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The Politics of Medicine at the Late Medici Court: The Recipe Collection of Anna Maria Luisa de' Medici (1667 – 1743)

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The Politics of Medicine at the Late Medici Court:
The Recipe Collection of Anna Maria Luisa de' Medici (1667 – 1743)

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
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Abstract

This dissertation analyzes the social, cultural, and political significance of recipes at the late Medici court. In doing so, it examines how the late Medici court used medicinal and pharmaceutical patronage to maneuver politically and socially as well as increase the court's cultural cache throughout Europe. By the beginning of the eighteenth century, it was clear that the Medici line would end and that the Grand Duchy of Tuscany would become a satellite state of a larger European power. Yet while the late Medici court found themselves increasingly sidelined in the cultural and political landscape of Europe, science and medicine at court continued to play an important role, even as the purpose and weight of that role shifted. In fact, the late Medici court intensified its interest in pharmaceutical patronage and collecting of exotic *naturalia*. Both Cosimo III (1642-1723) and Anna Maria Luisa (1667-1743) collected exotic *materia medica* from around the world, which served their pharmaceutical productions and increased their empirical medical knowledge. For Anna Maria Luisa, distributing prized remedies and circulating her medical knowledge allowed her to build political alliances with European courts and aristocratic families in order to manage the political succession of Tuscany and craft the legacy of the Medici family. By focusing on recipes, this project reveals not only the important role medicine played at the late Medici court, but also the role of women in circulating and legitimizing empirical medical knowledge as well as the significance of recipes

as agents of discovery and transmission in the desire to uncover or unlock the secrets of nature in the early modern world.

List of Abbreviations

ASF	Archivio di Stato di Firenze (State Archive of Florence)
MM	<i>Miscellanea Medicea</i> (fondo within the ASF)
MdP	<i>Mediceo del Principato</i> (fondo within the ASF)
BNCF	Biblioteca Nazionale Centrale Firenze
SAS	Sua Altezza Serenissima/o (Your Serene Highness)
SAR	Sua Altezza Reale (Your Royal Highness)
SAE	Sua Altezza Elettrice/Elettore
VAS	Vostra Altezza Serenissima/o
VAR	Vostra Altezza Reale
VAE	Vostra Altezza Elettrice/Elettore
RX	Derived from the Latin word for recipes and means “to take”

Names

When contemporary and early modern identifications of an ingredient align, I use the modern taxonomy or common name. However, in many cases the early modern name of an ingredient does not provide enough information to scientifically identify a particular plant, mineral, or animal. In this case, I defer to late-seventeenth and early-eighteenth pharmacopeias as well as an

eighteenth-century Tuscan tax ledger, which recorded the name, provenance, value, and use of every medicinal substance imported to or exported from Tuscany.¹

Dates

The Florentine calendar began on the 25th of March. All the dates between January 1st and March 24th have been converted to the Gregorian calendar.

¹ ASF, Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808, three volumes: 435, 436, and 437.

Chapter One

Introduction

This dissertation analyzes the social, cultural, and political significance of medicinal recipes and pharmaceutical patronage at the late Medici Court. Specifically, it concentrates on the medicinal and alchemical recipe collection of Anna Maria Luisa de Medici, Palatine Electress, as a case study. In the state archive of Florence filed under the heading of miscellaneous is a simple sleeve which holds a collection of over 200 recipes that were collected by the last Medici Princess, Anna Maria Luisa de' Medici (1667-1743).¹ The recipes cover diverse topics from rare paint colors, deserts, essences, and fever waters, to concoctions to control epilepsy, poison antidotes, and lung inflammation, and even forms of lapidary medicine. The breadth of applications, both in the collection as a whole and for some recipes in particular, is remarkable. For example, a recipe for essences was made from citron (*di Cedrato*), Bergamot citrus (*di Bergamotto*), oranges from Portugal (*arancia di Portogallo*), oleander, and other unspecified herbs (*e le altri di Erbe*).² Whether diluted in water or concentrated these essences

¹ Archivio di Stato di Firenze (henceforth ASF), Miscellanea Medicea (MM) 1, ins. 2, fols. 1-218.

² ASF, MM 1, ins. 2, fols. 168 r&v. "L'Essenze che la serenissima Elettrice Palalatina ha mandato alle serene Principesse di Sultzbach, sono di due specie e tutte sane; Ve ne sono di agrumi, cioè di Cedrato, di Bergamotto, di Arance di Portogallo e le altri di Erbe. Quello di Agrumi, e quello di Fiori d'Arancio servono per dar l'Odore alle Acqua dolci da bere al Rosolio, all'Acqua di Bartades e simili, parimente per i Dolci che si fanno dal Credenziere servono ancora per mescolarne qualche Gocciola nell'Acqua per lavarsi le mani, per annaffiare

were used to perfume rooms to protect from malignant air, improve the taste of water, and scent linens and hair, as well as, enhance the aroma of baked goods.³ A recipe for infant convulsions called for the precipitation of a pulverized skull of a man who died violently but was never buried. Another recipe prescribed female rhino blood for strokes and general blood flow, and yet another recipe recommended the vaginal insertion of St. Ignatius beans to “lower the monster of women.”⁴ As short, straightforward instructions, recipes were one of the main forms through which early modern medicinal, alchemical, and scientific knowledge circulated, particularly among women.⁵ Anna Maria Luisa’s collection of recipes and therapeutics provides an excellent example and case study of the types of early modern recipes that were collected, gifted, and exchanged by women.

By focusing on medicinal recipes, my research departs from the conventional narrative of early modern medicine that privileges trained medical professionals, the beginning of modern scientific methodology, and formal scientific institutions.⁶ Instead, through analysis of these non-

le camere per dar’odore ai Fazzoletti, e a tutt’ altro, che si voglia inoltre a dar’odore alle Polvere, che serve per i capelli.”

³ Essences like the one sent to the princesses of Sultzbach were also considered therapeutics for fortifying the brain and protecting it from malignant humors or external poisons as Shelia Barker has argued in, “The Contributions of Medici Women to Medicine in Grand Ducal Tuscany and Beyond,” in *The Grand Ducal Medici and Their Archive (1537–1743)*, ed. Alessio Assonitis and Brian Sandberg, Brepols, 2016.

⁴ ASF, MM 1, ins. 2, fol. 186r. The rhino blood, presumably from Africa—“Dos Sangue d Abbada, Serve este sangue para cursos, e fluxos de sangue.” And the St. Ignatius beans from the Philippines--“Para fave (fazer) abaixar o menstro das molheres”

⁵ Alisha Rankin and Elaine Leong, “Introduction,” in *Secrets and Knowledge in Medicine and Science, 1500–1800*, eds. Rankin and Leong, Routledge, 2016, 1 – 20.

⁶ Until the mid-twentieth century, the history of medicine was dominated by the stories of “great men, great ideas, and great discoveries.” Looking at the history of medicine was seen as a way to enhance modern physicians’ medical expertise. With this interest in mind, the field traced the development of medicine through contemporary lenses of professional practitioners and

traditional sources, I reveal Anna Maria Luisa's avid interest in medical knowledge and illuminate her involvement in the expanding early modern global trade networks. I also show the informal networks of medical knowledge that she created through recipe exchange with other aristocratic women as well as her relationship with people and objects around the world. I argue that recipes contributed to the development and circulation of a medical knowledge that Anna Maria Luisa translated into social and political currency. In this way, my research repositions women in the broader debate about early modern natural philosophy and uncovers important new intersections between gender, religion, natural history, commerce, colonialism, and indigenous knowledge in early modern medicine.

As written forms of empirical medical and pharmaceutical knowledge and practice, recipes played an important role in early modern women's medicinal activities. While recipes provided noblewomen a means to engage with new empirical practices and global therapeutics, all women played a central role in health and healing in the early modern world. Over the past three decades, scholars have demonstrated the central role women played in the practice of early modern health and healing as housewives, midwives, nun-apothecaries, herbalists, and even saints.⁷ Early modern women collected recipes for everything from distilling perfumes, to

institutions. For more on the transformation of the history of medicine see: Andrew Wear, ed., *Medicine in Society*, Cambridge University Press, 1992.

⁷ For recent works on women's central role in early modern health and healing see: Nancy Siraisi, *Medieval & early Renaissance medicine: an introduction to knowledge and practice*, Chicago: University of Chicago Press, 1990; Carole Rawcliffe, *Medicine and Society in Later Medieval England*, Sandpiper Books, 1999, and Mary Lindemann, *Medicine and Society in Early Modern Europe*, Cambridge University Press, 1999. For the role of nuns see Sharon T. Strocchia, "The Nun Apothecaries of Renaissance Florence: Marketing Medicines in the Convent." *Renaissance Studies Vol. 25 No. 5, 2011*; For midwives see Merry Wiesner-Hanks, "Early Modern Midwifery: A Case Study," *International Journal of Women's Studies*, 1983, 26-43, reprinted in *Women and Work in Pre-Industrial Europe*, ed. by Barbara Hanawalt, Indiana University Press, 1986, 94-113. For saints see Caroline Walker Bynum, *Holy Feast and Holy*

cooking culinary delights, creating dyes and varnishes, and preparing medicinal therapeutics. Charged with caring for their families and communities, women cooked the meals that provided sustenance and maintained health, and it was women who prepared remedies for and tended to the sick long before the intervention of a male medical professional.⁸ As written forms of empirical medical and pharmaceutical knowledge and practice, recipes played an important role in early modern women's medicinal activities. Despite re-centering women in early modern health and healing, however, women's medical activities have remained largely relegated to the home, or domestic sphere, and their community. My dissertation broadens the role that women play in the larger medical, scientific, and pharmaceutical cultures of early modern Europe, and demonstrates the important role recipes played in the fashioning and refashioning of these cultures beyond the home.

Anna Maria Luisa's Recipe Collection

At the center of this study is the recipe collection of the Anna Maria Luisa de' Medici (1667-1743), daughter of Grand Duke Cosimo III, the penultimate Grand Duke of Florence, and widow of the Elector Palatine Johann Wilhelm II. After the death of her husband in 1716, and with no heir to the Palatinate, Anna Maria Luisa returned to her native home of Florence in 1717.

Fast: The Religious Significance of Food to Medieval Women, University of California Press, 1987. For female bodies see Katharine Park, *Secrets of Women: Gender, Generation, and the Origins of Human Dissection*, Zone Books, 2006.

⁸ Margaret Pelling, *Medical Conflicts in Early Modern London: Patronage, Physicians and Irregular Practitioners, 1550-1640*, Oxford University Press, 2003, 193.

In Florence, Anna Maria Luisa would out-live her both her father and brother, the last Medici Grand Duke, Gian Gastone, making her the “last Medici.”

Throughout her lifetime, Anna Maria Luisa collected more than 200 recipes covering topics as diverse as perfume, distillation, cookery, dyeing, metallurgy, exotic *flora* and *fauna*, and medicinal therapeutics. As a Medici princess, Anna Maria Luisa had access to the prized and often secret recipes and remedies produced by her family’s nearly-two centuries of medicinal and scientific patronage. In addition to drawing on her pharmacopial dowry and access to her family’s grand-ducal pharmacy and laboratory, Anna Maria Luisa also diversified and enriched her personal collection by receiving recipes from family and friends across Europe and by gathering specimens of exotic *materia medica* and therapeutics from around the colonial world.⁹

Restricted by issues of class and gender, aristocratic women like Anna Maria Luisa could not, and perhaps would not, roll up their sleeves and experiment in the pharmaceutical laboratory alongside their male counterparts, often described as prince-practitioners.¹⁰ Recipes, however, offered women an acceptable means to access, collect, experiment with, and disseminate medical

⁹ The courtly epistolary customs of ritualized gift giving to commemorate significant events, which began in the sixteenth century, provided a natural arena for recipe exchange. Alisha Rankin, *Medicine for the Uncommon Woman: Experience, experiment, and exchange in early modern Germany*. Ph.D. diss., Harvard University, p. 17. For medicine as gifts, see Cavallo, “Health, Beauty, and Hygiene,” in *At Home In Renaissance Italy*, London: V & A, 2006, 176.

¹⁰ Bruce Moran, "German Prince-Practitioners: Aspects in the Development of Courtly Science, Technology, and Procedures in the Renaissance," in *Technology and Culture* 22, no. 2 (1981): 253-74.

and scientific knowledge. As such, numerous examples of noblewomen's recipe collections survive today, preserved in archives and published manuscripts.¹¹

Recipes as a literary genre can be traced back to the ancient world and they continued to be the customary format for the transmission of privileged, alchemical knowledge throughout the middle ages. The simple and straightforward nature of the recipe was an ideal medium for alchemical and technical literature. As medieval alchemists searched for the formula to create the purest substance of all, "the fifth essence" or aqua vitae, which they believed could purify the body and prolong life, they recorded their secret formulas or recipes.¹² By the sixteenth century, alchemical and medicinal recipe literature, often compiled in the form of "books of secrets" or household manuals, exploded in popularity.¹³ This vernacular medical literature, ostensibly produced for the common man and woman, instructed readers on how they too could unlock the "secrets of nature" via recipes.¹⁴

Recipes and "books of secrets" were popular forms of lay medical knowledge. Physicians and the therapeutics they prescribed were expensive. For most, consulting a physician was a luxury they could ill afford for common illness and injuries. Thus, the bulk of early modern

¹¹ Tessa Story, David Gentilcore, and Sandy Pearson, *The Italian Books of Secrets Database Project*, Wellcome Trust and University of Leicester, 2008. Accessible at: <https://ira.le.ac.uk/handle/2381/4335>.

¹² Bruce T. Moran, *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution*, *New Histories of Science, Technology, and Medicine*, Harvard University Press, 2009, 11.

¹³ Alisha Rankin, *Panacea's Daughters: Noblewomen as Healers in Early Modern Germany*, University of Chicago Press, 2013, 5.

¹⁴ William Eamon, "How to Read a Book of Secrets" in *Secrets and Knowledge in Medicine and Science, 1500–1800*, eds. Rankin and Leong, Routledge, 2016.

healthcare happened within the home and by the hands of women. Fulfilling their Christian duties, women were “on the front lines” of healthcare.¹⁵ Charged with general caregiving for the home and community, they provided food, created and maintained a healthy environment, and produced home remedies that almost always preceded the intervention of an external practitioner.¹⁶ To do so, women used accessible ingredients and common utensils and cooking methods to create medicinal remedies for their families and, in some cases, their communities. For all these reasons, while scholars have documented the popularity and abundance of sixteenth to eighteenth-century medicinal recipes of women, they have also dismissed them as expressions of a domestic and non-scientific reality, and hence unreliable as evidence of medical knowledge.¹⁷

A 2008 collection of essays in a special issue of the *Bulletin of the History of Medicine* challenged this interpretation. The authors valorized recipes for their domestic nature, emphasizing the centrality of women in household healthcare and healing.¹⁸ In particular Elaine

¹⁵ For more on the role of women in early modern health and healing see Lindemann, *Medicine and Society in Early Modern Europe* and Siraisi, *Medieval & early Renaissance medicine*.

¹⁶ Sara Penell, “Perfecting Practice? Women, Manuscript Recipes and Knowledge in Early Modern England,” in *Early modern women's manuscript writing: selected papers from the Trinity/Trent Colloquium*, Burlington: Ashgate, 2004, 240.

¹⁷ Paula Findlen's book, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*, has called attention to the fact that our definitions of science and medicine are anachronistic when discussing how early modern society studied the material world. She differentiates the modern notion of scientist from the term “natural philosopher,” and contends many would have conceived themselves as “natural philosophers,” who were qualified in medicine, natural history, and natural philosophy, all of which were connected with the discipline of *scientia*.

¹⁸ *The Bulletin of the History of Medicine*, vol. 82, no. 1 (Spring 2008), articles by Mary Fissell, “Introduction: Women, Health, and Healing in Early Modern Europe;” Elaine Leong,

Leong and Sara Pennell showed how early modern women created medicinal remedies in their own right by using accessible ingredients and common utensils and cooking methods.¹⁹ This emerging scholarship on recipes and recipe manuscripts uses recipes as proof of women's active and widespread involvement in early modern healthcare.²⁰ By emphasizing the domestic nature of recipes these scholars have assigned a more prominent position to women from the middling ranks in the study of early modern medicine. But gendered dichotomies of professional verses amateur, and household verses commercial continue to influence research on medical knowledge and consequently to view women and their recipes as legitimate producers of medicinal knowledge. It is true that the majority of early modern medicinal activities by women took place in the home, but by overemphasizing their domestic nature, most scholarship has characterized women's involvement as simplistic and largely uneducated. Such interpretations ignore the involvement of aristocratic women in healthcare and healing and their participation in the production and dissemination of medical knowledge. As Alisha Rankin has argued, the ability of elite women to read and write, their Christian ideals (which encouraged charitable healing), and their privileged social status gave them a significant voice in the medical discourse of early modern society and legitimized their participation.²¹

“Making Medicines in the Early Modern Household;” and Montserrat Cabré, “Women or Healers? Household Practices and the Categories of Health Care in Late Medieval Iberia.”

¹⁹ Penell, “Perfecting Practice?”, 240.

²⁰ Elizabeth Spiller, *Seventeenth Century English Recipe Books: Cooking, Physic and Chirurgery in the Works of W.M. and Queen Henrietta Maria and of Mary Tillinghast*, General Editors, Betty Travitsky and Anne Lake Prescott, Burlington, VT: Ashgate, 2008, introduction.

²¹ Alisha Rankin has used the case studies of three German noblewomen to demonstrate the central role of women's healing in early modern court culture. She has also shown that women's participation in medicine extended beyond the domestic sphere and the therapeutics they created were often complex rather than simple. “Duchess, Heal Thyself: Elisabeth of

Rankin has also argued that the reason “domestic” medicine remains to be seen as a marginal enterprise should be attributed to the contemporary idea that knowledge learned through everyday life experience was inferior to knowledge informed by empirical experimentation. Accordingly, the experimental process was supposed to uncover matters of universal fact, supposedly something a recipe could not do. Learned physicians typically dismissed apothecaries, charlatans, surgeons and healing women as empirics who lacked the grounding in the philosophies that would enable them to diagnose and treat illness. While early modern recipes did indeed embrace an empirical process, they were not recognized as scientific texts because of their lack of formal, methodological experimentation. Lacking theoretical foundations, domestic medicine was considered unable to produce scientific knowledge.²²

Recently, pushing back on these dichotomies of domestic versus professional science and experience versus experimentation, scholars Meredith Ray and William Eamon have argued that by their very nature, recipes were texts that entailed both experience and experimentation. In addition to their value as interesting texts to collect and read, Eamon has described recipes as “prescriptions for action”²³ and Ray has argued that through recipes, “women incorporated scientific experimentation into their daily lives” as they managed the household, pursued beauty,

Rochlitz and the Patient's Perspective in Early Modern Germany,” in *The Bulletin of the History of Medicine*, 1-187, and *Panacea's Daughters*.

²² Rankin, *Panacea's Daughters*, 5.

²³ Eamon, “How to Read a Book of Secrets,” 23 – 46.

and preserved health.²⁴ Contrary to conventional assumptions, rigorously measured, tested, and carefully dosed, recipes reveal their creators' strong basis in empirical knowledge.

Indeed, as I show in this dissertation, recipes produced, circulated, and collected by women functioned within the realm of early modern science and medicine and were instrumental to the development of empirical medical and scientific practices. I recognize recipes as important scientific texts which were essential to understand the culture and development of early modern science. The significance of recipes, however, is not as simple as adding them to the “protoscientific” phase of modern science.²⁵ While the emphasis recipes placed on empirical knowledge was an important aspect of their value, recipes were also regarded as objects of material culture that could be gifted, exchanged, and even performed. This more nuanced approach as to what qualified as “scientific” participation and the role of material culture in the production of scientific knowledge in the early modern world builds on the transformation of the historiography of science and medicine over the past three decades.²⁶

²⁴ Meredith K. Ray, *Daughters of Alchemy: Women and Scientific Culture in Early Modern Italy*, I Tatti studies in Italian Renaissance history, Harvard University Press, 2015, 10.

²⁵ Pamela H Smith, “Science on the Move: Recent Trends in the History of Early Modern Science,” *Renaissance Quarterly*, Vol. 62, No. 2 (Summer 2009), 346.

²⁶ For more on the shifts in thinking about the “Scientific Revolution,” see Lorraine Daston and Katherine Park’s introduction to *The Cambridge History of Science: Volume 3, Early Modern Science*, “The Age of New;” and Pamela Smith’s “Science on the Move: Recent Trends in the History of Early Modern Science.”

Recipes and the History of Medicine

Until the second half of the twentieth century, the history of medicine was written by medical doctors interested in their own history of progress and for this reason the field was often isolated from the historical mainstream. It was a teleological narrative of “great men, great ideas, and great discoveries” all of which built to the development of the Scientific Revolution.²⁷ Naturally, with such a teleological and professional focus, lay medical recipes collected by women never made it into the narrative of the history of medicine. Over the course of the second half of the twentieth century, however, the field underwent dramatic transformations as social and cultural historians entered the fray, bringing with them the interests and approaches that were the products of larger historiographical advances in historical research.²⁸ Consequently, the study of medicine changed from an isolated intellectual approach to one that viewed medicine as a lens to understand early modern culture and society. This change redirected scholars’ interest from the realm of professional doctors and universities to that of the practitioners of medicine, and from medical theories to the cultural construction of health and healing, gender and the body, and the role of commerce in shaping medical knowledge. In doing so, scholars have redefined not only the history of medicine as a field of study, but also the very definition of what constituted medicine in the early modern world.

²⁷ Wear, ed., *Medicine in Society*. Cambridge University Press, 1992.

²⁸ One of the most influential of these new historical voices was Roy Porter, who in particular called for a patient's view of medicine, see: Roy Porter, "The Patient's View: Doing Medical History from Below" *Theory and Society* Vol. 14, No. 2 (1985): 175-198. An excellent collection that covered the new breadth of medical history by scholars like Porter, Andrew Wear, Katherine Park and Vivian Nutton and serves as an introduction to the turn that medical history took in the 1980s in particular is Andrew Wear, ed., *Medicine in Society: Historical Essays* (Cambridge: Cambridge University Press, 1992).

Adding non-professionals, women, and even merchants into the narrative of the history of medicine has forced scholars to take a critical look at the categories of science and medicine. Although the terms “science” and “medicine” are still widely used, they have become more complex, encompassing multiple strands of inquiry which include astrology, philosophy, natural history, and alchemy in the investigation of nature.²⁹ Alchemy in particular has benefitted from the new interpretation of early modern science. Thanks to works by Bruce Moran, Allen Debus, William Eamon, Pamela O. Long, and Lawrence Principe, alchemy is no longer associated with occult practices hopelessly focused on transforming metals into gold.³⁰ Instead, alchemy is now recognized as a set of important theories and practices that were used to investigate nature. As Bruce Moran has written, alchemists had “intense practical involvement with minerals, metals, and medicines.”³¹

Alchemy was an essential component of early modern medicine and of the recipes collection by aristocratic women like Anna Maria Luisa. Thirteenth and fourteenth-century alchemists believed that the distillation of wine led to a purest substance, the fifth essence, or

²⁹ The issues surrounding the continued use of the term “science” has been discussed by Paula Findlen, Katherine Park, Pamela Smith, Lorraine Daston, and Meredith Ray. Smith has even suggested the creation of new terminology, “technoscience” and “techno-medico-science.” Smith, “Science on the Move,” 358.

³⁰ For recent works on alchemy see: Bruce T. Moran, *Distilling Knowledge*; Allen G. Debus, *Chemistry, Alchemy and the New Philosophy, 1550-1700: Studies in the History of Science and Medicine*, Variorum Reprints, 1987; William Eamon, *The Professor of Secrets: Mystery, Medicine, and Alchemy in Renaissance Italy*, National Geographic Books, 2010; William R. Newman, Lawrence M. Principe eds., *Alchemy Tried in the Fire: Starkey, Boyle, and the Fate of Helmontian Chymistry*, Chicago Studies in the History of Judaism, University of Chicago Press, 2005; and Lawrence Principe, *The Secrets of Alchemy*, Synthesis: a series in the history of chemistry, University of Chicago Press, 2013.

³¹ Moran, *Distilling Knowledge*, 2.

quintessence, which was perceived as a universal cure all.³² While not the panacea alchemists had hoped for, *aqua vitae*, or brandy (distilled wine), became an important ingredient in alchemical productions and in the production of medicinal therapeutics.³³ By the seventeenth century, alchemical processes became fundamental to the production of medicinal waters. The term “*acqua*,” or water, was used to denote a variety of early modern therapeutics, including tinctures, natural mineral waters, and distilled essences and spirits. Thanks to distillation alchemy, the use of “waters” became the preeminent medicinal therapeutic from the fourteenth to eighteenth centuries, especially for the elite.³⁴ Many aristocratic homes were equipped with stills for the production of therapeutic waters and elite men and women often exchanged secret recipes for their favorite perfumes and essences.

Alchemy’s association with secrets or the privileged knowledge, which was often expressed in recipes, has also guided scholarly attention toward popular forms of lay medical

³² Moran, *Distilling Knowledge*, 12.

³³ Today *acqua vite* is known as a distillate (or simply alcohol) and the modern name depends on the type of raw material the alcohol was obtained from. For example, distilled wine is brandy, distilled potato is vodka, distilled sugar cane is rum, and distilled grain is whiskey. Florentine physician Taddeo Alderotti wrote in his *De Virtutibus Aquae Vitae* that *aqua vitae* could fight melancholy, ameliorate tooth pain, clean wounds, restore memory, and was effective in the treatment of deafness and epilepsy. *Acqua vite* is used in five of Anna Maria Luisa’s recipes: “*Eau di Cypre*,” “*Vernice di Gomma Lacca*,” “*Vernice per Dorare i Lavori d’Ottone, e d’Argento*,” “*Modo di Tingere il Marmo Bianco di Vari Colori*,” and “*Acqua di Cipro*.” And the Tuscan tax ledger of medicinal ingredients lists fourteen types of medicinal spirits made with *acqua vite*. Like their natural counterparts, distilled waters, tinctures, oils, and spirits could be taken internally or applied to the body externally. For more on *Acqua Vite* see: S.C. Rasmussen, *The Quest for Aqua Vitae: The History and Chemistry of Alcohol from Antiquity to the Middle Ages* (Springer International Publishing, 2014); W. Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton University Press, 1996). N.G. Siraisi, *Taddeo Alderotti and His Pupils: Two Generations of Italian Medical Learning* (Princeton University Press, 1981).

³⁴ Rankin, *Panacea’s Daughters*, 106.

knowledge, particularly sixteenth through eighteenth-century printed books of secrets. William Eamon has led the charge in defining what constituted secret knowledge in the early modern world. He argued that the metaphor of secrecy was used to denote a knowledge that was privileged rather than a knowledge that was mysterious or unknown. Furthermore, secrets were often understood as a set of procedures closely associated with craft or trade secrets, or technical “know-how.” Because practical secrets often took the textual form of recipes, scholarship has connected the study of early modern medicinal recipes with the study of secrets. In fact, in early modern Italy the terms “secret” and “recipe” were often used synonymously. Thanks to these recent works, my dissertation emphasizes the cultural significance of “secrets” and views recipes as essential to the production and transmission of privileged and practical medicinal and scientific know-how at the Medici court.

In addition to the practical healing or medical value of the recipe text, I also recognize recipes both as textual embodiment of knowledge and material object of consumption. I argue that the act of collecting and disseminating recipes allowed Anna Maria Luisa to participate in the scientific activities of the Medici court. Through collecting, Anna Maria Luisa performed the same scientific knowledge that her male counterparts carried out through alchemical and scientific experiments. In addition to the acquisition of valuable knowledge, collecting and exchanging recipes also allowed Anna Maria Luisa to cultivate politically and socially advantageous relationships.³⁵

³⁵ Collecting was long perceived as a private, narcissistic, and frivolous pastime of the elite. Scholarship on collections focused on the worth or taste of the finished product—a collection of art or cabinet of curiosities. It wasn’t until the 1980s that the cultural role of collectors was acknowledged. Krzysztof Pomian’s work on collecting in early modern France and Italy pushed the concept of the collector beyond the notion that collectors were guardians of art or testifiers of taste. Influenced by anthropological theory, Pomian argued that collecting was the product of a unique type of behavior, which should have a history in its own right. By the mid

Anna Maria Luisa and the Late Medici Court

A narrative of crisis and decline has dominated scholarship on the late Medici court since the death of Anna Maria Luisa and the arrival of the Hapsburg-Lorraine Grand Dukes in 1737. This narrative was first introduced by Jacopo Riguccio Galluzzi, the official historian of the Lorraine Grand Duke, Leopold II (Grand Duke Peter Leopold as he was known in Florence). In 1768 Leopold tasked three scholars, Galluzzi, Carlo Bonsi and Ferdinando Fossi, with reorganizing and cataloging the vast archival records of the Medici family.³⁶ From these documents, Jacopo Galluzzi wrote his seminal work, *Istoria del granducato di Toscana sotto il governo della Casa Medici* (*The history of the Grand Duchy of Tuscany under the House of Medici*). As a product of the late-eighteenth century, Galluzzi's *Istoria* was heavily influenced by Enlightenment ideals. Thus, he constructed a narrative of the Medici family that valorized the early Medici Grand Dukes of the sixteenth century whom he viewed as promoters of merit over birth at court, supporters of reason and science over religion, sponsors of commercial trade, and

90s, studies emerged that began to emphasize not only the social and cultural dynamics of collecting, but that also focused on the connection between natural objects, antiquities, and art. Paula Findlen's work on collecting and natural history in sixteenth and seventeenth-century Italy demonstrated the centrality of collecting to the vibrant scientific culture of early modern Italy. Findlen's work has redefined what it meant to collect. She showed how collecting was not a natural inclination, but an act of choice. Findlen argues that through the act of collecting, or processing objects, one could physically acquire knowledge. Krzysztof Pomian, *Collectors and Curiosities: Paris and Venice, 1500-1800*, Translated by Elizabeth Wiles-Portier. Originally published in 1987, published in English by Polity Press, 1990 and Paula Findlen, *Possessing Nature*.

³⁶ Silvia Baggio and Piero Marchi, "Introduzione 1," "La storia e la tradizione della Miscellanea medicea," *MISCELLANEA MEDICEA I (1-200)*, published by Degli Archivi di Stato Strumenti CLV, Ministero per i Beni e le Attività Culturali Direzione Generale per gli Archivi, 2002.

free from the influence of foreign-born, female consorts.³⁷ Conversely, Galluzzi regarded the later period of Medici rule, between the seventeenth and the early eighteenth centuries, beginning with Grand Duke Ferdinando II, as one of continuous decline. In Galluzzi's summation, Grand Dukes Ferdinando II and Cosimo III allowed their mothers, respectively Christine of Lorraine and Maria Maddalena of Austria, and in Fernando's case also his wife, Vittoria della Rovere, to have far too much political power and influence, which led later grand dukes to focus on personal benefit over public good. Furthermore, Galluzzi saw the later grand dukes and grand duchesses as far too religious and hence uninterested of the important cultural and scientific interests pursued by their forefathers.³⁸ Anna Maria Luisa fared particularly badly under Galluzzi's character assassination. Galluzzi criticized Anna Maria Luisa's attempts to obstruct the Hapsburg-Lorraine succession and keep Tuscany out of the hands of foreign rule. He concluded that she manipulated her father in order to secure her own succession, placing her personal desires over the good of the state, which would have benefitted from a clear and quick succession settlement.³⁹

The reasons for the decline of the Medici dynasty and the complicated process of the Medici-Lorraine succession have been the subjects of a long-standing historiography. Anglo-scholarship has either continued to perpetuate the outdated and unsubstantiated narrative about the last Medici begun by Galluzzi or ignored this period of Tuscan history all together. The most

³⁷ Benadusi and Brown, "Introduction," in *Medici Women*, 17.

³⁸ Jacopo Riguccio Galluzzi, *Istoria del Granducato di Toscana sotto il governo della casa Medici*, 2nd ed., 11 vols. Florence: Gaetano Cambiagi, 1781. Digital version based on 1822 edition, Florence: L. Marchini: <http://catalog.hathitrust.org/Record/008589309>.

³⁹ Galluzzi, *Storia del Granducato* (1822 ed.), 103-105.

famous twentieth-century works on the late Medici Court, Harold Acton's *The Last Medici* (1932) and Eric Cochrane's *Florence in the Forgotten Centuries* (1978), expanded on Galluzzi's summation of the late Medici Court as culturally, intellectually, and economically "degenerating."⁴⁰ Anna Maria Luisa was depicted as the haughty and devout surviving member of the once-great Medici line.

Recently, Italian scholars have begun to challenge traditional notions of the late Medici "crisis" and "decline," and have also drawn attention to Anna Maria Luisa's personal and political battle to protect her family's legacy. Particularly Italian art historians have acknowledged her artistic patronage and her final act, The Family Pact (*Patto di Famiglia*), which she negotiated with Francis Stephen of Lorraine, the new ruler of Tuscany, in 1737 and was cemented in her last will. Considered one of the most fundamental acts in Florence's history, the Pact stipulated that the extensive artistic, scientific, literary, and religious collections of the Medici were to remain in their entirety in Florence for "the ornament of the state," and "the curiosity of foreigners."⁴¹ Concentration on government records and official correspondence, however, has obscured the role that Anna Maria Luisa played at the Florentine court and her interest in natural history and medicine have been largely ignored.⁴² Anna Maria Luisa's

⁴⁰ Harold Acton, *The Last Medici*, Faber & Faber, 1932 and 2009; Eric Cochrane, *Florence in the Forgotten Centuries, 1527-1800: A History of Florence and the Florentines in the Age of the Grand Dukes*, University of Chicago Press, 1973 and 2013.

⁴¹ The Family Pact and other related documents are filed in the Archivio di Stato, Florence (ASF), *Mediceo* 6320 and 6345.

⁴² For more on the life of Anna Maria Luisa de Medici see: Francini Ciaranfi A.M., "Anna Maria Ludovica de' Medici Elettrice Palatina," in *Donne di Casa Medici*, Firenze (Florence), 1993, 93-110; Hermine Kühn-Steinhausen, *Anna Maria Luisa de' Medici Elettrice Palatina*, Firenze, 1967; and Stefano Casciu, *Anna Maria Luisa de' Medici Elettrice Palantina (1667-1743)*, Firenze, 1993.

collection of recipes and participation in therapeutic pursuits, however, call into question the long-held assumption that her religious convictions repressed any interest in science and medicine.

