. But due to an agreement made
between the VOC and King Prasat Thong of Siam in 1640, children born in Siam from
fathers from Dutch Republic were allowed to follow the geographical trajectory of
their fathers and leave the land. Another example of the VOC’s political influence is
exemplified in the sole privilege of Japanese trade that was granted in 1641. All other
empires were excluded.

One of first members of the Dutch Republic to participate in Dutch-Japanese
relations was Francois Caron Senior (1600–1673). Caron himself was a French Huguenot
refugee who began as a cabin-boy in the service of the VOC and rose to the position of
Director-General in Batavia. He later went on to serve as the Director-General of the
French East Indies Company (1667–1673). During his time in Japan during the 1630s, he
had a relationship and shared a household with a Japanese woman who had converted to
Roman Catholicism.

In 1641, Caron moved her and their five living children to Batavia. He soon made
a trip back to Europe, but upon his return back to Batavia in 1643, he discovered that
the mother of his half-Japanese children was dead. He petitioned the VOC and overseas
government for certificates of legitimacy for his three boys and two daughters. Two of his
sons eventually became students of theology at Leiden University and returned to Asia
as Christian leaders in VOC settlements in Taiwan and in Ambon.\textsuperscript{260} It was his son who
was stationed in Ambon for fourteen years, Francois Caron Jr., who contributed to the
production of religious tracts written in the Malay and advocated for the translations of
other languages. He encouraged the importance of communication with the people of the
Moluccas using their native tongue. The Dutch/Japanese Minister Francois professed:

\begin{quote}
The task of ministers, appointed by the Church Council, is to show the
way to Christians, just as a shepherd to his sheep. He should learn Malay,
\end{quote}

\textsuperscript{260} There is no mention of a Dutch education being provided for his daughters. The daughters were
both eventually married to Dutch merchants and lived their lives in mixed-race societies in Vietnam and
Batavia. See Taylor, “Meditations on a Portrait,” 34.
and, if possible, the language of Ambon, preach clearly, move hearts both within and outside The Church...moreover, [he should] speak with the pagans and heathens, so that with the help of God he may win a soul.\textsuperscript{261}

Francois Caron Jr., eventually settled his Ambonese wife and children in Leksmond, Netherlands.

Just as religious conversion was a critical component to the success of the Batavian settlement, from an socio economic standpoint, so too were women. Dutch customs required that childrearing take place within the institution of the family network. The plan was to create strong Dutch “families” within the parameters of the VOC outpost. By 1619, regulations were instated that required company men to only to have relationships with the local women within the parameters of marriage.

Whether or not they were baptized, native brides or wives were expected to “to learn the fundaments of the Christian religion and the answers to some questions in order that they may not only be Christian in name but also in fact.”\textsuperscript{262} Before native women reached the “status” of brides/wives, many were sent to weekly preparatory courses. Their attendance is recorded within Acta (of the church council) reports. It is noteworthy that in the Acta reports of the 1620s, it is recorded that women often changed their minds and wanted to back out of the agreement a few days before the marriage ceremony was to take place. The scholar Leonard Blussé states:

\begin{quote}
The church was the only Dutch institution which was genuinely able to influence the lives of Batavia’s women. It reformed them, imposing a certain morality on their behaviour and it provided them with a veneer of metropolitan norms.\textsuperscript{263}
\end{quote}

In the face of the unknown and unconvertible, the VOC eventually resorted to force and harsh tactics to acquire their supplies and maintain control of their sources. They even went so far as to burn down spice-bearing plants and murder innocent natives.

\textsuperscript{261} Collins, “Language Death in Maluku,” 263.


\textsuperscript{263} Blussé, Strange Company, 171.
in order to control distribution of product. Such actions were immoral and unsustainable. In time, the consequences would eventually catch up to the Dutch Republic.

Records from as early as 1630 show that the natives of Southeast Asia were severely impoverished as the result of both the Dutch Republic’s and English’s hold on their resources and society. Geological and social disruption inflicted by the Dutch Republic, eventually caused the crumbling of the natives’ economic and cultural systems. The denigration of such systems, which were reliant on plant-based knowledge and production, have only recently been accessed through the social lens of culture and labor roles. Just as religious relations were a critical component to the success of the Batavian settlement, from an socio economic standpoint, so too were gender relations. Gender played an integral role within the complex spice trade—from a perspective of knowledge, operation and labor.

Albeit Karl Marx’s commentary upon social labor theories were written in a modern context, his theories are applicable as a form of measurement for the assessment of labor and commodity production from a historical perspective. But caveats must be raised upon applying such theories. For instance, he once wrote, “What the working man sells is not directly his Labour, but his Labouring Power, the temporary disposal of which he makes over to the capitalist.” Statements such as this distracts our logic and greatly manipulates one’s ability to properly assess concepts such as “labour” and “laboring power.” It, along with much scholarship, projects the notion that only male laborers were/are key figures in the study of labor. It also adds to the problematic assumption that labor dynamics and histories for males and females are one in the same. Historical narratives too often ignore the role in which women played within the labor force required for the spice trade.

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265 Marx and Antonio, “From Value, Price and Profit (1898),” 114.
Chapter VII

Spicewives and Labor

“She gave the king a hundred and twenty talents of gold, and a very great amount of spices and precious stones. Never again did such abundance of spices come in as that which the queen of Sheba gave King Solomon.”

1 Kings 10:10

Sex as a biological distinction between types of humans; sex as an act of human reproduction; sex as in the vast spectrum of sexuality, emotion and power dynamics—is fundamentally linked to the history of the plant-based spice trade. As scientist, historian and author Evelyn Fox Keller attests, “Just as science is not the purely cognitive endeavor we once thought it, neither is it as impersonal as we thought: science is a deeply personal as well as a social activity.” Underlining many social activities, especially the production of spices and spice-based knowledge, is the complex aspect of sex. The term “sex” is loaded with various meanings, not only in social discourse but as well in historical scholarship. As a result, the subject is avoided within much scholarly literature.

The roles of women and girls in the social production of spices and spice-based knowledge are subtly alluded to in Garcia de Orta’s *Colóquios dos simples e drogas he cousas medicinais da Índia* (Colloquies on the Simples and Drugs of India) (1563). Using storytelling as an artistic and philosophical tool, Orta’s presentation of the “SERVANT GIRL” named Antonia offers a contemporary critique on the general perspective held by sixteenth century European humanists on the subject of the female gender and their role within plant-based knowledge. It as well indirectly brings to a dim light females’ labor roles under the power of male-led households.

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266 Keller, p. 7.
What was the general consensus of the seventeenth century Dutch Republic’s view on females’ role within the cultivation of plant-based knowledge and production of such plants? Did they learn from such spice wives, as well and disseminate their knowledge? I use the phrase “spice wives” as a play on the phrase “herb wives” to denote the geographical and cultural difference of such green-thumbed females.

The term “herb wives,” mentioned within herbal and medical scholarship, was most prominent prior to the eighteenth century Linnaean boom.267 This social and functional categorization—made distinct by gender—beckons greater curiosity when one bears in mind the fore mentioned issues pertaining to the classification and distinction between herbs and spices. Linguistically speaking, from the perspective of modern botanical scholarship, such a term implies that such women were only versed in non-woody simple plants. It masks the notion that women were as well skilled in other plant forms, including spices. The inclusion of spices such as ginger, pepper and cinnamon in seventeenth century and earlier herbal recipes pertaining to women’s healthcare, reinforces this thinking.

The “herb wives” of the sixteenth and seventeenth botanical literature were acknowledged in some regard for their wisdoms, but their value were often brushed over in scholarship. Their roles within the collective system of botany were in time diminished. Much of the literature referring to “herb wives” were produced within, and referred to those women who lived in temperate climates. As highlighted before, spice-producing woody perennials come from tropical climates. If European men applied and circulated gendered biases against their own women in medical and scientific literature, what happened when European men, particularly those of the Dutch Republic, encountered women in Asia who held plant-based knowledge?

267 Rebecca Laroche writes, “William Turner, a physician now commonly known as the “Father of English Botany” writes to exclude the herbwives—gatherers and sellers of herbs—from the circulation of herbal knowledge, publishing his herbal so that others, like himself, would be “not trusting onlye to the olde herbe wives” (sig.*3r). See Rebecca Laroche, Medical Authority and Englishwomen’s Herbal Texts 1550-1650, (Burlington, Vermont and Surrey, England: Ashgate Publishing, 2009), 6; Yet, when Sir Joseph Banks, a president of the Royal Society, was a young boy, he paid those same herb-women to tutor him on the names of flowers. See Bushnell, Green Desire, 171.
As the largest chamber of the VOC, Amsterdam was the Dutch Republic’s domestic epicenter of commerce. There, “[s]ilk, precious gems, pepper, ginger, cinnamon, cassia, nutmeg, and other spices along with countless herbs and roots…from Java to Amsterdam”268 were abound. The *Apotheosis of the Dutch East India Company (Allegory of the Amsterdam Chamber of Commerce of the VOC)*, a painting by Nicolaas Verkolje (1702 – 1746), was created for the first centennial of the VOC (See illustrations 30). The painting presents us with the allegorical Maid of Amsterdam. Its brush strokes render a telling historical commentary on the spice trade in the veil of allegory. A mere glance only reveals an aesthetically pleasing painting. In-depth engagement and analysis with the painting presents a multi-layered story.

Though the painting is not a polyptych in the sense that it is not divided into a series of panels, its composition is rendered similar to the orchestration of a octaptych. Collectively, the frames are only visibly defined by eight individual narratives that are personified as either a single individual or group of individuals. Viewers are invited to read the visual story in any particular order that they please. It is suggested however to approach the painting in three parts: first, from the assessment of the central figure, the Maid of Amsterdam; second, from the left portion of the painting working one’s way from the Maid of Amsterdam through the left visual field of the canvas; and thirdly, the right portion of the painting, working one’s way from the Maid of Amsterdam through the right visual field of the canvas.

As the prominent focal point of the painting, the Maid of Amsterdam sits in her grandeur radiant upon her commercial throne of the VOC. She wears a nautical crown upon her head and holds a sword in her right hand that has a resting laurel on its top and holds in her left arm a book and a scroll. Her left foot rests upon the marble floor and she

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29 Claes Jansz Visscher (II) and Pieter Bast, *Profile View of Amsterdam (plate 4)*, 1611. Engraving on paper, h 256mm × w 251mm. The Rijksmuseum, Amsterdam.