Throughout her life, Anna Maria Luisa proved to be an astute collector who understood the power of objects. When she married in 1619, the dominion of her husband, the Palatinate, had been partially destroyed by the Nine's Year War and needed to be rebuilt and consolidated, a project her husband undertook through the extensive urban and architectural renewal of Düsseldorf. Using records of Anna Maria Luisa's private accounts in Germany and her extensive correspondence, Stefano Casciu has argued that Anna Maria Luisa crafted a central role for herself in the process of state renewal through the collecting of art.⁴³ Her patronage and collection of art transformed her husband's court into one of the most important centers of European culture in the seventeenth century. Likewise, after 1717 when she returned to Florence as a widow Anna Maria Luisa continued to fashion herself through the commission of art objects, by collecting paintings, sculpture, objects of natural history, and recipes, and as the patroness of the Conservatory of the Montalve, an institution for the education of noble girls, housed in her villa La Quiete. Through her intense artistic patronage and collecting, Anna Maria Luisa filled the gap in court patronage left by the death of her father, Cosimo III in 1723, and reassured Florentine artists of her continued protection. During the last years of her life, as the only living member of her family, she carried on the Medici's artistic patronage playing an important role in preserving the family's artistic, literary, and religious legacy with the 1737 Family Pact.

⁴³ Stefano Casciu, "Anna Maria Luisa, Electress Palatinate, last patron and collector of the Medici dynasty," in *Medici Women*, Benadusi and Brown, eds., 323-346.

Collecting recipes like collecting art, I argue, was another means through which this clever and knowledgeable woman participated in the activities of the Medici court, safeguarded her own fragile social position, and reaffirmed and promoted her family's legacies. An examination of the documents relating to Anna Maria Luisa held within the *Miscellanea Medicea* reveals a woman who was not the marginalized, haughty, and zealous electress described by Galluzzi, Acton, and Cochran, but a woman who used her scientific and medicinal interests to promote her family's and negotiate her involvement at the Florentine court.

Sources

This dissertation is grounded on a number of documents preserved in the State Archive of Florence. Among the numerous documents of the *Miscellanea Medicea* is a box that contains three simple *fascicoli* (folders). The first of these three folders contains numerous birthday letters from important dignitaries, religious orders, and friends sent to Anna Maria Luisa between 1737 and 1738.⁴⁴ The names contained within these letters are significant, as they illustrate Anna Maria Luisa's important social networks and continued political relevance despite the death of her father and the difficult relationship she had with her brother, Grand Duke Gian Gastone, who died in 1737.⁴⁵ The third folder contains her prayers and devotional works. The contents of this folder are not surprising since it was well known that Anna Maria Luisa was a devout Catholic.

⁴⁴ ASF, MM 1, ins. 1.

⁴⁵ While Anna Maria Luisa enjoyed a prominent position at court during her father's reign, Harold Acton has argued that her discord with her brother, the succeeding grand duke, kept Anna Maria Luisa from playing a prominent role at court after the death of her father, Cosimo III, in 1723.

The contents of the second folder, however, debunk the long-held assumption that Anna Maria Luisa's religious convictions repressed any interest in science and medicine. This folder contains a rich, yet unexplored, collection of more than 200 alchemical, medicinal, and culinary recipes in addition to directions on how to use some of the famous therapeutics from the Medici medicine cabinet.⁴⁶

Anna Maria Luisa's collection of recipes acts as the main protagonist in the story of the politics of medicine at the late Medici court, but they are not alone in bearing witness to the Grand Duchess's interest in the natural world and her skilled diplomacy of therapeutics. In addition to Anna Maria Luisa's recipes and correspondence, this dissertation also looks at the material culture of the late Medici court. Particularly fruitful sources for understanding the materiality of the late Medici court's medicinal and scientific culture are inventories and account books of the court pharmacy and alchemical laboratory as well as a three-volume tax and tariff ledger of all medicines and medicinal materials imported into or exported from Florence in the second half of the eighteenth century.⁴⁷

Inventories of the late Medici grand ducal pharmacy (*spezzieria*) and alchemical laboratory (*fonderia*) reveal not only the ingredients essential to the court's therapeutic productions, they also illuminate the objects used in fashioning its medicinal culture. Furthermore, these inventories reveal the international importance of the remedies produced at the Medici court. An inventory of the court *fonderia* from 1649-1658 recorded every medicinal remedy or medicinal chest (*cassette*) made at the grand ducal *fonderia* that was commissioned by

⁴⁶ ASF, MM 1, ins. 2, fols. 1-218.

⁴⁷ ASF, Dogna di Firenze, Dogana Antica e Campioni XIV Secolo-1808, 435, 436, and 437.

or given to a member of the court.⁴⁸ The famed Medici medicinal chests had eight, twelve, or eighteen compartments, each containing a medicinal therapeutic from the laboratory with an accompanying recipe detailing its ingredients or dosage instructions. The inventory does not detail or describe the specific therapeutics, but it classifies the remedies according to the prestige and importance of the person receiving the gift. There were five different levels of medicinal gifts: *cassetti imperiale*, *cassetti da pricipe*, *cassetti d'ebano*, *cassetti di noci*, and *rimedi*. While no monetary values were listed, we can infer from the names and rate at which each category was gifted that *rimedi* were the most common and least valuable, while *cassetti imperiale* were highly prestigious and rarely gifted. For example, for the period of March 25, 1649 to March 24, 1649 (one Florentine year) only three *cassetti imperiale* were dispatched while 3,727 *rimedi* were given. This is confirmed in the records for 1657, during which six *cassetti imperiale* to 3,075 *rimedi* were distributed. In many cases the ledger also lists the recipients, giving us further insight into the political usefulness and prestige of such medicinal gifts, as well as the ardent medicinal interests of some members of the court. For example, *cassetti imperial* were gifted to some of the most powerful rulers of Europe: the Elector Palatine, King Charles II of England, and Prince Rupert of the Rhine.⁴⁹

⁴⁸ ASF, Guardaroba Medicea (GM), 626. The inventory dates from the reign of Anna Maria Luisa's grandparents, Ferdinando II and Vittoria della Rovere. Organized by date of transaction, the inventory records each time a medicinal remedy or medicinal chest (*cassette*) was commissioned by or given to a member of the court.

⁴⁹ ASF, GM 626, fol. 124 v. The date of this gift is interesting. It was gifted during Charles' exile under Cromwell. The former and would-be king was impoverished in 1654 and traveling the continent.

Chapters

Chapter Two provides the cultural context for Anna Maria Luisa's recipe collecting. Using archival records of the Medici court pharmacy and medicinal laboratory, it paints a very different picture of the late Medici court than what is presented by Anglo-scholarship. This chapter challenges narratives of Medici decline and highlights the continued scientific and medicinal patronage of the late Medici court by tracing the organization and structure of the grand-ducal palace as well as the evolution of the grand-ducal pharmacy and medicinal laboratory. As we will see, the importance placed on medicine and alchemy at the Medici court shaped the culture and politics of the grand duchy for more than two centuries. This milieu also shaped Anna Maria Luisa's medicinal interests and recipe collecting.

Chapter Three does what few studies on recipes and recipe collections do—it takes an in-depth look at many of Anna Maria Luisa's individual recipes and ingredients. Identifying the ingredients used in early modern recipes is difficult. Names of plants and minerals were not standardized and appeared with many different spellings and in different languages. Some ingredients, like ambergris, were shrouded in mystery in the early modern world. In other cases, misinformation and the misidentification of plants and specimens were circulated. A close look at the recipes themselves as well as the ingredients used reveals that Anna Maria Luisa's collection departs from recent research on domestic medicine. Anna Maria Luisa's recipes employed expensive and exotic ingredients, complex methods of preparation, and, in some cases, incorporated indigenous knowledge from the New World, East Africa, and Southeast Asia. In short, Chapter Three reveals that the ingredients used in Anna Maria Luisa's were anything but commonplace.

Chapter Four traces the global networks that enabled recipes and objects of natural history to flow from the New World, East Africa, and Southeast Asia to the Medici court, as well as the social and political webs that facilitated the exchange of recipes and therapeutics with the Medici court throughout Europe. As Cosimo III's and Anna Maria Luisa's financial records and epistolary exchanges reveal, recipes played an important role in the ritualized gift giving of early modern culture. Anna Maria Luisa and her contemporaries gifted and exchanged recipes across the courts of Europe. In addition to kin and courtly relationships in Europe, Anna Maria Luisa and her father also cultivated commercial and religious networks to access plants and medicinal ingredients beyond Europe. In doing so, they built important, yet often overlooked, networks of medical and scientific knowledge transfer in the early modern world.

Chapter Five looks at the important relationship between recipes and secrets to highlight the increasing socio-cultural value of recipes over the course of the sixteenth, seventeenth, and eighteenth centuries. Closely tied to privileged and empirical forms of technical and medical knowledge, recipes played a significant role in valorizing, legitimizing, and circulating experiential knowledge over the course of the seventeenth and eighteenth centuries. For the late Medici court, recipes were agents of both discovery and transmission in their desire to uncover or unlock the secrets of nature in the early modern world.

Finally, Chapter Six explores the ways in which recipes became meaningful cultural and political currency for Anna Maria Luisa and the late Medici court. Just as they are today, health, healing, and the body were fundamental concerns for individuals in the early modern period. This was especially true for early modern sovereigns; whose health was imperative to both their physical wellbeing and that of the state. Through recipe collecting and gifting, Anna Maria Luisa negotiated with the social and political power of medicine. She focused her medical authority

and gifts specifically on child of aristocratic lineages. In doing so, she worked to protect the next generation of European nobility and ingratiate herself with Europe's most powerful courts. In doing so, she promoted the political interests of Tuscany and safeguarded the legacy of the Medici dynasty.

Chapter Two

Science and Medicine at the Late Medici Court

In the early eighteenth century, when guests visited the Medici grand-ducal laboratory and pharmacy located inside the Pitti Palace they would have admired a treasure-trove of wondrous and exotic objects. In the two centuries between 1537, when Cosimo I (1519 - 1574) became head of the Florentine government and was granted the title of duke by Emperor Charles V, and 1743, which marks the end of the Medici dynasty with the death of Anna Maria Luisa, the Palatine Electress, the Medici created one of the most magnificent courts in Italy and in Europe. Their ornate palaces, rich art collections, and exotic curiosities were admired by foreign visitors, dignitaries, and ambassadors for centuries, and the prestige of the Medici court was paralleled only by the royal houses of Europe. The Medici family's interest in and patronage of medicinal and pharmaceutical experimentation was an important aspect of the court's reputation since its inception. The eighteenth-century historian Jacopo Galluzzi described in glowing terms Cosimo I's consideration for botany, noting that in addition to cultivating new plants and flowers from around the world in the Boboli Gardens, in 1543 the duke also established a Chair of Botanical Science at the University of Pisa to oversee Europe's first botanical garden.¹

¹ Galluzzi, *Istoria Del Granducato Di Toscana*, bk.1, ch. 9: 169, “[Cosimo III] istituì una Cattedra di Botanica, scienza fino a quel tempo trascurata e negletta, e stabilì in Pisa un orto per i semplici. ... e siccome Cosimo si compiaceva assai di quest'arte poté trasferire in Toscana e

In this chapter I trace the expansion of the late Medici court exemplified in the organization and structure of the Pitti Palace during the seventeenth and the early eighteenth centuries as well as in the evolution of the grand ducal laboratory and pharmacy, called *fonderia* and *spezzieria* respectively, which stood at the heart of the Medici palace.² Tracing the expansion of the physical spaces of the court and the continuing development of the famed Medici *fonderia* and *spezzieria*, counters pervasive narratives of late-seventeenth and early-eighteenth century Medici intellectual and cultural stagnation and presents a very different image of the scientific and medicinal culture of the late Medici court.

The story of the Medici family began in the fifteenth century with its wealthy bankers and merchants and the shrewd figures of Cosimo il Vecchio (1389 – 1464) and Lorenzo the Magnificent (1449 – 1492).³ However, we cannot truly speak of a Medici court as a spatial,

rendere quasi indigene molte piante dell’Egitto, del Levante e della Sicilia;” See also Paula Findlen, *Possessing Nature*, 256.

² *Spezieria* comes from the word *spezie*, meaning spices. Also used in “negozio di spezie,” spice shop, and “bottega di speziale,” apothecary. It typically indicated dried goods or spices, hence its close association with apothecaries. Although today it is spelled with only one “z,” I maintain the double “z” spelling most used throughout late-seventeenth and eighteenth-century sources. However, even within grand-ducal archival sources spelling remains inconsistent. *Fonderia* literally means foundry, however because many of the same instruments and processes used in metallurgy were also employed in alchemy, *fonderia* was also used to describe early alchemical laboratories.

³ On the Medici’s rise to power see: Raymond de Roover, *The Rise and Decline of the Medici Bank*, Beard Books, 1999; George Holmes, “How the Medici Became the Pope’s Bankers” in *Florentine Studies: Politics and Society in the Renaissance Florence*, ed. Nicolai Rubinstein, London, 1968; Dale Kent, *The Rise of the Medici: faction in Florence, 1426-1434*, Oxford University Press, 1978, and *Cosimo de’ Medici and the Florentine Renaissance*, Yale University Press, 2000; F. W. Kent, *Lorenzo de’ Medici and the Art of Magnificence* JHU Press, 2006; Anthony Molho, “Cosimo de’ Medici: Pater Patriae or Padrino,” in *Stanford Italian Review*, 1, 1979; Melissa Meriam Bullard, “The Magnificent Lorenzo de’ Medici; between myth and history,” in *Politics and Culture in Early Modern Europe: Essays in Honour of H.G. Koenigsberger*, Cambridge University Press, 1987.

cultural, political, and physical site until the late 1530s, when Cosimo I⁴ was granted the title of duke by Emperor Charles V, hence establishing the family as hereditary sovereign of the Tuscan state.⁵ In 1569 he was granted the title of grand duke by Pope Pius V⁶ and during the following two centuries, thanks to dynastic marriage alliances with European ruling elites and cultural patronage the Tuscan court became a cosmopolitan center that influenced styles, tastes, culture, science, medicine, music, theater, and public spectacles across Europe.⁷

The Pitti Palace, the stately palace located on the south side of the Arno river in Florence, became the residence of the Tuscan rulers in 1549, and remained the center of courtly life in

⁴ On Cosimo I's nomination as head of the Florentine government and granting of the title of duke see Nicholas Scott Baker, *The Fruit of Liberty*, Harvard University Press, 2013, 152-153.

⁵ On the history of Cosimo I and the other Medici grand dukes see Butters, *Governors and Government in Early Sixteenth-century Florence, 1502-1519*, Clarendon Press, 1985; Elena Fasano Guarini, "La fondazione del Principato da Cosimo I a Ferdinand I (1530-1609)" in *Storia della civiltà Toscana, III, Il principato*, pp. 3-40; Franco Angiolini, "Il lungo Seicento (1609-1737): declino o stabilità?," in Elena Fasano Guarini (a cura di), *Storia della civiltà Toscana, III, Il Principato mediceo*, 41 - 76; Konrad Eisenbichler, *The Cultural Politics of Duke Cosimo I de' Medici*, Ashgate, 2001; and more recently Nicholas Scott Baker, *The Fruit of Liberty*. Works on Medici women include Natalie Tomas, *The Medici Women: Gender and Power in Renaissance Florence*, Taylor & Francis, 2017; Giulia Calvi and Isabelle Chabot, eds. *Moving Elites: Women and Cultural Transfers in the European Court System, Proceedings of an international workshop* (Florence, Italy, December 12 – 13, 2008), Florence University European Institute, 2010; Christina Strunck, ed., *Medici Women as Cultural Mediators (1533-1743)*, Silvana, 2011; and Benadusi and Brown, eds., *Medici Women*.

⁶ In 1576 the emperor granted the imperial title to Cosimo's son Francesco I.

⁷ Fantoni, "The Courts of the Medici" in Adamson, *The Princely Courts of Europe: Ritual, Politics and Culture Under the Ancien Régime, 1500-1750*, Seven Dials, 2000, 256. Further studies on the influence and culture of the Medici court see: Asch and Birke, eds., *Princes, Patronage, and the Nobility: The Court at the Beginning of the Modern Age, C. 1450-1650*, German Historical Institute, Oxford University Press, 1991; Mozzarelli and Venturi, eds., *L'Europa delle corti alla fine dell'antico regime*, Bulzoni, Roma 1991; Adamson, ed., *The Princely Courts of Europe*; Fantoni et al., eds., *The Politics of Space: European Courts: 1500–1750*, Rome: Bulzoni Editore, 2009; and Mario Biagoli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism*, University of Chicago Press, 1994.

Florence for nearly two centuries.⁸ By the late-sixteenth and seventeenth centuries, astute marriage alliances brought foreign brides from the prestigious courts of France and Austria to the Medici court. In 1589, after a sumptuous and elaborate series of wedding festivities designed to impress the princely courts of Europe, Ferdinand I (1549-1509), Cosimo I's fifth son and reigning grand duke, married Christine of Lorraine (1565-1637). Christine was the daughter of the Duke of Lorraine and the granddaughter of the French King and Queen, Henry II and Catherine de' Medici. Raised at the French court, Christine not only reaffirmed the connection between French royalty and the Medici, she also brought prestige and increased princely customs and sociability to the Medici court.

Analyzing the education patterns of Christine's children and grandchildren, Maria Pia Paoli has demonstrated how Christine and her daughter-in-law, Grand Duchess Maria Maddalena of Austria, designed a princely Medici court through the educations of their sons and daughters.⁹ Under their direction, greater emphasis was placed on princely sociability at court, which included grand banquets, jousts, tournaments, dressage, games, and weaponry. These types of lavish entertainments became a regular feature of daily life at the Pitti Palace under Grand Duke Ferdinand I and Grand Duchess Christine. Between 1589 and 1609 the Pitti Palace expanded greatly in both form in function to meet the needs of the distinguished guest and visitors that accompanied such elaborate displays as well as the increased court staff.¹⁰ This thirty-year period

⁸ Leon Satkowski, "The Palazzo Pitti: Planning and Use in the Grand-Ducal Era," *Journal of the Society of Architectural Historians*, Vol. 42, No. 4 (Dec., 1983), 336-349.

⁹ Maria Pia Paoli, "Foreign Mothers and the International Education of Medici Children: Christine of Lorraine and Maria Maddalena of Austria at the Medici Court" in *Medici Women*, 183-226.

¹⁰ Satkowski, "The Palazzo Pitti: Planning and Use in the Grand-Ducal Era," 338.

of intense expansion was motivated by intensifying protocols of diplomacy and hospitality. The Pitti Palace housed not only the principle Medici family members and their retinues, but also important visiting dignitaries and guests, some 164 servants, and the court secretaries of state and war, all spread out across 379 rooms and 22 principle apartments (a suite of rooms that functioned as an independent residence).¹¹

In 1616, grand duke Cosimo II (1590-1621), Ferdinand I's son and heir, announced a competition to expand the palace further. Over the next twenty years (1620-1640), during the reign of Cosimo II's son, Ferdinand II (1610-1670), eight bays were added to the façade of the palace, more than doubling the physical presence of the Pitti Palace.¹² By the time of Cosimo III (1642-1723), son and heir to Ferdinand II, a century of intensifying protocols of diplomacy, sumptuous displays of ceremony and spectacle, and the elaborate hospitality of the Medici court had produced a sprawling and impressive palace. In addition to private rooms and apartments, the palace also boasted vast formal gardens, fashionable outdoor grottos, two kitchens (one for the grand-ducal family specifically), and a *guardaroba* (central domestic dispensary) as well as the *spezzieria* and *fonderia* (pharmacy and laboratory).

As building records indicate, Cosimo III also commissioned plans to expand the Pitti Palace. Having inherited an enormous princely palace capable of lavishly hosting dignitaries and expansive enough for courtly spectacles, Cosimo III turned his attention to rebuilding and enlarging the Medici's famed court pharmacy in 1672.¹³ Since the time of Cosimo I, the Medici

¹¹ Satkowski, "The Palazzo Pitti: Planning and Use in the Grand-Ducal Era," 341.

¹² Ibid.

¹³ ASF, *Scrittoio* FF 156, fol. 3.

court pharmacy had been renowned for its alchemical and medicinal products. It produced tangible items that safeguarded the health of the Medici and their subjects, and that increased the prestige of the grand-ducal family. It also epitomized the enduring interests of both male and female family members in alchemy, natural history, science, and medicine. The importance granted by the Medici to medicine and alchemy shaped the culture and politics of the Tuscan court and the development of science in Italy for more than two centuries.

Established by Cosimo I in 1555, the Medici court pharmacy began as a pharmaceutical laboratory, then called the “*Fonderia medicea*.”¹⁴ At first, this *fonderia* was simply a room located in Palazzo Vecchio, where the duke resided and was dedicated to the duke’s personal interest in science. Not only did Cosimo make medicines, he also experimented with alchemical reactions and even attempted to make fake porcelain.¹⁵ Cosimo’s interest in experimental science as well as the fame of the Medici *fonderia* are also recorded by Galluzzi who wrote how, in his *fonderia*, the duke “was pleased to occupy himself with the diverse compositions of metals and minerals; every secret of the century was favorably welcomed, that he enjoyed learning new methods of *esperienze*; the compositions of poisons was not the last of his research and he was credited in Italy with making the most violent.”¹⁶

¹⁴ Giovanni Piccardi, “La Fonderia Medicea di Firenze,” in *Rendiconti della accademia nazionale delle scienze dette da XL* (Journal), series 5, Vol. XXIX, Scienze Fisiche, 197-210.

¹⁵ *Ibid.*, 199.

¹⁶ Galluzzi, *Istoria Del Granducato Di Toscana*, bk. 1, ch. 9: 158-159. “[...] si compiaceva occuparsi nelle diverse composizioni dei metalli e dei minerali; tutti I segretisti del secolo erano favorevolmente accolti da esso, che godeva di apprendere nuovi metodi per fare esperienze; la composizione dei veleni non fu l’ultima delle sue ricerche ed ebbe credito in Italia di fabbricare i più violenti.”

Cosimo I's son, Francesco I, had an even greater interest in alchemy. Requiring more space for his alchemical pursuits, Francesco I relocated the *fonderia* to the Casino San Marco, a palace near the Convent of San Marco, around 1541.¹⁷ In 1586, towards the end of Francesco I's reign, records indicate that some of the *fonderia*'s activities were transferred to the office complex known as the Uffizi.¹⁸ Under the rule of Francesco I's brother, Ferdinand I, the *fonderia* was consolidated and expanded in the Uffizi. It was enlarged to include seven rooms and a terrace, which was essential for the alchemical processes that required sun exposure. From the instruments described in an inventory of the *fonderia* in 1591 we know that distillation was the primary technique used in the laboratory.¹⁹

By the seventeenth century, the *fonderia* began to function less as a personal scientific playground for the reigning grand duke and more as a mechanism of state craft. During the reign of Ferdinand I and Christine of Lorraine, the practice of gifting precious chests filled with remedies made by the *fonderia* began. By the mid-1600s, in addition to gifting remedies, the *fonderia* was also used to display natural curiosities and wonders like stuffed exotic animals and even an Egyptian mummy, which delighted and intrigued visitors. Functioning parallel to the

¹⁷ Piccardi, "La Fonderia Medicea di Firenze," 200. For more on the alchemical activities of Francesco I de' Medici see Luciano Berti, *Il principe dello studiolo. Francesco I dei Medici e la fine del Rinascimento fiorentino*, Maschietto Editore, 2002; Feinberg, "The Studiolo of Francesco I Reconsidered," in *The Medici, Michelangelo, & the Art of Late Renaissance Florence*, Cristina Acidini Luchinat, ed., Yale University Press, 2002; and Valentina Conticelli, *"Guardaroba di cose rare et preziose": lo studiolo di Francesco I de' Medici: arte, storia e significati*, Agorà, 2007.

¹⁸ Ibid., 201. On the foundation of the Uffizi see Henk Th. van Veen, *Cosimo I De' Medici and His Self-Representation in Florentine Art and Culture*, Cambridge University Press, 2006, 81-85.

¹⁹ Piccardi, "La Fonderia Medicea di Firenze," 201.

court *fonderia* was the “*spezzieria di Boboli*,” constructed between 1636 and 1637.²⁰ Whereas the *fonderia* was dedicated to alchemical reactions and distillation, the *spezzieria* focused on the production of medicinal herbals, syrups and powders. This *spezzieria* was located in the right wing (when facing the façade) of the Palazzo Pitti, the present-day location of the Palazzo Meridiana. In 1657, with the establishment of a formal academic society, the *Accademia del Cimento*, sponsored by Ferdinand II and his brother Prince Leopoldo, the Medici *fonderia* moved from the Casino San Marco to the main ducal residence, the Palazzo Pitti, and expanded both in its physical form and ceremonial functions at court.²¹ It was also at this time that the Medici *fonderia*, or laboratory, was merged with the “*spezzieria di Boboli*,” and given the more encompassing title, “*Spezzieria di Sua Altezza Serenissima*” (Pharmacy of His Royal Highness).²²

Although often described in terms of grand-ducal patronage, the scientific and medicinal pursuits at court were not limited to Medici men. In fact, as recent scholars have demonstrated, the Medici grand duchesses played a crucial role in the development of the court’s scientific

²⁰ Giovanni Piccardi, “La Spezieria di Boboli al tempo dei Medici,” in *Rendiconti della accademia nazionale delle scienze dette da XL* (Journal), series 5, Vol. XXIX, Scienze Fisiche, 297 – 307.

²¹ *Ibid.*, 297 - 307.

²² Most scholarship on the scientific patronage of the Medici court centers on the alchemical activities of Francesco I, and the later *Accademia del Cimento* (1657 – about 1667) sponsored by Ferdinand II and his brother Prince Leopoldo. Scholars such as Marco Beretta have lauded the *Cimento* as the first scientific academy and the birth of a new scientific epistemology, which emphasized experience and experimentation over rhetoric. Thanks to this teleological narrative, scholarship has interpreted the dissolution of the *Cimento* in 1667 and the lack of interest on the part of the later grand dukes in *esperienza* as a step backwards. This narrative of scientific decline mirrors the larger historical narrative of the Medici grand ducal family in general. Recently, however, scholars have begun to problematize the idea of the intellectual decline of the Medici dynasty and the later grand duchesses in particular. See *Medici Women: The Making of a Grand Ducal Dynasty*, eds. Benadusi and Brown.

culture as well as its patronage. According to Meredith Ray, it was Caterina Sforza's collection of alchemical recipes, which was inherited by her grandson Cosimo I, that played a key role in shaping the alchemical and pharmaceutical interests of the first Medici grand duke.²³ Just a generation later, as Sheila Barker has argued, Cosimo I's daughter-in-law, Christine of Lorraine, would introduce the Medici court to Paracelsian medicine. Paracelsian medicine, or iatrochemistry, was an anti-Galenic approach to healing that saw disease as "ontologically specific entities" and maintained that cures could be found through chemical or alchemical experimentation and understanding nature's chemical cosmology.²⁴ Finally, Giovanna Benadusi has argued that grand duchess Vittoria della Rovere, Anna Maria Luisa's grandmother, was not a religious bigot who opposed new medicinal and therapeutic practices. Like many grand duchesses before her, she inherited a rich pharmaceutical dowry, which fostered an avid interest in health and medicine throughout her lifetime.²⁵ Grand Duchess Vittoria was deeply concerned with the health and wellness of her family and often dispensed medical advice and drugs from the grand ducal pharmacy to Italian aristocratic women.²⁶

Vittoria della Rovere's interest in health and medicine was likely passed down to her son Cosimo III, who became the grand duke of Tuscany in 1670. Cosimo III may have been less interested in participating in the experiments of the *Cimento*, but like his mother, he showed a keen interest in medicine, and according to Galluzzi also in botany. Under his patronage

²³ Meredith Ray, *Daughters of Alchemy*, 15.

²⁴ Sheila Barker, "Christine of Lorraine and Medicine at the Medici Court," in *Medici Women*, 155 – 181.

²⁵ Barker, "The Contributions of Medici Women to Medicine in Grand Ducal Tuscany and Beyond," 101-116.

²⁶ Benadusi, "The Gender Politics of Vittoria della Rovere," in *Medici Women*, 288.

Florentine science became less concerned with physics and astronomy and more focused on biology, genetics, and medicine.²⁷ During his rule, the Medici grand ducal “*spezzieria*” grew into a complex of eleven rooms located in a recently-built extension to the “new kitchen” on the south side of the palace.²⁸ The *spezzieria* included a medical laboratory for the production of alchemical medicines (still called the *fonderia*, but now located within the complex of the *spezzieria*), a pharmacy for the production of herbals, syrups and powders, and a distillery for the production of medicinal waters, tinctures, and liquors.

In the last decades of the seventeenth century, the grand-ducal *spezzieria* revealed Cosimo III’s interest in exotic medicinal plants and objects. Through his ambassadors and agents in Portugal, Spain, and Amsterdam, and by interacting with Jesuit religious networks and missions throughout the New World and South East Asia, Grand Duke Cosimo III collected objects of natural history, pursued his interest in botany, and imported exotic *materia medica*. According to Galluzzi, in 1677, following the advice of Francesco Redi, the court physician, Cosimo III “began creating a cabinet of natural history, and every missionary from the Indies and America were tasked with procuring many of the rarest and curious specimens of nature from Asia and the New World.”²⁹ Between 1682 and 1697, Cosimo III imported more than 900 pounds of cacao and vanilla via New Spain, with the intervention of Francesco Ginori, a member

²⁷ Eric Cochrane, *Florence in the Forgotten Centuries*, 252 - 255.

²⁸ Giovanni Piccardi, “La Spezieria di Boboli al tempo dei Medici,” 300.

²⁹ Galluzzi, *Historia del granducato di Toscana*, bk. 8, ch. 10: 409. “intraprese a formare un Gabinetto d’Istoria naturale, e tutti i missionari dell’Indie e d’America furono incaricati di procurarli le più rare e scherzose produzioni della natura tanto d’Oriente che d’Occidente.”

of the Florentine elite and Tuscan ambassador in Cadiz, Spain.³⁰ Chocolate was not the only valuable product and medicine to enter the grand ducal pharmacy during Cosimo III's rule. From Francesco Ginori, Cosimo also imported "China China," or quinine, cinnamon sticks (*fusti di cannella*), various unspecified remedies from Mexico, tobacco, and cases of unnamed dried goods from India.³¹ Through his agent and banker in Amsterdam, Cesare Sardi, Cosimo imported coffee from Java and "cacciù," a medicinal herbal that he learned about from the "Druggists of Peru."³² These herbals and simples would become key ingredients in the production of medicines at the grand-ducal pharmacy during the following decades.

In 1708, when guests visited Cosimo III's expanded grand-ducal *spezzieria* they would have discovered a wealth of wondrous and exotic objects. An early eighteenth-century inventory of the grand ducal *spezzieria* provides a topographical description of the eleven-room complex, describing the various objects, furniture, and décor in each room. Upon arrival, guests and courtiers were greeted in the first room by a stuffed crocodile gripping a red glass ball (a symbol of the signature Medici *palle*), a stuffed armadillo, eight ostrich eggs, four rhinoceros' horns, a large piece of mother of pearl with two coral branches, and a vase made from an Indian

³⁰ ASF, MdP 5066, 5070, and 5071.

³¹ ASF, MdP 5066, Letter dated January 4, 1682 (1683 in the modern calendar).

³² ASF, MM 92, ins. 4, fol. 39v, Letter dated December 9, 1712. Cacciù or catecù [from fr. catechu (then catéchu), variant of cachou]. Name of some species of acacia, legumes of India and Ceylon, and in particular of Acacia catechu, a small tree cultivated in tropical America, 6 or 7 m tall, with white and yellow flowering spikes; from its wood we extract a dense, bitter substance, also called catecù (or catù, cattù, pegù), used by the natives to prepare, with other components, a masticatory (betel) with expectorant, astringent and antiseptic properties. <http://www.treccani.it/vocabolario/catecu/>

coconut.³³ In addition to these exotic items, visitors would have also admired two large Medici medicine chests, ornate medicinal jars, and a gilded wooden figure of Atlas holding the world atop his shoulders.³⁴ Gleaming around the room and prominently displayed on a host of sumptuous buffets, shelves, and tables were numerous silver objects, which showcased not only the wealth of the Medici court, but also its taste, refinement, and nobility.

The third room of the *spezzieria* was filled with medicinal jars and flasks for syrups and liquids. The fourth room, a smaller room just ahead of the fifth room, was filled with various types of syringes and clyster tubes. This small room also included two gilded bezoar stones, several large remedy drums, and two books with portraits and diagrams of fruits and trees from “Indian Kingdoms.” The inventory then continued with the fifth room of the *spezzieria*, which housed crates for shipping medicines and a variety of copper objects for distillation and alchemical production. Next came the kitchen, which was a large room filled with all manner of copper, iron, and brass alembics, boilers, kettles, cauldrons, coils, and baths for alchemical distillation. In addition to five main rooms, several smaller rooms for storage were also listed. The *fonderia* was listed as the final room. As mentioned previously, unlike its predecessor in the *Uffizi* and *Casino di San Marco*, however, this *fonderia* was now a room within a larger medicinal complex.

While all of the 11 rooms housed important medicinal objects, the first room was particularly meaningful. It was the room where distinguished guests could participate in one of

³³ The Medici family emblem contained six balls, or “palle” – five red balls, and one blue. The term “palle” even became a rallying cry for the family and their supporters in times of conflict.

³⁴ ASF, GM 1166bis, *Inventario della Spezzieria di SAR* (Sua Altezza Reale), 1708.

the court's most fashionable and noblest pastimes, drinking chocolate. The room displayed all the necessary apparatuses for preparing and consuming chocolate – a silver cauldron for roasting the raw cacao seeds, two silver mortars and spatulas for grinding the cacao bean shells into a buttery paste, three silver chocolate boilers to heat the paste and combine it with exotic spices like cinnamon, ambergris, nutmeg, vanilla, and sugar, three silver bowls with sieves to refine the mixture, and an assortment of silver serving platters, chocolate pots, and cups emblazoned with the Medici, Urbino, and Austrian coat of arms for drinking the final chocolate mixture.³⁵ In the early eighteenth century, drinking chocolate was a luxury and a health benefit few could afford. The drink was difficult and time-consuming to make and its main ingredients – cacao, sugar, and spices – were expensive and had to be imported from exotic and faraway places. Drinking chocolate was thus an important political and cultural statement for the Medici court, a court that, since its inception, strived to achieve the same status as older and larger princely European courts.

According to Francesco Redi (1626 – 1697), physician to Grand Duke Cosimo III and superintendent of the Medici *Spezzieria* (pharmacy), chocolate arrived in Florence in 1606 and was presented to Duke Ferdinand I by the Florentine merchant Francesco d'Antonio Carletti, who had just returned from a journey through the East Indies.³⁶ This story, however, is likely apocryphal. Cocoa beans were not cultivated in southeast Asia until the 1660s and chocolate was

³⁵ ASF, GM 1166bis, *Inventario della Spezzieria di SAR*, 1708. The inventory gives a topographical listing of the objects, and their distinguishing features, located in each room.

³⁶ Antonio Vallisneri, *Dell'Uso e dell'Abuso delle Bevande e Bagnature calde, o fredde. Terza impressione cui evve annessa Una erudita Dissertazione del Celebre suo Zio, intitolata De potu Vini Calidi, autore Johanne Baptista Davini Serenissimi Raynaldi I. Mutinae, Regii, Mirandulae, & c. Ducis, Medico*. Felice Mosca; Napoli, Italia: 1727.

not widely known or accepted outside the Spanish court until the Spanish princess, Anne of Austria, popularized the drink at the French court when she married Louis XIII in 1615.³⁷ Whether true or not, it would take another five decades before drinking chocolate for its medicinal effects was popularized at the Florentine court. Redi, who was a poet as well as a scientist, wrote that chocolate had become popular in noble houses and princely courts because it could fortify the stomach and improve overall health.³⁸ In his poem “Bacco in Toscana,” Redi explained that while the Spanish were the first to receive and manipulate chocolate, the court in Tuscany was the first to infuse chocolate with flavors such as fresh citron, limoncello, jasmine, cinnamon, vanilla, and ambergris.³⁹

In an attempt to compete with the popularity of Spanish chocolate, Cosimo III commissioned Redi to create a proprietary chocolate recipe. Drawing on his alchemical knowledge, Redi created a complex and elaborate recipe for the grand duke. The process for creating jasmine chocolate, as it was known, took more than ten days and thousands of jasmine flowers. While Redi’s recipe remained secret during his lifetime, it was finally published after his death in 1697. Redi’s recipe called for:

10 pounds of roasted cacao beans, cleaned and coarsely crushed

³⁷ Sophia and Michael Coe, *A True History of Chocolate*, Thames & Hudson, 2013.

³⁸ For works on Francesco Redi and his scientific activities see, Jutta Schickore, “Trying Again and Again: Multiple Repetitions in Early Modern Reports of Experiments on Snake Bites,” in *Early Science and Medicine*, Vol. 15, No. 6 (2010), 567-617; Martha Baldwin, “The Snakestone Experiments: An Early Modern Medical Debate,” in *Isis*, Vol. 86, No. 3 (Sep., 1995), 394-41; and Jay Tribby, “Cooking (with) Clio and Cleo: Eloquence and Experiment in Seventeenth-Century Florence,” in *Journal of the History of Ideas*, Vol. 52, No. 3 (Jul. - Sep., 1991).

³⁹ Francesco Redi, *Bacco in Toscana*, Firenze, Piero Matini, 1685.

Fresh jasmine flowers

8 pounds white sugar, well-dried

3 ounces of perfect vanilla beans

4 to 6 ounces of perfect cinnamon

2 scruples of ambergris⁴⁰

To prepare the chocolate, Redi's recipe called for the creation of alternating layers of cacao beans and jasmine flowers, which had to sit for at least 24 hours to infuse the flavors. This process was repeated ten to twelve times before the beans were ready to be processed into a paste and processed into a hot beverage.

Not only was jasmine chocolate a testament to the grand duke's wealth and the abilities of the grand ducal *spezzieria*, it was also a symbol of Medici taste, refinement, and power. Jasmine chocolate quickly became popular at the Florentine court and a closely guarded state secret. Cosimo III forbade anyone from writing or publishing the recipe and this refined beverage could only be consumed at court or in the noblest of houses.⁴¹ The manipulation and production of chocolate in the grand ducal *spezzieria* was a powerful instrument in the world of early modern statecraft. For Cosimo III chocolate was an important political statement. The acquisition of cacao from the West Indies, not New Spain, its manipulation using Medici knowledge of iatrochemistry, and ceremonial consumption at court were mechanisms of statecraft – an attempt to appear more worldly, knowledgeable, and regal than the Spanish court.

⁴⁰ Vallisneri, *Dell'Uso e dell'Abuso* and Coe, *True History of Chocolate*.

⁴¹ Coe, *True History of Chocolate*.

The grand ducal *spezzieria* played an essential role in the culture and politics of the court, and as such, the expensive and important instruments housed in the laboratory needed to be controlled and maintained.⁴² With the appointment of a new “*maestro di Spezzieria di S.A.R*” in 1708, a new inventory was methodically written and signed by the new director. For the director, a detailed account of the precious objects was a safeguard from undue blame if an object went missing or was discovered broken, while for the grand duke, it was a means to survey and protect items that aided him in ensuring the survival of Medici prestige. As Amanda Vickery has demonstrated, account books and inventories were sites of power—a means of control that could function as both an aid and a weapon.⁴³ Thus from a seemingly simple list of objects, we can see the cultural taste and priorities of the Medici grand duke, as well as the nature and continuity of Medici scientific patronage. As Galluzzi also recorded in his *Historia*, since the time of Cosimo I, the grand-ducal *fonderia* “became famous in Europe for the advanced remedies and medicines that were made there.”⁴⁴ Galluzzi’s statement has been corroborated by recent scholars like Barker who has demonstrated that the medicines produced by the grand ducal *fonderia*, and later *spezzieria*, were widely disseminated throughout the courts of Europe. The courtly patronage of

⁴² Preserved in the *Guardaroba fondo* of the State Archive in Florence are three almost identical inventories of the late-seventeenth and early-eighteenth century court *spezzierie*. Dated 1688, 1708, and 1732, each inventory provides a topographical description of the grand ducal pharmacy and laboratory located in the royal residence of the Pitti Palace.

⁴³ Amanda Vickery, *Behind Closed Doors: At Home in Georgian England*, Yale University Press, 2009, 20-21.

⁴⁴ Galluzzi, *Istoria Del Granducato Di Toscana*, bk. 1, ch. 9: 158-159. “si rese celebre per l’Europa per i rimedi e medicinali che vi si fabbricarono in progresso.”

science not only highlighted the Medici's splendor and command of nature, it also produced tangible products that were used to garner political and social favor.⁴⁵

The valuable and exotic medicines produced at the court of Cosimo III served not only the medicinal needs of the grand-ducal family, the court, and Tuscany, they were also gifted across Europe. Medicines produced on the *spezzieria* were wrapped in identifying recipe leaflets, placed in elaborate medicine chests and gifted in the name of the Tuscan grand dukes and duchesses to nobles and kings of Europe, the Middle East, and even the Americas.⁴⁶ Between 1682 and 1684 Cosimo III sent numerous cases, bottles, and even drums of medical syrups and tinctures to the Portuguese court. In many cases, specified shipments were intended to serve the queen. In return, Cosimo III successfully secured passage to Goa for two of his agents via Portuguese merchant ships.

Corroborating the expansion and splendor of the late Medici court and the importance of its pharmacy and laboratory, medicines became precious diplomatic gifts. Anna Maria Luisa's great-grandmother, the Grand Duchess Maria Magdalena (von Hapsburg), actively gifted medicines and therapeutics from the grand ducal foundry. In 1630, she sent oils from the *fonderia* (*gli olij di fonderia*) as a diplomatic gift to the Crown Prince of Spain (Baltasar Carlos).⁴⁷ In 1663, commodore (Commendatore di Sorano) Francesco di Giovanni de' Medici (Tuscan ambassador in Spain from 1631 to 1636) wrote to the Medici court concerning the

⁴⁵ Barker, "The Contributions of Medici Women to Medicine in Granducal Tuscany and Beyond," 101-116.

⁴⁶ ASF, GM 626.

⁴⁷ ASF, MdP 4962. (Entry 11641 in the Medici Archive Project Documentary Sources database.)

current negotiations for the royal marriage of Giovan Carlo de' Medici and Anna Carafa, the heiress to the Principate of Stigliano.⁴⁸ In the same letter discussing diplomatic marriage arrangements, Francesco mentioned he would try to avoid requesting remedies from the Granducal *fonderia* (*chiesti de rimedi di fonderia*), but fears it will be difficult to wean the Spanish nobles from asking (*difficile divezzare dal chiederne molti di questi signori*). Careful not to overstep his bounds, Francesco was alluding to the importance of Medici therapeutics in diplomatic relations and negotiations.

While these letters reveal the popularity of Medici medicines in Spain, there is also evidence that remedies from the grand-ducal pharmacy were sent widely across Europe and the Mediterranean.⁴⁹ In 1637, an inventory of diplomatic gifts, sent by Grand Duke Ferdinand II to Pasha Mamet of Tripoli, included perfumed waters and medicinal oils (*1 cassetta di oli di fonderia. 1 cassetta di aque odorifere*).⁵⁰ In 1637 military captain and diplomat Piero della Rena, who at the time of writing was being held captive by the Pasha of Tripoli, wrote Grand Duke Ferdinand II and proposed a plan to negotiate his ransom. In order to expedite his release, Rena suggested that in addition to money, Ferdinand send an amicable letter, a tent made of damask cloth, and a box of medicinal oils (*una cassetta di olii di fonderia*).⁵¹ Clearly the

⁴⁸ ASF, MdP 4959 folio 146. (Entry 10580 in the Medici Archive Project Documentary Sources database.)

⁴⁹ There are letters requesting or thanking the Medici court foundry and pharmacy for medicinal remedies from Medici family members across Europe, as well as individuals from the Courts of Spain, Hapsburg, and Tripoli. ASF, GM 626.

⁵⁰ ASF, MdP 4274 folio 145. (Entry 18112 in the Medici Archive Project Documentary Sources database.)

⁵¹ ASF, MdP 4274 folio 196. (Entry 22136 in the Medici Archive Project Documentary Sources database.)

products created by the palace foundry and pharmacy were held in high esteem and as such possessed great value for the promotion of the Medici family personally and politically. Beyond their monetary value, however, these highly-sought-after pharmaceuticals played a critical role in fragile and complicated diplomatic negotiations. As Rena's letter indicates, a kind letter, a damask tent, and Medici pharmaceutical oils conveyed something to the Pasha, or conferred a kind of international recognition of his status, that a mere money ransom could not.

With the favor he earned at the Portuguese court through the gifts of medicine, Cosimo III was able to make numerous requests for further objects and recipes from Portuguese territories in the New World, Africa, and South East Asia. In March 1682, Cosimo beseeched Lorenzo Ginori, the Florentine consul in Lisbon, to ask Don Antonio de Sousa Macedo for the recipes of the sweet spirits and confections customarily consumed in Brazil.⁵² Later that year in June of 1682, Cosimo wrote that he was still waiting for the elephant teeth and books sent by Ginori.⁵³ The following year in November, desiring more exotic recipes, Cosimo asked Ginori for sweets from Goa.⁵⁴ Finally, in May of 1684, the grand duke requested that Ginori supply him with snails (or snail shells, it is unclear), with rare colors and unique forms of nature for him to study, from the Islands of India.⁵⁵

In addition to archival letters and inventories relating to the grand-ducal *fonderia* and *spezzieria*, a history of the Medici family provides further evidence of medicinal and scientific

⁵² ASF, MdP 5066, Letters dated March 14, 1681 (1682, modern calendar) and January 27, 1681 (1682).

⁵³ ASF, MdP 5066, Letter dated June 9, 1682.

⁵⁴ ASF, MdP 5066, Letter dated November 23, 1683.

⁵⁵ ASF, MdP 5066, Letter dated May 23, 1684.

patronage at court. In 1741 Giuseppe Bianchini published a work on the scholarly and scientific patronage of the Medici grand dukes, beginning with Cosimo I and ending with Gian Gastone, which he dedicated to Anna Maria Luisa. Bianchini was an academically-minded priest originally from Prato. He moved to Florence and was an active member of the *Accademia degli Apatisti*, an academic academy in Florence patronized and protected by Cosimo III.⁵⁶ As a member of the *Apatisti*, Bianchini worked closely with fellow academy members and leading scientists in Florence. As a beneficiary of Cosimo III's patronage, it is not surprising that, in his history of the Medici grand dukes, Bianchini presented a very favorable overview of Cosimo III and his scientific interests. Even in light of his self-promotion and political interest, Bianchini's portrayal of Cosimo III scientific pursuits is in stark contrast to that of other contemporary summations of the late Medici court.

Cosimo III's scientific patronage is often overshadowed by the courtly scientific pursuits of his father, Ferdinand II, who, as previously mentioned, was the famed patron of Florence's greatest scientific academy, the *Cimento*.⁵⁷ After Cosimo III's succession, the activities of the *Cimento* slowly fizzled. Scholars have argued that this was because the academy was never a formal institution, and as such, its perpetuation rested on the interests of the ruling grand duke. Scholars thus concluded that if the academy did not survive his reign, then Cosimo III must have

⁵⁶ Treccani - [http://www.treccani.it/enciclopedia/giuseppe-maria-bianchini_\(Dizionario-Biografico\)/](http://www.treccani.it/enciclopedia/giuseppe-maria-bianchini_(Dizionario-Biografico)/)

⁵⁷ For more on the Cimento see: Accademia del cimento (Florence, Italy), and A Hall. *Essays of Natural Experiments Made in the Academie Del Cimento, Under the Protection of the Most Serene Prince Leopold of Tuscany*, New York: Johnson, 1964; M. Beretta, "At the Source of Western Science: The Organization of Experimentalism at the Accademia Del Cimento (1657-1667)." *Notes & Records* 54, no. 2 (May 22, 2000): 131-151; and Luciano Boschiero, *Experiment and Natural Philosophy in Seventeenth-century Tuscany the History of the Accademia Del Cimento*, Dordrecht: Springer Verlag, 2007.

not been interested in supporting the academy or its experimental pursuits. This argument, however, was (and remains to be) based largely on the characterization of Cosimo III as overly religious and uninterested in much beyond piety and his next meal.

As we saw in the introduction, historians since the eighteenth century have largely disregarded the scientific and medicinal culture of the late Medici court. Although Galluzzi applauded Cosimo III's interest in botany, he also diminished it, stating that Cosimo III's interest in science originated only from preoccupation with his own health and diet. In contrast, Bianchini offered admiration for Cosimo's patronage and involvement in science. Like his father, Ferdinand II, "our Grand Duke Cosimo [III]," he wrote, "has generously promoted the study of good philosophy, of math, and of experimental observations, in addition to every other science, and of all the most beautiful and profound erudition."⁵⁸ In particular, Bianchini continued, Grand Duke Cosimo III endorsed "the study of experiential philosophy ... greatly expanded the Royal Pharmacy of the House of Medici, and situated it his palace, and [stocked] more than there was before, of balsams, of quintessences, and of other medicines, he was also filled with much delight with knowledge of those, [as] of the herbs and of knowledge of their virtues."⁵⁹

⁵⁸ G. M. Bianchini *Dei Gran Duchi di Toscana, della Reale Casa de Medici, protettori delle lettere, e delle belle arti, ragionamenti storici*, Venezia, G. B. Recurti, 1741, rare books collection, Huntington Library, 118-119. "Dalle grazie, che il nostro Gran Duca compartiva ai nominati chiarissimi Soggetti, e ad altri molti ancora, ben si puo trarre indubitata testimonianza, che egli, calcando le vestigial del suo inclito Genitore, come detto abbiamo, promosso abbia generosamente lo studio della buona Filosifia, della Mattematica, e delle sperimentali Osservazioni, siccome ancora di ogni altra Scienza, e di ogni erudizione piu bella, e recondite."

⁵⁹ Bianchini, *Dei Gran Duchi di Toscana*, 120-121. "il Gran Duca Cosimo III di promuovere vie più sempre lo studio della filosofia sperimentale; alter cose non poche ancora vi sono, delle quali tre ne addurremo presentemente; ed una sara le essere stata da lui rimessa sù, ed ampliata moltissimo la nuova Real Fonderia della Casa de' Medici, e nel suo Palazzo collocate, e

Bianchini's description of the expanding grand-ducal *spezzieria* matches the records in the grand-ducal archive.⁶⁰ Cosimo III went to great expense to expand not only the physical space of the court pharmacy but the varieties of medical remedies it produced and disseminated. More interesting, however, is Bianchini's descriptions of two apparatuses for experimentation – a “burning glass” and an air or vacuum pump:

... the burning glass acquired by our sovereign, it is the best, the most perfect, and most valuable of the other two famous [examples,] one of which was given to the Duke of Parma by Benedetto Bregens of Dresden, an expert in mathematics, author, and the manufacturer of all three; and the other he himself [Bregens] left in the hands of the Duke of Orleans. And if Cosimo possessed this marvelous glass, he did not keep it idly, or out of jealousy, but for common benefit, and to give others the opportunity to study, and to observe the state of Nature, he commanded many times, for it to be used on different occasions, as it happened when the very famous Giuseppe Averani, the celebrated Jurist, and Cipriano Targioni, the excellent Doctor, and Philosopher, experimented with many Gems and *Pietre Dure* with this glass, generously supplied by the same Grand Duke Cosimo [III]; [...] And the last thing, to be remembered now, will be the Pneumatic Machine [vacuum or air pump], which he had brought from Leyden, as a gift to the University of Pisa, so as to cause singular benefit to the scholars his subjects, and to

piu, che prima non era, di balsami, di quintessenze, e di altri medicamenti, pur da lui fatta riempiere, come quegli, che delle erbe, e del sapere le loro virtù molto si diletto.”

⁶⁰ ASF, Scrittoio FF 156, fol. 3.

anyone in that University who remained there, and to give them further motivation to make new discoveries with it, and observations to the relevant good Philosophy.⁶¹

This so called “burning glass” was a lens, crafted by Benedetto Bregans, mounted on a gilt wooden frame, with a second, smaller lens, which acted as a condenser. The device was used by the natural scientists Giuseppe Averani and Cipriano Targioni for experiments on the combustion of diamonds and other precious stones.⁶² Giuseppe Averani also used the pneumatic machine, or air pump, mentioned by Bianchini. Averani, also a member of the Royal Society, would become famous for his experiments with Robert “Boyle’s pneumatic machine.”⁶³ Thus, Bianchini painted a very different image of Cosimo III’s relationship with the eighteenth-century Tuscan intellectuals.⁶⁴

⁶¹ Bianchini, *Dei Gran Duchi di Toscana*, 120-121. “...La seconda cosa sarà quello Specchio Ustorio, che acquistato da questo nostro Sovrano, e il migliore, e il più perfetto, e stimabile degli altri due famosissimi, uno de quali fu dato al Duca di Parma da Benedetto Bregans di Dresda, Uomo molto esperto nelle Matematiche, ed autore, e fabbricatore di tutti e tre; e li altro da lui stesso fu lasciato nelle mani del Duca d’Orleans. E se Cosimo possedeva questo specchio si meraviglioso, non lo teneva già oziosamente, e con gelosia riposte, ma per beneficio commune, e per dare occasione altrui di studiare, e di osservare gli andamenti della Natura, comandava assai volte, che adoperato fosse in diverse occasioni, come appunto accadde, quando dal dottissimo Giuseppe Averani, celebre Giureconsulto, e da Cipriano Targioni, ottimo Medico, e Filosofo, furono fatte con questo Specchio quelle Esperienze sopra molte Gemme, e Pietre dure, somministrate generosamente del medesimo Gran Duca Cosimo [...] E la terza cosa poi, da farsene adesso memoria, sarà la Macchina Pneumatica, che egli fece portare fino di Leida, e dono alla Pisana Università, per così arrecare singolar giovamento agli Studiosi suoi Sudditi, ed a chiunque in quella Università fosse per trattarsi, e per dar loro ancora motive di far con essa nuove scoperte, ed osservazioni alla buona Filosofia pertinenti.”

⁶² Plaque, Room XVII, Chemistry and the Public Usefulness of Science, Chemical "Affinities", Museo Galileo, Florence, Italy.

⁶³ Francesca Bregoli, *Mediterranean Enlightenment: Livornese Jews, Tuscan Culture, and Eighteenth-Century Reform*, Stanford Studies in Jewish History and Culture, Stanford University Press, 2014, 71.

⁶⁴ Ibid.

As we see with Bianchini's description and archival evidence, Cosimo III's patronage of science and medicine was far from non-existent. Greater than Cosimo III's interest in medicine and *esperienza*, however, was his fascination with collecting objects of natural history and cultivating rare plants. Again, Cosimo III employed his network of agents in Spain, Portugal, and Amsterdam to acquire these exotic and valuable commodities. As Giovanni Tozzetti, supervisor of Cosimo III's botanical garden, noted, "he took pleasure in assembling everything that he could of the myriad Products of Nature presented to him by Travellers and Missionaries."⁶⁵ We can see Cosimo III's desire to collect nature in a letter to Francesco Ginori dated November 10, 1682. In his letter to Ginori, Cosimo requested a great quantity of "*i nicchi*" or shells from the East Indies. Cosimo also pointed out that the value of the shells "is not from the size, but from the peculiarity and rareness of the shape and the color because the goal of studying the *nicchi* is to have to have specimens from all the seas of the world."⁶⁶ This request is just one of many examples that demonstrates Cosimo's interest in acquiring not just the rarest, or most impressive of objects, but creating a comprehensive collection to study and interrogate nature.

Thanks to his largely plant-based diet prescribed by his physician Francesco Redi and derided by Galluzzi, Cosimo also showed a keen interest in botany. Just as Cosimo used his European network of agents to collect exotic medicines and rare objects, this network was also worked to collect and ensure the fresh arrival of rare plants for Cosimo's botanical gardens.

⁶⁵ L.T. Tomasi, G.A. Hirschauer, and National Gallery of Art, *The Flowering of Florence: Botanical Art for the Medici*, National Gallery of Art, 2002.

⁶⁶ ASF, MdP 5066, Letter dated November 10, 1682. "I nicche... che la stima loro non deriva dalla grandezza, ma dalla bizzarria, e rarità della figura, e de' colori, onde perlo più queste perfezioni si trovano ne' piccolo, tra' quali si hanno in maggiore pregio quelli, che arrivano più nuovi, onde ogni sorte di nicchio ancor più minute può avere la sudetta prerogative:"

Cosimo's agent in Amsterdam, Cesare Sardi, played a key role in the acquisition and transport of live plants. In May of 1713, Sardi sent Cosimo III seven vases of plants from Peru. In 1716, Sardi sent another box of plants for the grand ducal botanical garden. While Cosimo III enjoyed collecting a variety of rare and exotic plants, pineapples appeared to be of particular interest to him, as they were with many European elites.⁶⁷ Between 1714 and 1720 Cosimo requested and received from Sardi several boxes of "fresh" pineapples. Cosimo even constructed an "oven" in the Boboli in the hopes of growing his own pineapples in Tuscany.⁶⁸ It is also through Sardi that Cosimo interacted with celebrated botanist in Amsterdam, Jan Commelin. From 1717 to 1720 Commelin sent Cosimo, via Sardi, numerous plant catalogues, seeds, and living plants for cultivation.⁶⁹

For Cosimo, like other European nobility and naturalists, a mastery of the knowledge of nature was akin to amassing wealth and power.⁷⁰ But, Cosimo could not participate in the "bioprospecting" of colonial expansion through conquest. He did not have the monetary or military resources to engage in formal colonization by physical force. He could, however, access preexisting trade routes and missionary networks in order to cultivate and study his own international garden at home.

⁶⁷ Bill Laws, *Fifty Plants that Changed the Course of History*. Buffalo, NY: Firefly Books, 2010.

⁶⁸ This was likely some sort of hothouse or green house. For an early modern example of this see the Hothouses and Pineapples collection from the Dumbarton Oaks Research Library and Collection, available online at <http://www.doaks.org/resources/online-exhibits/botany-of-empire/hothouses-and-pineapples>.

⁶⁹ ASF, MM 92, ins. 4.

⁷⁰ L.L. Schiebinger, *Plants and Empire*, Harvard University Press, 2009.

In 1697, at the behest and patronage of Cosimo III, Placido Ramponi embarked on a mission to India and Southeast Asia. Rampoini's task was to deliver and construct a mausoleum to honor Saint Francis Xavier who was entombed in the Jesuit church in Goa.⁷¹ Clearly, the gift of a precious marble mausoleum was an act of religious devotion to celebrate an important Jesuit saint. Cosimo, however, had another reason for honoring the Jesuits in Goa with such a marvelous gift. Florence had a long history with Goa and, despite it being in Portuguese territory, Cosimo III's devotion to and patronage of the Jesuit mission ensured him access to the famed Jesuit pharmacy in Goa as well as the region's exotic flora and fauna. As instructed, Ramponi dutifully recorded his entire journey for the grand duke and sent Cosimo numerous drawings and descriptions of various plants. After one such letter from Ramponi reached Cosimo, he immediately wrote Father Salvator Gallo the General Viceroy of clerics in India residing in Goa, for the "plants listed on the attached sheet." Included with the letter was a list of fifteen indigenous plants that Cosimo desired from the Indian Orient. Cosimo went on to say that he would be very grateful and much obliged if Padre Gallo could also send other rarities from Goa of "every kind."⁷²

As we can see, by the late-seventeenth and early eighteenth-century the Pitti Palace was a site of intense scientific and medicinal production as well as a space in which the Medici interrogation of nature was put on display and incorporated into court ceremony. It was this was this physical space – an expansive and sumptuous palace with a complex pharmacy and diverse

⁷¹ ASF, Acquisti E Doni, f. 307, ins. 2. For a transcription of Ramponi's account see Carla Sodini's "I Medici e le Indie orientali: Il diario di viaggio di Placido Ramponi emissario in India per conto di Cosimo III," *Accademia toscana di scienze e lettere «La Colombaria» - Serie Studi*, vol. 148, 1996.

⁷² ASF, MdP 5071, Letter dated January 13, 1697 (1698 in the modern calendar).

botanical garden – and scientific culture that Anna Maria Luisa grew up in and that would shape her personal interests and political tactics. While Anna Maria Luisa has become emblematic of the end of the Medici dynasty, the beginning of Anna Maria Luisa's life was far from the narrative of Medici decline that she would come to represent. Her birth in 1667 signified hope for the dynasty. In 1663, Anna Maria Luisa's parents' (Cosimo III and Marguerite Louis d'Orléans) disastrous marriage had managed to produce one heir, Ferdinand (1663 – 1713). While the birth of the grand prince helped assuage fears of succession, seventeenth century infant and childhood mortality rates meant it was necessary to produce numerous heirs to secure dynastic lines. Shortly after the birth of Grand Prince Ferdinand, Cosimo and Marguerite separated and many feared that the relationship was unsalvageable. After four years living apart, Anna Maria Luisa was the product of her parent's first attempt at reconciliation and brought renewed security to the Medici line.

Her parents' difficult relationship had a lasting impact on Anna Maria Luisa, who spent even much of her young life effectively motherless. Born in 1645, Marguerite Louis d'Orléans was the eldest child of the Duke of Orléans, and of his second wife, Marguerite of Lorraine. Raised at the French court, Marguerite enjoyed a close relationship with her older half-sister, Anne Marie Louise d'Orléans, with whom she enjoyed attending French theatre and royal balls. Although Cosimo III and Marguerite Louise were a suitable political match, reinforcing the important alliance between France and Florence, their marriage was troubled from the beginning.

Raised at the French court in Versailles, Marguerite Louise rebuffed her husband and life at the Florentine court from the start of their marriage in 1661.⁷³ According to contemporaries, Marguerite was disappointed not only in the solemn disposition of her spouse, but also in the Tuscan court, which she believed lacked the culture and grandeur of Versailles.⁷⁴ Cosimo and Marguerite Louise seemed simply incompatible, but to make matters worse, Marguerite also failed to endear herself to the Florentines.

In 1664, when Cosimo and Marguerite's relationship soured further, she was sent away from court to live at the Medici villa of *Lappoggi* and later *Poggio a Caiano*. Following a year spent in exile, Marguerite returned to the Tuscan court to see her young son, Ferdinand. After expressing her desire to return to court permanently, Cosimo III enthusiastically welcomed his bride home, likely due to his father's, Ferdinand II, anxiety over the future of the Medici dynasty.⁷⁵ Their reconciliation, although brief, resulted in the birth of Anna Maria Luisa. Unfortunately, the couple's relationship soon soured once more. Despite one final attempt to reconcile, which produced their third and last child, Gian Gastone, Marguerite would eventually get her wish to leave Tuscany and return to France. In December 1674, when Anna Maria Luisa

⁷³ Alessandro Vettori, "Marguerite-Louise d'Orléans and the Femmes d'Esprit at the Court of Cosimo III," presented at the Annual Meeting of the Renaissance Society of America, Chicago, 2017.

⁷⁴ Acton, *The Last Medici*, 86.

⁷⁵ *Ibid.*, pgs. 94 – 103. Most of what we know of the late Medici court comes from Harold Acton's *The Last Medici*. Although detailed in description and full of quotations, Acton's work lacks archival references. While Eric Cochrane's work provides more archival references, he does not depart from Acton's narrative of decline. Current archival research, particularly on the Medici Grand Duchesses, calls into question Acton and Cochrane's depictions of the late Medici Court as bigoted and in a state of decline.

was just seven years old, Marguerite was granted permission to return to France and live out her life in the Convent of Montmartre.⁷⁶ Anna Maria Luisa would never see her mother again.

Perhaps due to the absence of her mother, Anna Maria Luisa enjoyed a close relationship with her father, Cosimo III, and her paternal grandmother, Vittoria Della Rovere. By all accounts her childhood was happy.⁷⁷ Doted on by her father, Anna Maria Luisa was recognized as Cosimo's favorite child.⁷⁸ Anna Maria Luisa was educated alongside her uncle, Francesco Maria de' Medici, who was only seven years her senior and more like a brother, as well as her actual brothers Ferdinand (1663 – 1713) and Gian Gastone (1671 – 1737).⁷⁹ Her grandmother, Vittoria della Rovere, oversaw her education and instilled in her an interest in art, politics, natural history, and medicine.⁸⁰

When it came time for Anna Maria Luisa to wed, Cosimo worked tirelessly to secure the most advantageous marriage for his daughter and for the Grand Duchy of Tuscany. At the age of 23, Anna Maria Luisa wed German Elector Palatine, Johann Wilhelm II by proxy in Florence. With Anna Maria Luisa's marriage to a German Elector, her father was finally styled "His Royal Highness" by the Holy Roman Emperor, a status for which the Medici Dukes had long vied.

⁷⁶ Acton, *The Last Medici*, 138.

⁷⁷ *Ibid.*, 138.

⁷⁸ Unfortunately, there are very few scholarly works that explore the marriage of Cosimo III and Marguerite. Acton's, *The Last Medici*, remains the problematic authority. Alessandro Vettori (Rutgers) is currently researching Marguerite and her time in Tuscany and has presented his preliminary findings at several conferences.

⁷⁹ Stefano Casciu "Anna Maria Luisa, Electress Palatine: Last Art patron and Collector of the Medici Dynasty," in *Medici Women*, 323 – 346.

⁸⁰ *Ibid.*, 326.

Anna Maria Luisa's marriage not only brought prestige to her family, but to her as well. She moved to Dusseldorf where she helped her husband establish a culturally vibrant and intellectual court.⁸¹ While in Dusseldorf, she continued to enjoy a close connection with her father as well as her grandmother and uncle, with whom she regularly received and exchanged medical advice and remedies.⁸²

Unfortunately, despite the affection shared between Anna Maria Luisa and Johann, the marriage failed to produce an heir. After the death of her husband and 25 years at the German court, Anna Maria Luisa returned to her native Florence. Reunited with her father, she once more enjoyed a privileged position at the Medici Court.⁸³ During her 25-year absence, both of her brothers had failed to produce an heir. Her older brother, Ferdinando died in 1713, and it was clear her younger brother, Gian Gastone, disliked his Bohemian wife and would make no attempts to reconcile the marriage. After eleven child-less years with his wife in Bohemia, Gian Gastone returned to Tuscany in 1708 with no hope of a Medici heir.

With her return to Florence in 1717, Anna Maria Luisa took up residence in a principle apartment in the Palazzo Pitti. Her only surviving brother and heir to the Medici line, Gian Gastone, showed little interest in the political difficulties their family legacy and principality

⁸¹ For more on Anna Maria Luisa's time and artistic patronage in Dusseldorf see Casciu ed. *La Principessa saggia. L'eredità di Anna Maria Luisa de' Medici Elettrice Palatina*. Livorno: Sillabe, 2006.

⁸² One of the recipes within her collection is attributed to Francesca Maria and there is evidence that her grandmother might be the source for another one of her recipes.

⁸³ Anna Maria Luisa was reinstated in the apartments in the Pitti Palace, and treated as a grand duchess, a privilege she would have renounced with her marriage and Palatine title.

now faced.⁸⁴ Because of this, Anna Maria Luisa became a trusted advisor to her father until his death in 1723. It was also during this period, from 1717 to 1739 that Anna Maria Luisa's medicinal activities and recipe collecting intensified. The next chapter takes an in-depth look at the ingredients and recipes she collected during this period.

⁸⁴ Acton, *The Last Medici*, 265 - 267.

Chapter Three

Ingredients and Recipes

Precipitate ¹ of pulverized human skull from a man who died violently but never buried	3 ounces
Precipitate of crush Oriental pearl	2 ounces
Precipitate of red coral	2 ounces
Precipitate of white coral	2 ounces
Granules of Arab yellow amber	1 ounce
Peony root	1 ounce
Peony seeds, shelled and washed	1 ounce

These are the ingredients to Anna Maria Luisa de Medici's famed, and possibly even proprietary, recipe for an infant convulsion powder.² The recipe is short and succinct. It lists the

¹ A precipitate (or *magistero* in Italian) was an alchemical process of coagulation in which solid matter was created via a chemical reaction.