30 Nicolaas Verkolje, *Apotheosis of the Dutch East India Company (Allegory of the Amsterdam Chamber of Commerce of the VOC)*, c.1702 – 1746. Oil on canvas, h 59.5cm × w 85cm. The Rijksmuseum, Amsterdam.
anchors her right foot upon a tortoise. Her majesty is obvious and grand. However, she is a visual distraction for she deflects attention away from the allegory and characters that surrounds her.

To the Maid’s immediate right, which appears in the viewer’s left visual field, Hermes/Mercury, the god of trade, transitions, boundaries and communication casually rests his left arm upon the rear of her throne, resting his caduceus staff over her head. Further to the Maid’s right, still within the viewer’s left visual field, sits a fair-skinned woman who sits upon a chair and holds a small key in her right hand. The dog who sits at this woman’s feet is the only one in the painting who appears to be looking at the viewer. The seated woman looks towards the Maid of Amsterdam, beckoning her attention and gesturing with her left arm. As viewers follow the line of the woman’s extended arm, we are met with a rather chaotic scene in the background. The other characters in the painting appear to either ignore this seen or rest in obliviousness. The fair-skinned woman points to another fair-skinned woman who is obscured in the background. Everyone else’s gaze in the painting, with the exception of the dog, is metaphorically directed in the eastern direction. The woman in the remote background appears up in arms with ships nearby in the background.

To the Maid’s immediate left, which appears in the viewer’s right visual field, a woman of mixed ethnicity holds a very large key in comparison to the woman on the opposite side of the Maid. This woman however sits upon the steps of the Maid’s throne verses a chair. Though her composition indicates a lower stature, the woman sits upon nautical maps and tools, rendering her still with great importance. To her right are two putti, one of which holds a silver cornucopia that is overflowing with spices such as cinnamon, mace, ginger and pepper. The other holds a string of pearls. Beyond them is the god of the sea, Poseidon/Neptune. And against the backdrop of the eastern sun rise are men sailing off to sea.

The painting’s comprehensive visual narrative conveys both the great value and
attention that the VOC placed upon the bounty that resided in Asia. It as well subtly
presents a narrative on the existent and important gender and labor dynamics in the
eastern lands. Women were crucial players to the Dutch Republic’s labor force within the
trade of spices. The woman of mixed ethnicity in the painting can be viewed as the
representation of the overseas labor class that fueled the Dutch Republic’s economy.

The cultivation, use and trade of plants was a practice that was inclusive of both
women and men. By the seventeenth century however, social disruption fractured
women’s place within both the epistemological and labor realms of plant-based trade and
knowledge. Scholars such as Robert Muchembled, William Monter and Rebecca W.
Bushnell have explored these social aspects in further depth, but merely from the
standpoint of the study of European women in their greater society. Searching the VOC
archives, an organization made up overwhelming of men, for historical insights into
business and personal relationships with women appears to be a hopeless task. That is not
to suggest that the VOC did not have female staff. They did have a few, but tracing their
records is laced with many challenges.

It is only within the last few decades that “herstories” from Southeast Asia have
been incorporated into the scholarly landscape written on the history of knowledge,
science and trade. Historian Leonard Blussé, consulted the archives of the Dutch
Reformed Church community in Batavia and the Acta of the Church Council to provide
new insights into females’ roles within early seventeenth century Batavian society.
Though gender is the underlying theme of his study, he approaches the subject of women
in Batavia through the lens of colonization, missionary efforts and acculturation. On the
other hand, Barbara Watson Andaya, professor of Asian studies at the University of
Hawaii, sheds a much needed light on the labor roles of women in the Spice Islands.
Complementary to these studies is Joan Wallace’s Scott’s Gender and the Politics of

\[\text{269 Muchembled, Monter and European Science Foundation, Cultural Exchange in Early Modern Europe (2006); Bushnell, Green Desire, (2003).}\]

\[\text{270 Blussé, Strange Company, 156.}\]
History. Her work constructs intellectual parameters from which a study on women’s labor roles in history can be written. Scott writes:

We must also eschew the compartmentalizing tendency of so much of social history that relegates sex and gender to the institution of the family, associates class with the workplace and the community, and locates war and constitutional issues exclusively in the domain of “high politics” of government states. Since all institutions employ some divisions of labor, since the structures of many institutions employ some divisions of labor, since the structures of many institutions are premised on sexual division of labor (even if such divisions exclude one sex or the other), since references to the body often legitimize the forms institutions take, gender is, in fact, an aspect of social organization generally.\[271\]

Andaya’s research is amongst the first to investigate the social and economical status of women in Southeast Asia from the pre-modern period. Her findings suggest that compared to women in India and China, women in Southeast Asia had comparatively higher social status. The parameters of her study reside within Sumatra\[272\] of the seventeenth and eighteenth centuries and focuses on the development of its pepper trade. Women were as well merchants and producers of pepper and other plant-based products. That is why Andaya calls for more theoretical and comparative research on other pre-industrial societies to better understand the trajectory of pepper from the family garden to the commercial fields.\[273\] Such is similar to the call from scholars’ Jennifer Spinks and Susan Broomhall who petition for more in-depth exploration of female labor and the sixteenth and seventeenth century textile industry in Leiden.

Examinations of pre- and post-industrial societies present a correlation between the level of women’s control over economic resources within such societies and the values placed on such resources, as well as women’s general social status. Observance and interaction with the diverse social climate of Southeast Asia introduced both the Portuguese and Dutch, as well as the Chinese, to unfamiliar circumstances. For instance,

\[271\] Scott, Gender and the Politics of History, 6.

\[272\] The island of Sumatra is made of several provinces including Aceh, North Sumatra, West Sumatra and Jambi.

the thirteenth century imperial Chinese envoy Zhou Daguan was taken aback to have witnessed that in Cambodia it was “the women who take charge of trade.” Similar culture shock was experienced when the Portuguese realized that it in the Moluccas, it was “the women who negotiate, do business, buy and sell.” A 1596 Dutch drawing of a Banten (Bantam) market shows female traders selling fruits, legumes and textiles from baskets (See illustration 32). Male traders are shown in the drawing to be selling a myriad of items such as honey, fish, poultry and spices. The image on its own renders the notion that the women of Banten did not have a hand in late sixteenth pepper sales. Yet, a 1598 Dutch chronicles records the surprise of seeing women selling both food and pepper to merchants at the west Java port of Banten.

A common denominator underlines the culture shock experienced by the Portuguese, Dutch and Chinese. They were all patriarchal-based societies. Regions where Confucianism was widely observed, such as Vietnam and China, held and circulated views of female inferiority and subservience. Prior to the advent of Confucianism, Taoism was the prominent belief system amongst the Chinese culture. As the late neurosurgeon and historian Leonard Shlain noted, “Taoism represented an egalitarian feminine viewpoint from the past. Confucianism championed masculine dominance and became the creed of the future.” Where as in the highlands of West Sumatra for instance, the Minangkabau culture had matrilineal land rights. Though Christianity is one of the three Abrahamic religions, its culture was not widely accustomed to issuing

274 Zhou Daguan, translated into English from the French version by Paul Pelliot of Chou’s Chinese original by J. Gilman d’Arcy, The Customs of Cambodia (Bangkok: Siam Society, 1987), 34.


31 Artist unknown. *Bazaar van Bantam*, 1596-1598.
Etching on paper, h 187mm × w 420mm. The Rijksmuseum, Amsterdam.

Oil on canvas, h 106 cm × w 174.5 cm. The Rijksmuseum, Amsterdam.
land rights to women. Yet in Islamic culture, another Abrahamic religion, matrilineal land rights did exist. This is one of the reasons why female political power existed on several occasions in the various Islamic ruled regions of the seventeenth century Spice Islands.

In her dissertation entitled, “The Age of Aceh and The Evolution of Kingship: 1599-1641 (2011),” written for her Ph.D. in history from Leiden University, the versatile scholar and native of Leiden, Ingrid Saroda Mitrasing explored female rule during the seventeenth century on the island of Aceh. Pepper was Aceh’s greatest means of wealth and power throughout the seventeenth century. The four successive female leaders that she focused upon ruled from 1641-1699. Archaeologist however discovered the tombstone of the female Islamic ruler Nur Ilah (d.1380) in Aceh, indicating that not only was Islam’s presence already instated in some areas of Aceh when the Portuguese first conquered the Malaccas, but as well female political leadership existed even then.

The very first European commentary on Aceh comes from the English John Davis. Davis first ventured to the province of Sumatra in 1599 with the Dutch Republic’s Zeeland voyage. He returned again in 1602 on an English voyage and observed:

The State is governed by five principal men, with their inferior officers, his (the sultan’s) secretary and four called shahbandars, with these rest all authority. His women are his chiefest councillors. A woman is his admiral, for he will trust no men.

The Sultan’s shahbandar, who handled aspects of business and trade relations, sought the allegiance of the orangkaya—the privileged class that consisted of rich merchants, chiefs and nobles—for their accumulated wealth benefited the collective wealth of the Sultan.

The Dutch first witnessed the Sumatran pepper vines while their vessels sailed through the Sunda Straits in 1596. However, prior to their arrival, the Portuguese had dominated the region. As the first form of “green gold” to be developed within Southeast

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280 The female admiral was named Keumalahayati. These mentions by John Davis are found in, Albert Hastings Markham (ed.), The Voyages and Works of John Davis the Navigator (London: Hakluyt Society, 1880), 141.
Asia, pepper served as the catalyst for global trade. It was first introduced to the region in 1450. Prior to its implementation as a cash commodity, females controlled horticulture, particularly in the cultivation of rice, from both a cultivation and marketing standpoint. During its infancy within Sumatra’s system of horticulture, pepper was cultivated in the gardens of women. They sold their final product at local markets not too far away from their homes. After the arrival of the Europeans however, not only did the points of pepper exchange move from interior lands to the periphery of the shorelines, eventually the very process by which the product was produced was altered. On the notion of products, Karl Marx wrote:

A man who produces an article for his own immediate use, to consume it himself, creates a \textit{product}, but not a \textit{commodity}. As a self-sustaining producer he has nothing to do with society. But to produce a \textit{commodity}, a man must not only produce an article satisfying some \textit{social} want, but his labour itself must form part and parcel of the total sum of labour expended by society.\footnote{Marx and Antonio, “From Value, Price and Profit (1898),” 108.}

At first, the flux of wealth for the local women was welcomed until the many tolls of the labor demands and social change took place. Soon a surge of slaves\textsuperscript{283} from areas such as Palembang were acquired by many households in order to meet the production demands. And even when the female led gardens were able to produce more pepper, as port areas grew to be the center of European led trade, women were faced with the threat of theft on their ventures to the markets, as they had to leave their commodities back home alone a longer period of time.\footnote{Li Tana and Anthony Reid, \textit{Southern Vietnam under the Nguyen: Documents on the Economic History of Cochin (Dhng Trong), 1602-1777} (Singapore: Institute of Southeast Asian Studies, 1993), 17.}

\footnote{Andaya’s research suggests that earlier horticultural practices for rice production consisted of men clearing the jungle and women and children planting, tending and harvesting the rice crop. See Andaya, “Women and Economic Change,” 171.}

\footnote{Laborers were often Chinese men that were imported by other Chinese business people. As well included were Sudanese laborers, the most common ethnic group in west Java. They were outsourced by their chiefs. See Taylor, “Meditations on a Portrait,” 43.}
scratched with gender bias. It as well indirectly assumes that labor for males and women have been and are treated and acknowledged the same with in life and literature.