² ASF, MM 1, ins. 2, fol. 177r. "Sale, o Magistero di Cranio umano di Uomo morto violentemente, e che non sia stato sepolto, oncia iii; Sale, o Magistero di Perle Orientali, oncia ii;

ingredients and provides straightforward directions on how to prepare the powder: “Pulverize everything, and pass through a fine sieve, and when mixed well, take 5 grains of this powder.”³ The recipe alone, handwritten on a small piece of paper, offers little insight into the life of Anna Maria Luisa, the Electress Palatine and last surviving member of the Medici line. In fact, the recipe seems uncharacteristic for a woman who is often depicted by historians as the sad and barren, yet haughty and devout, last Medici princess.⁴ Analysis of the collection of recipe and personal correspondence of the electress, however, reveals a woman deeply interested in botany, natural history, and medicine, and perhaps even more interested in the social uses of such knowledge.

Anna Maria Luisa’s is a collection of some 218 alchemical, medicinal, and culinary recipes covering topics as diverse as rare paint colors, deserts, and fever waters, concoctions to control epilepsy and lung inflammation, and even forms of lapidary medicine. It is likely, although impossible to know for sure, that the “bundle of diverse recipes” listed in an inventory of Anna Maria Luisa’s apartment commissioned by the new Lorraine Grand Duke after her death, is indeed the collection of recipes analyzed here. But the inventory as well as her rich correspondence preserved in the State Archive offer significant evidence concerning the relationship between the electress and her recipes and attest to Anna Maria Luisa’s interest in

Magistero di Coralli rossi, oncia ii; Magistero di Coralli bianchi, oncia ii; Sale di Carabe, oncia i, Radice di Peonia, oncia i; Semi di Peonia mondati dal suo guscio, oncia i.”

³ ASF, MM 1, ins. 2, fol. 177r.

⁴ Acton, *The Last Medici* and Cochrane and Cochrane, *Florence in the Forgotten Centuries*.

collecting recipes and disseminating remedies.⁵ Her letters reveal that many of the recipes were produced at Villa La Quiete, just outside Florence, where Anna Maria Luisa resided for many years preceding her death. This villa was also a school for girls and was equipped with its own pharmaceutical laboratory. It is telling that her recipes did not remain at La Quiete, but as the inventory indicates, traveled with the electress and were always by her side. In fact, the recipes were found in the room where she died, which used to be her grandmother's, the Grand Duchess Vittoria della Rovere, near her bedside, at her arm's reach, kept together with religious devotionals.⁶ This evidence indicates just how important these recipes were to Anna Maria Luisa and how intense was her involvement with the natural world.⁷

While subsequent chapters will explore the ways in which these recipes allowed Anna Maria Luisa to engage with early modern empirical science and medicine, fashion herself as a medical authority, and translate her medicinal knowledge and authority into social and political capital, this chapter focuses on the recipes and ingredients themselves as a collection still little known by scholars. By expanding the analysis of recipe collections, like Anna Maria Luisa's, to include a closer examination of the individual recipes and ingredients, this chapter re-centers both recipes and women as important contributors to shaping and disseminating new way of knowing and interacting with the natural world.⁸

⁵ ASF, MM 600, fol. 138r. The inventory describes the recipes as “Un Involto di diversi Ricette di medicina... Nota dei Fogli ritrovati nel cassentoncino nero accanto alla Finestra della Camera della Rovere dove è morta S. et Ele nella prima cassetta di sopra.”

⁶ ASF, MM 600, fol. 138r.

⁷ Today the recipes are preserved in the collection of the *Miscellanea Medica* of the State Archive of Florence. ASF, MM 1, ins. 2, fols. 1-218.

⁸ In his essay, “How to Read a Book of Secrets,” William Eamon pointed out that although books of secrets and recipe literature are now well documented and studied, very few

Anna Maria Luisa's recipes are not easy texts to deal with. There is no intrinsic narrative to a recipe, leaving the reader with the hard task of constructing one. Also, the language of recipes can be difficult to understand and is often riddled with obscure ingredient names and mysterious illnesses. Finally, most of the recipes in the collection are fragmented and contain little to no context, leaving us to question their effectiveness and uses. Yet, despite these problems, the potential of these recipes far outweighs the difficulties.

The collection is a mix of both loose and bound sheets held together by a simple paper sleeve and for this reason, it is impossible to determine any sort of original order, or if there was an intended order. The recipes are clearly written by various hands, only four are printed, and each varies in quality of paper and penmanship, size, and shape of the paper on which they were written. There does, however, appear to be one repetitive hand throughout the collection, perhaps that of her secretary, Iacopo Guidicci, or even Anna Maria Luisa's own hand. The lack of binding or organization of the recipes suggests that this collection acted as a living book or object: they could be used, added, reordered, and removed as needed.

The collection was amassed over the course of Anna Maria Luisa's long life and, although not all the recipes are dated, analysis of their ingredients places them between 1668 and 1737. This date range demonstrates her lifelong interest in natural history and medicine and attests to the fact that some of the recipes had been passed down to Anna Maria Luisa by her grandmother. Five languages – Italian, French, German, English, and Portuguese – appear in the collection indicating that many recipes and secrets were shared by courts and individuals across Europe. Thanks to this diversity of origin and assembly over a long period of time, the recipes

inquiries take a close examination of the individual recipes, ingredients, processes of production, and use. Eamon, "How to Read a Book of Secrets," in *Secrets and Knowledge*, 41.

themselves differ greatly in appearance and form. Some are small loose sheets of paper, while others remain with their original accompanying letters. Still others are bound together with string or twine to create little booklets. Within the collection, many of the recipes are grouped by type—coloring and dyeing, whitening, varnishes and lacquers, foodstuffs, and medicinal recipes, which include “waters,” oils, balms, powders, syrups, exotic plant and animal material, cure-alls, and perfumes.⁹

In addition to varying paper sizes and hands, the recipes are also not consistent in content. They utilize both traditional domestic materials as well as exotic ingredients that were introduced by a thriving eighteenth-century commercial global drug market. Although never printed or published, the recipes include diverse topics such as techniques to create rare or secret pigments and dye marble, the whitening of silks and lace, fever waters, concoctions to control epilepsy and lung inflammation, and even forms of lapidary medicine. Within the category of medicinal recipes and therapeutics, her collection contains a variety of recipes for simples as well as alchemical compound medicine. Many of the recipes contain just a list of ingredients, providing no instructions on how to mix the ingredients. Other recipes give only an explanation of the benefit of a certain ingredient. Methods of preparation are equally varied. Some of the recipes are simple mixtures of ingredients while others incorporate more complex alchemical techniques like steeping, pulverizing, fermentation, and distillation.

⁹ ASF, MM 1, ins. 2, fols. 1-7. What appear to be the later recipes Anna Maria Luisa received between 1736 and 1737 remain at the front of the collection together with the original letters in which they were sent. These letters are in French and from Marie Beatrice du Lac, mother superior, monastery of the visitation, La Masse (near Lyon). They contain recipes for “*eau sans Pareille*” and mentions other medicinal gifts being sent to the Electress.

As discussed in Chapter One, in the early modern world health and healing were largely domestic concerns. The bulk of early modern healthcare happened within the home and by the hands of women. Women provided nutritional food, created and maintained a healthy environment, and produced home remedies that almost always preceded the intervention of an external practitioner.¹⁰ To do so, women used accessible ingredients and common utensils and cooking methods to create medicinal remedies for their families and, in some cases, their communities.

Recently, by focusing on sixteenth to eighteenth-century domestic recipes and recipes books collected or penned by women, scholars, particularly scholars of early modern England, have proven the central role of women in healthcare and healing within the early modern home. This emerging scholarship on recipes and recipe manuscripts uses recipes as proof of women's active and abundant involvement in healthcare activities.¹¹ Yet, a focus on domestic recipes and medicine does not show the full participation of aristocratic women, like Anna Maria Luisa, in the production and dissemination of medical knowledge. Aristocratic households and courts, such as the Medici court, were not just domestic spaces, they were also important social, cultural, and political centers. Within this context, recipes took on significance beyond the practical matters of health and healing.

Much of the research that has been done on early modern recipes has taken place in the context of England and by Anglo-American scholars. This has created a linguistic issue when defining and understanding early modern recipes. In Italian the word *ricetta*, or recipe, comes

¹⁰ Penell, "Perfecting Practice?", 240.

¹¹ Spiller, *Seventeenth Century English Recipe Books*, introduction.

from the Latin, *recepta*, which indicated a medicinal formula and was derived from the word *receptus*, “to take.” In early modern Italy, as today, *ricetta* was used for both culinary as well as medicinal recipes. In the English language, however, a “recipe” was a set of instructions for preparing food while a “receipt” was a therapeutic formula or a medical prescription.

Unfortunately, in modern English, the meaning of receipt has changed. The use of receipt as a medicinal prescription is now archaic. Thus, recipe has become the dominate terminology adopted by Anglo-American scholars when describing early modern medicinal formulas and prescriptions. The problem is that unlike its Italian counterpart, the term “recipe” remains closely associated to cooking and preparing food, which has a distinct and standardized format. While the scholarship on domestic recipes has shown that women were active practitioners of medicine within the home, gendered dichotomies of professional vs amateur, and household vs commercial, continues to prevent the recognition of women’s recipes as legitimate producers of medicinal knowledge. It is true that the majority of early modern medicinal activities took place in the home but overemphasizing this domestic space has led to the characterization of women’s involvement as simplistic and largely uneducated, even in the case of elite and aristocratic women.¹²

¹² Alisha Rankin has used the case studies of three German noblewomen to demonstrate the central role of women’s healing in early modern court culture. She has also shown that women’s participation in medicine extended beyond the domestic sphere and the therapeutics they created were often complex rather than simple. She argued that the ability of elite women to read and write, their Christian ideals (which encouraged charitable healing), and their high social status not only gave them a significant voice in the medical discourse of early modern society but legitimized their works as well. See also Rankin’s “Duchess, Heal Thyself: Elisabeth of Rochlitz and the Patient's Perspective in Early Modern Germany,” in *The Bulletin of the History of Medicine*, 1-187.

In addition to issues of vocabulary, another obstacle to fully understanding the significance of women's recipe is the rigid definition of what constitutes a recipe, culinary or otherwise. Jerry Stannard, for example, outlined the format of a recipe, defining it as a formula with five essential parts: purpose, ingredients, procedure, equipment, and application/administration.¹³ The recipes in Anna Maria Luisa's collection depart from both Stannard's interpretation and recent works on women's recipes. The recipes' ingredients were anything but commonplace or found in the home, and in spite of their inconsistent in form or content, they were true medicinal prescriptions which acted as repositories for useful knowledge.¹⁴

According to Stannard's definition, very few of Anna Maria Luisa's recipes, such as the Medici grand-ducal nerve oil in Anna Maria Luisa's collection, would actually qualify as recipes.¹⁵ While almost all recipes give some sense of the purpose of the recipe and most give instruction for application, others omit ingredients, or even more frequently, the procedure for making the therapeutic, choosing instead to keep the manner of production a secret. The recipe for Medici nerve oil, for instance, does not list or name any of the ingredients used. Instead, it describes what the oil treats:

¹³ Jerry Stannard, "Rezeptliteratur as Fachliteratur", in W. Eamon, *Studies on Medieval 'Fachliteratur'*, Brussels: OMIREL, 1982.

¹⁴ William Eamon, "How to Read a Book of Secrets," 23 – 46.

¹⁵ We can date this recipe from the grand-ducal pharmaceutical laboratory after 1691, since it is attributed to the *fonderia Sua Altezza Reale* rather than *Sua Altezza Serenissimo*. Cosimo III was granted the title of *reale*, or his royal highness, by the Holy Roman Emperor, Leopold I, after the marriage of Anna Maria Luisa to the Elector Palatine.

This oil serves to restore, and reduce with good effect the pulled nerves [*nervi attratti*], obstructed and hardened nerves due either to many injuries or beatings, as long as the nerve is not at all cut...

The recipe also describes how the oil should be applied:

First, if possible, one must hold the injured part, inside the hot gut of an animal, and also in heated grape pulp [*vinacce*], for half an hour, then remove it, and dry it [the injured part] with a warm cloth, apply a thin layer of the Oil on it, massage it well with a warm hand to facilitate penetration, then bandage it with a hot woolen cloth, and do this procedure twice a day, until the desired effect is achieved, and when the above mentioned things are not available, one will apply [the Oil] to the [injured] area with a sponge, or a piece of cloth soaked in good hot wine, soaking, and placing it [on the area] several times in the span of fifteen minutes, and then drying and using the oil as mentioned, this being a balm, and particular secret, which is created only in the S.A.R. *fonderia* and not in other locations, even if others say they have the same recipe.¹⁶

¹⁶ ASF, MM 1, ins. 2, fol. 174r. “Unto da Nervi di Fonderia di S.A.R. Quest ‘unto serve per restaurare, e ridurre in buon effeto i nervi attratti, impediti, e induriti, tanto per causa di ferite, e percosse, purché il nervo no sia tagliato affatto [...] e mitiga il dolore, adoperandolo nel seguente modo. Prima, se si ha per comodo, si deve tener la parte, che patisce, nelle budella di animali calde, ovvero nelle vinacce calde, per spazio de mezz’ora, poi cavandola, e asciugandola con panno caldo, ed ungendola sottilmente con dett’unto, agitandovelo sopra alquanto con la mano calda per facilitare la penetrazione, fasciando di poi con panno di lana caldo, e facendo quell’operazione due volte il giorno, finché facci l’effeto, e quanto non vi sia comodo nelle suddette cose, si potrà fomentare la parte con una spugna, o pezza bagnata in vino buono caldo, bagnandola, e appoggiandola più volte per spazio di un quarto d’ora, e poi asciugando, & usando l’unto nel modo detto, essendo questo un Balsamo, e segreto particolare, che si manipola solamente nella Fonderia di S.A.R. e non in altri luoghi, come altri dicono aver la medesima ricetta.”

Seme di Jusquiamo (<i>Hyoscyamus niger</i>)	onca 1
Gomma di ciriegi (cherry tree gum)	onca 1
Liquinizia (liquorice)	once 1
Cannella fine (cinnamon)	once 1
Seme di vetriola (<i>Parietaria officinalis</i>)	once 1
Seme di Sassi Fragia (<i>Saxifraga</i>)	once 1 ¹⁸

Other than a list of ingredients and some measurements, the recipe provides no instructions on how to prepare or take the powder. Likewise, her “*Baume de Berne*” (also known as *Balm de Perse*) lists 11 ingredients:

Encens male (male incense from sub-saharan Africa)	mezz’uncia.
Baume dur (hard balm)	una uncia.
Storax Calamite (calamite-storax)	due uncie.
Benjoiny (benzoin)	tré uncie.
mierche, ou miorche	mezz’uncia.
Aloës chicotin (bitter juice of aloe)	mezz’uncia.
Ambre gris (ambergris)	Sei grammi.
Angelique d’odeur	mezz’uncia.

¹⁸ ASF, MM 1, ins. 2, fol. 204r.

Musc (musk, possibly civet)	sei grani.
Jpericon (Hypericum)	una uncia.
esprit de vin (spirit of wine)	36 uncie. ¹⁹

Again, contrary to Stannard’s definition, some of the recipes within the collection do not have a list of ingredients or instructions for preparation, but describe only the virtues and uses of a particular essence, stone, mineral, resin, root or seed. A recipe for “*Opo Balsamo*” describes the characteristics of “true, fresh balsam.”²⁰ It defines real *Opo Balsamo* as fluid like turpentine, white with a hint of green, and a strong odor like “*ragia del Cipresso*.” We learn that when aged for ten to twelve years, the balsam becomes dry and yellow in color. The recipe also indicates how the balsam is used and what illness it is effective in treating. It explains that the “Turks and Arabs” put six to fifteen drops of the balsam in coffee to treat colds and indigestion. The recipe even gives a first-hand testament to the virtues of *Opo Balsamo* asserting that the writer of the recipe had tried the balsam and experienced good results in treating kidney and bladder maladies, helping expel urine, and cleaning fresh wounds. Despite providing information on the properties of *Opo Balsamo*, how to take it, and what it treats, the recipe never provides a list of ingredients for the balsam. This was likely because the balsam, harvested from trees in the New World, was not mixed with other ingredients or altered through an alchemical process. It was taken in its natural state. Thus, as we can see, recipes did not just provide instructions for preparing

¹⁹ ASF, MM 1, ins. 2, fol. 218r.

²⁰ ASF, MM 1, ins. 2, fol. 194r. Also written as *opobàlsamo*. A gommoresina obtained from trees of the Burseraceae family, the same as or confused for balsam from Peru.

medicinal remedies, they also played an important role in transmitting knowledge of individual therapeutic ingredients.

Even further outside our contemporary definition of a recipe are several lists which inventory therapeutics, waters, and natural objects received by Anna Maria Luisa or the Medici court. One such inventory includes an extensive list of “waters” and one hair powder sent to Anna Maria Luisa from “il Serenissimo Signore Principe di Toscana,” likely her uncle, Francesco Maria de' Medici, to whom she remained close until his death in 1711. Beyond a brief note on how to mix three of the ten waters listed, the text contains no information on the waters’ compositions, their virtues, or uses.²¹

While the quality and validity of the recipe’s ingredients were of the utmost concern for a collector and practitioner like Anna Maria Luisa, scholarship on early modern recipes rarely explores the actual ingredients used in recipes, nor are ingredients analyzed as individual objects having independent value and cultural meanings. When scholarship does explore the individual ingredients of women’s recipes, it is to highlight their common and domestic nature in order to argue for women’s central role in the everyday health and healing of the home and community.²² What we learn from a closer examination of the ingredients, however, is the important role of recipes in the dissemination and transfer (or secrecy) of medical knowledge, particularly for medicinal simples. We also learn that the ingredients used in women’s recipes were far from simple or commonplace. Because of this, more than half of the medicinal recipes within the

²¹ Without a date or name, it is impossible to reconstruct the circumstances surrounding the transmission of the list of waters to Anna Maria Luisa.

²² Elaine Leong, “Making Medicines in the Early Modern Household,” in the *Bulletin of the History of Medicine*, Vol. 82, No. 1 (Spring 2008), 145-168.

collection focus either on listing ingredients or describing the attributes of a particular ingredient or simple, like we saw in the recipes for *Baume de Berne*, *Polvere da Renella*, theriac, and *Opo Balsamo*. It is usually only for more complex alchemical reactions, such as distillation, infusions, and steeping, that the method of preparation is described in detail.

The ingredients used by most early modern women to create medicinal recipes within the home are typically described as common, easy to procure, and domestic, likely grown in the backyard herb garden. Elaine Leong notes in her in-depth study of the English noblewomen Elizabeth Freke's medicine closet and recipe collection that the majority of Elizabeth's cupboard contained the most popular ingredients of the day, which included rosemary, nutmeg, and cinnamon, while more expensive and exotic ingredients as well as those associated to chemical medicine were absent.²³ According to Leong, Frecke's recipe collection is indicative of most domestic medicine and that when more exotic items were needed they were purchased from the local grocer.²⁴ Leong's work recognizes the important interaction between household medicine and local commerce. However, she views women's domestic recipes and ingredients as commonplace and general cure-alls rather than informed preparations that used the latest and greatest ingredients to target specific illnesses. This not only assumes that all women were amateur practitioners, but it also separates women's medical activities from the larger and, by the eighteenth-century, global medical marketplace. While many women used ingredients that were

²³ Elaine Leong, "Making Medicines in the Early Modern Household." Leong also surveyed recipe collections compiled by both men and women in seventeenth-century England to create a database of ingredients, see Leong, "Medical Recipe Collections in Seventeenth-Century England: Knowledge, Text and Gender." Order No. U219649, University of Oxford (United Kingdom), 2006. <http://search.proquest.com/docview/301619724?accountid=14745>.

²⁴ Ibid. See also Sara Penell, "Perfecting Practice? and Elizabeth Spiller, *Seventeenth Century English Recipe Books*.

harvested from their herb gardens, not all ingredients used by women, especially noblewomen, should be characterized in this way. A survey of the ingredients used in Anna Maria Luisa's recipe collection reveals a more complex and educated assortment of *materia medica* from around the world in addition to the use of alchemical methods of preparation that went beyond the kitchen and still.

Whether listed, implied, or ambiguous, ingredients lay at the heart of all early modern recipes. As most early modern practitioners of medicine knew, a recipe was only as good as its ingredients. Without the right ingredients, a recipe was ineffective. Reflecting the nature of eighteenth-century medicine, the majority of Anna Maria Luisa's medicinal recipes and ingredients are plant based. Whether extracted, pulverized, ground, distilled, or as an ingredient in a syrup, tincture, ointment, or water, plants were the main ingredients for medicinal therapeutics in the early modern world. Anna Maria Luisa's recipes use traditional plants native to and used throughout Europe as well as new exotic plants imported from New Spain, East Africa, India, and Southeast Asia. For example, plants typically used in European medicinal therapeutics and domestic recipes like thyme, rosemary, lavender, basil, and marjoram are all present. These domestic plants, cultivated throughout Europe, and likely in her own botanical garden or the grand-ducal botanical gardens, make up about sixty percent of the plant *materia medica* mentioned in the recipe collection.²⁵ However, as a Medici princess, Anna Maria Luisa not only inherited a vast array of medical and scientific knowledge; she also had access to the

²⁵ These percentages are a close approximation since not all ingredients are specifically listed for each recipe or therapeutic.

grand ducal alchemical laboratory and pharmacy, through which she built a valuable collection of early modern recipes and alchemical secrets.²⁶

Many of Anna Maria Luisa's recipes, as well as contemporary pharmacopoeias, devote considerable attention to describing the physical attributes of *materia medica*, especially rare ingredients. The unfamiliarity of exotic ingredients, such as ambergris, made it easy for charlatans to misrepresent fake or impure versions.²⁷ In order to avoid selecting impure or fake ingredients, medical practitioners had to have knowledge of an ingredient's physical attributes like color, size, shape/consistency, smell, and taste, of its virtues as well as its provenance. As her collection reveals, many of the ingredients of Anna Maria Luisa's recipes were anything but commonplace. One of the rarest ingredients used in the recipes of Anna Maria Luisa was ambergris. Not only was ambergris a versatile medicinal ingredient, it was also one of the most mysterious and expensive medicinal ingredients in early modern medicine.²⁸

²⁶ For more on Anna Maria Luisa's pharmaceutical dowry and medical knowledge produced at the Medici Court, see Chapter 3. For more on the importance and construction of "secret" knowledge, and how it relates to recipes, see Chapter 4.

²⁷ For more on early modern medical charlatanism see David Gentilcore's extensive database - Italian Charlatans Database, 1550-1800 (<https://discover.ukdataservice.ac.uk/catalogue/?sn=5800#documentation>), and associated book *Medical Charlatanism in Early Modern Italy*. Oxford: Oxford University Press, 2006.

²⁸ Today we know that Ambergris is actually a secretion of the bile duct in the digestive system of sperm whales. It is typically expelled with the fecal matter of sperm whales and rises to float on top of the sea. It often takes years for the substance to reach land. Not all sperm whales produce the substance making it incredibly rare. Ambergris is primarily found in the Atlantic Ocean and on the coasts of South Africa, Brazil, Madagascar, the East Indies, and the Maldives. It can also be found in China, Japan, India, Australia, New Zealand, and the Molucca Islands. Because of the rarity and remoteness of ambergris, its true source remained a mystery for some time and was often debated by naturalists. For more on ambergris see Kemp, *Floating Gold: A Natural (and Unnatural) History of Ambergris*, University of Chicago Press, 2012.

In the late-seventeenth and early-eighteenth centuries, ambergris or *ambra grigia* was as mysterious as it was expensive. Harvested from the seas and shores of far off tropical areas, ambergris was a solid, waxy, and flammable substance of uncertain origins, but with a long history of medicinal use.²⁹ Contemporary texts describe ambergris as a “Perfume that comes from the sea and beaches, of solid consistency, uneven ash-gray color with white spots, fatty, of strong penetrating odor, flammable, it melts and becomes yellow liquid resin, the color of gold. It dissolves in part in alcohol.”³⁰ Though today known to come from sperm whales, in the early modern world the origin ambergris was contested, even if it was clear that it was harvested from far away locations:

The locations where one finds it most commonly are the parts of the coast of Africa, and the islands that extend from Mozambique, end at the Red Sea, the island of Santa Maria, and that of Diego Reis at Madagascar, the island of Maurizia, and the coast beyond the Cape of Good [Hope].³¹

In his *Complete History of Drugs*, Pierre Pomet, a French pharmacist and chief druggist at the court of Louis XIV, described ambergris as “the dearest and most valuable commodity we

²⁹ Ambergris was burned in Ancient Egypt as incense.

³⁰ ASF, *Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808*, three volumes: 435, 436, and 437. “Profumo, che vien[e] dal mare, e si trova sulle spiagge, di consistenza solida, di color[e] cenerino sparso di macchie bianche, grassa, di odor forte e penetrante, infiammabile, si fonde, e diventa così una resina liquida gialla. Color[e] d’Oro. Si scioglie in parte nello Spirito di Vino.”

³¹ ASF, *Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808*, part 1, volume 435. “I luoghi in cui si trova più comunemente, sono quella parte della costa dell’Africa, e dell’isole che si estendono dopo questa di Mozambique, fino al mar Rosso, d’Isola di Santa Maria, e quella di Diego Reis a Madagascar, L’Isola Maurizia, e la costa al di Là del Capo di Buono.”

have in France, and least understood [...]” Pomet defined ambergris as a “*mass of honeycombs that fall from rocks into the sea,*” which are rendered liquid by the sun or violence of wind and wave, and that it is “*found floating upon the water.*”³² He argued that this rare substance had many medical uses. According to Pomet ambergris could be distilled or dissolved in wine spirits and taken internally, or, used to make an odoriferous scent to open the body.³³ The powerful scent of ambergris could “warm the stomach,” treat gout and consumption, and was even used in making chocolate.³⁴ Taken internally, instead, ambergris was a cordial (a heart medicine), an invigorating corroborant, and an antispasmodic and was also a key ingredient in the production of medicinal balms and unguents, like Anna Maria Luisa’s recipe for “Baum di Berne.”³⁵ Another eighteenth-century pharmacopeia describes ambergris as the most agreeable of perfumes and thus perfect for those with weak constitutions.³⁶ In fact, it was a crucial ingredient employed by confectioners, perfumers, and distillers in a variety of ways.³⁷

Throughout the late-seventeenth and early eighteenth centuries, perfume became an increasingly important medicinal and cosmetic commodity, particularly among the nobility. At the Medici court, natural musk like ambergris and other animal secretions were used to perfume

³² Pierre Pomet, *A complete history of Drugs. Written in French by Monsieur Pomet, Chief Druggist to the Late French King Lewis 14. To Which Is Added What Is Farther Observable on the Same Subject ... Done into English from the Originals.* BNC, Firenze, 1748, 437 – 439.

³³ Pomet, *A complete history of Drugs*, 438.

³⁴ Lewis, William, *An experimental history of the materia medica, or of the natural and artificial substances made use of in medicine*, 1780, 38-39.

³⁵ *Ibid.*

³⁶ William, *An experimental history of the materia medica*, 38-39.

³⁷ Pomet, *A complete history of Drugs*, 438.

the body, textiles, and air.³⁸ Perfuming the air and body were seen as essential to maintaining health and preventing illness, since miasma, or bad air, could enter the body and disrupt the body's natural balance of humors and spirits. Repulsive odors signified the presence of dangerous miasmas.³⁹ Distilled floral and citrus essences and musk-based perfumes, then, were seen as a means to purify putrid air and even protect the body from future encounters with dangerous and unhealthy air. In addition to maintaining health and perfuming the air, perfume became an important symbol of luxury and prestige by the late seventeenth century.⁴⁰

Since ambergris was not something that could be acquired locally, procuring it required a substantial financial investment, international networks, and knowledge of exotic medicinal ingredients. A detailed three-volume, eighteenth-century tax ledger preserved in the Florentine archive, offers invaluable information about ambergris.⁴¹ In the eighteenth century, all medicinal ingredients imported into the Tuscan Grand Duchy were categorized and taxed by the *Dogana*. The *Dogana* was an early modern customs house, which controlled the flow of goods in and out of Tuscany. Medicinal goods were of particular interest to the *Dogana*, since many of these goods were very valuable and hard to come by. Commissioned by the grand duke, the tax ledger of the *Dogana* attempted to define and classify every medicinal ingredient and therapeutic entering and exiting the Tuscan Grand Duchy to levy import, export, and transport taxes on these

³⁸ Valentina Fornaciai, *Toilette, profumi e belletti alla corte dei Medici: un itinerario fra i ricettari di corte, le collezioni fiorentine e gli ambienti di residenza medicea*, Sillabe, 2007.

³⁹ Corbin, A. *The Foul and the Fragrant: Odor and the French Social Imagination*. Harvard University Press, 1986.

⁴⁰ Fornaciai, *Toilette, profumi e belletti alla corte dei Medici*.

⁴¹ According to the tax ledger, ambergris was taxed at 42 *lire* and cost was an astonishing 350 *lire* per pound.

valuable commodities.⁴² For this reason, it tracked the medical marketplace value of the rare ingredients entering and exiting Florence.⁴³

Ambergris was the third most expensive medicinal good or ingredient imported into Florence in the mid-eighteenth century. The tax ledger valued it at 350 lire per pound. To give an idea of just how expensive this was, the average daily wage in Florence in the early-seventeenth century was only 20 soldi, or about 1 lira.⁴⁴ Furthermore, precious stones used medicinally, such as rubies, sapphires, and emeralds were only valued at 12 lire per pound, one thirtieth of the cost of ambergris.⁴⁵ Even the miraculous *china china* (quinine), which cured malaria, was valued only at one-fifth of the cost of ambergris, at 72 lire per pound.⁴⁶ Ambergris was expensive not only because it was a versatile ingredient with many medicinal virtues, but also because it was mysterious, rare, and difficult to acquire.

⁴² ASF, *Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808*, three volumes: 435, 436, and 437. The three volumes of this ledger are undated and not attributed to a specific grand duke. The hand of the volumes is consistent with a mid- to late-eighteenth century hand.

⁴³ Today this ledger serves a different purpose. It is a rare index of not just the medicines and therapeutic ingredients approved or accepted by the medical establishment in Florence, or the Medici court, but an inclusive overview of all medicinal materials. This is because the ledger was not concerned with the efficacy or perceived efficacy of the medicinal ingredients, religious debates, or their status within the medical establishment. Finally, in order to define and classify medicine materials, the ledger provides detailed information on each material's composition, virtues, and origins. While this information is at times unknown or contradictory to other contemporary sources, it provides important insights into how these materials were viewed and understood in eighteenth-century Tuscany.

⁴⁴ Richard Goldwaihthe, *The Economy of Renaissance Florence*, John Hopkins University Press, 2009. See appendix.

⁴⁵ ASF, *Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808*, three volumes: 435, 436, and 437.

⁴⁶ ASF, *Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808*, volume 435.

Oils and unguents (or balms) were another common type of remedy used in eighteenth-century medicine, in particular to treat skin ailments, such as cuts, scars, sores, burns, and rashes. Anna Maria Luisa's recipe collection includes three unguents – the nerve oil from the grand-ducal *fonderia*, an unguent for burns, and a so-called “Baume di Berne.” Her “Baume di Berne” is particularly interesting. According to Pomet, this balm was a secret of the French governor who had given it to the King's Lieutenant of Toul, whom had shared the secret recipe with Pomet.⁴⁷ Anna Maria Luisa's version, handwritten in French, is almost identical to Pomet's published recipe, except for the addition of ambergris.⁴⁸

The tax ledger also offers invaluable information about which medicinal ingredients were highly valued, as well as what materials by the eighteenth century could be grown, harvested, or produced in Tuscany, and which had to be imported. Forty percent of the plant and animal ingredients used in her collection was made up of exotic plants and animals not native or found in Europe. These included spices such as tobacco, cacao (chocolate), contrayerva root, and quinine imported from New Spain; ambergris, sandarac, the nails of a grand beast, and civet musk from Africa; and saffron, pepper and St. Ignatius beans (strychnine) from Southeast Asia.

Jesuits working in the Philippines discovered St. Ignatius beans in the seventeenth century. Reportedly used by the native peoples of the island as a general cure-all, the “beans”

⁴⁷ Pomet, *A Complete History of Drugs*, 27. According to the 1747 *Pharmacopoeia Universalis* by Robert James the balm was also called Baume de Commandeur de Berne or Balsamum Commendatoris.

⁴⁸ It is impossible to determine from whom Anna Maria Luisa received this recipe. Furthermore, the handwriting does not match any of the other handwritings in the collection. It is also impossible, given that the recipe in Anna Maria Luisa's collection is not dated, to know which version of the recipe pre-dates the other.

caused vomiting and purging.⁴⁹ In addition to bloodletting, vomiting and purging were seen as an effective method to expel illness and disease from the body. Given this medical theory, when the Jesuit missionaries and pharmacists working in the Philippines noticed the purgative power of the St. Ignatius bean, they were quick to export the bean and local knowledge of its medicinal uses to Europe.⁵⁰ In addition to being a powerful purgative, Anna Maria Luisa's recipe notes many virtues for these potent little beans like "protecting against hexes, curses, and witches, countering poison, calming spasms, lowering fevers, facilitating menstruation and birth, and treating colic."⁵¹ In addition to St. Ignatius beans, Anna Maria Luisa received numerous other exotic plants and animal materials, such as rhino blood, animal nails, spine fruit, cobra stones, and various African roots and seeds, through Jesuit missionaries. Because Anna Maria Luisa relied on her personal and political trade and religious networks, the majority of her exotic global ingredients were sourced from East Africa, India, and Southeast Asia.⁵²

Sugar was another important medical ingredient obtained from both the New World and Southeast Asia and ever-present in Anna Maria Luisa's recipes. Today, sugar is considered unhealthy and even addictive. In the eighteenth century, however, sugar was an important medicinal ingredient and therapeutic in its own right. According to Pierre Pomet, white sugar-candy could treat coughs, colds, and wheezing. Powdered sugar could also be put into the eyes to

⁴⁹ William Lewis, *An experimental history of the materia medica*, 1761.