In the pursuit of building a monopoly, the VOC directly and indirectly caused economic and social disruption within the Moluccas. Their production demands for pepper put pressure on the lands and its people. As well, it fed the greed of rulership who sought opportunity for fiscal or political gains in exchange for spices. In time, control over the production of the spices shifted from the hands of the locals, which included women, to those of foreign men and power driven rulers. Traditional explanation for the decline of pepper production in the East is doused in generic narratives that suggests that locals’ resistance to the industry served as a barrier to the production of pepper. There is truth in such claims. In addition to such arguments, Andaya suggests that newly implemented European policies altered the traditional horticultural and economic roles of women, and as a result impeded on pepper production overtime. However, the region’s own leadership also contributed to the shifting labor dynamics throughout Southeast Asia.

In 1602, Sultan Alau’d-din Ri’ayat Shah saw an opportunity with the arrival of the newly formed VOC and sought the assistance Cornelis de Houtman’s fleet to attack Johor in exchange for pepper. As Johor was supported by the Portuguese in their plan to take over the Moluccas, and the Portuguese were viewed as an enemy by the Aceh, the Sultan’s request to the VOC was strategic. A Dutch Republic /Aceh alliance at the inception of the VOC’s entry into the Spice Islands was a win/win situation. By 1615, the VOC’s methodologies and outlooks for spice production drastically changed upon the establishment of its Jambi station in Sumatra in 1615. Furthermore, the political relationships between the VOC and Aceh leadership shifted in time. For instance, in 1616, the Dutch Cornelis Comans was appointed special ambassador to the Sultan of Aceh till 1619. In 1619, he wrote to Jan Pieterszoon Coen, then director-general of the VOC’s central station in Batavia, to alert him of the fleeing chief Raja Lila from western

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Aceh who had sought help from the Dutch Republic. He wanted their help to overthrow the Sultan for the leader issued orders that the chief’s wife become his concubine. For the VOC’s aide, the chief offered the exchange of pepper.

Mitrasing mentions that many sources confirm that the Sultan Iskandar Muda was viewed as a cruel tyrant who exploited the region’s trade for selfish means.\textsuperscript{286} The commercial relationship between the VOC and the Sultan at the time was based on the conditional privileges that were issued by the Sultan. Considering Coen’s position towards the Sultan, chief Lila’s proposition came as relief. Coen wrote in that same year:

\textit{…to meekly follow the Muslim princes who treat us as if we are their slaves, but they don’t understand that they need us as badly as we need them. God willing this situation shall change and we shall soon be in the position to determine the rules.}\textsuperscript{287}

Concubines were not only sought out by Sultans of Aceh. The Portuguese were notorious for their colonization style, which included concubinage and marriage to orphaned Portuguese girls.\textsuperscript{288} Members of the VOC were known as well to seek out concubines. Unorthodox methods of social management, sex and human reproduction were especially abounding in Batavia. Moralities were in disarray and the rise of coincubinage, prostitution and rape steadily climbed.\textsuperscript{289}

Stories such as Maria, a native Bativan woman, sheds light on the climate that

\textsuperscript{286} Mitrasing, “The Age of Aceh”, 1.


\textsuperscript{289} Physicians were not only needed to provide general healthcare for VOC employees during their general nautical voyages or stationary post. They had to offer reproductive healthcare as well, as is a natural extension of human care management. Bontius learned from the natives how to treat, \textit{“Of the Herpes, or a species of the. Indian Impetigo, which the Inhabitants tall a Cowrap”} using Gum Benzoin, a resin that is derived from the bark of a tree. Given that there was an increase of coincubinage, prostitution and rape taking place in Batavia, such a botanical remedy was an important treatment to have. Bontius added his own testimony in his inclusion of the treatment as arms and chest were infested with the “loathsome disease.” See James Bontius, \textit{An account of the diseases, natural history and medicines of the East Indies / translated from the latin of James Bontius... ; to which are added annotations by a physician.} Printed for T. Noteman ...(1769). Accessed July 17, 2015. http://babel.hathitrust.org/cgi/pt?id=ucm.532903835x;view=1up;seq=15.
was an unintentional social experiment gone bad. She complained to the VOC council on 13 August 1625 that her husband Manuel forced both her and her female slave into prostitution with Dutch clientele.\textsuperscript{290} Coen wanted to eradicate such types of situations for his observations led him to conclude that it led to both high cases of abortion, infanticide and illegitimate offspring. Eventually, a new colonization policy was issued in the Bataviasche Statuten of 1642:

The Indian colonies must be promoted with native nations on the Portuguese example. [...] The Indian world is too big for us to possess for ourselves alone, and our country is too small to dispatch such a force as is needed for the stabilization of a colony.\textsuperscript{291}

As early as 1607, VOC employees were granted permission to marry the local woman of Ambon.\textsuperscript{292} Human reproduction was a key component to the success of the Dutch Republic’s economic power in Asia. However, by the year 1621, some of the local natives of the land rose up in rebellion both against the Aceh Sultan as well as his political ally, the Dutch Republic. Many of the natives of the island of Banta, a primary source of cloves and source of slaves used by those in Batavia, were massacred by the leadership of Coen. The VOC needed to ensure that a loyal labor pool in which they could control came to be. However, the Heren XVII, stationed back in Holland did not originally initiate such extreme tactics. The Heren XVII’s initial directive was that “special attention must be paid to driving a peaceful trade throughout all Asia, which is what keeps the cooking going in the kitchens of the fatherland.”\textsuperscript{293}

It was Coen who petitioned to the Gentlemen XVII in Amsterdam to partake in an active role in the coupling of men and women in Batavia. From leadership’s point of view, daily life and operations were crafted for the benefit of the VOC. Family values and

\textsuperscript{290} Tiele and Heeres, \textit{Bouwstoffen} 1, 215-216.

\textsuperscript{291} Translation from Blussé, \textit{Strange Company}, 162.

\textsuperscript{292} ibid., 158.

\textsuperscript{293} Hochstrasser, “The Conquest of Spice,” 169.
human reproduction methods were too under its control. Families were not merely seen from the perspective of a social unit, but from an economic one. Under the company’s management, women were viewed as necessary tool for which the VOC’s financial survival depended on. In 1623, Coen confidentially presented his population growth plan for Batavia.

“Who does not know that the human race cannot exist without women?” Coen wrote. “If there were women here, the staple of the Indian trade would be yours.” In addition to requesting that reputable families be relocated to Batavia, his plan entailed extracting four to five hundred boys and girls, ages 10 to 12 at a ratio of 2:1 boys, to be sent to Batavia from orphanages in the Dutch Republic. He had as well established the School For The Putative Virgins. The VOC-financed school was built so that girls could “be brought up, clothed, taught and educated by some of the most able women until -coming of age- they can be married to good honest husbands, in order that honourable families may originate from these alliances.” However, the arrival of the young girls to Batavia in 1623 brought great disappointment. Coen complained:

[N]either free women nor female slaves are so unfit and ill-mannered as some of the [Dutch] daughters who have arrived by this ship. It is almost as if they originate from the wilderness instead of having been brought up among people.

The expectation of employing and distilling the values of “Dutch” woman within the VOC station, and by default influencing the culture of native women within the parameters of Batavia, by way of their customs was foiled. It did not help the agenda that in time, baroness, infant mortality, and abortions contributed to the lack of offspring in

295 ibid., 160.
296 ibid.
297 ibid.
298 Translation for Coen 1:731-2 from Blussé, Strange Company, 160.
Batavia by European family units.

The general populace of VOC men stationed at Batavia came to the conclusion “that when our men marry native women, strong robust children are produced, who stay alive.”\textsuperscript{299} As a result, the sponsorship of women from the Netherlands was halted. In 1632, the school for the Putative Virgins, which then only had eleven Netherlandish girls enrolled, was closed.\textsuperscript{300} Ironically, by the end of that year, the only female employee on the VOC payroll was a midwife. However, VOC officials were in contact with native midwives of Batavia.

Jacob Bontius (1592-1631), son of Leiden University’s first active professor of medicine, and brother of Reinus and Wilhelmus Bontius, was a graduate of Leiden University’s medical program and a physician employed by the VOC. He arrived in Batavia in 1627. In service he pondered, “I often marvel at the carelessness of our people, who without respect call these people barbarians, although not only in their knowledge of herbs but in all aspects of their economic system leave our own far behind.”\textsuperscript{301} He went on to observe:

> Every Malay woman practices medicine and midwifery so well that — I confess that it is the case — I would prefer to submit myself to such hands than to a half-taught doctor or arrogant surgeons whose shadow of an education was acquired in schools, being inflated with presumption while having no real experience.

During his time in Batavia, Bontius aimed “not only to attain a knowledge of the herbs growing here in Java, but likewise to acquire a more perfect idea of the aromatics in which our part of the country is the most fruitful.”\textsuperscript{302} Within the works of his forefathers, he discovered “that they had related many things upon the authority of

\textsuperscript{299} Translation for VOC 1105, f.333; ibid., 161.

\textsuperscript{300} ibid.

\textsuperscript{301} Translated quotations are taken from an address made by Harold John Cook, \textit{Medicine, Materialism, Globalism: The Example of the Dutch Golden Age} (London: University College London) February 27, 2003.

\textsuperscript{302} Bontius, \textit{An account of the diseases}, 167-168.
others, which, by ocular examination, I discovered to be false.” Bontius cross-referenced the works of Garcia de Orta, Christopher Acosta and Carlous Clusius, to his first-hand knowledge observed during his station in Batavia. To his brother William, he wrote that his aims were not to discredit the value added by such men, attesting to their fidelity and contribution, but saw the need to send back certain truths to his country. He offered addendums and corrections to the prior Netherlandish understandings of plant-base knowledge based upon his observations, research and talks with local experts, which included women.

Bontius’ accounts were written between 1627 and 1631. The work entitled, De Medicina Indorum (On The Medicine of the Indies), is partially organized in a standard chapter structure that contains general observations and critiques on various ailments and remedies that utilize plants, including spices, from the region. But as well, Bontius included the section “Dialogues on the Preservation of Health, and on the Diet most suitable in the Indies,” which follows a similar organization to Orta’s Colóquios. The dialogues take place between Bontius and an assumed fictitious physician named “Andrew Duræus.” Bontius’ work in Batavia came to eventually serve as the new standard of work on Asian plants and medicine. His work stood on the shoulders of Clusius and Orta and built upon them. For instance, he revealed to his brother and country men:

PEPPER is produced not only in Malabar, as [Orta] says in the 10th paragraph, but in great quantity, likewise, in the kingdom of Java, especially the province of Bantam. It also grows plentifully in Sumatra, which has a prince of its own, not subject to the king of Achin.305

In addition, his critiques exposed the importance for first hand field research. For instance, he explained that “the Indian saffron, which [Orta] here describes, is nothing else than the root called Turmeric in our country...I am surprised that Garcia d’Orta has

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305 Bontius, An account of the diseases, 195.
said so little of this noble plant, as it is the most used of any in all India.\textsuperscript{304}

During his last year of life, Jacob sent his studies and accounts of Batavia to his brother, Wilhelms Bontius, a professor of law at Leiden University. However, it was not till 1642 that his work, \textit{De Medicina Indorum} (\textit{On The Medicine of the Indies}), was published in Leiden (See illustration 33). This publication did not gain that much traction. In 1658 Bontius’ work was resurrected and disseminated within the European sphere by Willem Piso (1611-78). Piso started his medical studies at Leiden University, but later transferred to Caen in France, graduating in 1633. After practicing as a physician for a few years, he was hired by the Dutch West India Company to serve as personal physician to Count Johan Maurits van Nassau-Siegen while abroad in Brazil. During his time in Brazil, Piso studied the region’s nature and medical remedies alongside the scholar Georg Marcgraf. Together they co-wrote and published the voluminous work, \textit{Historia Naturalis Brasiliae} (1648). For various reasons still under dispute, Piso published a modified version of this work, under the pen of his name alone, minus Marcgraf. However, within this volume, Piso included the work of another—Bontius. \textit{De Indiae Utriusque Re Naturali et Medica} (1658) accredits sixty-two of the plants contained within the work to Bontius in fact.

Though Bontius was not the first scholar to document his observations and research the subject of eastern medicine and natural history, he is the first physician to have sent his findings back to a central disseminator of knowledge—an academic institution. Bontius attempted to activate a multi-directional network of knowledge for the purpose of ensuring the most up to date understandings of plant-based knowledge were held. Eventually, another affiliate from the school of medicine at Leiden University picked up his work and built upon the knowledge that Bontius sent back to Leiden.

Prior to Bontius, it was Clusius who attempted to expand the frame work of spice-based knowledge. Though he himself did not go to the Spice Islands, Clusius expanded

\textsuperscript{304} Bontius, \textit{An account of the diseases}, 209.
33 Franciscus Hackius, Jacobus Bontius’s *De medicina Indorv*. (Frontispiece), 1642. Engraving on paper, h 111 mm × w 57 mm. The Rijksmuseum, Amsterdam.
his sources of plant-based knowledge, including spices, by way of consulting various works, conversing with other plant-experts, consulting specimens and interviewing primary sources of spice-based information. The first physician/botanist to both conduct first hand research on Asian plant-based knowledge and record his findings for the purpose of collectively fueling scholarship was Garcia de Orta.

Though Orta was a lecturer at the University of Lisbon, it appears that he left due to its religiously intolerant environment. There was no clear receiving end on the European front that he could rely upon to circulate his findings and stories amongst a large group of intellectuals. He relied on the form of story to travel and reach whatever viewers who were willing to read his work. His intention was not to contribute to an existing seat of knowledge’s circulation of data. And as mentioned, there is little historical evidence that links Portugal’s seamen and crew to that of its university or the university’s affiliates. On the other hand, Leiden University’s social history served as an active conduit for the exchange and transport of knowledge, particularly plant-based knowledge, for academic elites, as well as political and mercantile affiliates.

Leiden University was the Dutch Republic’s central sphere of knowledge production and circulation. It was a primary source of information for the VOC and as a result formed a collaborative channel of knowledge transmission. There would be periods of conflicts between the university and its network along such channels during the late sixteenth century till the mid-seventeenth. When the communication channels were in synchronization, the results were substantial. Knowledge of the arts and sciences served as key roles in the acquisition of ‘green gold,’ and the initial management of international relations relating to the spice trade.
Chapter VIII

A Pedagogical Reformation

“In the case of scientists on an individual basis, each scientist is taught a shared paradigm, but all are not taught the same ways of implementing such a paradigm. Standardization within the scientific community is mythicized and in essence, a paradigm is relative to the scientist and his or hers education.”

Thomas S. Kuhn, The Structure of Scientific Revolutions

In sixteenth century Lisbon, inquisitional records suggest that several New Christians sought refuge in academia, whether via professorship or discipleship. As Garcia de Orta’s history shows, upon the realization that even academia was no longer a safe haven for religious tolerance, he like many fled the region. Scholar Frijhoff claimed that within the city of Leiden, academia, whether via professorship or discipleship, served as refuge for the elite during economic downturns (i.e. when the economy was up, Frijhoff observed that student enrollment was down). A closer look at Leiden University’s historiography suggests otherwise. There too was a flux of fleeing European refugees escaping the ramifications of the Protestant Reformation. Europe stood divided from the inception of the Protestant Reformation, which began in 1524 and carried through the Dutch Revolt (1568–1648), the French Wars of Religion (1562–1598) and The Thirty Years’ War (1618–1648). However, one of the biggest distinction between the University of Lisbon/ University of Coimbra and Leiden University, was their policies on religious tolerance. The difference was that Leiden University had one and accepted

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students of all faiths openly for a period of time.\footnote{307}{The Synod of Dordt defiled the once religiously inclusive academic setting.}

The influx of various forms of cultural knowledge and identities enriched Leiden University’s faculty and student body makeup. It was a melting pot of religions and ideologies. Such pluralism did present great social challenges. However, Leiden University’s pervading humanistic nature, for a period of time, helped to balance the social complexities that came to construct its epistemological community.

Humanism’s etymology has undergone an evolution in the last several years. In the context of the renaissance and early modern period, humanism was a sheer philosophy that upheld the charismatic appeal of the knowledge that resided within the works of the ancients on the subjects of life, values and knowledge itself. It was not a religion, nor a particular set of ideologies born from the creed of one particular person or body of work. However, its intellectual point of reference resided in an Aristotelian paradigm. The system of thought did grant space for various forms of new and blooming knowledge to come into existence. It was a non-denominational philosophy, albeit geared towards masculinity and men.

Leonard Shlain suggested that humanism, particularly the form born out of the renaissance period, should have been named “Masculinism.”\footnote{308}{Shlain, \emph{The Alphabet versus the Goddess}, 312.} Michelangelo di Lodovico Buonarroti Simoni (1475 –1564) was the grand creative director of this theme. Shlain raised the argument that though women were visually prominent during the high-renaissance art boom, the common image of a female that was circulated was either of a woman in sorrow (think of Michelangelo’s \emph{Pieta}); being raped (Many artists took up this theme, but popular themes include the rape of Sabine, Europa and Leda and the Swan); or the circulation of the celebration of macho themes and the male body and conquering, such as Michelangelo’s \emph{David} and Benvenuto Cellini’s (1500 –1571) \emph{Perseus}, prevailed. And most importantly, we must not forget the most famous work of art to come out of the
Renaissance, Michelangelo’s painting upon the Sistine Chapel’s ceiling. *The Creation of Adam* boldly lifted “Man” front and center of man’s consciousness.

The “humanism” of the renaissance period created a surge of proscribed gendered images and narratives throughout European culture. Shlain made the past diagnosis that such an influx of imagery and themes had a neurological/psychological and social effect. There is substantial support for his theory. Take for instance the early modern period’s witch-craze. A survey of both the gendered-genocide that took place under the veil of the witch-hunt,\(^{309}\) juxtaposed against the surge of “witches” as subjects in art, theological and medical writing presents disturbing correlations.

As the witch-hunts of the early modern period/Protestant Reformation leashed its wrath throughout the majority of Europe, witchcraft accusations and persecutions remained low in Holland, relative to other European regions.\(^{310}\) While women were being burned at the stake, the Dutch physician and demonologist, Jan Wier was reflecting upon the social phenomena that pervaded the European lands. His *De praestigiis daemonum, et incantationibus ac veneficiis (On devilish delusions and on enchantments and poisonings)* (1563) was considered by Sigmund Freud to be one of the top ten most significant books ever published. Amongst other topics such as demonology, Wier’s work examines the physiology of melancholy against accusations of witchcraft. This work was translated into German and French during the sixteenth century, though it was not translated into English until 1991. However, the Englishman Reginald Scot (c.1538-99), who was not a physician, adapted Wier’s work and built upon his concepts in his treatise *The Discoverie of Witchcraft* (1584).

A legend that King James I of England had all copies of Scot’s work burned in

\(^{309}\) Of the projected 40,000-50,0000 executions that took place between the 15\textsuperscript{th} and 18\textsuperscript{th} centuries, approximately 75% were women. See Robin Briggs, *Witches and Neighbors: The Social and Cultural Context of European Witchcraft* (New York: Penguin, 1996), 260.

\(^{310}\) Prosecutions began in Holland around 1500 and began to decline in1608, although accusations continued and some prosecutions still were made sporadically.
1603, originated around 1659 and remains uncertain.  