⁵⁰ St. Ignatius beans are actually the fruit seed of the *S. ignatii*, which is the size and shape of a pear. The "beans" contain the highly toxic alkaloids strychnine and brucine.

⁵¹ ASF, MM 1, ins. 2, fols. 187v and 188r.

⁵² The Medici court had trade agreements with Portugal and patronized Jesuit missions. See Chapter Three.

take away dimness, redness, and clean old sores.⁵³ Refined powdered sugar was even more powerful. It was good for the breasts and lungs, the kidneys and bladder, and for those who were troubled with vapors and fits.⁵⁴ Sugar was the defining ingredient in the preparation of medicinal electuaries, jellies, and syrups, all of which were popular therapeutics.⁵⁵

Throughout the eighteenth century, sugar remained a costly but heavily desired commodity that was imported from Southeast Asia and New Spain. Unlike Anna Maria Luisa, few could afford to use sugar in many of their therapeutic recipes. For a Medici princess, however, sugar was a very attainable commodity, one that demonstrated her wealth and, as I show in chapter five, made the medicine she gifted other European aristocrats more palatable. In Anna Maria Luisa's recipe collection, sugar is the most used ingredient. It is named as an ingredient in seven recipes and its use is implied or recommended in addition in several others.⁵⁶

The recipes refer to all sweet medicinal syrups as a "*giulebbe*," while the tax ledger makes a distinction between electuaries (*lattorvari*), jellies (*conserva*) and syrups (*giulebbe*). Electuaries refer to reductions with sugar or honey specifically for ingestion, jellies instead were reductions with only sugar, and syrups were medicinal drink with sugar, boiled in water or distilled, and clarified with egg whites. Anna Maria Luisa's collection of recipes included five sweet medicinal syrups, or *giulebbe*: a *giulebbe* of red cabbage, a *giulebbe* of billy goat blood in

⁵³ Pomet, *A Complete History of Drugs*, 55.

⁵⁴ *Ibid.*, 57.

⁵⁵ David Gentilcore, *Medical Charlatanism in Early Modern Italy*, Oxford University Press, 2006.

⁵⁶ The Tuscan tax ledger lists several types of sugar and sugar-related medicines like *Antielmittico*, *Zucchero di Candia bianco*, *Zucchero di Candia Violato*, and *Zucchero d'Orzo*.

a violet tincture, two *giulebbi* of “*Contraervo*,” or *contrayerva*, and a “*giulebbe di cina*.” The first two syrups were treatments for the petto, or chest because sugar, the defining ingredient of medicinal syrup, was viewed as treatment for chest congestion and lung irritation. Sugar was likely used in the other three recipes for *giulebbe* of *contrayerva* and *cina* (possibly china china) to make the tart roots more palatable.⁵⁷ The French pharmacist Pomet noted that fresh *contrayerva* root should be aromatic and “sharp in taste,” and quinine, or Cinchona bark, was famously bitter.⁵⁸ The recipes also suggest using sugar in a powder for the illness of kidneys and for two perfumes, and even to make “Spanish red.”

Although sugar was an extremely popular medicinal ingredient, both for its therapeutic benefits and for its effect on the palate, balsam was arguably the most popular and sought-after medicinal ingredient and drug in the early modern European medical market by 1710.⁵⁹

“Balsam” was a somewhat complicated term since it referred to either the ancient balsam produced in Judea and Egypt (and praised by Dioscorides), the newly-discovered Hispaniola Balsam of New Spain, or a myriad of tree extracts peddled on the market as true balsam.⁶⁰ The

⁵⁷ The tax ledger distinguishes between Cina (a root from China and Peru) and China China (from a tree in the west indies, in powder form). It is unclear if these are understood as different roots or the same root prepared differently. Furthermore, because Anna Maria Luisa’s recipe indicates how to make the syrups, not what it treats; it is impossible to determine exactly which of the two plants her recipe is referring to.

⁵⁸ Legend says that quinine was discovered thanks to its bitter taste. Native populations in South American discovered it when a local man with a high fever lost his way in an Andean jungle. Desperate, he drank from a pool of stagnant water, which he found bitter to the taste. The water had been contaminated by the quina-quina trees, which grew nearby. The man was shocked when the water did not kill him, but rather cured him of his fever. After this discovery, native populations in South American began using extracts of the quina-quina tree to treat fevers.

⁵⁹ Gentilcore, *Medical Charlatanism in Early Modern Italy*, 219

⁶⁰ According to Pliny, the source of balsam, the Balsam-tree, grew only in Judea. “Balsam” was known and used in ancient Jewish, Arabic, and Greco-Roman medicine.

Tuscan tax ledger identifies thirteen different medicinal balsams circulating the medical marketplace of Florence in the eighteenth century, which were broken down into two categories: “*Balsami Composto*” (balsams that were altered chemically and included additives), and “*Balsami Naturali*” (natural saps from particular trees or regions).⁶¹ Originally, however, the term balsam (from the Latin *balsamum*, meaning “gum of the balsam tree”) referred specifically to the juice or extract of the balsam-tree, which grew in the Near East, but was in constant demand and short supply in Europe.⁶² As David Gentilcore has explained, when Spain discovered the New World, explorers searched for an alternative to the expensive and hard to get balms from the Middle East and Asia, which they found in trees in the New World, such as the popular Balsam of Peru.⁶³

Over the course of the seventeenth century, as balsam became a prized and highly-valued therapeutic, more and more baumes, whether natural or artificial, were called balsams. This was a commercial move by merchants and charlatans in order to bolster the prestige and sale of their medicinal therapeutics.⁶⁴ And it worked; balsams became one of the most expensive and commercialized drugs in early modern Europe.⁶⁵ The collection includes only one recipe about

⁶¹ The *Balsami Composto* included: Balsamo Apopletico, Balsamo Arceo, Balsamo Artebico, Balsamo da Ferite Liquido, Balsamo di Zolfo, and Balsamo Innocenziano; and the *Balsami Naturali* included: Balsamo di Chili, Balsamo di Mecca, Balsamo del Perù Liquido o Secco, Balsamo del Capau o Copaita, Balsamo di Tholu, Balsami Minerali, and Opopalsami.

⁶² The balsam was also known as the balsam of Mecca or the balm of Gilead. See: A. Barrera-Osorio, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution*. University of Texas Press, 2010.

⁶³ Gentilcore, *Medical Charlatanism in Early Modern Italy*, 219-220.

⁶⁴ Ibid.

⁶⁵ For more on the popularity of balsams see: Gentilcore, *Medical Charlatanism in Early Modern Italy*; Barrera-Osorio, *Experiencing Nature*; and P. Smith and P. Findlen, eds., *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe*, Taylor &

balsam, but it was one of the most expensive and powerful balsams on the market, the *Opobalsamo*, a natural balsam coming from a tree near Mecca, closer to the original balsam praised as a cure-all by Dioscorides. *Opobalsamo* is listed as a class two drug in the tax ledger, making it equally expensive as the popular new balsam imported from Peru. Balsams, whether artificial or natural, were typically used to treat skin maladies. The recipe directs to mix the *Opobalsamo* with warm water, salt, and seed oil, and to use it as pomade for skin to reduce wrinkles and imperfections and to keep skin smooth and soft.⁶⁶ While artificial balsams became popular and widely used, they never exceeded the value and healing reputation of natural balsams. It is for this reason, that the recipe goes into great detail on its viscosity, color, and smell.

Similar in consistency, but less popular than balsams, natural gums and resins from plants in both the New World and Asia were popular ingredients in early modern recipes. A surprising number of natural gums and resins were also used in the recipes. Less surprising is that many were used in the preparation of colors, dyes, and lacquers. The inclusion of gums and resins in the tax ledger reserved for medicinal ingredients complicates the classifications of gums and resins as non-therapeutic.⁶⁷

Francis, 2013. There is also evidence of the proliferation and high value of balsams in the Tuscan tax ledger.

⁶⁶ ASF, MM 1, ins. 2, fol. 194r.

⁶⁷ Gums and resins should probably be grouped with balsams, since all are viscous substances secreted or produced by plants. However, I have chosen to separate them because they were clearly understood as separate in the eighteenth century. As discussed above, balsams carried particular cultural meanings and status.

Natural gums are cellulosic substances produced through the breakdown or decay of internal plant tissues. Natural gums contain a high amount of sugar and while they dissolve in water, they do not dissolve in alcohol. Gums have long been used in medicine as emulsifying agents. Somewhat similarly, resins are natural viscous secretions produced by plants and often exposed when a plant is injured. Resins have high antiseptic qualities, so it is easy to understand why resins were viewed as a medicinal ingredient.⁶⁸ In early modern medicine, gums (and resins) were categorized by whether they were aqueous or resinous, or whether they dissolved in water (gums) or oil (resins).⁶⁹ Gums and resins were most commonly used in the production of medicinal balms and plasters. For example, both benjamin (an aqueous gum taken from lacerated trees in Laos and Siam)⁷⁰ and myrrah (a resin from a thorny shrub in the Near East) are ingredients for the “Baume de Berne” recipe. “Virgin’s milk,” or a tincture of benjamin gum and storax, was also recommended in the application of Anna Maria Luisa’s recipe for *Opobalsamo*.

In addition to being important ingredients in the production and application of medicinal balms, gums and resins were key ingredients in medical plasters, or “*cerotti*.” Medicinal plasters were similar to unguents and balsams, but typically used wax (*cera*) or other firmer substances to offer a more protective covering for a wound (often used in conjunction with a cloth). While *cerotti* appear to have been popular in eighteenth-century medicine, the tax ledger lists eight different types of *cerotti*, Anna Maria Luisa’s collection of recipes includes none. It is likely that

⁶⁸ <http://www.faculty.ucr.edu/~legneref/botany/gumresin.htm>

⁶⁹ Pomet, *A Complete History of Drugs*, 173.

⁷⁰ *Ibid.*, 183.

the popularity of these medicinal plasters and Anna Maria Luisa's access to them in Florence meant that these types of therapeutic plasters were not secrets worth collecting.

Precious and semi-precious stones also played an important role in early modern medicine. Throughout the medieval and early modern periods, precious and semi-precious gemstones were believed to be imbued with magical healing properties and were worn as amulets or crushed and ground and used as ingredients in medicinal therapeutics.⁷¹ The Tuscan tax ledger lists eleven precious stones that were used medicinally – carnelians, garnets, jacinths, rubies, emeralds, French sapphires, Oriental sapphires, Occidental sapphires, “grisolite” (described as a translucent precious stone from Ethiopia that is the color of gold), lapis lazuli, and topaz. Of course, pulverized emeralds and crushed rubies were medical materials reserved for the elite, and their scarcity and expense only enhanced precious stones' reputation as effective medicine. It is surprising then, that only one recipe within the collection, the recipe for kidney powder, called for the use of a precious stone, “*lapis Judiaco*.”⁷²

Despite the absence of precious stones, the recipes made use of man-made and natural (mineral) medicinal stones, in particular the “*pietra infernale di rame*” and the “*belzuar fattizi*” (man-made bezoar stone). These so-called “stones” are particularly interesting, since made-man medicinal stones had only appeared in the medical marketplace in the second half of the seventeenth century. David Gentilcore argues that man-made⁷³ medical “stones” were an original

⁷¹ A. Classen, *Mental Health, Spirituality, and Religion in the Middle Ages and Early Modern Age*, De Gruyter, 2014, 494.

⁷² ASF, MM 1, ins. 2, fol. 204r.

⁷³ So-called “snake stones” from India and Southeast Asia appear as early as the 1650s. These were naturally occurring stones in the head of vipers. See: Martha Baldwin, “The Snakestone Experiments: An Early Modern Medical Debate,” *Isis* 86, no. 3 (1995): 394-418.

contribution of charlatans to the medical marketplace.⁷⁴ It was not simply charlatans, however, who introduced, endorsed, and disseminated man-made medicinal stones into the medical marketplace of Europe. The Medici court in Florence played an equally important role in popularizing these stones, particularly the man-made bezoar stone or “Goa Stone” as it was referred to at the Medici court.

Naturally occurring bezoar stones, which were undigested masses of organic and inorganic material cut from the stomachs or intestinal tracts of animals (mainly the Persian Bezoar goat), had long been a valued medical commodity at the Medici court. Natural bezoar stones were gifted to two Medici princesses, Maria (the Queen of France) and Elenora (the Duchess of Mantua), from their uncle and Grand Duke Ferdinand I de Medici in 1603 and 1608, respectively.⁷⁵ Both Medici men and women praised the virtues of the bezoar, which as Maria explained, fortified the heart when dissolved in one’s drink.⁷⁶ Natural bezoar stones remained highly valued at the Medici court well into the eighteenth century.⁷⁷ While natural bezoar stones were prized medicinal therapeutics, they were also scarce and expensive commodities. With

⁷⁴ Gentilcore, *Medical Charlatanism*, 226.

⁷⁵ Sheila Barker has revealed the important role of women in the medical culture of the Medici court in the sixteenth and early seventeenth centuries, most notably Christine of Lorraine; however, the continuing contributions of later Medici women has yet to be explored. Sheila Barker, “Christine of Lorraine and Medicine at the Medici Court,” in *Medici Women*; and “Medical Culture and the Women of the Medici Granducal Court,” in *The Medici and their Archive. Power and Representation in Early Modern Tuscany*, Alessio Assonitis and Brian Sandberg eds. Rome: Viella, forthcoming.

⁷⁶ Barker, “Medical Culture and the Women of the Medici Granducal Court”

⁷⁷ For more on Beazor stones see: Do Sameiro Barroso, “The bezoar stone: a princely antidote, the Távora Sequeira Pinto Collection-Oporto,” in *Acta Med Hist Adriat.* 2014; 12(1): 77-98.

natural bezoars in short supply, Anna Maria Luisa turned to a man-made alternative, called Goa Stones.

Goa stones were made-man concoctions of oriental musk (from Asian deer), oriental bezoar, ambergris, red and white coral, emerald, topaz, ruby, sapphire, pearls, fossilized shark teeth, stones from Cananor India, and calcined deer horn. A lay Florentine Jesuit named Gaspar Antonio, who worked in the College of St. Paul in Portuguese Goa, invented these so-called “stones” sometime in the mid-seventeenth century.⁷⁸ For the Jesuits in Goa, these artificial stones were a lucrative alternative to the popular but rare bezoar stone, which they believed to be a powerful antidote for poisons and venom. Because of the rarity of the naturally occurring bezoar stone, Goa stones, produced at the College of Saint Paul in Goa, became a lucrative business for the Jesuit missionaries. The Jesuits exported Goa stones to Europe, where they gained momentum as a popular medical remedy well into the eighteenth century.

Gaspar Antonio’s original recipe was a well-guarded secret, and the hand-written treatise reveals only three of the ingredients. In his recent work, Christopher Duffin discussed the original recipe and listed its important ingredients: pearls, musk, ambergris, natural oriental bezoar, precious stones, and medicinal earth.⁷⁹ Since the introduction of bezoar stones by Persian and Islamic physicians in the eleventh century, Europeans viewed Bezoars as an effective antidote to counter poisons. Because Goa stones used bezoars as their base ingredient, they

⁷⁸ ASF, Acquisti E Doni, ins. 2, fol. 307. Both the inventory and numerous later sources on Goa stones repeat the same story of their invention by Gaspar Antonio. The story is relayed to Cosimo III in the letters and diary of his agent Placido Ramponi: “I Medici e le Indie Orientali. Il diario di viaggio di Placido Ramponi emissario in India per conto di Cosimo III.”

⁷⁹ Christopher Duffin, "Lapis De Goa: The “Cordial Stone.” in *Pharmaceutical Historian* 42, no. 2 (2010): 22-32.

retained their status as an effective alexipharmic (counters poison). With the addition of numerous medicinal components, however, the Goa stone became a man-made, non-natural that superseded its natural counterpart, the bezoar stone.

The more powerful ingredients added to the pulverized bezoar stone were oriental musk, ambergris, and precious stones. Oriental musk, from the Musk deer in southern Asia, was added to fortify the brain. Ambergris, as mentioned earlier, was believed to be an alexipharmic that strengthened the brain, heart, and stomach and was also used to counter convulsions, hemorrhage, and nerve disorders. Emeralds, which were mined in Peru, Pakistan, or Egypt, treated bladder stones, and Topaz, mined in Arabia, Sri Lanka, and Pakistan, acted as a cordial (heart strengthening medicine) and a sudorific (causing sweating). Other ingredients included pearls, red and white coral, indigenous Cananor stone, Camphor oil, and unicorn horn.⁸⁰ The addition of expensive and exotic ingredients only increased the perceived efficacy of the Goa stone. In the hand-written treatise, the author begins by describing the stones as little *cordiali* (which typically refer to heart medicines) that are a mixture of “amber, musk, and other ingredients,” and claims that “they are the best *cordiali* I have ever found.”⁸¹

Despite their high price and popularity throughout the late-seventeenth and eighteenth centuries, Goa stones (and their natural counterparts, bezoar stones) remain largely ignored by historians of science and medicine. Viewed as amulets or talismans, scholarship often dismisses them as simply decorative objects or as magico-medicinal.⁸² Yet, as their inclusion in Anna

⁸⁰ Duffin, "Lapis De Goa: The “Cordial Stone.”

⁸¹ ASF, MM 1, ins. 2, fols. 189 r&v.

⁸² Muriel Bailly, "Foolish Remedies: Goa Stone", the Wellcome Collection.

Maria Luisa's alchemical and medicinal recipe collection and in the tax ledger demonstrates, these stones were more than mere curiosities. They were, in fact, viewed as a powerful drug, capable of combating poison, fortifying the heart and spirit, reducing fever, inducing sweating, treating melancholy, and soothing "those who suffer from the pain of stones."⁸³ Not only was the Goa stone a powerful drug, it was also the collaborative product of European and indigenous medical knowledge in the Portuguese enclave of Goa, India.

In addition to Goa stones and natural bezoar stones, the Portuguese inventory includes two other medicinal stones – Cananor stones and "*Pedras Quadradas*." Both appear to be naturally occurring stones, the first coming from India and the second from the kingdom of Manica (modern day Mozambique). According to the inventory, the Cananor stone was excellent for countering poisons and protecting against curses.⁸⁴ Similarly, the natural formed and perfectly square *pedras quadradas* counters poison, specifically against serpent venom. The little square stones, however, had many more virtues than the Cananor stone. They could relieve melancholy, constipation, head pains and fainting spells. These stones could also purge bad humors, preserve teeth, dry boils, and help pass kidney stones. For women, the stones could help in childbirth and with colicky infants.⁸⁵

We can see from both Anna Maria Luisa's collection and the tax ledger that medicinal stones, whether naturally occurring or man-made, were important and highly valued medicinal ingredients and therapeutics throughout the eighteenth century. Although typically associated

⁸³ ASF, MM 1, ins. 2, fols. 189 r&v.

⁸⁴ ASF, MM 1, ins. 2, fols. 189 r&v.

⁸⁵ ASF, MM 1, ins. 2, fols. 189 r&v.

with charlatans, medicinal stones were in fact welcomed and experimented with at courts like the Medici and remained popular medicines well into the eighteenth century. Furthermore, the popularity of man-made stones, like the Goa stone, reveals an important transformation in European conceptions of medicine and the natural world in the late-seventeenth and early-eighteenth century: the secrets of nature were no longer simply revealed, but could be mastered, replicated, and even improved upon. Remarkably, as a compound drug, the Goa stone treated more diseases and afflictions than its predecessor, the Bezoar stone.

Over the course of the eighteenth century, tropical ingredients and drugs such as Goa Stones would become increasingly popular, as European expansion and commerce transformed European medicine. Many historians of medicine have described the late-seventeenth century as a period of destabilization for the traditional medical order.⁸⁶ Harold Cook has added to this narrative by arguing that the role and knowledge of the physician was continually challenged by the influx of ingredients, drugs, and diseases unknown to the ancients.⁸⁷ And as Patrick Wallis has argued, this challenge to the traditional order corresponded to a surge in the importation of drugs and *materia medica* outside of Europe. For Cook and Wallis, the change in the way knowledge was produced and acquired—from knowledge of concepts, to knowledge of facts obtained by hands on experience—was a direct consequence of growing global trade and commerce, and it was this shift that ushered in the dramatic changes in eighteenth-century science and medicine. An examination of medicinal recipes and their exotic ingredients collected

⁸⁶ Hobsbawm, "The Crisis of the Seventeenth Century," reprinted in *Crisis in Europe, 1560-1660*, Aston ed., Routledge Revivals, 2012.

⁸⁷ Harold J. Cook, *The decline of the old medical regime in Stuart London*, Ithaca: Cornell University Press, 1986.

by women like Anna Maria Luisa reveals the role women play in this transformation of eighteenth-century medicine and knowledge production.

Ambergris, balsams, gemstones, exotic stones, and plants from the New World, Africa, and Southeast Asia were anything but common and easy to come by in the eighteenth-century home. The inclusion of such ingredients in Anna Maria Luisa's recipe collection should caution scholars against concluding that all women's medical expertise and practice was domestic, simple, and practical. A closer look at the ingredients used in noblewomen's recipes and recipe collections reveals that some early modern women had advanced medical knowledge that drew from both ancient medical authorities and knowledge of exotic ingredients pouring into European medicine from around the world. Furthermore, a closer examination of where many of these exotic ingredients came from and how they were transported back to European consumers uncovers the inclusion and transfer of indigenous medical knowledge and practice into European medicine.

How did the Medici, sovereigns of a small principality with no formal colonial conquests, learn about and collect such rare and expensive natural objects and *materia medica*? The next chapter explores the commercial and religious networks that enabled the medicinal and scientific activities of Anna Maria Luisa and her father, Grand Duke Cosimo III, across three continents.

Chapter Four

An Empire of *Materia Medica*

The ingredients early modern women used to create medicinal recipes are important cultural artifacts that demonstrate women's participation in the transformation of eighteenth-century medicine and natural history, from herbal simples to complex and chemical compounds that included exotic ingredients from around the world. As shown in Chapter Two, however, the recipe collections of women have been dismissed for their commonplace ingredients and inability to show the application or production of any sort of theoretical scientific or medicinal foundation. By exploring how, between the seventeenth and early eighteenth centuries, the Medici court gained access to exotic plants and animal *materia medica*, this chapter reveals the rich network of merchants and religious patronage that the electress and her father, Grand Duke Cosimo III, built across North America, Africa, and South East Asia.

By the early modern period, emerging new medical theories that emphasized chemical remedies created a demand for drugs and potions beyond the herb garden and kitchen.¹ The expansion of international trade during the same period introduced exotic new ingredients like

¹ For more on the role of global commerce in the development of medicine/science see: Harold John Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*, Yale University Press, 2007; and Antonio Barrera-Osorio, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution*, University of Texas Press, 2010.

the cochineal bug as well as increased access to spices from Southeast Asia, such as cloves, ginger, cinnamon, galangal and nutmeg. Anna Maria Luisa's recipe collection was connected to European exploration, colonial expansion, and global exchanges through trade and missionary commerce, all of which facilitated the movement of people, things, and knowledge in an emerging global economy. The electress's financial receipts and official court correspondence provide insight into the commercial and religious networks through which she and her father procured and exchanged alchemical remedies, secret ingredients, and exotic objects beyond Europe.

Among Anna Maria Luisa's recipes is an inventory of exotic raw materials. Dated January 18, 1714, the inventory begins with a list written in Portuguese of exotic *materia medica* from Portuguese trading *entrepôts* in East Africa, India, and Southeast Asia. Inserted in the middle of this inventory is a short hand-written treatise dated 20 October 1714, probably copied for or at least commissioned by Tommaso Gaetano Medici.² A distant relative to Anna Maria Luisa, Tommaso Gaetano moved to Lisbon at an early age to work first as an apprentice in a "*Casa di Negozio*" and later, after having opened his own shop, as a commercial businessman.³ Tommaso Gaetano was likely Anna Maria Luisa's main connection to and supplier of exotics from Portuguese territories. Like the inventory, the treatise not only describes the origins of the stones, it also lists their numerous medical virtues and uses.⁴ This inventory included:

² Tommaso's name appears on the first page of the inventory—and was likely included with the delivery of the stones and other exotics to the Medici court.

³ Giuseppe Conti, *Firenze dopo i Medici*, Florence: R. Bemporad & Figlio, 1921, 358.

⁴ This hand-written treatise is almost identical to later treatises printed at the Jesuit College in Goa. Extant treatises can be found in the Jesuit archive in Rome as well as The Wellcome Library. See Duffin, Christopher. "Lapis De Goa: The "Cordial Stone," 22-32.

One piece of bark from Timor, that is said to be given to [for] bad wind

Another piece of bark, that is said to be given for blood curses and against curses

Female Rhino blood

Cuya, Cuya Roots; and from this there are four pieces

Three pieces Abutua root

Six St. Ignacious Beans that go in the little mouth

Four Cobra stones, to go in the other little mouth

Twelve square stones, to go in the other little mouth

Forty little “secrets” from the Kingdom of Manica

Six pieces of the roots of Isao Loppes; and roots from Manica

Roots of Calumba, to go in hot blood

Four Spine Fruit

Bark (or wood), that is said to be used for warm fevers

Three nails of the large beast

Three fruits for head pains

Cananor stones

Solda de Thimor

625 square stones, for hot blood⁵

⁵ ASF, MM 1, ins. 2, fol. 186r. “Humpedação depao de Timor, que Leva Letreyro que dis serve para dar e vento ruým; Outro pao, que leva [por] Letreyro; que dis- serve para Curços de

Following this list of goods, Tommaso Gaetano provided a brief description for most, but not all, of the medicinal objects. Although brief, these descriptions provide insight into what these objects actually were, where they came from, and how they were used medicinally.

Tommaso Gaetano began his description of the items with a long and detailed report on the shipment's most numerous objects, *Pedras Quadradas* or *Chamadas Canor*. In the early eighteenth century, medicinal cordial stones such as Bezoar stones, snake stones, and Goa stones were popular therapeutic drugs thought to strengthen the heart and counter venom or poison as well as reduce fevers. Likely introduced to Europe via Arabic medicine, bezoars were naturally occurring, but rare. The “stones” were actually calcified, undigested masses of organic and inorganic material cut from the stomachs or intestinal tracts of animals (mainly the Persian Bezoar goat). They were either worn as a type of talisman or ground into a powder and added to a liquid to be ingested. By the eighteenth century, thanks of the bezoar stones' popularity and rarity, numerous versions of bezoar or cordial stones circulated the medical market. Some were man-made, like the Goa Stone, and others were said to occur naturally, like the *Pedras Quadradas* or Cananor Stone.

Tommaso Gaetano praised the stones as miraculous and described them physically as “minerals, and for a work of nature are born perfectly square, because nature as the master of

Sangue, contros cursos; Sangue de Abbada; Rais de Cuya, Cuya; e della vao quarto pedaços; Tres pedaços da Rais de Abutua; Seis Favas de Santo Ignacio, [que] vão nahuá bocetinha; Quattro pedras de Cobra, ê vão na outra bocetihna; Dose pedras quadradas [que] vaò naoutra [na a] bocetinha; Quarenta continhos ao, dos Reynos da Manica; Seis pedaços da Rais de Isao Loppes; e Rais de Manica; Rais da Calumba, [que] vay no hu Sa[n]guinho; Quattro frutas Spins; Pao, [que] leva por Leytreiro, [para] dis serve [para] as febres de quentuta [quentinha]; Tres unhas da gran Besta; Tres frutas, que servé [para] dores da cabeça; Pedras de Cananos; Solda de Thimor; Seis centos, a vinta e sinco pedras quadradas, [para] vaó em hum sa[n]guinho.”

perfection, the creation artificially in the form, in his; and they are all the color of iron in the shape of a die.”⁶ Tommaso Gaetano also described how to use the stone. One could dissolve a stone in clear, cold water (preferably fountain water) and bathe in it. One could drink the dissolved solution to relieve melancholy, moderate joy, ease constipation, purge bad humors, take away head pains, conserve teeth, dry boils, and treat scabies. He also noted that when drunk during labor, the water solution could smooth or ease child birth.⁷ He also went on to describe a myriad of ways in which this miraculous “square stone” could be prepared and used medically. Mixed with oil the stone would become soft and could be applied to the skin to refresh the body and relieve odor. It could also counter poisons, relieve the pain of stones, and treat colic, as well as headaches and asthma. Clearly this stone from the Kingdom of Manica, present-day Mozambique, on the East coast of Africa was a powerful drug that could treat a plethora of medical conditions. This probably accounts for the larger number of stones sent by Tommaso Gaetano to the Medici court.⁸ In addition to cordial stones, the Medici merchant’s shipment included exotic *materia medica* from Portuguese trading *entrepôts* in East Africa, India, and Southeast Asia – roots and seeds from Manica (Portuguese East Africa), Calumba root (Portuguese East Africa), bark from Timor (Portuguese Timor), stones from Goa, and Abutua

⁶ ASF, MM 1, ins. 2, fol. 187r. “Estas pedras quadradas sao mineraes e por, obra da natureza nascé quadradas perfectamente, pois a natureza como mestra da perfeição as Cria artificiosamente na forma, que seu em; e são todas da cor de ferio ao feitio de hum dado.”

⁷ ASF, MM 1, ins. 2, fol. 187r. “Bebida esta aqua per veses despede as espinhas dorosto e taò bem o lavando co[m] ellá.”

⁸ As discussed in Chapter Three, the stones sent by Tommaso Gaetano Medici were very valuable and high-priced medical objects.

Roots from Brazil. From Lisbon, Tommaso Geatano had access to goods from Portugal's Brazilian territories as well as the Estado da India.

As Francesca Trivellato's work on Sephardic merchants has shown, it was through Lisbon that Tuscany accessed commercial markets beyond the Mediterranean in the eighteenth century. Although English merchants were also active and were present in larger numbers, Italian merchants enjoyed a prominent position in Lisbon. From Lisbon, Italian merchants acted as important intermediaries between the ports of Lisbon and the Tuscan port of Livorno.⁹ It is through this channel that Anna Maria Luisa and her father Cosimo III accessed and collected recipes, objects, and knowledge from the New World, East Africa, and Southeast Asia.

Tommaso Geatano de Medici's strategic position in Lisbon made him an important political and commercial agent for Anna Maria Luisa's father Cosimo III. On September 1, 1716 Tommaso wrote Cosimo III about a cargo of sugar transported on the ship Bacchus from Lisbon as well as about the arrival of the "Flore del Brazil." He also assured the grand duke that his request of the man-made bezoar stones (*Le Pietre Belzuar Fittisie*) would soon be fulfilled.¹⁰ In addition to exotic items and sugar from Brazil, Tommaso also gave the grand duke important information on the political and commercial situation of Portugal.

⁹ Trivellato, *The Familiarity of Strangers: The Sephardic Diaspora, Livorno, and Cross-Cultural Trade in the Early Modern Period*, Yale University Press, 2014, 215-216.

¹⁰ ASF, MM 587, ins. 22, letter dated September 22, 1716. "De 10 Luglio ho ricevuto li pregiatissimi caratteri d' Vostra Altezza Reale et osservo restava intesa della Missione fattali del feccio di Zucchero, con la Nave Bacco [...] e sospiro la venuta delle Flore del Brazil, che per l'ultime notizie havute di colá non si possono attendere che in Novembre prossimo per supplier in miglior forma et anco perche dovrebbero condurmi il Timore e Le Pietre Belzuar Fittisie richeste per L'AVR che subito gli trasmetterò."

Tommaso Geatano was part of a transnational web of agents, merchants, and bankers across Lisbon, Seville, Cadiz, and Amsterdam that Cosimo III relied on to reinforce political alliances, export and import goods to and from Tuscany, and to contribute to the colonial commercial, political, and religious pursuits of the grand duchy.

Between 1682 and 1684, through other agents, Cosimo III sent numerous cases, bottles, and even drums of medical syrups and tinctures to the Portuguese court. Many of the shipments were specifically intended to serve the queen. In return, Cosimo III successfully secured passage to Goa for two of his agents via Portuguese merchant ships. With the favor he earned at the Portuguese court through the gifts of medicine, Cosimo was also able to make numerous requests for further objects and recipes from Portuguese territories in the New World, Africa, and South East Asia. In March 1682, the grand duke beseeched Lorenzo Ginori, the Florentine consul in Lisbon, to ask Don Antonio de Sousa Macedo for the recipes of the sweet spirits and confections customarily consumed in Brazil.¹¹ Later that year, Cosimo requested elephant teeth and books and the following year, desiring more exotic items, Cosimo asked Ginori for sweets from Goa.¹² Finally, in May of 1684, the grand duke requested that Ginori supply him with snails (or snail shells, it is unclear), with rare colors and unique forms of nature for him to study, from the Islands of India.¹³

In 1670, with the endorsement of Cosimo III, Lorenzo and Francesco Ginori established a trading company based in Lisbon and Cadiz. In the late-seventeenth and early-eighteenth

¹¹ ASF, MdP 5066, Letters dated March 14, 1681 (1682, modern calendar) and January 27, 1681 (1682).

¹² ASF, MdP 5066, Letter dated June 9, 1682 and Letter dated November 23, 1683.

¹³ ASF, MdP 5066, Letter dated May 23, 1684.

centuries Tuscan foreign trade was a private enterprise. It was a system of trading companies run by Florentine nobles, but heavily invested in by the grand duke.¹⁴ As Antonella Viola argues, while these companies were private enterprises, Cosimo III acted “as the balancer of a complex system of information, business and diplomacy.”¹⁵

While not state-run, the relationship between Cosimo III and his agents was mutually beneficial. The Ginori brothers gained legitimacy and prominent positions at foreign courts. Francesco Ginori’s position as Florentine consul in Lisbon allowed him to expand his social and political relationships, widening his and his family’s commercial reach. The Ginoris also gained valuable economic and political information, which was good for business. In return for his investment, Cosimo III received steady political and socio-economic insight into the Spanish and Portuguese courts as well as access to commercial goods and exotic items from their vast imperial territories.¹⁶

The grand duke’s network of agents extended beyond Portugal. In addition to family members stationed in various cities in Spain, the Ginori had commercial partners in Hamburg, Amsterdam, and Goa.¹⁷ One such partner was the Lucchese Cesare Sardi, proprietor of Sardi &

¹⁴ For more on the merchant and political activities of the Ginori family in Spain and Portugal see: Benadusi, “The Gender Politics of Vittoria della Rovere,” in *Medici Women*, 282; Zamora Rodriguez, “War, Trade, Products and Consumption Patterns,” 55–67; and “Trade and Diplomacy: The Ginori Family’s Trading Network in the Iberian Peninsula (1660-1700),” *Storia Economica* ANNO XVIII, 2015, n. 2.