Claudia Swan’s research however indicates that between 1601 and 1609, members from the Faculty of Medicine at Leiden University, along with Jacques de Gheyn’s brother-in-law, Govert Basson (1581/2-1643) and his father Thomas (c.1555-1613), translated Scots’ treatise. The latter two as well served as the publishers. This shows that faculty members, as well as others within its social network, took interest in the need to understand why Europeans had fallen into a witch-craze and perceived gendered biases. It was the infancy of a new era, becoming curious about the human mind. It as well, suggests that there was a level of empathy within the seat of knowledge against the burning of women at the stake.

Humanism greatly accentuated the Hippocratic methodologies and philosophies that were taught by the Faculty of Medicine at Leiden University. Two prominent aims of the collective humanist education were discipline and virtue. Such an education was diverse and inclusive of various subjects. In the tradition of the humanist physician, such a physician was seen as a scholar versed in Aristotelian teaching. Restoring health was more than treating a certain illness; the aim was to help the patient lived a balanced life, physically and socially.

From its inception, Leiden University’s greatest source of knowledge, its library, was as well governed by humanist librarians well into the seventeenth century. Janus Dousa, the Leiden hero who helped take command of the troops who held back the Hapsburgs during their attempted siege on the city in 1574, was designated the first curator of Leiden University. Prior his appointment, he published a collection of poems and continued to write poetry after he joined the university. Dousa as well began to study and write history simultaneously as he held his position as curator. In 1585, he was

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312 Around 1609, Jacques de Ghent produced a series of illustrations depicting witches as his primary subjects.

named the university’s first librarian though a designated library was not built until two years after his appointment. Under Dousa’s oversight and curation, Leiden University’s central seat of knowledge, its library, formed a humanistic identity.

Compared to the existing academic institutions in the Northern Netherlands, the initial foundation of Leiden University’s library was not out of the ordinary, though its early collection of works were not obtained from monasteries. Books were specially purchased for the use of pedagogy. While the first books were obtained from private collection, the earlier range of works were predominately similar to the other Northern Netherlandish academic collections. However, in 1587, when the humanist professor Bonaventura Vulcainus passed away, the intellectual capital within Leiden University’s library spiked in value.

Vulcanius left 57 books and manuscripts to the university from his private collection that included works such as: *Thesaurus linguae Graecae* and *Thesaurus linguae Latini*, by Henri Etienne, the complete works of Plato, Plutarch, Herodotus, Livy and Cicero, the *Auctores Rei medicae Graeci et Latini*, which was accompanied by complete editions of Galen and Vesalius, among other works on medicine, law, history and botany.\(^{314}\) With one swift acquisition, Leiden University’s library became a humanist’s haven. Considering the inventory that made up the library, Vulcanius’ donation drastically shaped the curation style of the library. The total collection of the new library’s titles included 338 books. Vulcanius’ humanistic collection increased the library’s volume by nearly 17% and covered various areas of study.\(^{315}\)

Another prominent humanist who taught at Leiden University was Justus Lipsius (1547–1606), an avid gardener and friend of both the Princess Marie de Brimeu and Carolis Clusius. He was professor of history by the Faculty of Philosophy at


\(^{315}\) First came theology, with the largest number of titles (103), followed by two fields of equal size: law (28 titles) and medicine (29). History (66 titles) and philosophy (67) were better represented, while mathematics (22 titles) and the art (23) were less prominent. See Berkvens-Stevelinck, *Magna Commoditas*, 33.
Leiden University in 1579. During his eleven years in Leiden, Lipsius greatly shaped the university’s curricula. He regarded history as the “civilis et moralis Philosophiae speculum aut exemplum,” i.e., the mirror or example of political and moral philosophy. He was an advocate of consulting the writings of classical antiquity in their unabridged form, as was a characteristic of humanistic thinking. He supported the study of Aristotle, Plato, Epictetus, Plutarch and Seneca.

In 1593, Dousa left his position of librarian to take a new position in the Supreme Court at The Hague. His son, Janus Dousa Junior, took over the library at the young age of twenty-one. Dousa Junior grew up and was educated within a humanist circle and often helped his father in the library in his earlier years. In 1594, he set off on a journey throughout Europe, leaving the management of the library to his friend Petrus Bertius, a former student of Lipsius. Bertius was tasked by the Curators to make a catalogue of all of the university’s books. In 1595, he presented them with the *Nomenclator*, printed by Raphelengius. It was the first full catalogue of the library’s inventory and the first printed record of any institutional library in Europe.\(^{316}\) The library’s 1595 collection consisted of 442 titles and approximately 525 volumes. The later catalogues that followed were from the library at Utrecht in 1608, where its collection had 4,500 titles;\(^{317}\) Amsterdam records 700 titles in 1612 and Wittenberg 1400 titles in 1678.\(^{318}\)

As historian Christiane Berkvens-Stevelinck rightly notes, no general conclusion on the ideological tonality of Leiden University’s library can be definitely made without a thorough comparative study of other European libraries.\(^{319}\) However, as mentioned, it took nearly twenty years for another university to produce an inventory catalogue. Without firmly knowing the contents of other contemporary European libraries during the late


\(^{317}\) In 1640, Leiden’s library collection peaked to 3,117 and in 1674 it reached 5,429.


\(^{319}\) ibid., 71.
sixteenth and early seventeenth centuries, a comprehensive study is not achievable. Conversely, a historical investigation of Leiden University’s library, as a subject of a greater institution of learning, provides an insightful backdrop to a general survey of the circulation of knowledge within Leiden University and amongst its affiliates.

Little is known about the influence that Dousa Junior directly had upon the library. He fell ill while traveling and died in 1596. After his death, the Curators instated Paullus Merula (1558-1607) as the new librarian in 1597. Because of a controversy surrounding accusations of sodomy and other reasons, Bertius’ reputation was damaged.  Therefore, he was not offered the position after Dousa Junior’s death. Merula, a native of Dordrecht, matriculated at Leiden University in 1578, where he attended lectures on Hebrew, Greek, mathematics and law. He went on to become a lawyer at the Court of Holland and eventually went on to teach history at the university. Merula greatly restored the management and quality of the library’s collection. He purchased and received a diverse amount of works from private collections. Encyclopedic volumes, manuscripts and pictorial knowledge (i.e. drawings, globes, maps and objects) began to grow within the collection as the result of his curation. Under his leadership, by the turn of the century, the library grew to become a popular public destination especially for scholars, merchants and political elites.

When the new library was opened on 24 May 1595, faculty members in addition to Curators, the regent and deputy regent of the Statencollege, members of the city council and eventually, governmental bodies in the Hague were issued keys to the library. However, because of disorganization and book theft, the library was closed for a temporary period in 1597. Afterwards, students’ use of the library was restricted to Wednesdays and Saturdays between the hours of 2pm until 4pm. Clearly such was not an

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320 Berkvens-Stevelinck, Magna Commoditas, 31.
ample amount of time for students to read and study.\textsuperscript{322} Because many figures, both within and outside of the university’s grounds, had keys to the library, it is a high probability that several key bearers were culprits of book theft. Unfortunately, the university’s earlier students became the scapegoats of staff, businessmen and elites.

In 1595, the library collection held 442 books and by 1640 it held 3,117. Unfortunately for the university’s students enrolled, between 1605 through 1630, the library was off limits to them. Scholars, politicians and merchant-elites, on the other hand, had unlimited access to Leiden University’s library through the first half of the seventeenth century. This time period corresponds to the rise and peak of the Dutch Republic’s economical and political success. One of the luckier students to have had access to Leiden University’s library as a student was the Frenchman René Descartes (1596–1650) in 1630.

It was not the first time that Descartes was in the Netherlands. Between 1618 and 1620, Descartes joined the Dutch Republic’s army in Breda, which was under the command of Prince Maurice of Nassau, stadtholder of the majority of the independent Low Countries. During his service, he met the Calvinist Isaac Beeckman. Beeckman held a doctorate in medicine from the University of Caen in Normandy and recently finished studying theology, literature and math at Leiden University. Beeckman studied under the Flemish engineer, mathematician and physicist Simon Stevin (1548 – 1620). Stevin was Prince Maurice of Nassau’s mathematical and science tutor\textsuperscript{323} and worked with the Prince to establish the ‘Duytsche Mathematicque,’ Leiden University’s school for engineering in 1600. It is known to have been the first program in the Netherlands to formalize a set curriculum and aided the Dutch Republic’s army.\textsuperscript{324}

\textsuperscript{322} Many matriculated students at Leiden University sought private lessons from willing professors and tutors.


Shortly after meeting Beeckman, the young Descartes wrote for him the *Musicae Compendium* (1618), a treatise on music theory. The two continued to discuss a series of mathematical problems, fueling Descartes’ interest in the field and fueling a budding friendship. After serving in the army, Descartes returned to France for a period of time, though his interests in mathematics did not die down. Eventually, he moved back to the Dutch Republic for he wanted to develop his ideas and believed that the intellectual landscape of Paris at the time was not conducive for doing so.

Descartes moved back to the Dutch Republic and lived there from 1628 to 1649. At the age of thirty-three, he matriculated as a student of mathematics at Leiden University on 27 June 1630. During that year, Descartes was living just outside the city of Leiden, in Amsterdam. It was then he said he was concluding “the most important occupation on which I could ever be employed.” He enjoyed living in Amsterdam because the majority of the city’s people worked in commerce, leaving his immediate environments rather quiet. He was not a complete hermit. During this period of time he took daily walks throughout the market area where “the produce of the Indies and the most rare items from Europe” could be found. But for the majority of his extra time, Descartes was working on *Le Monde (The World)* and *L’Homme (Man)*, his first systematic production of his natural philosophy. The work however was not published in Latin till posthumously in 1662.


325 This work was published posthumously in 1650.


328 Translated letter i.198 from Clarke, *Descartes*, 107.

329 Translated letter i.204 from ibid.
As a result of a shifting social and intellectual climate within the university, the faculty under which Descartes was studying, underwent a reconstruction of learning. As Peter Burke noted, there is a reoccurring tendency within the reorganization of curricula over the ages. It tends to fragment areas of studies into compartmentalized fields of specialization. His assessment as well applies to Leiden University’s restructuring of the organization of knowledge. From as far back as 1604, we know that the faculty of philosophy taught students of the arts the following from order of importance: rhetoric, eloquence, Greek and Hebrew, logic, ethics, physics, history and mathematics. However, when a new university charter was issued in 1631, the Faculty of Philosophy changed its name to “Faculty of Philosophy and of the Good Arts.” It added science and natural history within its portfolio of core area of expertise. With sciences and philosophy underneath one department of knowledge, and botany and medicine underneath another, a separation and fragmentation of knowledge occurred. On the subject of scientific revolutions, Thomas Kuhn concludes:

The formation of specialized journals, the foundation of specialists’ societies, and the claim for a special place in the curriculum have usually been associated with a group’s first reception of a single paradigm.