¹⁵ Viola, “Genovesi e Fiorentini in Portogallo,” 313.

¹⁶ For more on the commercial activities of Italian elite in Portugal see Viola, “Genovesi e Fiorentini in Portogallo.” See also VV. AA., *War, Trade and Neutrality. Europe and the Mediterranean in seventeenth and eighteenth centuries (Storia-Studi e ricerche)*, Franco Angeli Edizioni, 2012.

¹⁷ Viola, “Genovesi e Fiorentini in Portogallo,” 314.

Co. in Amsterdam.¹⁸ Sardi was a Tuscan agent and banker living and operating first in London and later in Amsterdam.¹⁹ Like Francesco Ginori, Sardi's company was private, but heavily patronized by Cosimo III and Anna Maria Luisa. Archival letters and receipts attest to Sardi's central role as banker and money exchanger for the court as well as an agent who arranged shipments of goods and exotics requested by the Medici court.

In September of 1712, at the behest of the grand duke, Sardi sent 18 ounces of cacciú (or catechu) and ensured his patron of the extraordinarily nature of the plant stating that according to the druggists of Peru, "it was not like any kind they had seen before."²⁰ In March of 1713, Sardi sent Cosimo III a box containing seeds and plants from India.²¹ Just a few months later in May, Sardi sent seven vases with plants from Peru.²² Sardi was also an important intermediary between Cosimo III and Anna Maria Luisa during her time away from Florence at the court of her husband in Dusseldorf. On May 18, 1714 Sardi confirmed he had received the "two carts of goods destined for the most serene Electress Palantine," and that he would ensure their prompt

¹⁸ For more on Cesare Sardi see: Rita Mazzei, *La trama Nascosta - Storie di mercanti e altro*, Edizioni Sette Città, 2011.

¹⁹ Until Cosimo III's death in 1723, Cesare Sardi continued to be an important intermediary for the grand duke's botanical interests. Numerous letters and receipts record the shipment of exotic plants from Sardi to Cosimo III. More importantly, Sardi also facilitated the exchange of plants and letters between Cosimo III and the celebrated botanist Jan Commelin and his successor Caspar Commelin in Amsterdam.

²⁰ MM 92, ins. 4 fol. 39v. Catechu was an extract from the *Senegalia catechu* tree found in Asia and the Indian Ocean. The catechu extract is high in natural vegetable tannins, which made it a natural astringent.

²¹ MM 92, ins. 4, fol. 59r.

²² MM 92, ins. 4, fol. 67r.

and safe arrival.²³ While that letter does not reveal the contents of Anna Maria Luisa's shipment from her father, another letter from March 6, 1716 details the shipment of "*acqua del tettuccio*" along with 10 jars of oil to the Electress in Dusseldorf.²⁴

Anna Maria Luisa's financial records provide further insight into medicinal plants and therapeutics she received via Sardi, who, in the course of the eighteenth century had greatly expanded his commercial business.²⁵ Between 1713 and 1716, just before her departure from the Palatine court, Anna Maria Luisa paid Sardi for shipments of *china china* (quinine), vanilla, ambergris, and a case of "*Acqua d'odori*" along with several unspecified shipments of medicinal waters, porcelain flasks, and unidentified drugs.²⁶ Even before her return to the Medici court and to the resources and centers of production located there, Anna Maria Luisa was participating in the receipt and use of Medici medicines, likely acting as a broker herself by passing on some of those medicines and oils to her friends and associates within Germany. With the death of her husband in June of 1716, Anna Maria Luisa returned home to Florence and it was Cesare Sardi who handled the shipment of her personal possessions back to Tuscany.²⁷

Anna Maria Luisa and the late Medici court gained access to exotics and medicinal ingredients through Portuguese and Spanish trading networks of agents and merchants. Cosimo

²³ MM 92, ins. 4, fols. 103 r&v.

²⁴ MM 92, ins. 4, fol. 158r.

²⁵ Mazzei, *La trama nascosta*.

²⁶ These financial receipts from her final years in Dusseldorf are a mix of German, Dutch, and Italian and were likely preserved in the ASF because they were brought back when Anna Maria Luisa returned to Florence. MM 638, 626, 641 and 647. More financial records with Sardi in ASF, DG 452.

²⁷ MM 92, ins. 4, fol. 198.

III also relied on Catholic religious missions from the new world and east indies, and especially in the Congo, Goa, and Brazil, to acquire rare specimens and medical knowledge.

By the late-seventeenth and early-eighteenth centuries, Capuchin, Dominican, Franciscan, and Jesuit orders had established Catholic missions in South America, Sub-Sahara Africa, India, and Asia. Christianizing indigenous populations was an integral part of European state-sponsored colonization. In their efforts to convert local populations, missionaries, specifically Jesuit missionaries, worked closely with indigenous cultures as linguists, historians, geographers, naturalists, and pharmacists.²⁸ Missionaries also faced harsh tropical climates with foreign diseases. The desire to survive such climates and their theological responsibility to assuage suffering made European missionaries highly receptive to ingenious drugs and medical practices.²⁹ In doing so, colonial missionaries contributed to the exploration of new *materia medica* and the transfer indigenous knowledge of exotic plants, animals, and drugs to Europe.

In 1645 the first group of missionaries, made up of Spanish and Italian Capuchin friars, were sent to the Congo, then under the reign of Garcia II of Kongo. With the defeat of the Dutch in 1648, the Portuguese position in the Congo was strengthened and all Spanish missionaries were forced to leave the country. Italian Capuchin friars were allowed to remain but had to travel on Portuguese passports.³⁰ The kingdom of the Congo, however, proved formidable terrain for the Italian Capuchin friars. Not only did pagan practices continue to persist widely, the friars

²⁸ Sabine Anagnostou, "Jesuits in Spanish America: Contributions to the Exploration of the American Materia Medica," *Pharmacy in History*, Vol. 47, No. 1 (2005), 3-17.

²⁹ *Ibid.*, 14.

³⁰ Hubert Jedin and John Patrick Dolan eds., *History of the Church: The Church in the Age of Absolutism and Enlightenment*, Crossroad, 1981, 273.

struggled to survive the harsh tropical climate. Scholars estimate that by the end of the mission in the eighteenth century, some 400 Capuchin missionaries died in service in the Congo.³¹

We can see gravity of the missionaries' conditions as well as the impetus to record local flora and fauna in Fiar Giacinto's report sent to Cosimo III in February of 1693. Giacinto was a Capuchin monk working in the Songo region of the Congo. In his report, he described being in good health at the moment, but that he had previously been taken by a fever so great that he was "reduced to receiving the last sacrament."³² His report went on to describe the local agricultural products and ingenious animals:

... which is the wheat called Turco among us which is similar but larger than millet: Massago which is like linseed but different: Beans similar to our ordinary ones: Mandis which are round like hazelnuts but very different: and Cassava with roots much larger than turnips: and of these, like all the other seeds, except the beans they make flour by hand, milling it with one Stone on top of the other... Quini are a various fruits, as are Bananas but similar to cucumber but larger. Nicetti, Coconuts, Mammai, Pineapples, which are like pinecones, are very good, fragrant, and the inside of the rind has the flavor of strawberries and other fruits. This land has an abundant quantity of Hens, Goats, and uneatable Animals, of Elephants, Tigers, and Lemmings, and many other Wild Beasts.³³

³¹ Jedin and Patrick Dolan eds., *History of the Church*, 274.

³² MM 502, N. 30, F. 2, fol. 383r. "... che mi ridusse à ricevere gl'ultimi sacramenti."

³³ MM 502, N. 30, F. 2, fols. 383 r&v and fols. 384 r&v. "... che è il Grano chiamato Turco fra di Noi: che è simile, ma per un poco più grosso del Miglio: Massago, che è come il Lino Seme, ma differente da questo: Fagioli simili a i nostri ordinari: Mandis di forma rotunda, come Nocciole, ma molto differenti; E Mandioca, che fanno Radiche assai più grosse delle Rape:

Giacinto's report also took great care in describing the dress, various types of dwellings, and church of the local population. For Cosimo III, patronizing colonial religious missions not only offered spiritual gain but also provided him with on the ground knowledge of exotic peoples and places as well as new plants, animals, minerals, and medicinal ingredients and therapeutics.

In 1697, at the behest and patronage of Cosimo III, Placido Ramponi embarked on a mission to India and Southeast Asia. Rampoini's mission was to deliver and construct a mausoleum to honor Saint Francis Xavier who was entombed in the Jesuit church in Goa. Clearly, the gift of a precious marble mausoleum was an act of religious devotion to celebrate an important Jesuit saint. Cosimo, however, had another reason for honoring the Jesuits in Goa with such a marvelous gift. Florence had a long history with Goa and, despite being Portuguese territory, Cosimo III's devotion to and patronage of the Jesuit mission ensured him access to the famed Jesuit pharmacy in Goa as well as the region's exotic flora and fauna. As instructed, Ramponi dutifully recorded his entire journey for the grand duke and sent Cosimo numerous drawings and descriptions of various plants.³⁴ After one such letter from Ramponi reached Cosimo, he immediately wrote Father Salvator Gallo the General Viceroy of clerics in India residing in Goa, for the "plants listed on the attached sheet." Included with the letter was a list of fifteen indigenous plants that Cosimo desired from the Indian Orient. This list included *ambare indica*, *alangium*, madras carpet flowers, Indian costus, star fruit, Bengal currant, wild stinking

E di queste, come degli altri semi, tirati li Fagioli, ne fanno Farina a mano, macinandola con una Pietra sopra l'altra... Quini sono diversita di Frutti, come sono Banone simili à Cetrioli ben grandi. Nicetti, Cocchi, Mammai, Ananas, Frutto simile alle Pine, molto buono, odorifero, e dentro alla scorza è del sapore delle Fragole, ed altri Frutti. Abbondante il Paese di Galline, Capre, e d' Animali immondi, di Elefanti, Tigri, e Lemi, e di molt' altre Fiere Selvaggie."

³⁴ Today this collection of drawings is preserved in the Uffizi.

cassias, kiluke flowers, lesser galangal, benzoil tree, cinnamon, and Chinese or Japanese tea.³⁵ Cosimo went on to say that he would be very grateful and much obliged if Father Gallo could also send other rarities from Goa of “every kind.”³⁶

Grand Duke Cosimo was in contact with religious officials in Brazil as well. In January 1698, he sent a letter to the Jesuit Father Giovanni Antonio Andreoni in Baya, Brazil. Cosimo asked Father Andreoni to send fruit trees and flowers from “that climate” that had value or were desirable for their smell, color, or rare form.³⁷ That same day, Cosimo wrote to another Jesuit father in Brazil, Father Domingos Ramos, confirming that he had received word that Father Ramos was sending a shipment of “delicious rarities of Brazilian sweets,” in addition to a small and curious little animal.³⁸

The rare and exotic plant and animal products sent to the Medici court were often accompanied by recipes which became a means to disseminate medicinal prescriptions and secrets. This was certainly true for tobacco, which made its way to Florence from the New World via Medici agents and merchants in Lisbon. A long and detailed recipe titled “recipe of Balsams and Virtues of the pulverized Nicotine commonly called Tobacco good for the ulcer and other maladies, in addition to the use that is made for the nose,” provides information on the history as well as the medicinal uses of tobacco.³⁹ The unidentified author of the recipe begins with an

³⁵ Cosimo’s list of exotics all appear to come from the *Hortus Malabaricus*.

³⁶ ASF, MdP 5071, Letter dated January 13, 1697 (1698).

³⁷ ASF, MdP 5071, Letter dated January 12, 1698 (1699).

³⁸ ASF, MdP 5071, Letter dated January 12, 1698 (1699).

³⁹ MM 502, N. 28, F.15, fols. 359r – 369v.

explanation of the herb's many names: "the Herb Nicotine, or real Queen's Herb, Tobacco Herb, *Pidocchina* Herb, Herb of the Grand Prior. They are all the same with many names."⁴⁰ The author then describes how tobacco was first brought from Florida to Lisbon and given to Jean Nicot (1530 – 1600), the French ambassador in Lisbon, who introduced the herb to the French Court. According the recipe's author, Nicot observed the miraculous healing power of *nicotiana*:

... one day a young page put to the test this crushed Herb and its juice together on an ulcer, made of a "Noli me Tangere,"⁴¹ that was already attached to the cartilages, which he [the page] had on his cheek near the nose, and felt marvelous benefit. For this reason, Mr. Nicot made the sick young man come before him and made him continue the application of the herb for eight to ten days; The Cancer [Canchero] disappeared completely.⁴²

After testifying to the healing power of *nicotiana* for skin maladies, the recipe's author provides directions for preparing the herb:

⁴⁰ MM 502, N. 28, F.15, fols. 359r – 369v. "Dell' Erba detta Nicotiana, o vero Erba Regina, Erba Tabacco, Erba Pidocchina, Erba del Gran Priore. Questa è la medesima con tanti nome."

⁴¹ MM 502, N. 28, F.15, fol. 359r. "Noli me Tangere" was an expression used to describe a hidden cancer, likely a non-malignant growth like a polyp.

⁴² MM 502, N. 28, F.15, fol. 362r. "che un giorno un Giovane del Paggio aveva messo per prova della detta Erba pestata, e del suo succo insieme sopra un ulcere, che egli aveva sopra una Gota presso al naso fatto d'un Noli me Tangere, che si attaccava di già alle cartilagini, e ne sentiva meraviglioso giovamento. Per questa causa il detto Signor Nicot fece venire innanzi a se il Giovane ammalato, e avendogli fatto continuare L'applicazione di quell' Erba per otto, o dieci giorni; questo Canchero rimase del tutto estinto.

... take a Pound of fresh Leaves of Nicotine, crush them, and mix them with three ounces of new wax, *Pece Ragia* [Greek Pitch] and common Oil. Boil everything together so much that the juice of the Nicotiana is mostly reduced. Then add three ounces of *Trementina di Venezia* [Venetian turpentine]: strain everything through a cloth, and use it.”⁴³

The author also provided two additional prescriptions for balsams—“*Della Balsimina, o Caranze*” and “*Olio di Balsamini*”—which were to be used in conjunction with the nicotine treatment.⁴⁴ As the title of the recipe indicated, prepared tobacco, or nicotine, was also snuffed. Catherine de’ Medici, Queen of France, popularized the practice of snuffing nicotine through the nose, a practice she claimed cured her headaches and colds.⁴⁵ By the seventeenth century, thanks to Catherine’s ringing endorsement, snuffing nicotine had become fashionable among the elite of Europe because it was believed to protect against plague.⁴⁶ By the early eighteenth century, snuffing was an activity exclusively for the elite, while smoking tobacco was reserved for the masses.⁴⁷ In keeping with her status, Anna Maria Luisa was an avid snuffer herself. An inventory

⁴³ MM 502, N. 28, F.15, fol. 365r., “... pigliate una Libbra di Foglie fresche della Nicotiana, pestatele, e mettetele con cera nuova, Pece Ragia e Olio commune, di ciascuno tre oncie. Fare bollire il tutto insieme tanto che il succo della Nicotiana molto consumato. Allora aggiungetevi tre oncie di Trementina di Venezia: passare, e premere ogni cosa per una pezza, e usatene.”

⁴⁴ MM 502, N. 28, F.15, fol. 359r.

⁴⁵ Katharine T. Kell, "Tobacco in Folk Cures in Western Society." *The Journal of American Folklore* 78, no. 308 (1965): 99-114.

⁴⁶ *Ibid.*, 105-106.

⁴⁷ *Ibid.*

of her possessions completed after her death in 1743 lists 23 *Tabacchiere*, or snuffboxes for nicotine.⁴⁸

Anna Maria benefitted from the literal and figurative fruits of her father's political, commercial, and religious networks throughout her lifetime. After the death of her father, she successfully maintained her father's connections, continued to patronize her father's agents Cesare Sardi and Tommaso Geatano Medici. Through these networks she collected exotic plant and animal specimens as well as knowledge of indigenous medicines. She also persisted in pursuing the colonial enterprise.

She actively financed the import of nicotine, various coconuts (many made into cups), mother of pearl specimens, various ornate containers of balsam, a ball of musk, cups made from bloodstone (from Indonesia), numerous drinkware for chocolate and coffee, coffee and chocolate pots, and lots of *buccheri* or scented earth, typically from the New World and burned to perfume rooms or made into vases to hold fragrant, medicinal waters.⁴⁹

Anna Maria Luisa was also particularly interested in importing the new-world cochineal bug which produced the "true red." In the late seventeenth and early eighteenth centuries, the secret to making vibrant crimson or "true red" was the cochineal bug. Discovered in the new world and exported by the Spanish, cochineal bugs, and the indigenous knowledge that accompanied them, produced a dye that was ten times more powerful than any red Europeans

⁴⁸ ASF, MM 600, fol. 20 – 138.

⁴⁹ ASF, MM 600, fol. 20 – 138.

had seen before.⁵⁰ It is interesting that Anna Maria Luisa took the time to collect so many different recipes for red that used the cochineal bug. It reveals not only the continuing popularity of the red dye, but also the enduring debate over the cochineal bug's origin, qualities, and proper use. Throughout the seventeenth and eighteenth centuries, France and England both tried to corner the cochineal market. However, despite constant colonial pursuits to find equally-powerful red dye alternatives or similar insects outside of Mexico, true cochineal bugs remained exclusive to Mexico and in the hands of Spain, making the cochineal market rife for charlatans and faux cochineal.⁵¹ On the sidelines of the colonial commercial pursuit of cochineal, Anna Maria Luisa collected recipes for cochineal red in order to educate herself on a natural object that was an extremely valuable commodity driving colonial development.

Both Anna Maria Luisa and her father went to great financial lengths to established connections with merchants and religious missions across North America, Africa, and South East Asia, to secure rare plant and animal products for their laboratory, and to promote networks of scientific knowledge transfer between the Medici court and the expanding colonial world.

⁵⁰ Amy Butler Greenfield, *A Perfect Red: Empire, Espionage, and the Quest for the Color of Desire*, Harper Collins, 2005, 76.

⁵¹ *Ibid.*, 165-168.

Chapter Five

Recipes, Secrets, and Empirical Knowledge

As discussed in Chapter Three, among Anna Maria Luisa's recipe collection, printed on a small piece of paper and stamped with the Medici grand-ducal crest, is a recipe for nerve oil (*Unto da Nervi di Fonderia di S.A.R.*) that holds the secret to healing injured nerves and relieving pain. It instructs one to hold the injured area in the "warm guts of an animal" or in a mixture of heated skin and pulp of pressed grapes. It also instructs wrapping the injured area in a warm cloth to facilitate the penetration of the oil. Following the careful application instructions, the recipe concludes with a reminder that this oil was "a balm, and particular secret, created in the S.A.R. *fonderia* and not in other locations, as others have said they have the same recipe."¹

Without aspirin, ibuprofen, or anesthesia, pain was a reality of daily life in the early modern world. In humoral medicine, pain was both a symptom of illness and a condition in its own right, as in the case of headaches and migraines. Pain, like all illness, was caused by imbalanced or corrupted humors, which either in their own right or through the corrupted vapors they produced, disrupted the normal functions of the body, including the workings of the animal

¹ ASF, MM 1, ins. 2, fol. 174r.

spirits which flowed through the body via nerves and enabled sensory and motor functions.² Thus, pain itself was understood as originating in and emanating from the nerves.³ The ability to heal or restore nerves was thus the secret to ameliorating pain caused by any number of illnesses or injury. What seems like a simple treatment for injured nerves was actually prized medical knowledge in the eighteenth century. As the recipe states, this secret for easing pain and restoring nerves was a therapeutic created by the Medici grand-ducal *fonderia*, or alchemical and medicinal laboratory. The recipe's assertion that it was the one true secret to healing nerves attests to its value as prized medical knowledge shared with only those selected by the Medici court. Notably, while it reveals how to use the nerve oil produced in the Medici pharmacy, it never reveals the formula behind this Medici secret. The final product could be acquired through social negotiation, but the means of making this prized therapeutic was closely guarded.

This chapter illustrates how recipes were agents of discovery and transmission in the desire to uncover or unlock the secrets of nature in the early modern world.⁴ As such, contrary to professional medical printed works, recipes revealed medicinal and scientific secrets produced through practice, observation, and experience as opposed to learned medical theories. Sometimes the empirical knowledge held in a recipe was the product of generations of practice with numerous trials and alterations along the way. At other times recipes revealed and promoted knowledge of new plants and medicinal materials gathered, observed, and tested from far-away

² Lindemann, *Medicine and Society in Early Modern Europe*, 106 - 107.

³ For more on the Galenic and Medieval understanding of pain see: Esther Cohen, *The Modulated Scream: Pain in Late Medieval Culture*, University of Chicago Press, 2010.

⁴ Ferguson, John, *Bibliographical Notes on the Histories of Inventions and Books of Secrets*, with a preface by William Eamon, Pober Publishing, 1998.

lands. This chapter examines the genre of recipes as well as their role and value within early modern society and medicine. Placing recipes within their historical context reveals the important relationship between recipes, like the Medici nerve oil, and early modern secrets, as well as the production, consumption, and increasing value of empirical knowledge. I argue that recipes like the ones in Anna Maria Luisa's collection were significant beyond the tangible products they produced. Their role in transmitting and popularizing empirical knowledge helped promote a new philosophy of experiential science, which would transform European science and medicine over the course of the sixteenth, seventeenth, and eighteenth centuries.

As illustrated by the grand-ducal nerve oil, medicinal recipes revealed the secrets to preserving and restoring health, easing pain, and combating illness. Yet, in order to fully understand why Anna Maria Luisa and her father Cosimo III, like so many others in early modern Europe, went to great lengths and at great expense to collect recipes and *naturalia*, we must also look at the early modern connection between recipes, secrets, and empirical knowledge. While it is easy to equate early modern medicinal recipes to contemporary drugs, the performance of creating or using the recipe bore greater weight than simply taking a prescribed therapeutic. Furthermore, the lengthy textual component – the recipe itself – was as (if not more) valuable than the therapeutic product.

The medical theories and practices of the eighteenth century still drew heavily from long medical tradition that had started in Ancient Greece and had been refined by medical writers in the medieval and early modern worlds. Various strands of Greek philosophic and medical thought (coming most notably from Plato, Aristotle and Hippocrates) had come together by the end of the ancient world, and largely thanks to the influence of its most influential physician, Galen, to create a holistic image of the human body, its functions, and its relation to the rest of

the natural world.⁵ Perhaps most notably, the Greeks had believed that each person was a microcosm of the universe. Since the universe was comprised of four elements (fire, water, earth and air), each of which was defined by a pair of properties that it possessed (hot or cold and wet or dry), man was seen as having four corresponding humors—choler (or yellow bile), phlegm, black bile and blood, each of which was also characterized by its pair of properties. Each humor thus corresponded to an element, as well as to one of the four seasons, which also were associated with pairs of properties. For instance, water was cold and wet, just like phlegm was cold and wet, and just like winter was the cold and wet season. As the weather grew colder, or if a person ingested too much cold moisture (uncooked fruit was a well-known danger), phlegm would become more abundant, potentially creating diseases that were associated with too much phlegm.

Throughout the middle ages and early modern period, then, health was achieved through a balance of the essential humors, but that balance was constantly in flux as bodies were affected by everything from age and weather to fluid retention and last night's meal. Every individual, moreover, had a natural and unique humoral balance, described as his or her complexion. The role of the physician was to provide each patient with a regime, tailored to his or her specific complexion and lifestyle, intended to maintain humoral balance. If a person became ill, each symptom was isolated and treated as an imbalance. Animals, vegetables, and minerals were each

⁵ For more on early modern Galenic-Humoral medicine see: Monica Helen Green, *The Trotula: a medieval compendium of women's medicine*, University of Pennsylvania Press, 2001 and *Women's Healthcare in the Medieval West: Texts and Contexts*, Ashgate, 2000; Mary Lindemann, *Medicine and Society in Early Modern Europe*, Cambridge University Press, 1999; and Nancy Siraisi, *Medieval & early Renaissance medicine: an introduction to knowledge and practice*, University of Chicago Press, 1990.

assigned the same properties as the humors and the elements and based on these properties were employed for therapeutic purposes.

Throughout the sixteenth, seventeenth, and eighteenth centuries conventional humoral theories of medicine still shaped the ways in which people understood health, illness, and the human body. Over the course of those same centuries, however, recipes played a key role in popularizing and legitimizing empirical knowledge, or knowledge based on experience. Early modern recipes reveal an increased disinterest in academic theory, and a growing interest in practical applications whose validity was attested to by practice, or by the reputation of the pharmacy that made it, rather than by virtue of its humoral underpinnings.

Medieval and early modern European recipes—whether technical, medicinal, alchemical, or culinary—were the primary medium through which practical knowledge was transmitted in the home and between generations.⁶ Almost every early modern home had a recipe book or notebook filled with practical information such as preventing and fighting illness, preparing food, and dyeing and whitening cloth.⁷ By the beginning of the sixteenth century, thanks to the printing press, a particular genre of printed medical literature became increasingly popular.⁸ Originating in Venice, printed “Books of Secrets” were vernacular literature that contained recipes and instructions for alchemical preparations, metallurgy, making medicines, perfume,

⁶ For more on the transmission of recipes through family and generations see Leong, Elaine. "Collecting Knowledge for the Family: Recipes, Gender and Practical Knowledge in the Early Modern English Household." *Centaurus* 55, no. 2 (2013): 81-103 and Sheila Barker "Medical Culture and the Women of the Medici Grand-ducal Court"

⁷ Leong, Elaine. "Collecting Knowledge for the Family: Recipes, Gender and Practical Knowledge in the Early Modern English Household." *Centaurus* 55, no. 2 (2013): 81-103

⁸ Rankin, *Panacea's Daughters*, 5.

and cosmetics, as well as practical information for managing the home, such as preparing food, dying cloth and removing stains.⁹ By the mid sixteenth century, Books of Secrets were hugely popular and circulated widely throughout Italy.¹⁰ The genre, which rarely deviated in form, remained popular throughout the sixteenth, seventeenth, and eighteenth centuries.¹¹ These vernacular medical books, written for the “common man,” provided all sorts of health-related knowledge and home-based practices, such as making at-home medicinal cures.¹² Within noble and literate middle-class homes one would often find multiple vernacular recipe books or printed books of secrets and collections of “tried-and-true” cures.¹³

The use of the term secret within the collection is another indication of the recipes’ emphasis on empirical knowledge. For Italian works, the titles *Libri di Segreti* (Book of Secrets), *Libri di Ricette* (Book of Recipes), and *Ricettario* (Recipe Book) were used interchangeably.¹⁴ That was because in early modern Italy, a secret did not imply the suppression of information or

⁹ Eamon identifies *Opera Nuova intitolata Difcicio di ricette* by Leonardo Fioravanti as the first printed vernacular Book of Secrets, published in Venice in 1527.

¹⁰ Secrets and books of secrets existed in the Medieval period. Scholars such as Eamon, however, emphasize the phenomenon, beginning of the sixteenth century, of printed vernacular books of secrets that were widely distributed and read.

¹¹ For more on the study of the early modern concept of “secrets” see: William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*, Princeton University Press, 1996; Elaine Leong, Alisha Rankin, A. Cunningham, and P.O.P. Grell, *Secrets and Knowledge in Medicine and Science, 1500–1800*, Ashgate Publishing Limited, 2013; Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*, University of California Press, 1994.

¹² Elaine Leong, “Collecting Knowledge for the Family,” 81-103.

¹³ Lindemann, *Medicine and Society in Early Modern Europe*, 122-124.

¹⁴ Gentilcore, David and Tessa Storey, “The Italian Books of Secrets Database Project,” 2008.

something that was mysterious, diabolical, or arcane.¹⁵ Underlying the premise of a secret was the idea that nature could be manipulated or even reproduced with the correct technique, recipe, or formula.¹⁶ Meredith Ray has even argued that a ‘secret’ was synonymous with ‘experimentation,’ since a secret revealed what had been proven, not what remained unknown.¹⁷

The relationship between secrets and recipes, however, is not always clear. The ubiquity of recipes and books of secrets across Europe and over the course of three centuries leaves us with multiple and competing definitions and distinctions. Scholars debate whether all recipes were secrets and if all secrets were recipes.¹⁸ There is, however, a clear connection between all of secrets within Anna Maria Luisa’s collection—they all provide practical and empirical knowledge. This is especially true for alchemical recipes. William Eamon has argued that in the context of early modern Italy, the term secret was most commonly used in the context of privileged alchemical knowledge.¹⁹ For the Medici, as for many early modern natural philosophers and physicians, alchemy was not associated with the mysterious or the occult. Alchemy was an applied science that used experimental activities to investigate and transform

¹⁵ William Eamon has argued that within the early modern context, unlocking the “secrets of nature” was a metaphor for revealing the “inner workings” of nature. William Eamon, *Science and the Secrets of Nature*, Princeton University Press, 1994, 353.

¹⁶ *Ibid.*, 353.

¹⁷ Ray, *Daughters of Alchemy*, 3 – 5.

¹⁸ Elaine Leong and Alisha Rankin, “Introduction,” in *Secrets and Knowledge in Medicine and Science, 1500-1800*, eds. Leong and Rankin, Ashgate, 2011.

¹⁹ Eamon, “How to Read a Book of Secrets.”

nature.²⁰ Alchemical patronage played an important role in the Medici court from its inception. One of the most important forms of this patronage was the grand-ducal *fonderia*.²¹

Experiments conducted in the Medici *fonderia* and *spezzieria* resulted in advancements in metallurgy, refining salts, producing dyes and pigments, the manufacturing of man-made gemstones and stones, glass and ceramics, and the creation of chemical medicines. While each of these activities appears to be separate pursuits, they were united by a textual tradition of recipe literature and an emphasis on alchemical processes. In the early modern world alchemy, recipes, and experiential knowledge were closely connected. Before the “Scientific Revolution,” alchemists were the practitioners investigating and manipulating nature.²² It was alchemy, and the recipe literature it produced, that spurred an interest in the physical manipulation of natural objects, which fostered experiential practices. Recipes played a key role in encouraging and proliferating experiential practices, since it was through traditional technical artisan recipe literature that various secrets to manipulating the natural world were recorded and circulated.

We can clearly see the importance of the concept of secrets in Anna Maria Luisa’s collection. Nine of Anna Maria Luisa’s recipes are specifically referred to as secrets. Four of

²⁰ For contemporary reinterpretations of alchemy see: Bruce T. Moran, *Distilling Knowledge*; Luciano Boschiero, *Experiment and Natural Philosophy in Seventeenth-Century Tuscany: The History of the Accademia del Cimento*, Volume 21 from *Studies in History and Philosophy of Science*, Springer Science & Business Media, 2007; Alisha Rankin, “Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution.” *Early Science and Medicine* 13, no. 4 (June 1, 2008): 394-396; Pamela Smith, *The Business of Alchemy: Science and Culture in the Holy Roman Empire*, Princeton, 1997; and Tara Nummedal, *Alchemy and Authority in the Holy Roman Empire*, National Society for the Study of Education Yearbooks Series, University of Chicago Press, 2008.

²¹ The Medici *fonderia* or alchemical laboratory remained a renowned center of alchemical pharmaceutical production well into the eighteenth century.

²² Bruce Moran, *Distilling Knowledge*, 9.

these secrets deal with creating colors or faux finishes, and five are medicinal secrets. Her secrets for creating colors and finishes include: the “secret for making the color [brass or bronze],” two almost identical secrets “for coloring bronze as if it was gilded with gold,” and the “secret to make French crimson.” The five medicinal secrets include: the “secret for making Eau de Cypre,” unspecified “secrets from Manica” (in her list of exotics from Tomasso Gaetano), the grand-ducal *fonderia*’s secrets for a “balm for burns” and a “nerve oil” (discussed above), as well as a “particular secret for a styptic water for wounds and torn guts.”²³

The secret recipe for a styptic water with Anna Maria Luisa’s collection is particularly interesting as it illustrates the connection between secrets and alchemical practices. This recipe was included in a small bound pamphlet within her collection of mostly loose-leaf recipes. The pamphlet contains instructions on how to tint white marble various colors. In just sixteen pages, the unknown author details the ingredients, processes, and apparatuses needed to create three different reds, two blues, three yellows, three greens, and even fake the signature black or grey veining of “*pavonazzo*” marble. While the secrets to creating various natural looking marbles was certainly valuable artisanal knowledge, it is the last three pages of the booklet that are particularly noteworthy. Without explanation, the pamphlet suddenly shifts topics and details “a particular secret for a styptic water that quickly stops bleeding wounds and torn guts.”²⁴

This seemingly out of place recipe goes into several detailed steps on how to prepare a liquid that is the secret to hemostasis:

²³ ASF, MM 1, ins. 2, fols. 116 – 124.

²⁴ ASF, MM 1, ins. 2, fold. 116 – 124. “Segreto Particolare di una Acqua Stiptica per le ferite guariscendole con una velocita grandissima, anche fossero le budelle tagliate.”

Rx: Dissolve a quarter of an ounce of rock alum in one ounce of “*acqua rosa*” [rose water], add to a quart of “*allume bruciato*,” [calcined aluminum sulfate] and place in a “*digestione*,” in water or alcohol over mild heat. Heat the mixture for an hour until clear.²⁵

2. Rx: Dissolve a quarter of an ounce of lead acetate in an ounce of distilled vinegar with one fourth of pulverized candied sugar.

3. Rx: Add a fourth of pulverized copper sulfate from Cyprus to an ounce of “*acqua di piantagine*.”

4. Rx: Boil one quart of calcined red, or Roman vitriol [sulphuric acid], with two ounces of urine from a healthy creature.

5. Rx: Combine an ounce of strong lime into an eighth of sublimated and pulverized mercury, and “digest” over low heat to a clear liquid for an hour.