Prior the Faculty of Philosophy’s transformation in 1631, half of the Faculty of Medicine appointed at Leiden University before 1625, spent time as students at the humanistic influenced University of Padua, including chairs Gerardus Bontius, Johannes Heurnius and Petrus Pauw. The Faculty of Medicine at Leiden University was held in greater esteem over the Faculty of Philosophy at the time. As well, they had initiated and owned the domain of the study of the human body and the study of nature within their anatomical theater and the Hortus bontanicus. But as Prögler points out, the later heads of the Faculty of Medicine such as Johannes Walaeis (1633-49) and Francis Sylvius (private


The age of humanistic thinking began its decline at Leiden University’s after the Synod of Dordrecht. Simultaneously, Calvinism began to reaffirm its position amongst the faculty and student population.

At some point shortly after arriving to Leiden to study under The Faculty of Philosophy and of the Good Arts, Descartes began a friendship with the French theologian, philosopher and mathematician Marin Mersenne (1588 –1648). In one of their correspondences, Descartes disclosed that he had initially completed his first major work, *Le Monde (The World)* by 1633. Because he was privy to the happenings of the Galileo prosecutions taking place in Rome, he grew concerned that their ramifications would affect the reception of his work and his life. Descartes wrote:

> I had planned to send you my *World* as a New Year’s gift... But I should tell you that, having inquired recently in Leiden and Amsterdam whether Galileo’s System of the World [i.e., Dialogue] was available, since I thought I had heard that it was published in Italy last year, I was told that it had been published but that all the copies were immediately burned in Rome and that he had been fined. This surprised me so much that I more or less decided to burn all my papers, or at least not allow them to be seen by anyone. For I could not imagine that, as an Italian and even, I have heard, someone who is in the good graces of the Pope, he could have been convicted for nothing more than attempting, as he surely did, to establish the earth’s movement...I acknowledge that, if that is false, then so are all the foundations of my physics, because it is easily demonstrated from them. It is so connected with all the parts of my treatise, that I could not detach it from them without undermining everything that remains. But since I would not wish for all the world to publish a discourse in which the least word was disapproved by the Church, I have for that reason preferred to suppress it rather than to have it appear mutilated.334

Displaying insight knowledge of Galileo’s trials, and the reasoning for holding off with the publication of *Le Monde (The World)*, Descartes wrote to Mersenne on 2 February 1634:

> I hope that you will have greater respect for me when you see that I have decided to suppress completely the treatise that I wrote and to lose almost

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334 Translated letter i.270-1 from Clarke, *Descartes*, 112.
all my work over four years, in order to offer complete obedience to the Church insofar as it forbade the view that the earth moves. However, since I have not yet seen that the Pope or the Council has ratified this prohibition, which was made by the congregation of cardinals that was established for censuring books, I would very much like to know what people think about it now in France, and whether their authority is sufficient to turn the prohibition into an article of faith.\textsuperscript{335}

Furthermore, the letter confirms that Descartes began \textit{Le Monde (The World)} during the same year he matriculated at Leiden University.

Descartes’s first major work to be published during his lifetime was \textit{Discours de la méthode pour bien conduire sa raison, et chercher la vérité dans les sciences} (\textit{Discourse on the Method of Rightly Conducting One’s Reason and of Seeking Truth in the Sciences}) in 1637. It was published in the city of Leiden and went on to greatly influence many faculty members at the city’s university. Conversely, his philosophies were met with great disdain from some both at Leiden University and the University of Utrecht. Those camps instated bans on the publication of Descartes’ work on multiple occasions, claiming the work to be a promoter of atheism.

Of the professors from the Faculty of Medicine and Faculty of Philosophy, who supported Descartes’ philosophies, they did so for they offered a rational and mechanistic approach concerning the knowledge of nature, thereby offering a better alternative for addressing problems that Aristotelian philosophies could not. Gisbertus Voetius (1589–1676), a Calvinist professor of theology and Oriental science at the University of Utrecht, strongly objected to Descartes philosophies. Voetius charged Descartes of atheism within the series of disputes \textit{De Atheismo} held 22 June to 13 July 1639. He professed:

\begin{quote}
It is not permissible to doubt temporarily or under any pretext whatever, the internal testimony of the Holy Spirit concerning the certainty of salvation, much less to think or imagine that the Holy Spirit (or God himself as is wickedly done by Descartes) is an impostor or a deceiver, which is clearly blasphemous.\textsuperscript{336}
\end{quote}

\begin{flushright}
\textsuperscript{335} Translated letter i.281 from ibid., 113.
\textsuperscript{336} Translation from Clarke, \textit{Descartes}, 346.
\end{flushright}
Due to personal matters and growing tensions, Descartes left the city of Leiden 1641. That did not stop controversy from looming years later in the region, especially within Leiden University. In 1647, the Reformed-Calvinists Jacobus Revius (1586-1658) and Jacobus Trigland (1583 –1654), both professors of theology at Leiden University, led a public dispute over Cartesianism, which they based on speculations of Descartes words, on 4 and 14 May 1647. It resulted in the very public charge of Descartes being charged of blasphemy and Pelagianism.

Descartes feared a Calvinist inquisition. “I am told that the theologians wish to be judges, that is, to subject me to a more sever inquisition than was ever seen in Spain, and to turn me into an enemy of their religion.” The only evidence that his accusers presented for the charged crime of Cartesian metaphysics comes from the first mediation. It reads, ‘Therefore I shall suppose not that God, who is the source of truth, but some evil mind who is all powerful and cunning, has devoted all their energies to deceiving me.’ Some schools of thought suggest that the tension that grew out of Cartesianism proliferation exemplifies a conflict between science and religion. This is a false argument.

Though I concur with the notion that both scholars and public figures have misconstrued the relationship between science and religion, as suggested by historian of science Steven Shapin and others, I do not agree that there were no conflicts between science and religion during the sixteenth and seventeenth century. As this study has presented thus far, there is an interconnectedness between science and religion. However, it is more complex than we have regarded it to be. Each religion has its own constructs

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337 Descartes lived in various cities throughout Holland during his time in the Netherlands. He would oscillate between cities. He moved back and forth to Leiden throughout the years. However, after his departure in 1641, he did not return.

338 Translation for letter vii.22 from Clarke, Descartes, 347.

339 Translation for letter v.8 from ibid.


341 Shapin. The Scientific Revolution, 139.
of scientific knowledge. Scientific knowledge is a variable that is dependent on the belief system of a given social group. In essence, scientific knowledge is subject to a given religion, religion being the greater producer of social ways of knowing.

Religion itself is a knowledge system that has enveloped and produced its own scientific knowledge. As a result, the social norms and cultural beliefs that are central to each religion becomes intertwined with each group's way of knowing. Their scientific knowledge is ingrained in their belief system. In turn, the statement “there is no conflict between science and religion,” remains a fragmented element to the greater postulate. The issue is more complex. There is no conflict between science and religion. However, conflicts between one knowledge system of belief—a religious construct—against another or more, varying religion, did and continue to exist. An Aristotelian resolution to the issue would suggest the employment of intuitive reasoning, which he summarized as “knowledge of the principles from which science proceeds.” This leads us to revisit the early modern period’s concept of humanism.

Humanism sparked a new collective consciousness among its followers and awakened them to a sense of individualism. Whether one was a Catholic, Calvinist, Jew or Pagan, they could be a humanist. In essence, the humanism of the early modern period was a multicultural philosophy and agenda. As such, its presence within Leiden University appealed to the diverse faculty and student body. Henceforth, theologians of various creeds did not have qualms with the tenements of humanism itself. What they did prove to have issue with was some of the knowledge and philosophies that were born from the humanist methodologies.

Cartesianism, which evolved out of humanistic philosophies, presented an alternate way of knowing, though it most certainly did not provide a complete manual for how to do so. Descartes engendered a revolution of thought. It created the space for doubt. Descartes wrote:

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Descartes was not an atheist, Cartesian narratives passed on through history has created this connotation. His writings show that he believed in God. The charges of atheism set against him were not valid or the key dispute. The real issue was that he introduced a new means which one could to obtain scientific knowledge. The new way of thought challenged the pre-established model of knowing. Cartesianism was contending with the Aristotelian principles for knowing.

The first self-professed Cartesian faculty member at the university was Jean de Racy (1618-1702) in 1653 when he was appointed professor in physics. The same year of his appointment, the library underwent both a physical and systematic renovation led by the initiative of Anthony Thysius (1565-1655), who conducted an audit on the library’s operation and policies. He served as the new librarian from 1655-1665, after Heinsius’ passing. Before, his appointment, curators, professors as well as councils of the States and members of The Hague, were given keys to the library. As a result, for the first half of the seventeenth century, Leiden’s students had limited access to the libraries for it was often blocked off for the use of the intellectual, political and merchant elites. Thysius’s new policies shifted these power dynamics and only granted himself (and future librarians), and the custodian, keys to the library. Thysius issued the new protocols to aide in loss prevention, better organization of inventory and to provide greater access for


345 Berkvens-Stevelinck, Magna Commoditas, 85.

346 Although Jan van Hout had instated a chained book system during the library’s foundational years, theft still occurred. See ibid., 35.
the people the library was initially built for, the faculty and students. However, even two years later, Leiden University affiliates who once were granted privileges, still attempted to invoke their former licenses. Thysius’s new system took several years to be accepted as permanent. It was greatly met with resistance from the merchant and political elites.

There is a distinction between the systematic, intellectual and social organization of knowledge. Multiple shifts and series of reorganization of knowledge systems, across all of these areas, occurred simultaneously at Leiden University, around the mid-seventeenth century. By the year 1659, half of the Faculty of Medicine were Cartesians. Yet, Paracelsian philosophies made their way into the school of medicine in 1658 when Sylvius was named chair.

As a result of Paracelsian philosophies’ entry into the study of medicine, the curriculum within the department greatly changed. For instance, prior their introduction, plants consisted of 80% of the raw materials used for medical remedies. As a result, the study of plants was greatly intertwined into the curriculum from a medical perspective. It was a long held tradition of the humanist physicians. With Sylvius’s introduction of iatrochemistry to the Faculty of Medicine’s curriculum, chemically based medical remedies began to grow in prominence. It remained apart of the curriculum for the duration of the seventeenth century. By the time the famed botanist Herman Boerhaave became a Faculty of Medicine member, the systemization and the mechanistic approach to the study of nature was prominent, especially for Boerhaave who received his degree from the faculty of Philosophy and of the Good Arts and wrote his dissertation on *De distinctione mentis a corpore (on the difference of the mind from the body).*


348 Phillip R. Sloan came across evidence that shows that the University of Padua nominated Descartes as the chair of theoretical medicine in 1633. As a result, Sloan’s research exemplifies the spatial distribution of Descartes’ influence amongst European medical communities. See Sloan, “Descartes, the Sceptics, and the Rejection,” Note 26, 10.

349 Compared to Galenic medicine, Paracelsian medicine was based on minerals verses plants.

350 Daniela Prögler, *English Students at Leiden University,* 186.
Paracelsianism, on the other hand, shortly maintained traction within the curriculum for its philosophies soon came under scrutiny of a growing Lutheran orthodoxy.\textsuperscript{351}

Various areas of study at Leiden University underwent their own evolutions. Faculty members, and the particularly the evolution of the Faculty of Philosophy, served as key facilitators of such change. As we saw in earlier chapters, the faculties of medicine, law and theology were the most popular and catalytic areas of study during Leiden University’s first fifty years. However, when the Faculty of Philosophy underwent its evolution, in time it began to penetrate each of the other areas of studies’ perceived domain of knowledge.\textsuperscript{352}

Where as the Faculty of Medicine before over saw the domain of plants—including spices—and their relationship to the human body, the new Faculty of Philosophy and of the Good Arts, which appointed Claude Saumaise (1588-1653) as its new chair, became a seat of knowledge for both the mind and nature. The human body was removed from popular discourse, for many were newly curious about the human mind. Furthermore, with the growing interest in rational and mechanistic approaches to knowledge, interest in the natural state of plants and their effects upon the human body began to decline. Sylvius’ implementation of iatrochemistry to the Faculty of Medicine’s curriculum, further accelerated the deterioration of once regarded philosophies. It signified a decline in humanistic thinking and diluted interest in medical plants.

Many members of Leiden University’s faculty contributed to a systematic shift in the pursuit of knowledge. However, one of its most famous students—Descartes—greatly revolutionized systems of knowing amongst the Dutch Republic. Because he matriculated at, and was connected to the epistemological community regarded as Leiden University, a social disseminator of knowledge was in place to accelerate the dissemination of Cartesian philosophies throughout Holland. Was this not the infancy of a scientific

\textsuperscript{351} Paracelsianism is based off of the works of the German medical reformer and religious philosopher Theophrastus Paracelsus (1493-1541).

\textsuperscript{352} The theological seminary that the VOC had financed at Leiden University closed in 1632.
revolution?

A large body of historical literature, such as Kuhn’s *The Structure of Scientific Revolutions* (1962, 1970, 1996), Steven Shapin’s *The Scientific Revolution* (1996) and Arthur Herman’s *The Cave and the Light: Plato Versus Aristotle, and the Struggle for the Soul of Western Civilization* (2013), focus on sixteenth century Italy and late seventeenth century and eighteenth century France and London as the central incubator for the scientific revolution. However, Harold J. Cook’s *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (2007) suggests that the catalyst that sparked the revolution of scientific thinking, was due in part to the merchant elites of the Dutch Republic.

Cook suggests that because the great merchant class of the Dutch Republic took great interest in nature and technology, for they directly impacted their business outcomes, they elevated the demand for such type of knowledge. Within the exchange of commerce, between merchants, physicians and apothecaries, scientific knowledge was transported and exchanged. And as global economies merged and expanded, the exchange of such knowledge ensued. Though Cook’s argument shakes the foundation the modern history of science, he too glosses over the central seat of knowledge creation and circulation within the Dutch Republic—Leiden University. Albeit, Cook does present Leiden University as a background character in his survey. But he does not offer a crucial analysis of it’s role and position within his theory positioning the Dutch Republic as a catalyst for the Scientific Revolution.

There is a general consensus amongst scholars that the collective combination of Galileo’s discoveries, Francis Bacon’s initiative to overhaul the organization of scientific and technical research on the social level, along with Cartesianism, were instrumental in the reformation of scientific knowledge systems. However, many scholars have failed to question the intellectual conditions that gave rise to such narratives and the means by which they initially circulated.
Peter Burke makes a correlation between the increase of the centralization of knowledge within a particular society to that of the rise of world economies, cities and the centralization of power.\textsuperscript{353} But as this survey of Leiden University’s social and intellectual history shows, social relations also greatly impact the organization and systemization of scientific knowledge and economies. The audacity of hope encouraged the Dutch Republic to collaborate in unity and rise against the Hapsburgs. A surge of creative, scientific and intellectual thinking and artistry ensued. This was aided by a policy of religious tolerance, which served as a glue to keep their initial goals together. As religious tolerances dissolved in the Leiden Community, and the greater Dutch Republic, alliances and social relations dissolved and a diaspora of intellectuals ensued. Simultaneously, as knowledge systems began to fragmentize in Holland’s greatest center of knowledge, so too did the Dutch Republic’s position of power decline in the world.

Across the North Sea, riding off of the wave of the Commonwealth period, the English unified internally and established the Royal Society of London (also regarded as The Royal Society of London for Improving Natural Knowledge) in 1660. In turn, the English had a surge of scientific thinking and production and economic vitality via colonization and trade. The English’s legacy has ever remained at the forefront of the history of modern science.

Though Descartes wrote \textit{Le Monde (The World)} immediately after his matriculation at Leiden University (1630-633), it was not published till 1662. By then his presentation of a systematic approach to natural philosophy were merely words from the ghost of a Frenchman. Historical narratives have thus, since omitted the \textit{life} of Descartes and the pedagogy that shaped his learning. This is unfortunate, for unlike Galileo and Bacon, historical evidence exists to map Descartes’ and others’ trajectory within a pedagogical shift, through a prominent academic conduit.

For nearly twenty years, Galileo taught in academia. During the last eighteen

\textsuperscript{353} Burke, \textit{A Social History of Knowledge}, 57.
years of his teaching career, he taught at the University of Padua (1592-1610). However, it was not until Galileo was out of the institution of academia that he began to write his soon to be controversial claims. It was only in 1610 that he published his first treaty on his observations of skies, *The Starry Messenger (Sidereus Nuncius)*. It was not till his later publication, *Dialogue Concerning the Two Chief World Systems (Dialogo sopra i due massimi sistemi del mondo)* (1632), that Galileo’s work posed a great challenge to the current systematic form of thought.

Bacon initially began writing his six-part *Instauratio magna* in 1620. The *Sylva*, the last of series, was completed in 1626 and published by William Rawley in 1626 after Bacon’s death (9 April 1626). Rawley published various Bacon writings such as: *Operum moralium et ciuilium tosus, De sapientia* and *Instauratio magna* again (1638); and *Resuscitatio* (1657). In 1652, a collection of Bacon’s work made its way to the royal collection of Bibliothèque Nationale de France by way of Pierre (1582–1651) and Jacques (1591–1656) Dupuy, as well as Giuliano Ferretti Philippe Fortin de la Hogue (1585–1668?).

Prior to the establishment of the Royal Society, Bacon’s call for a reformation of natural knowledge mainly circulated amongst a sporadic series of personal collections throughout London and France. Faculty members at Leiden University, on the other hand, as well as its famous student, Descartes, began to create great systematic waves of change that would affect the pursuit and dissemination of scientific knowledge from prior decades. A great pedagogical reformation took place at Leiden University. Its various influential narratives were circulated amongst faculty, students and their affiliates. It also influenced the collective organization of knowledge in the Western World.

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355 Bacon and Rees, *The Instauratio Magna, lii.*
Chapter IX
Conclusion

For nearly its first fifty years, Leiden University had a unique social and intellectual advantage over its contemporary European universities. This was due to a combination of its policy of religious tolerance and its pedagogical innovation as a result of humanistic ideologies. The university came not only to serve as the central epistemological center of the Low Countries, it also attracted and served students and faculty from various countries and religious backgrounds. Leiden University’s social and intellectual influence was not self-contained. Given the transient nature of its affiliates, its influence spanned across oceans.

Amongst the European empires involved in the global trade of spices, it was the Dutch Republic—spearheaded by the VOC—who ascended to the top of the spice trade race. As a collective seat of knowledge, Leiden University aided the VOC’s initial agenda to dominate the spice trade by ousting the Portuguese from the Spice Islands. In addition to the Spice Islands, the VOC established trade ports and privileges with in India’s Malabar coast, Bengal and Ceylon, Taiwan and various locations within the Levant. Amsterdam served as the domestic financial and trade center for both the VOC and greater Europe.

Between 1613 and 1620, the Company borrowed guilders for the financing of its initiatives. It was a great risk for the near 6 million guilders raised far exceeded the revenue it made on the returns from the general sale of its goods. Nonetheless, the odds were in their favor and by 1630, they began to see the result of profits while the rest of the world was in an economic “Age of crisis.” There success within Asia was further

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aided by the growth of the VOC’s exclusive trade relationships with Japan in the 1630s, which was dependent on the Company’s port establishment in Taiwan and their long standing relationship with the Chinese.

In essence, the history of botany and trade are social histories. Scientific knowledge and economies are created, acquired and operated within particular social systems. Much of the scholarship written on the spice trade of the early modern period, undermines the influence in which intellectual capital and pedagogy had upon the acquisition and control of spice commodities and plant-based knowledge. Furthermore, as social histories are based off of human communications and production (i.e. tools, arts, knowledge), it is important to incorporate historical narratives that access both men and women’s roles, in addition to various religious groups and their dynamics, within a particular area of study. Including such narratives offer a more complete survey of the relationship between pedagogical and social influences upon the acquisition and dissemination of plant-based knowledge, commodities and economies. Such methodologies may as well be applied to other histories of science, medicine and commerce. Rejecting such influences from critical analyses inherently flaws historical research. In order to fill in the gaps of omitted narratives within traditional historical scholarship, the adoption of arts-based research methodologies aides in the creation and preservation of such lost narratives.