Once all of these operations are completed, everything is to be mixed together in a flask for sublimation and “digested” for twelve hours. To conserve the mixture, cover the water with polishing paper and, for long-term conservation, store in a carafe with a tight lid.²⁶

²⁵ A *digestione* was an alchemical apparatus for distillation that dissolved a body, or natural object.

²⁶ ASF, MM 1, ins. 2, fols. 116 – 124. “Rx: Una quarta d’uncia di Alume di Rocca che farete sciogliere in una oncia d’acqua rosa, ci aggiungerete una quarta di alume bruciato e lo metterete in digestione per una ora ad un calore limpido[;] 2. Rx: Un quarto d’uncia di sacharum saturni che farete sciogliere in una oncia d’aceto stillato, con una quarta di rucaro candito bianco pulverizzato.[;] 3. Rx: Una quarta di Vetriolo di Cipro in polvere in una oncia di acqua di

The inclusion of this secret seems out of place when compared to the other recipes in the pamphlet that deal with dyes and marble tints.

An eighteenth-century medicinal tax ledger reveals, however, that many of the ingredients used in Anna Maria Luisa's recipes for whitening, dying, tinting, and creating pigments were also used medicinally. The ledger divides medicines and medicinal materials into 46 articles, or types. Syrups, oils, balsams, plasters, and waters (natural and distilled) make up the bulk of the therapeutics listed.²⁷ It is striking that the ledger, which focuses solely on medicinal materials, lists many products or objects of nature traditionally associated with artisan workshops rather than apothecary shops. For example, dragon's blood, which, according to the marble tinting recipe was one of the secrets to making red pigments and dyes, was also used therapeutically. In the tax ledger, dragon's blood is listed as an antidote for poison, a treatment for dysentery, and useful for healing wounds.²⁸ Similarly, saffron, the secret to making yellow, was a key ingredient in opiate and cordial concoctions and was also used to treat stomach ailments and stimulate menstruation.²⁹ In addition to pigments, other important ingredients used in Anna Maria Luisa's recipes for whiteners, dyes, pigments, and lacquers were also used

Piantagine.[;] 4. Rx: Una quarta di Colcotaro cioè Vetriolo Romano calcinato sin che sia rosso; e lo farete bollire con due oncie d'urina di creatura di bona salute sino alla diminuzione della metà.[;] 5. Rx: Una oncia di acqua di calce forte nella quale metterete una ottava di Mercurio soblumato e polverizzato.[;] A digerire ad un calore limpido per lo spatio d'una ora,[;] Tutte queste operazioni essendo fatte mescolatele tutte assieme in un sagiolo e con un calore tenue fatelo digerire per 12 ore, poi feltratelo per la carta sugarina e conservatelo in una garafa bene chiusa che sarà a tutta perfezione.”

²⁷ ASF, Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808, three volumes: 435, 436, and 437.

²⁸ ASF, Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808, volume 435.

²⁹ ASF, Dogana di Firenze, Dogana Antica e Campioni XIV Secolo-1808, volume 437.

medicinally. Potassium bitartrate, or cream of tartar as it is commonly known, was a dye fixative that was also a powerful purgative. Before it became our modern source of energy, petroleum, or “*olio di Sasso*,” was used in the marble recipes to tint marble green and yellow, and it was also massaged into the body to treat aches and pains.

Beyond the ingredients used, the styptic water and dyes have important commonalities.³⁰ While today we view recipes for creating the look of a brass or bronze finish and a recipe for a styptic water as two entirely different forms of knowledge – one technical or artisanal and the other medicinal – in the early modern world the same division did not exist. In fact, as many scholars of early modern science have argued, present-day divisions between art, science, medicine, and natural history are problematic when applied to the early modern world. The same practical alchemical knowledge and experience with alchemical apparatuses and processes were necessary for both. In order to produce the styptic water, one had to know how to create lead acetate, copper sulfate, sulphuric acid, and sublimated mercury. This recipe for styptic water also highlights the close connection between alchemy and experiential practices. The unknown author of the styptic water claims that this recipe is the secret to controlling bleeding wounds. The author even suggests to “try on a rooster by piercing its head with a sharp needle, and the rooster will heal in fifteen minutes.”³¹ Trying and testing, not humoral medical theory, proved this alchemical secret effective.

³⁰ For works on the issues of early modern versus modern categories of knowledge and organization of knowledge see Cambridge history of science, particularly Part III – “Dividing the Study of Nature.” See also Paula Findlen, *Possessing Nature*.

³¹ ASF, MM 1, ins. 2, fol. 123, “Se ne può fare la prova sopra un polastro, sbusandogli la testa con un passante li guarirà in un quarto d’ora.”

Anna Maria Luisa's recipe pamphlet on marble tinting and styptic water also demonstrates how a recipe could be both a practical guide and a resource on alchemical knowledge. The recipes went into great detail to describe the alchemical apparatuses and processes necessary to create the dyes and styptic water. The recipe even provided detailed and lettered illustrations corresponding to text in order to guide the reader through an illustrated step-by-step manual for setting up and operating the necessary alchemical apparatuses. These included a furnace, a sand bath in a crucible, an alembic cucurbit and hood, and a receiver. The pamphlet on marble tinting instructed the individual to mix and place in the alembic cucurbit a pound of distilled vinegar, a pound of wine spirits (or brandy), and a pound of cream of tartar. The alembic was placed in the sand bath and capped with a hood on the stove until everything has been distilled and passed through the hood. The recipe then explained that the liquid that remains in the alembic was the "pure spirit" that is used to extract the dyes and tint the marble. The recipe also offered an "*avvertimento*" that explained that this "strong" process can be used to make many tints and dyes from various woods, herbs, flowers, roots, and gums. The author also added in the notice that this process would produce a very good solvent the he "did not want to keep silent about," furthering underscoring that it is the alchemical processes, which could be applied to creation of other products, that were most valued and unifying aspect of this pamphlet.³²

Studies on printed books of secrets have revealed the ways in which the metaphor of secrets, and the techniques and recipes they employed, transformed the process of doing science, or natural history, in early modern society. In the sixteenth century secrets and recipes set new

³² ASF, MM 1, ins. 2, fols. 116 – 124.

research goals. Reproducing natural processes through recipes led to a new emphasis on experience and experimentation.³³ Eamon goes as far to argue that books of secrets were the “missing link between medieval secrets and Baconian experiments.”³⁴ While Eamon’s work highlights the role of “popular” science and medicine and the printing press in both the creation and promulgation of a new experiential or experimental mentality in the sixteenth century, it remains focused on printed and published books of secrets. Printed works, however, reflect the secrets and knowledge of a primarily professional and male section of early modern society.³⁵ As popular as printed books of secrets were, familial and personal manuscripts and recipe collections were even more popular.³⁶ Thus, ignoring non-printed texts disregards the important role of women and non-*virtuosi* in the changing scientific and medical culture of early modern society. While records of domestic recipe books and books of secrets for the non-elite remain harder to find and less studied, the recipes and secrets of noble women, like Anna Maria Luisa, are well documented.³⁷

³³ William Eamon, *Science and the Secrets of Nature*, 9.

³⁴ *Ibid.*

³⁵ While Eamon focuses on printed works, he does highlight the printed books and secrets produced by charlatans, whom operated both inside and outside institutional medicine. While not professional physicians, charlatans often received patents for their medicines and legal permission to sell them.

³⁶ For a comprehensive list of the *ricette* manuscripts preserved in the Biblioteca Nazionale Centrale (BNC) in Florence see Gabriella Pomara, *I ricettari del Fondo Palatino della Biblioteca Nazionale Centrale di Firenze*, Milan, 1991. Similarly, Elaine Leong has identified 259 recipe collections in the United Kingdom (she defined a collection as a group of thirty or more recipes), “Medical Recipe Collections in Seventeenth-Century England: Knowledge, Gender and Text” (D.Phil. thesis, University of Oxford, 2005), 20–67.

³⁷ Alisha Rankin has looked at the recipe collections of Dorothea of Mansfeld (1493-1578), Anna of Saxony (1544-1577), and Elisabeth of Rochlitz (1502-1557). Elizabeth Spiller has analyzed the popular recipe book *The Queen’s Closet Opened* (1655), rumored to be the

The pursuit and value of secrets increased exponentially over the course of the sixteenth and seventeenth centuries as colonial conquest and emerging global markets flooded Europe with new flora and fauna.³⁸ The influx of previously unknown natural commodities produced an important shift in the ways in which individuals interacted with and investigated nature and a new emphasis on empiricism emerged.³⁹ The empirical nature of recipes made them well suited for the transmission of knowledge based on experience with newly discovered *materia medica* from exotic and far off lands. Thus, proprietary knowledge of, or secrets about, new indigenous medicines or medicinal *naturalia* were often spread to and around European courts and marketplaces via recipes.⁴⁰ Approximately forty percent of the plant and animal material ingredients mentioned in Anna Maria Luisa's recipe collection is made up of more exotic plants and animals.⁴¹ These include spices, tobacco, chocolate, and quinine imported from New Spain; sandarac, the nails of a grand beast, and civet musk from Africa; and saffron, pepper, and St. Ignatius beans (strychnine) from Southeast Asia.

recipes and secrets of Henrietta Maria, the French wife of King Charles I. Meredith Ray has examined the recipes of Caterina Sforza (1463-1609).

³⁸ Both William Eamon and Meredith Ray have argued that this influx of new and unknown medicinal materials increased the interest in and the pursuit of secrets and, by extension, recipes.

³⁹ Harold John Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*, Yale University Press, 2007. Cook argued that commerce played a pivotal role in the development of early modern science and medicine and that the commercial and economic transformations of the first global age of commerce placed greater value on experience and descriptive information.

⁴⁰ Elaine Leong and Alisha Rankin, "Introduction," in *Secrets and Knowledge*, 12.

⁴¹ These percentages are a close approximation since not all ingredients are specifically listed for each recipe or therapeutic.

In order to identify the medical virtues and applications of new plants, minerals, and animals discovered in the New World and expanding colonial global markets, European explorers and merchants relied on indigenous knowledge as well as first-hand observation and experience. The recipe for *Opo Balsamo* discussed in Chapter Two for example, focuses not on the medical theories as to why the balsam works, but rather on how the author of the recipe had observed the balsam in practice. The recipe described the ways in which “the Turks and the Arabs” added drops of the balsam to their coffee digestion, as well as the unknown author’s first-hand testimony of the balsam’s effectiveness as a treatment for kidney and bladder maladies: “they are used with good effect, as I myself have tried, in the diseases of the kidneys, of the Bladder, and Urine retention, as an effective Remedy specifically to expell the urine, works wonders.”⁴² The recipe continued to discuss even more observed practical applications for the balsam: “They also apply it to fresh wounds, as they do in France with the Balsamo del Perú, as well as to beatings and bruising, not without Reason the Surgeons prefer it to Turpentine in their digestive Ointments.”⁴³ The author of the recipe did not rely on medical theory to convey the virtues and effectiveness of the *Opo Balsamo*, but rather on first-hand experience and practice with the balsam.

As we saw in the inventory of exotics sent by Tommaso Geatano Medici discussed in Chapter Three, exotic plant, mineral, and animal specimens were often accompanied by recipes

⁴² ASF, MM 1, ins. 2, fol. 194. “[...]se ne servono con buono effetto, come io stesso l’hó provato, ne’ male dé reni, della Vescica, e Ritenzione d’Urina, come Rimedio efficace e specifico per muovere l’urina, opera meraviglia.”

⁴³ ASF, MM 1, ins. 2, fol. 194. “L’applicano ancora esternamente alle ferite fresche, come fanno in Francia del Balsamo del Perú, siccomé alle, percosse, e contusioni i Cerusici lo preferiscono non senza Ragione alla Trementina nei loro Unguenti digestivi.”

detailing how each were used medicinally as well as their virtues and what ailments they treated. Tommaso Geatano's recipe for *Pietre Cordiali*, or Goa Stones, begins with a physical description of the stone and list of ingredients: "they are a mixture of various precious stones, amber, musk, and other ingredients."⁴⁴ However, before detailing how the stone is used medicinally, Tommaso Geatano underlined how this mixture was the product of "the extensive experience of the stone's creator" and that it was the best heart medicine I have ever found."⁴⁵ His Goa Stone recipe goes on to provide no less than six medicinal uses for the stone—to treat malign fevers, melancholy, viper bites (or any poisonous animal bite), poisoned arrow wounds, coughing up blood, and kidney stones. He ends the recipe by cautioning that there is only one true Goa Stone: "Finally we inform that the real heart stones of Gasparo Antonio are made in the Pharmacy of the College of St. Paul of the Jesuits in Goa, where one the true original recipe that the first inventor of these stones left."⁴⁶

In addition to the recipe for Goa Stones, Tommaso Geatano's shipment of exotics included plant and animal specimens from East Africa and Southeast Asia. The recipe that accompanied such exotics was even more valuable than the natural object itself, since many plant and animal specimens did not survive the journey back to Europe, and, if they did, would

⁴⁴ ASF, MM 1, ins. 2, fol. 189r. "Le Pietre cordali che Volgarm[ente] vengono chiamate di Gasparo Ant[onio]: sono un misto di varie Pietre preziose, Ambra, muschio, ed altri ingredienti..."

⁴⁵ ASF, MM 1, ins. 2, fol. 189r. "che la lunga esperienza del suo Autore unì in quel composto; Ed è uno de' migliori Cordiali, che abbia fino ad ora ritrovato la medicina."

⁴⁶ ASF, MM 1, ins. 2, fol. 189r. "Finalmente s'avvertisce, che le vere Pietre Cordiali di Gasparo Antonio: si fanno nella Spezieria del Collegio di san Paulo in Goa della Comp[agni]a di Gesù, dove si ritrova nel suo originale la vera Ricetta che lasciò il primo Inventore di queste Pietre."

naturally decay overtime. Furthermore, without the accompanying recipe, exotic *naturalia* could also be quite dangerous, as was the case for the “St. Ignatius Beans” sent by Geatano. The “St. Ignatius Bean” was discovered and named by the Jesuit pharmacist and missionary Georg Joseph Kamel (1661-1706). Kamel lived in the Philippines where he produced extensive accounts of the local flora including a ‘bean’ he named in honor of the founder of the Company of Jesuits.⁴⁷ Tommaso Geatano’s inventory explained that St. Ignatius beans were used by the local populations to counter hexes, sorcery or evil, and poison, as well as to treat spasms, fever, menstrual cramps, and colic. Today, however, we know that the bean Kamel discovered and Tommaso Geatano described contain the alkaloids strychnine and brucine, two highly toxic substances. Without the necessary empirical knowledge on how to take the Saint Ignatius bean, it was deadly.

The study of indigenous medicinal plants and their impact on European science, of medicine, and of commerce has been an especially productive field of inquiry over the past fifteen years.⁴⁸ As European powers expanded into the Atlantic and Indian Oceans during the

⁴⁷ In 1697 Kamel sent letters and plant specimens to Dr. Samuel Browne, a physician of the East India Trading Company stationed in Fort St. George near Madras (India). Dr. Browne was in contact with John Ray, a member of the Royal Academy, and author of *Historia Plantarum*. Kamel’s notes and drawings, detailing numerous plants and animals indigenous to the Philippines, including the Saint Ignatius bean, were included in the appendix of Ray’s third volume of his *Historia Plantarum* in 1704.

⁴⁸ Scholars such as Antonio Barrera-Osorio and Kapil Raj have explored how Europeans increasingly relied on indigenous healing knowledge to support their imperial enterprises. In addition to recognizing the role of indigenous plants, materials and knowledge, other scholars such as Daniela Bleichmar, Londa Schiebinger, and Harold Cook have emphasized the importance of imperial trade and commercial interests in the production and circulation of early modern scientific and medicinal knowledge. These authors have argued that trade was crucial for the development of early modern science. This was particularly true for natural commodities. Their work has highlighted the fact that in the eighteenth century, interest in the natural world was directly linked to commercial exploitation and expansion.

Age of Discovery, they encountered new diseases, climates, plants, and animals that could threaten or bolster their colonial enterprises. Many scholars credit the developments of eighteenth-century medicine with the new materials and methods introduced during the age of European discovery and conquest. Focusing on the British Empire specifically, Pratik Chakrabarti argued that eighteenth-century medicine was a product of the material resources of imperial conquest.⁴⁹ Chakrabarti also argued that medical discoveries in the colonies, as well as a growing world trade in healing substances, helped drive the development of therapeutic theory in Europe.⁵⁰ Thanks to works like Chakrabarti's, scholarship no longer views the rise of empirical practices, which would lead to a revolution in western science and medicine, as the sole product of European intellectual theorists. Instead, it was also the direct result of European interactions with materials and knowledge from their discoveries and contacts in the New World.⁵¹ As Harold Cook has argued, the commercial transformations of the first global age placed a high value on careful descriptive information about objects, and such values shaped priorities for knowing about nature.⁵²

⁴⁹ Chakrabarti, *Materials and Medicine*, 3.

⁵⁰ Ibid.

⁵¹ For more on the effects of commerce, trade, and exploration on the development of modern science and medicine see: Mark Harrison, *Medicine in an Age of Commerce and Empire: Britain and Its Tropical Colonies 1660–1830*, Oxford: Oxford University Press, 2010; Jorge Cañizares-Esguerra, *Nature, Empire, and Nation: Explorations of the History of Science in the Iberian World*, Stanford: Stanford University Press, 2006; James Delbourgo and Nicholas Dew, eds., *Science and Empire in the Atlantic World*. New York: Routledge, 2008; and Kapil Raj, *Relocating Modern Science: circulation and the construction of knowledge in South Asia and Europe, 1650-1900*, Palgrave, 2007.

⁵² Harold John Cook, *Matters of Exchange*. Cook has taken this argument a step further adding that curiosity in the expanding world gave rise to a new term: "fact." Matters of fact became a term that conveyed the type of knowledge that one acquired through experience with objects and displayed through collecting Cook rejects Max Weber's long-standing thesis, which

The recipes within Anna Maria Luisa's collection corroborate the argument that empirical knowledge was crucial for understanding exotic medicinal ingredients and therapeutics. Because they were previously unknown, these medicinal *naturalia* required a kind of knowledge that could be gathered only through personal experience and first-hand testimony. While universities might have been slow to accept new knowledge based on observation and experience rather than traditional theoretical foundations and logic, European courts, like the Medici, valorized curiosity and embraced empiricism, often by experimenting with recipes. As depositories of secrets, recipes also became valuable tools particularly for women through which they participated in the emerging empirical medicinal culture of early modern Italy and, indeed, all of Europe. Most scholars of recipes and books of secrets agree that the sheer number of recipes devoted to feminine hygiene and beauty, domestic management, and women's health attested to the gendered nature of recipes.⁵³ Further evidence of this is the large number of women's recipe collections and recipe manuscripts preserved and studied today.⁵⁴ While women

argued for the Protestant origins of the Scientific Revolution. For Cook, the change in the way knowledge was produced and acquired—from knowledge of concepts, to knowledge of facts obtained by hands on experience—was a direct consequence of growing global trade and commerce, and it was this shift that ushered in the dramatic changes in eighteenth-century science and medicine.

⁵³ Ray, *Daughters of Alchemy*, 47.

⁵⁴ For more on women and recipes see: Catherine Field, "Many hands hands: Writing the Self in Early Modern Women's Recipe Books," in *Genre and Women's Life Writing in Early Modern England*, ed. Michelle Dowd and Julie Eckerle, Ashgate, 2007; Sara Pennell, "Perfecting Practice? Women, Manuscript Recipes and Knowledge in Early Modern England," in *Early modern women's manuscript writing: selected papers from the Trinity/Trent Colloquium*, ed. Victoria E. Burke and Jonathan Gibson, Ashgate, 2004; Alisha Rankin, *Medicine for the uncommon woman: Experience, experiment, and exchange in early modern Germany*, Ph.D. diss., Harvard University, In *Dissertations & Theses: A&I* [database on-line]; available from <http://www.proquest.com> (publication number AAT 3194447; accessed August 30, 2011); and Jennifer Kay Stine, *Opening closets: The discovery of household medicine in early modern England*, Ph.D. diss., Stanford University, In *Dissertations & Theses: Full Text*

could not join their male counterparts in the early modern laboratory or scientific academy, they could and they did collect and exchange therapeutic and alchemical secrets and knowledge via recipes.

Given the empirical nature of recipe literature and their ubiquity in early modern society, recipes were central in the transmission and practice of medicine within the court, artisan workshop, and early modern home.⁵⁵ We can see the focus on empiricism in the recipes collected by Anna Maria Luisa. None of the medicinal recipes within the collection focus on the principles or properties of humoral medicine. Instead, the recipes center on two forms of practical knowledge: 1) prescribing therapeutics for specific ailments and illnesses, often providing detailed information on the physical form of important ingredients to ensure proper usage; and 2) providing step-by-step instructions for preparing a medicinal simple or making a more complex therapeutic. In addition to these, many of the recipes also provide first-hand testimony of the authors experiences with a particular medicinal ingredient or remedy.

Throughout the collection practical instructions for making as well as applying or dosing therapeutics supersedes any discussion of medical theory. In fact, references to the humoral theory of medicine are scant and mentioned only in passing. For example, a recipe for the “Essences of Amber” provides the following applications:

[database on-line]; available from <http://www.proquest.com> (publication number AAT 9630396; accessed September 7, 2011).

⁵⁵ As scholars continue to look outside institutional medicine and traditional sites of knowledge production -- universities and academies -- they have recognized the important role of princely courts, artisan workshops, and the household in the production and dissemination of early modern medical and scientific knowledge. For households as spaces of natural inquiry see Cooper (2006), Hunter and Hutton (1997), Harkness (1997), Pennell (2004), Rankin (2007) and Leong (2008).

Rx: The essence of Amber strengthens the brain and the heart

Comforts weak appendages

Sharpens intellect

Controls emotions

Restores memory

Cheers up Melancholy

Opens the uterus

Perfume for spasms, paralysis and epilepsy

Improves miasmatic air, and is the most excellent for giving strength to the elderly and those who have a cold complexion.

Give 12 to 16 drops in any appropriate liquor.⁵⁶

Although the recipe does not say it, most precious stones were considered “hot,” therefore several applications of this essence possessed clear theoretical underpinnings, although only in the most basic sense. The notion of a cold complexion, for instance, came out of the humoral theory of medicine, which held that phlegmatic and melancholic humors were cold; those who tended towards those complexions (which, notably, included all women) therefore were often prescribed “hot” remedies, like this oil. Furthermore, it was believed that all complexions

⁵⁶ ASF, MM 1, fol. 214r. “L’Essenza d’Ambra Fortifica il Cervello, et il Cuore; Conforta i membri deboli; Assottiglia l’intelletto; Vivifica i sentimenti; Restituisce la memoria; Rallegra i Melancolie; Disoppila la matrice; Giova il suo Profumo allo spasimo, alla [sic] Paralisia, e Mal Caduco; Correggie l’aere Pestifere, et è un eccellentissimo corroborativo a i Vecchi et a chi è frigido di Complessione; Se ne danno 12 o 16 gocce in qualche liquore appropriato.”

became colder with age, which again, made amber a natural treatment for the elderly. Yet, the recipe also includes applications for amber essences that do not align completely with humoral principles. The recipe advertises that essences of amber could be used more widely, for individuals without a cold complexion or for general health benefits ranging from the mental faculties to fertility. Rather than tailor a regime or therapeutic to a specific individual's humoral imbalance, the recipe prescribes the amber essences for anyone with weak appendages or melancholic disposition. The recipe also suggests that beyond treating these ailments, the essences could enhance health—sharpen intellect, restore memory, and control emotions. Rather than focus on therapeutics for specific complexions or imbalances, most of the recipes within the collection focus on and target specific diseases and ailments, without actually considering the humoral or qualitative imbalance that academic medicine was careful to explain.

Throughout the collection certain plants, stones, and remedies are prescribed to treat specific ailments, without explaining the nature of the ailment or the reason that the *materia medica* or remedy is meant to work. A medicinal syrup of red cabbage is simply prescribed for chest congestion.⁵⁷ Spine fruit is said to treat head pain, while Calumba root (likely *Jateorhiza palmata*) is advised for indigestion and fevers.⁵⁸ In addition to the nerve oil, there are two recipes from the Medici *fonderia* for distilled “water” to treat acute and malign fevers as well as an ointment for burns.⁵⁹

⁵⁷ ASF, MM 1, ins. 2, fol. 180r.

⁵⁸ ASF, MM 1, ins. 2, fol. 188v.

⁵⁹ ASF, MM 1, ins. 2, fols. 169r, 170r, and 175r.

When not prescribing targeted therapeutics for individual ailments and illness, the recipes in the collection focus on the practice of making medicines. Thus, when a recipe does provide more details, those details center on production, not theory. For example, a recipe for making a medicinal syrup of contrayerva root provides the following step-by-step instructions:

Rx: grind according to the manner 1 pound of excellent Contrayerva [Dorstenia contrajerva] and sprinkle with generous wine for a period of time, then put it in a glass jar made for this [a glass alembic] with 4 pounds of Scorzonera water, keep it in a bain-marie or in hot ash for about twenty-four hours then strain and squeeze it forcefully, and put the liquid from the straining in a tightly closed glass vase and reserve. Again add 3 pounds of Scorzonera water [to the remaining dregs] as above and repeat 3 times, then mix the solutions together, and decant by incline, and add up to 3 pounds of refined sugar to the clear solutions, strain and cook to the consistency of a *Giulebbe* [medicinal syrup], and shelve in a glass jar to preserve it when needed.⁶⁰

⁶⁰ ASF, MM 1, ins. 2, fol. 207r. “Rx: Controyerva ottima libbre 1 si agghiacci secondo l’arte e si asperga di tempo in tempo con vino generoso, doppo si metta in vaso di vetro a ciò proprio e vi si sopra infonda Acqua di Scorzanera libbre 4. Si tenga a Bagno Maria ó vero alle ceneri calde per ore ventiquattro in circa di poi si coli e sprema con forte espressione, e la colatura si metta in vaso di vetro ben’ serrato. Di nuovo si aggiunga Acqua di Scorzanera libbre 3 si faccia come sopra, e così per tre volte, poscia si unischino tutte quelle tinture assieme, e si decantino per inclinattione et al chiaro s’aggiunga Zucchero fino libbre 3. Si coli e cuoci a consistenza di Giulebbe, e si riponga in vaso di vetro serbandolo per i bisogni.”

Another *giulebbe* recipe, this time for a medicinal syrup made from *Cina* (likely *Smilax china*)⁶¹, provides equally detailed instructions:

Rx: Three ounces of excellent *Cina pietrita* broken into small fragments and places in a glass vase made for this [glass alembic], Afterwards pour 10 pounds of common water over it; boil until it is reduced to around 8 pounds, strain with force and place the expressed liquid aside, and pour the common water onto the dregs again. Boil until 1 pound remains; strain again, and combine the expressed liquid with the first one. Pour the same amount of water as above over the dregs, boil again until it is reduced to around 1 pound. Strain and mix the expressed liquid with the others, leave it decanted at an incline in your residence and [add] 3 pounds of sugar to form *Giulebbe* according to the art, flavoring it and lastly flavoring with drops of citrus essences or real anise or real cinnamon or real musk as you like and those who will have to take it.⁶²

⁶¹ The medicinal tax ledger identifies “Cina” as *Cina Gentile* of which there were two kinds. One from Asia, the best coming from China, and the other from New Spain. “Pietrita” is the name of one of the varieties, although the ledger does not reveal which.

⁶² ASF, MM 1, ins. 2, fol. 208r. “Cina ottima pietrita once iii. Sia ridotta in piccoli frammenti e sia messa in vaso di vétro á ciò proprio, dopo vi si soprainfonda Acqua Comune libbre x si bolla alla consumattione di libbre viii in Circa. Si coli con forte espressione e la colatura sia posta aparte, e alle feccie di nuovo si soprainfonda Acqua Comune libbre vi si bolla fino che resti libbra i [1]. si coli di nuovo e la colatura sia unita con la prima e sopra le feccie si soprainfonda l’istessa Dose del’acqua come sopra, di nuovo si bolla a consumazione di libbra i in Circa. Si coli e la colatura sia unita con l’altre, si lasci fare la sua residenza, dipoi si décanti per inclinattione e con libbre iii. Zucchero fino se ne formi. Giulebbe secondo l’arte, aromatizzandolo con d’ultimo con goccie vi essenza di cedrato ó vero di anisi ó vero di Canella ó vero di Musco come più piacera a chi l’ha da operare.”

Unlike the Medici nerve oil and essences of amber, both of these recipes for medicinal syrups go into great detail on procedure. Every step is explained in order to facilitate the production of the medicinal syrups. The emphasis in these recipes is on practical knowledge and know-how, which could have only been acquired through experience.

Just as great attention is paid to process in the collection, many of the other recipes within the collection focus on detailed dosing instructions, as we saw with the nerve oil at the beginning of this chapter. The grand-ducal *fonderia*'s recipe for epilepsy gives the following dosing and administering instructions:

To the children, when the need requires, are given two doses a day, one in the morning and the other in the evening, and these should be mixed with the wetnurse's milk or mixed with baby food [*pappa*] or in a little spoon with a little bit of peony water, as best one can, to fit the disposition of who takes it. After all they [the powders] can be safely given because they are made up of harmless ingredients, which however, are very powerful for lessening the fierceness of this illness, and for preventative therapy it may be given one dose a day or twice or three times a week.⁶³

⁶³ ASF, MM 1, fol. 176. "Ai Bambini, quando il bisogno lo richiede se ne danno due prese il giorno, una la mattina, e l'altra la sera, e queste, o unite con il latte della Balia, o mescolate con le panate, o in un piccolo Cucchiaino con un poca di Acqua di Peonia, come meglio si potrà, per adattarsi alla disposizione di chi la prende. Del resto si possono dare con tutta sicurezza essendo esse composte di cose innocenti, ma che non lasciano di essere molto proprie per mitigare la ferocità di quel male, e nella curá preservativa se ne potrà dare una il giorno, o due volte, o tre la settimana."

The specificity of the epilepsy powder's dosing instructions as well as the assurance that the remedy was safe reveals the grand-ducal pharmacy's extensive experience with the remedy. Whether in the form of step-by-step directions or dosing instructions, practical and empirical knowledge is emphasized throughout the collection.

Despite the emphasis Anna Maria Luisa's collection of recipes placed on empirical knowledge, however, it is impossible to say with any certainty how "hands-on" Anna Maria Luisa actually was in the production of these recipes. Her expenditures during her time living at the villa of La Quiete, however, does indicate that she was producing or overseeing the production of at least some of her alchemical recipes there. An account book of Anna Maria Luisa's expenditures from 1723 (the date of the death of her father) to 1736 (the date of the death of her brother and last Medici grand duke) reveals an interesting pattern of expenses.⁶⁴ From 1723 until 1732 Anna Maria Luisa had zero expenses from the "*fonderia di camera di Sua Altezza Reale*." In other words, she did not order or receive any prepared alchemical concoctions from the official Medici grand-ducal laboratory, or *fonderia*.⁶⁵ During that same period, however, Anna Maria Luisa's account records show that she consistently spent between 206 and 357 *scudi* each year on items from the grand-ducal *spezzieria*. As discussed in Chapter Two, the Medici grand-ducal *fonderia* was dedicated to the production of alchemical medicines and distillation, while the *spezzieria* focused on the production of medicinal herbals, simples, syrups and powders. Anna Maria Luisa expenditures show that she was consistently consuming

⁶⁴ MM 264, F 2, fol. 2.

⁶⁵ Her records do show expenses from the grand-ducal *fonderia* between 1733 and 1736, but these expenses ranging from 4 to 21 *scudi* are minimal when compared to her other expenses, especially her totals for expenses from the grand-ducal *spezzieria*.

medicinal plants, herbs, and simples, from the court *spezzieria* between 1723 and 1732, but if she was not also patronizing the grand-ducal *fonderia*, from where did she produce or procure her more complex chemical or distilled medicines? Given Anna Maria Luisa's expenditures and facilities at La Quiete, we can conclude that like her infant convulsion powder, she was experimenting with and producing medicines at La Quiete.

Like her foremothers, Anna Maria Luisa was interested in, had access, and contributed to pharmaceutical secrets produced at the Medici court. The legacy of Medici women's contributions to pharmacy began with Caterina Sforza, grandmother of the first Medici duke, Cosimo I. Her legendary collection of recipes included secrets for medicines, cosmetics, alchemy, and even spells.⁶⁶ Caterina's secrets were passed down through the generations and were added to and expanded on by her descendants. They became the foundation for the Medici court pharmacy and alchemical laboratory.⁶⁷ Sheila Barker's discovery of a previously unknown volume of a sixteenth-century copy of Caterina's secrets reveals that several of Caterina's recipes entered the pharmacopeia of the Medici court.⁶⁸ Barker's research highlights the contributions of numerous Medici women to the scientific culture and pharmaceutical knowledge of early modern Florence through an analysis of the medical knowledge brought to the Medici court via foreign brides. Foreign-born Medici duchesses and grand duchesses introduced and

⁶⁶ Ray, *Daughters of Alchemy*, 15.

⁶⁷ *Ibid.*

⁶⁸ Barker, "The Contributions of Medici Women to Medicine in Grand Ducal Tuscany and Beyond."

integrated new medicines and ingredients to the Medici court pharmacy and alchemical laboratory by way of recipes and personal physicians.⁶⁹

While the contributions of earlier women to the medicinal and scientific culture of the Medici court have recently been acknowledged by scholars, the very same activities pursued and even expanded upon by later Medici women have been largely ignored. Despite Galluzzi's and contemporary scholars' characterization of Vittoria della Rovere, Anna Maria Luisa's grandmother, as bigoted and uninterested in science, there is plenty of archival evidence to indicate that Vittoria was herself a princess practitioner readily dispensing medical advice to her granddaughter and members of the court, supporting the experimental pursuits of the court's physician, Francesco Redi, and financially supporting the construction of a women's wing in the hospital of Santa Maria Nuovo.⁷⁰ Vittoria also routinely received the most valuable medicine chests – *cassetti di imperiale*—from the grand ducal *fonderia*, which she readily dispatched to family and friends across Italy and Europe.⁷¹ Not only did Anna Maria Luisa inherit the pharmaceutical riches of her forefathers and mothers, her interest in botany and medicine were likely shaped by the medicinal activities of her grandmother. Vittoria oversaw Anna Maria Luisa's education as a child and bequeathed her Villa La Quiete which housed a botanical garden and a pharmacy.⁷²

⁶⁹ Barker, “The Contributions of Medici Women.”