There are striking correlations between the Dutch Republic’s ascension and success within the spice trade to the pedagogical trajectory of Leiden University and its social network. Dissecting Leiden University’s social construct and influence upon the Dutch Republic’s success within the spice trade, offers a revealing connection between pedagogy, multiculturalism and their influence upon the cultivation, production and dissemination of plant-based knowledge and commodities. Peter Burke’s approach for the study of social histories as they pertain to knowledge, served as a great guide post for this socio-historical investigation. Though his presentation of the social history of
knowledge and knowledge systems is an invaluable piece of scholarship, it excludes the discussion of religious, gender and pedagogical politics roles in tracing the trajectory of the production and dissemination of knowledge, especially plant-based knowledge.

The spice trade was an industry that required collaborative efforts and measures between those abreast on the subject of botany, medicine, navigation, engineering, economics, law, linguistics and international relations. The problem with omitting such a critical analysis from the historiography of botany and the spice trade is that it severs the transmission lines of not only knowledge acquisition, but as well production and dissemination. The humanist Faculty of Medicine at Leiden University were particularly the institution’s main drivers of the interest in plant-based knowledge, especially aromatics. The late historian of medicine, Owsei Temkin, wrote, “The history of medicine comprises all that is historical in medicine, as well as all that is medical in history.” As well, David Hackett Fischer challenged all historians to address “the historical conditions in which social stability, social freedom, and social equality have tended to be maximally coexistent.” At the intersection of the Dutch Leiden University and the seventeenth century Spice Trade, such coexistence and “openness” appears for a brief period of time.

Scholar Pamela Long, defined “openness” to be “the relative degree of freedom given to the dissemination of information or knowledge.” Kartel Davids adds that compared to the practice of secrecy, “openness” is conductive for the emergence of technological knowledge, though he issues the caveat that it is not an absolute necessity. Davids, Long and Joel Mokyr, elaborate on the concept of “openness


360 ibid.
of knowledge”361 in technological innovations362 and identifies such a mindset as the contributing factor for the Dutch Republic’s ascension as technological and scientific leaders and commercial innovators during the seventeenth century. However, their arguments are based on the assessment of entrepreneurial conditions and businesses within the Dutch Republic alone. Though their presentation renders compelling results, their argument is incomplete, as well are economic historians Donald Harreld and Jan De Vries’ conclusion that it was primarily skilled labor and merchant capital that enhanced the economic trajectory of the Dutch Republic.363 Davids does point out that “openness can only make a difference in conduct in conjunction with other factors.”364 What is omitted from his statement is the factor of academic environments.

Leiden University and its immediate social network greatly contributed to the Dutch Republic’s success in the acquisition of spices, dissemination of spice based knowledge and business operations in Asia. It has been suggested that education during sixteenth and seventeenth century Holland served merely as a means of initiation into the cultural elite, and not a means for the preparation of a profession.365 However, it is remiss to overlook the role that Leiden University—in the form of its intellectual army and physical seats of knowledge (i.e. library, garden, theater)—had upon the Dutch Republic’s rise within the seventeenth century spice trade.

Law and Medicine came to be the university’s most popular area of study during its first seven-five years. For its first fifty years, the university adopted a humanistic approach to the study of medicine, elevating both medicinal and plant-based studies to an


364 ibid., 389.

equal level of priority amongst faculty and students. In general, humanistic philosophies influenced the implementation of multicultural and multidisciplinary knowledge within the epistemological community of Leiden University. All areas of studies at the university were in some form influenced by the general humanistic philosophies. And while students at Leiden University were to adhere to program requirements, if they wanted to obtain a particular degree, students were encouraged to take courses under the Faculty of Philosophy/Arts to complement their primary studies. In essences, the university promoted an interdisciplinary model of learning. The results proved to be conductive to the Dutch Republic’s economical status and trade relations. Particularly, the university’s attention to the study of Asian languages and culture provided the Dutch Republic greater access to spices, spice-based knowledge and international policies. Faculty members and alumni further aided in the discovery, study, management and business of spices from Asia.

The unofficial reversal of Leiden University’s original religious tolerance policy, due to the conflict between the Calvinists and Remonstrants, unfortunately splintered the academic environment after the aftermath of the Synod of Dordt (1618-1619). As a result, many from its intellectual roster fled the region. Granted the Peace of Westphalia and the Peace of Münster, both issued in 1648, symbolically ended the European wars that were sparked by the Protestant Reformation, the residue from the social disruption latched on to a brewing intellectual reformation taking place in the Netherlands.

The reform of natural knowledge, regarded today by many as the “Scientific Revolution,” gave rise to corpuscular, mechanical and mathematical philosophies. Prior the establishment of the Royal Society of London (1660), Leiden University greatly sparked this collective shift of scientific knowledge with the establishment of the faculty of Philosophy and of the Good Arts in 1631 and its famous student Descartes. It altered greater systems of knowing and teaching. Thomas Kuhn explains that for a system of

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knowing, “to be accepted as a paradigm, a theory must seem better than its competitors, it need not, and in fact never does, explain all the facts with which it can be confronted.”  

The “order of things” shifted with the introduction of Cartesian and Paracelsian philosophies at Leiden University, and later greater Europe. Faculty’s interest in the relationship between plants and the human body waned, as the focus toward the systematic mechanics of nature and the concept of the human mind waxed. And with the decline of the wide range of humanist faculty members at Leiden University, the intellectual army which it sent forth into the world began to shift in virtue and valued different forms of knowledge than once before. By the mid seventeenth century, there was not as much incentive or directive from either Leiden University affiliates, or the VOC itself, to apply a multicultural/humanistic approaches to the survey and acquisition of plants commodities and plant-based knowledge, as well as social relations and diplomacy in Asia. Instead, the pursuit of profit and the growth of systematic documentation grew in instead.

While a pedagogical reformation was taking place at Leiden University, a series of deflating jabs were thrown at the VOC. Three years after the Peace of Westphalia, Oliver Cromwell’s Navigation Act of 1651 challenged the Dutch Republic’s nautical power in the Spice Island terrains. A decade later, the Ch’ing dynasty streamlined its power. As a result, policies that once stood between the Dutch Republic and China unraveled. With the Chinese being a key ally in the Dutch Republic’s business of trade, this was another critical blow to their power hold. But it was not merely external political factors that contributed to the decline of the Dutch Republic’s economic wealth and inventory. The exploitation and mis-management of overseas labor resources, in addition to environmental depletion of the Spice Islands, greatly contributed to the decline of the Dutch Republic’s spice trade during the mid to late seventeenth century.

367 Kuhn, The Structure of Scientific Revolutions, 17-18.

368 De Vries and Woude, The First Modern Economy, 434.
With the establishment of Leiden University, the Dutch Republic had their own intellectual, scientific and social incubator that granted them an advantage in the spice trade. The VOC reaped such rewards. However, the Company as well faced many domestic and international challenges over the course of time. Its inefficient means of labor, management and cultivation protocols foiled their economic gains in time. Such actions were like a self-inflicted wound to the Dutch Republic’s economy. It slowly bled out, both metaphorically and physically. Furthermore, the popularity of and demand for colonial commodities of the Americas and West Indies (i.e. sugar, tobacco, coffee, etc.) began to beckon the attention of empires, for they became greater sources of wealth by the later seventeenth century.

Additionally, though named Republic of the Seven United Provinces, provinces were often in competition with one another, especially when it came to commercial and eventually educational manners. Further decentralizing attitudes occurred at the town and city level amongst the various States. With the establishment of nerings, the VOC and the WIC, the merchant-elites within Holland grew strong. The University of Utrecht and the University Amsterdam established themselves with great prominence, though they were never able to outshine the prestige of Leiden. However, none were impervious to the widespread tensions that were the results of the Protestant Reformation and the intellectual revolution that took Europe by storm.

Frans Hogenberg, *Ontzet van Leiden, 1574*, c.1574 - 1576. Etching on paper, h 202mm × w 293mm. The Rijksmuseum, Amsterdam.
Raffaello Sanzio da Urbino, *The School of Athens (Detail)*, c.1509-1511.
Fresco, h 500 cm × w 770 cm. Stanza della Segnatura, Palazzi Pontifici, Vatican.

Oil on canvas, h 173cm x w 245cm. The RKD (Netherlands Institute for Art History), The Hague.
Jeronimus Becx (II), *The Arms of the Dutch East India Company and of the Town of Batavia*, 1651. Oil on panel, h 63cm × w 97cm. The Rijksmuseum, Amsterdam.

Jan Jansz. van de Velde (III), *Still Life with a Beer Glass and a Porcelain Dish with Pepper*, 1647. Oil on panel, h 64cm × w 59cm. The Rijksmuseum, Amsterdam.
Artist unknown, *View of Ambon*, 1617. Oil on canvas h 148.8cm × w 268.2cm. The Rijksmuseum, Amsterdam.

Martin Baest, *The names of Christ and Mary in four oval medallions in Latin and Chinese*. Above the representation referring to a psalm verse, under the performance an explanation in Latin and French (Frontispiece detail), c.1614 - 1631. Engraving on paper, h 110mm × w 76mm. The Rijksmuseum, Amsterdam.
Fig. XX. Raffaello Sanzio da Urbino, The School of Athens, 1509-1511. Fresco painting, Photographic reproduction of Stanza della Segnatura (Signature Room), Vatican.

Jacob Coeman, Pieter Cnoll, Cornelia van Nijenrode and their Daughters, 1665. Oil on canvas, h 130cm × w 190.5cm. The Rijksmuseum, Amsterdam.

Aelbert Cuyp. VOC Senior Merchant: A Senior Merchant of the Dutch East India Company, presumably Jacob Mathieusen, and his Wife; in the background the Fleet in the Roads of Batavia, c.1640-1660. Oil on canvas, h 138cm × w 208cm. The Rijksmuseum, Amsterdam.

Jacob Coeman, Pieter Cnoll, Cornelia van Nijenrode and their Daughters, 1665. Oil on canvas, h 130cm × w 190.5cm. The Rijksmuseum, Amsterdam.

Jacob van Meurs and Jonas Suyderhoef, *Portrait of René Descartes*, c.1650-1652
Engraving on paper, h 198mm × w 148mm. The Rijksmuseum, Amsterdam.

Hendrick van der Burch, *The Conferring of a Degree at the University of Leiden about 1650*, c.1650-1660.
Oil on canvas, 71.5cm × w 59cm. The Rijksmuseum, Amsterdam.
Andries Beeckman, *The Castle of Batavia*, 1661. Oil on canvas, h 108cm × w 151.5cm. The Rijksmuseum, Amsterdam.
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