⁷⁰ Benadusi, “The Gender Politics of Vittoria della Rovere.”

⁷¹ Two individuals appear the most frequently in the register for the *fonderia* - Serenissima Duchess (Vittoria Della Rovere) and Cardinal Carlo Medici (Gian Carlo de Medici)

⁷² In 1723, after the death of her father, Cosimo III, Anna Maria Luisa spent most of her time at La Quiete.

In 1694, with the death of her grandmother, Vittoria della Rovere, Anna Maria Luisa inherited Villa la Quiete.⁷³ As an educational institute, the villa had both a pharmacy and a botanical garden.⁷⁴ During Anna Maria Luisa's tenure at La Quiete records show that she greatly expanded the botanical garden and spent substantial sums of money on dishes, cookware, and glassware, as well as "material for fire."⁷⁵ While these domestic items were no doubt necessary to run a household and institute for young girls, they were also essential components for alchemical productions.

In addition to La Quiete having the necessary facilities and resources to produce alchemical recipes, Anna Maria Luisa's correspondence confirms that she experimented with or at least produced her famed infant convulsion powder at La Quiete. In a letter to her friend the Marchioness Dorothea Angelelli Metternich dated 25 November 1727, Anna Maria Luisa, in addressing the effectiveness and preservation of her famous powder for children's convulsion, confirmed that the pharmacy of Villa la Quite had for many years "manufactured and guarded the powder for the children."⁷⁶ While this letter indicates that Anna Maria Luisa's infant

⁷³ At the time, La Quiete was an institute devoted to the education of young women from good families. The Ancille della Santissima Trinità was founded by Vittoria della Rovere's close friend, Eleonora Ramirez de Montalvo (1602 - 1659). When Eleonora died in 1686, Vittoria took over the protection and patronage of the villa and institute.

⁷⁴ Both the garden and pharmacy are extant and can be visited today.

⁷⁵ MM 264, F 2, fol. 2.

⁷⁶ The powder discussed in this letter was Anna Maria Luisa's famed infant convulsion powder discussed in Chapter Two, which was made and widely distributed across Europe. "Il ritardo di questa risposta alla lettera di Vostra Signoria segnata nel 7 del mese caduto, è preceduto dal soggiorno, chi io feci nel solito Ritiro della Quiete, e dall' avere volute dopo il mio ritorno sentire dal Medico, e da altre Persone, ché da molti anni in qua fabbricano, e custodiscono le Polveri per i Bambini."

convulsion powder was produced at La Quiete, account records from the villa reveal that she was likely producing more than one therapeutic.

It was during this same period that Anna Maria Luisa was living almost full-time at La Quiete. In 1723 Anna Maria Luisa's records show zero expenditures for "diverse expenses in the service of her highness Electress for days in the countryside at Quiete." In 1724, her total expenses for the villa "Quiete" was just over 84 scudi. In 1725, however, that number jumped to over 333 scudi. From 1725 to 1736 the total annual expenses associated with the country villa listed simple as "Quiete" remained over 300 scudi.⁷⁷ Thus, we can conclude that between 1725 and 1736 Anna Maria Luisa was living or, at the very least, spending the majority of her time, at La Quiete. This conclusion is supported by her epistolary exchange from that same period as well as records of artistic renovations and frescos commissioned by Anna Maria Luisa for her apartments in the villa in 1726.

Anna Maria Luisa's personal expenditures at La Quiete explains the absence of expenses from the grand-ducal *fonderia* from 1723 – 1732, a period in which her recipe collecting intensified. It confirms that Anna Maria Luisa was not distributing pre-made therapeutics from the Medici pharmacy, but that she was producing her alchemical recipes, not at court, but at her personal estate. As her account books show, Anna Maria Luisa procured the recipe's ingredients – oriental pearls, red and white coral, yellow amber, and peony roots and seeds – from the grand-ducal *spezzieria*. But, the alchemical processes necessary to create the powder were carried out at La Quiete at the behest and under the supervision of the electress.

⁷⁷ MM 264, F 2, fol. 2.

Although there is evidence that many of the recipes Anna Maria Luisa collected were put into practice at her villa, alchemical recipes and recipes collections were valuable beyond their empirical and instructive texts. Early modern interest in recipes was driven by the curiosity and the desire to uncover the marvels of nature. That same desire also drove the early modern impetus to collect and to create cabinets of curiosity.⁷⁸ If collecting objects was a means to obtain knowledge of and investigate nature, so too was the practice of collecting recipes. Paula Findlen's work on sixteenth and seventeenth century collecting has transformed our understanding of what it meant to collect in the early modern world. Findlen argued that rather than an indulgent pastime of frivolous nobility, collecting was "an elite desire to know the past and interrogate nature."⁷⁹ The act of collecting recipes should be interpreted in this light. Recipes were not only texts that directed practice, but also textual objects that processed medicinal and alchemical knowledge. For Anna Maria Luisa all of the recipes she collected were valuable, even if they were not all put into practice.

Like other objects of material culture, recipes did not simply embody culture, they also functioned in the fashioning and refashioning of identities as well as cultural tastes and perceptions. Pamela Smith's article "Why Write a Book" serves as a cautionary tale to the primacy historians give to text, particularly scientific text. In her article, Smith looked at a sixteenth century how-to book similar to the genre of books of secrets analyzed by Eamon. What Smith uncovered, however, was that Michael of Rhodes's book of practical information – ocean charts, sailing graphics, and math calculations – was actually full of unreliable and inaccurate

⁷⁸ Ray, *Daughters of Alchemy*, 49.

⁷⁹ Findlen, *Possessing Nature*, 4.

information. Smith argued that the information conveyed through text was less important than the object of the book. Instead, Smith contended the book was written not to convey accurate information, but as a means of self-fashioning and self-promotion.⁸⁰

Many scholars have described the sixteenth and seventeenth centuries as the “wild west” in terms of medicine.⁸¹ The influx of flora and fauna unknown to the ancients, the increasing importance of empiricism, and the shift away from universities to courts as centers of scientific and medical knowledge production created new opportunities of merchants, virtuosi, princes, and courtiers to participate in the medical and scientific culture of early modern Europe.⁸² It also created new opportunities for noble and elite women.⁸³ Through recipe collecting Anna Maria Luisa amassed significant medical knowledge. She collaborated with professional scholars and medical practitioners (court apothecaries and physicians) and encouraged the creation of medicinal therapies and the dissemination of medical knowledge.

Whether collected as a source of privileged knowledge, put to practical use, or used to fashion a persona of medicinal or scientific authority, recipes carried enormous value in the

⁸⁰ Smith, “Why Write a book?” 25 – 50.

⁸¹ Park, Katharine, and Lorraine Daston. “Introduction: The Age of the New.” Chapter. In *The Cambridge History of Science*, edited by Katharine Park and Lorraine Daston, 3:1–18. The Cambridge History of Science. Cambridge: Cambridge University Press, 2006.

⁸² Bruce Moran, “Courts and Academies,” in *The Cambridge History of Science*, Vol. 3, eds. Katharine Park and Lorraine Daston, Cambridge University Press, 2006.

⁸³ Alisha Rankin has used the case studies of three German noblewomen to demonstrate the central role of women’s healing in early modern court culture. She has also shown that women’s participation in medicine extended beyond the domestic sphere and the therapeutics they created were often complex rather than simple. “Duchess, Heal Thyself: Elisabeth of Rochlitz and the Patient’s Perspective in Early Modern Germany,” in *The Bulletin of the History of Medicine*.

marketplace and culture of early modern Europe. This value, however, was not simply monetary. As we will see in the next chapter, Anna Maria Luisa, like her father, used her collection of recipes to fashion herself as a medical authority, create and cement social bonds, and maneuver politically.

Chapter Six

Turning medical knowledge and authority into social and political capital

In the early modern world, recipes played a role in the display of wealth, the accumulation of knowledge, and the emergence of a global market. Thus, as objects, recipes had value in early modern society beyond their monetary worth or the knowledge conveyed in their texts.¹ Most recipes, however, with their lists of obscure ingredients and piecemeal information, offer little context for understanding how they were used and who used them. When scholarship does consider the practices surrounding the exchange of recipes, it does so to authenticate or contextualize a particular recipe. Thus, scholarship on recipes has only dealt in passing with recipes as a powerful means of social, political, and economic exchange. Instead, I argue that through the circulation and dissemination of prescriptive instructions accompanying a gifted therapeutic or of texts containing alchemical secrets, Anna Maria Luisa established personal and

¹ For recent works on the commercial, social, and cultural importance of “things” or objects see: Arjun Appadurai, *The Social Life of Things: Commodities in Cultural Perspective*, Cambridge University Press, 1988; Harold John Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*, Yale University Press, 2007; Pamela H. Smith, Paula Findlen eds., *Merchants and Marvels*, Psychology Press, 2002; Pamela Smith, “Why write a book? From Lived experience to the Written Word in Early Modern Europe,” *Bulletin of the German Historical Institute*, 47 (Fall 2010): 25-50; and Marcy Norton, *Sacred Gifts, Profane Pleasures: A History of Tobacco and Chocolate in the Atlantic World*, Cornell University Press, 2008.

public bonds, showed her medical knowledge about women and children, and proved her medical authority.

As shown in Chapter Four, Cosimo III and Anna Maria Luisa secured rare plant and animal products by establishing a rich network of merchants and religious patronage across North America, Africa, and South East Asia. In the process they promoted medical and scientific knowledge transfer between Europe and the expanding colonial world. This chapter explores how Anna Maria Luisa expanded the promotion of that medical and scientific knowledge by establishing a rich network of family and friends as well as the European royalty. By circulating and exchanging recipes through gift giving Anna Maria Luisa also built her legitimacy as a medical authority.² As discussed in Chapter Four, with the recipes she collected, Anna Maria Luisa amassed valuable empirical medical knowledge which extended from the therapeutic properties of medicinal plants, to complex alchemical processes, to the virtues and uses of exotic *naturalia*. By distributing her prized remedies and circulating her knowledge, Anna Maria Luisa not only created interpersonal relationships, she also built political alliances with European courts and aristocratic families and maneuvered around Tuscan and continental diplomacy.

In addition to sending medicinal recipes, Anna Maria Luisa also received recipes, therapeutics, and ingredients through her epistolary networks. Sending and receiving valuable therapeutics through epistolary networks not only expanded Anna Maria Luisa's political and

² Paula Findlen's book, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*, has called attention to the fact that our definitions of science and medicine are anachronistic when discussing how early modern society studied the material world. She differentiates the modern notion of scientist from the term "natural philosopher," and contends many would have conceived themselves as "natural philosophers," who were qualified in medicine, natural history, and natural philosophy, all of which were connected with the discipline of *scientia*.

social influence, it also created the need for reciprocity. Friends, friends of friends, and courts that received a medicinal gift from Anna Maria Luisa were indebted and expected to return the favor.³ This debt could be paid in political loyalty, personal affection, or with a medicinal ingredient or recipe. And, just as others were indebted to Anna Maria Luisa, she was also obligated to return the favor for recipes and natural objects she was gifted.

The political dynamics and stately quadrille of the eighteenth century would have been daunting for anyone to navigate, but especially for a woman in Anna Maria Luisa's political and social position.⁴ Although after her return to Florence in 1717, she had performed a significant political role at court, by 1727, following her father's death, she had little to offer in the dynastic politics of early modern Europe. She was a childless widow and, in spite of her father's efforts, "the great powers of Europe" would have never allowed her to succeed her brother Gian Gastone as ruler of the Tuscan Grand Duchy.⁵ Yet despite this, Anna Maria Luisa managed to negotiate influence and remain relevant in the broader European context even as the last Medici with no

³ Marcel Mauss, *The Gift: Form and Reason for Exchange in Archaic Societies*, trans. W. D. Halls, intro. Mary Douglas, 1990.

⁴ For more on Tuscany its political situation in the eighteenth-century, see: Eric Cochrane, *Florence in the Forgotten Centuries, 1527-1800: A History of Florence and the Florentines in the Age of the Grand Dukes*, University of Chicago Press, 1973 and 2013; and Harold Acton, *The Last Medici*, Faber & Faber, 1932. For general information of the principle courts and their politics and culture before the French Revolution see: John Adamson, *The Princely Courts of Europe: Ritual, Politics and Culture Under the Ancien Régime, 1500-1750*, Seven Dials, 2000.

⁵ Marcello Verga, "Between Dynastic Strategies and Civic Myth: Anna Maria Luisa de' Medici and Florence as the New Athens," in *Medici Women*, 352, FN 14. Verga notes that "To gain an idea of the centrality acquired by the electress palatine in the public life of the Medici court, one can peruse the list of the electress' correspondents for the years 1717-1720," located in ASF, MdP 6323-6326.

formal power to speak by turning her recipes and medical knowledge into social and political capital.

This dissemination of secrets and recipes through ritualized gift giving makes recipes and therapeutic instructions important components of the medical marketplace.⁶ Recipes and therapeutics were social capital for noblewomen like Anna Maria Luisa. They were commodities that flowed between people and the authority and reliability of each was affected by the circumstances of that movement. The credibility of a medical recipe or therapeutic was tied to the trustworthiness of the relationship on which it was exchanged and the experience of the donor.⁷ The inclusion of the Medici crest and attribution to the Medici palace pharmacy was a way in which Anna Maria Luisa could increase the value of her recipes. Additionally, many of her recipes went into great detail on usage and effects of the therapeutic in order to demonstrate her experience and expertise. Increasing her social capital via the dissemination of personal and familial recipes through epistolary networks legitimized Anna Maria Luisa's status as a princess practitioner of medicine whose expertise travelled beyond a private or domestic setting to participate in the mixed medical economy of early modern Europe.

⁶ Mark Jenner and Patrick Wallis have expanded on the idea of a “diverse, plural and commercial pre-professional system of health care.” Coined the “Medical Marketplace,” this scholarship emphasizes medicine as a service, purchased in a competitive market. While this model of a marketplace has recognized the important role played by paid practitioners such as apothecaries, barber surgeons, and healers, it has also underestimated the lay medical practices of women, arguing that women's recipes and therapeutics operated in an informal setting and were often exchanged at a social rather than economic level. Mark S. R. Jenner and Patrick Wallis, *Medicine and the Market in England and Its Colonies, fol. 1450-1850*, New York: Palgrave MacMillan, 2007.

⁷ For more on the relationship between trust in trade in the Early modern market, see Francesca Trivellato, *The Familiarity of Strangers: The Sephardic Diaspora, Livorno, and Cross-Cultural Trade in the Early Modern Period*, Yale University Press, 2012.

Anna Maria Luisa's correspondence reveal a network of noblewomen with whom she shared valuable medicinal knowledge and therapeutics creating. In one of these letters,⁸ Anna Maria Luisa instructed the Countess Palatine Elisabeth Auguste Sofie of Neuburg, Princesses of Sultzbach, on how to use the essences she had sent:

The essences that the serene Palatine Electress has sent to the serene princesses of Sultzbach, are of two kinds and both healthy; some are citruses of citron, namely from Bergamotto, oranges from Portugal and the other Herbs. That [essences] of citruses and that of orange flowers serve to give the scent to sweet waters to drink to "*Rosolio*," to the water from Bartades and similar, also for the cakes that are made by the Sweet Maker [*Credenziere*]. They serve also for mixing a few drop[s] in the water to wash the hands, for sprinkling the rooms, to give scent to handkerchiefs, and to any other things, that one wants. In addition [they serve] to perfume the powders which are used for hair.

The herbal essences, which ordinarily are not used in foods or in drinks, even if they are not harmful to the health, are used to scent Linens, mixing some drops in water and for sprinkling the rooms and also for perfuming Potpourris, held in Porcelain vases, to perfume the room, and in this should be put a few drops of pure essences, without mixing with the water.

The essences being of oily quality, do not need to be mixed immediately with the water, however when some drops are used, it is best to beat them heavily with a Spoon so that the essences can mix better with water. It is cautioned, that only a

⁸ ASF, MM 1, ins. 2, fol. 168r, undated letter.

few drops of the essences containing the refined Spirit of the citrus, of the Flower, and the Herb are necessary to give sent to a good amount of water or as use will dictate.⁹

In her letter, Anna Maria Luisa is clear about both what she is sending, and about its use. While the use of essences can be quite broad, the electress's letter is made to appear rather precise: you need only a few drops, you must stir vigorously, you should apply it to linens, hair powders, potpourris kept in vases, etc. She also carefully positions her oils as both very powerful and not alarming, a perfect gift of refined aromatherapy with applications that were both environmental and suited for domestic spaces, and were personal or cosmetic.

Elisabeth Auguste Sofie of Neuburg was the daughter of her brother in-law, Charles III Philip, Elector Palatine. Following the early death of his first wife, Anna Maria Luisa had assumed a maternal role with Elisabeth, who was the only surviving member of the Palatinate-Neuburg family. During the ten years between 1717 when Elisabeth married the Count Palatine

⁹ ASF, MM 1, ins. 2, fol. 168 recto and verso. “L’Essenze che la serenissima Elettrice Palatina ha mandato alle serene Principesse di Sultzbach, sono di due specie e tutte sane; Ve ne sono di agrumi, cioè di Cedrato, di Bergamotto, di Arance di Portogallo e le altri di Erbe. Quello di Agrumi, e quello di Fiori d’Arancio servono per dar l’Odore alle Acque dolci da bere, al Rosolio, all’Acqua di Bartádes e simili, parimente per i Dolci che si fanno dal Credenziera. servono ancora per mescolarne qualche Gocciola nell’Acqua per lavarsi le mani, per annaffiare le camere per dar’ odore ai Fazzoletti, e a tutt’altro [tutto altro], che si voglia inoltre a dar’ odore alle Polvere, che serve per i capelli. L’Essenze d’Erbe, che qui ordinariamente no si pratica impiegare nelle cose che si mangiano o nella bevande benché non pregiudichino alla salute, servono per dare odore alla Biancheria, mescolandone qualche gocciola ... nell’Acqua, e per annaffiare le stanze e anche per dare odore al Potpourris, che si tiene ne i vasi di Porcellana, per odorare le camere, e in questo vi se ne mettano alcune gocciole d’Essenza schietta, senza mescolare coll’Acqua. L’Essenze essendo di qualità oleaginosa, non si mescolano subito coll’Acqua, però quando vi sono messe alcune gocciole, conviene di batterle molto con un Cucchiaino acciò l’Essenza possa unirsi meglio coll’Acqua. Si avvertisce, che l’essenze contenendo lo Spirito raffinato dell’Agrume, del Fiore, e dell’Erba da cui sono estratte, poche gocciole di esse servono per dare odore a buona quantità di Acqua, o l’Uso ne potrà dare la regola.”

Joseph Charles of Sultzbach and 1728, the year of her death, Anna Maria Luisa became an indefatigable caretaker of the health of Elisabeth and her children, as the letter shows.¹⁰ The health and survival of Elisabeth Auguste Sofie and her children, the only heirs to the Palatine line, became part of Anna Maria Luisa's political strategy.

The therapeutic advice that she offered the princesses of Sultzbach were not unique. In her correspondence and through her recipes Anna Maria Luisa positioned herself as a broker of medicinal knowledge for the women of the European aristocracy.

Even more than for her essences, however, Anna Maria Luisa was known in circles of correspondence for her the infant convulsion powder that was produced at Villa la Quiete, and which became her most precious commodity for saving the lives of the children of the European nobility. By distributing and circulating her powders, Anna Maria Luisa created political alliances and interpersonal relationships with important elite families across Europe, relationships she could call upon as she carried out the difficult tasks of managing the complex transfer of power to the Lorraine dynasty and ensuring her personal legacy.

Anna Maria Luisa not only sent this powder directly to friends and family, like the Baroness Massimiliana von Moltke of Vienna and the Marchioness Dorothea Angelelli Metternich, but she also authorized them to distribute it to other noble family in Bologna, France, and England. On 29 July 1727, Anna Maria Luisa sent a letter along with some of her renowned infant convulsion powder, or *Infantiglioli* powder as it was known, to her friend, the

¹⁰ The majority of Anna Maria Luisa's correspondence from this period is held in ASF, MdP 6322 – 6344 in addition to 6309 – 6311 and 6313.

Marchioness Dorothea von Metternich Angelelli, who lived at the French court in Paris, and who had requested the powder on behalf of her lady, the Princess of Carignano.

I saw with satisfaction in the letter of your lady dated the 22nd of this month, that she had new reason to write asking me for the renowned *Infantiglioli* powders. I immediately had a packet sent with the last mail and I will continue to send them [the powders] with future mail orders to secure a good provision, and you can be certain that they will be among the freshest, and perfect [powders] that are made here. It is enough to know, to be sure, that they are intended for the lady [the] Princess of Carignano and that she is the one that employed your favor to find them.¹¹

Not much is known about Maria Dorothea Wilhelmina von Metternich who, in 1697, had married the Marquise Pietro Angelelli, from an ancient family of Bologna. From the 1727 letter as well as the assiduous and affectionate correspondence with the electress for more than two decades between 1727 and 1739, however, it is clear that they were friends.¹² They must have met in Dusseldorf at the court of Anna Maria Luisa' husband the Palatine elector, where the marquise numbered among the high-ranking diplomats and was a member of Johann Wilhelm's

¹¹ ASF, MdP 6332, fols. 190 r&v. "Veddi con sodisfazione nella lettera di V[ostra] S[ignora] segnata nei 22 del mese corrente, che ella avéva avuto nuovo motivo di scrivérmi per chiedermi lé consapute polveri d'Infantiglioli. Ne feci subito spedire un pachetto colla Posta passata, e continuerò a mandarne con gli ordinari venturi per farne giungere una buona provvisione, e può ella essere certa, che saranno delle più fresche, e perfette, che possino qui farsi. Basta il sapere, per usare in ciò ogni diligenza, che devono servire per la Sig[no]ra Principessa di Carignano, e che la medesima ha impiegato il di[]lei mezzo per ricercarle."

¹² Records of payments to Sardi & Co., ASF, MM 641; letters between Anna Maria Luisa and Dorothea, ASF, MDP 6322 – 6344 and 6309 – 6312.

knightly order of Saint Hubertus.¹³ Proximity to the French court and familiarity with the Italian nobility, as well as her Austrian background positioned Dorothea as a valuable collaborator to Anna Maria Luisa by providing access to the European royalty. In fact, financial records indicate that Dorothea was an important distributor of Anna Maria Luisa's famed infant convulsion powder and for her services she received regular payments from Anna Maria Luisa through her banker, Sardi & Co. in Amsterdam.¹⁴ The correspondence between Anna Maria Luisa and Dorothea, reveals not only a close friendship but also a network of important noblewomen and families through which Anna Maria Luisa distributed her medicinal knowledge and therapeutic gifts. The epistolary exchange between the Medici princess and the Viennese marchioness Metternich reveals the participation of noblewomen in healthcare and healing and presents them as both distributors and consumers of medical recipes and remedies. It also suggests the ways in which recipes and medicinal remedies functioned politically within the economy of eighteenth-century courtly exchange and gift giving.

In the 1727 letter, Anna Maria Luisa conveyed Dorothea her appreciation for circulating her precious powders. She insisted that the "freshest and most perfect" powders were intended for the princess of Carignano but, in a roundabout way, she implied that the Queen of France should have also received the powders for her soon to be born son, the Dauphin, as well as the English court. By distributing her miraculous powder to prominent European noblewomen, Anna

¹³ Daniel Fulco, *Exuberant Apotheoses: Italian Frescoes in the Holy Roman Empire: Visual Culture and Princely Power in the Age of Enlightenment*, Brill's Studies on Art, Art History, and Intellectual History, BRILL, 2016, 240 FN 165.

¹⁴ These financial receipts come from Anna Maria Luisa's account records "*entrata e uscita camera di SAE*." These records can be found scattered through the ASF's *Miscellaneous Medicea* (MM) *fondo*, but particularly in MM 637 – 639, 641 – 642, 647 – 648, and 652.

Maria Luisa circulated precious medical knowledge, shaped her medical fame, and positioned herself as an international broker of child welfare. The gifts that were bestowed upon the children of the European nobility, however, were made in the spirit of reciprocity.¹⁵ In fact, Anna Maria Luisa wrote, in exchange for the powders, she wished to receive “respect and admiration” as well as to be informed of “any news” that the marchioness could give her about the “others,” possibly referring to other noblewomen, as well as about the princess of Carignano.¹⁶ What kind of “news” did Anna Maria Luisa wish to receive and why?

Anna Maria Luisa’s desire to establish valuable connections was satisfied a few months later, on 3 October 1727, when the princess of Carignano wrote personally to Anna Maria Luisa expressing her gratitude as well as her esteem and friendship for the new supply of powders she had received.¹⁷ Seizing the opportunity, Anna Maria Luisa responded to the princess of Carignano, affecting the kind of respect due to one’s own social superior. She was “troubled” Anna Maria Luisa wrote, “to have done so little” and assured the princess to be of service in “more important occasions.”¹⁸ Something was at stake than just the precious powders. In fact, the princess of Carignano was Maria Vittoria of Savoy (1690-1766). Maria and her husband, Prince Victor Amadeus I, were well connected in Paris. Prince Victor acted as a master of ceremonies at the

¹⁵ On gifts as commodities and on the reciprocity of gifts see M. Mauss, *The Gift*; Appadurai, “Introduction,” in *The Social Life of Things: Commodities in Cultural Perspective*, Appadurai, ed. Cambridge, 1986, 3-63; Kopytoff, “The cultural biography of things: commoditization as process,” in *The Social Life of Things*, 64-9.

¹⁶ ASF, MdP 6332, ins. 2, letter dated September 30, 1727.

¹⁷ ASF, MdP 6332, ins. 2, letter dated September 30, 1727.

¹⁸ ASF, MdP 6332, ins. 2, letter dated October 3, 1727. “Je suis fachée, madame, d’avoir fait jusque à présent si peu de chose pour votre service. Si vous voulez bien m’en fournir à l’avenir des occasions plus considérables.”

French court of Louis XV and Maria enjoyed a close relationship with Cardinal Fluery, the chief minister to Louis XV, as well as Louis Henri, Duke of Bourbon, who served as prime minister to the French king.¹⁹ Through the princess of Carignano Anna Maria Luisa had a connection to Cardinal Fluery, a man who could hold the key to retaining Tuscan independence or, at the very least, would be highly influential on the matter of Tuscan succession.²⁰

The issue of Tuscan succession had gone unresolved after the death of Anna Maria Luisa's father in 1723. The chief political goal of Cosimo III, Gian Gastone, and Anna Maria Luisa was to keep Tuscany out of the hands of the Spanish and ensure Tuscan independence.²¹ The Quadruple Alliance established in 1718, which included Britain, France, Austria (then a state of the Holy Roman Empire), and the Dutch Republic, sought to curb Spain's territorial ambitions in Italy. Philip V of Spain along with his wife, Elisabeth Farnese, wanted to reclaim territories in Italy lost to the Habsburgs. The Alliance decided that Phillip and Elisabeth's first born would succeed the Medici in Florence, however, Tuscany would be an imperial fief to Austria, rendering the new ruler an Imperial vassal.²² Unhappy with Tuscany's feudal status, Cosimo III and his ministers pitted Spain and Austria against one another to buy time.²³ Playing Spain and Austria off one another worked until the signing of the Treaty of Vienna in 1725. Spain and Austria put aside their previous alliances and signed the treaty which formally

¹⁹ Clarissa Campbell Orr, *Queenship in Europe 1660-1815: The Role of the Consort*, Cambridge University Press, 2004.

²⁰ Jeremy Black, *The Rise of European Powers, 1679 – 1793*, Edward Arnold, 1990, 101 – 103.

²¹ Acton, *The Last Medici*, 282-285.

²² Ibid., 268.

²³ Ibid.

stipulated that the Austrian Empire would recover Alsace, Franch-Comté, Lorraine, and the Netherlands, while Spain retook Roussillon, Cerdagne, Brittany, and Lower Navarre. Additionally, Austria promised to assist Spain in reacquiring Gibraltar from the British Empire. The treaty also affirmed that Don Carlos, Phillip's son, would be guaranteed the eventual succession of Tuscany. Naturally, the loss of French and British territories angered France and Great Britain and Anna Maria Luisa was unhappy with the idea of Spanish succession in Tuscany. In this light, we can see the distribution of Anna Maria Luisa's famed *Infantiglioli* powder as a political tactic to ingratiate herself with the two courts who were also unhappy with the treaty and who could work to undermine it.

By 1725, diplomatic relations between France and Spain were broken, leaving the matter of Tuscan succession tenuous at best.²⁴ Despite this, it was decided that the under-aged Don Carlos would relocate to the Tuscan court and remain under the guardianship of Gian Gastone. The Florentines and Gian Gastone seemed to make peace with the presence of Spain in Tuscany just as the young duke made his way in to Florence in March of 1732.²⁵ The fragile peace in Europe and resolution of Tuscan succession was shattered once more, however, with the death of the Polish King in 1733. Alliances, agendas, and territorial claims shifted again with the outbreak and resolution of the War of Polish Succession (1733-1735). For a brief interim France and Spain created an alliance to check the power of Austria. Under Fluery's guidance, however, France soon broke from the alliance and struck a deal with Austria. Don Carlos would now get the two Sicilies, while France would receive the Duchy of Lorraine. To compensate for the loss

²⁴ Acton, *The Last Medici*, 283.

²⁵ *Ibid.*, 296-297.

of territory, the former Duke of Lorraine would receive the Grand Duchy of Tuscany. The Duke of Lorraine, however, was none other than Francis of Lorraine, the would-be husband of Maria Teresa, the would-be Holy Roman Empress.²⁶ Thus, by the mid-1730s it was clear that Tuscany was destined to become a dominion of the Holy Roman Empire.

Just as political alliances shifted, so too did Anna Maria Luisa's medicinal strategy. As it became increasingly clear that Tuscan succession would be decided by the French and Austrian powers, Anna Maria Luisa sought a new distributor of her famed *Infantiglioli* powder, someone strategically located at the Austrian court in Vienna. In June 1734, Anna Maria Luisa wrote the Baronessa Massimiliana di Moltke:

The other day returning from my usual retreat in the countryside, I had the great pleasure of receiving the sought-after good news, of your little daughter, and of your admirable consort, whom I hope, and wish, that you will see in a short time in your letter from the first of the last month, that was conceived with the most loving, and finest expressions for me ... It is very dear to me, that our powders, which are given to the little children, have brought health and have been beneficial in that country, as it happens elsewhere. And so that you may distribute them to the ladies who asked for them, I will be ready send you a package of the powders every time you let me know that you need them.²⁷

²⁶ Acton, *The Last Medici*, 300 –301.

²⁷ ASF, MdP 6339, fols. 127 – 128. Letter dated June 26, 1734. “L'altro giorno al mio ritorno dal solito mio ritiro alla campagna ebbi il piacere sensibile di ricevere nella lettera di Vostra Signora in data del primo del mese caduto, e concepita colle piu amorevoli, e fine espressioni verso di me le buone desiderate nuove di lei, della sua piccola Figlia, e del suo degno Consorte che spero, e bramo, ch' ella rivedrà in breve tempo in perfetta salute con un' aumento sempre maggiore della sua gloria, e delle di lui benemerenze con codesta Imperial Corte... Ho

In the same way she had invited Dorothea to distribute her *Infantiglioli* powder to other ladies in need, Anna Maria Luisa also encouraged Baroness Massimiliana to share the powder with ladies in need within the court and her social circle in Vienna and promised her additional powders.

The powders were as well received at the Viennese court as they had been at the French court. In July of 1735, Massimiliana wrote Anna Maria Luisa to request more portions of the powders given the extraordinary effects they had on three children from the “most important families of Vienna.”²⁸ In exchange for her gifts, Anna Maria Luisa received, according to Baroness Moltke, the eternal gratitude of the three most prominent families of Vienna that from now on, would always remember “*Vostra Altezza Elettorale e Serenissima*” for her generosity.²⁹

As was the case of the Dorothea, the Baroness Massimiliana also became a distributor of the Medici princess’s famed powder. In August of 1736, Anna Maria Luisa wrote the baroness and informed her that she would send her as much of the powder as she desired so that she could distribute it to her friends, considering that she had “put the powder to such good use.”³⁰

bene caro, che le nostre polveri, che si danno ai piccoli Fanciulli sieno riuscite salubri, e profittevoli in codesto Paese, come succede altrove, e perché ella possa servirne le Dame che ne domandorno le fo accludere volentieri una porzione delle medissime e saró pronta di mandarle delle reclute tutte le volte, che ella mi faccia sapere di averne qualche bisogno.”

²⁸ ASF, MdP 6341, fol. 126r, “... a Vostra Altezza Elettorale e Serenissima le mie infinite grazie delle polveri miracolose mandate mi l’anno passato. queste veramente anno fatto effetti cosí straordinari che tra gli altri tre fanciulli delle prime case di questo paese ...”

²⁹ ASF, MdP 6341, fols. 126 r&v.

³⁰ ASF, MdP 6341, fols. 125 r&v. “Le accludo volentieri alcune poche reclute delle nostre polveri per i piccoli fanciulli, e sono pronta di mandarne ad ogni sua Richiesta quella maggior porzione, che bisognasse, vedendo, ch’ ella ne fá un’ si buon’ uso, e che hanno avuta la sorte di operare con profitto.”

Thanks to the gift of medicinal powders Anna Maria Luisa had successfully ingratiated herself with some of Vienna's most important and powerful families. By the eighteenth century, the Viennese court was of particular importance as it was both the headquarters of the Habsburg dynasty and the center of imperial politics.³¹ With the death of her brother, Gian Gastone, in 1737, Tuscany officially became a satellite state of the Habsburgs. Francis of Lorraine, the now husband and future Holy Roman Emperor and founder of the Habsburg-Lorraine dynasty, became the Tuscan Grand Duke and ruled Florence from the imperial court in Vienna – a court and nobility that was much indebted to Anna Maria Luisa and her *Infantiglioli* powder.

In order to fully appreciate Anna Maria Luisa's medical knowledge on infant convulsions and her socio-political strategies surrounding that knowledge, it is important to understand the early modern cultural constructs surrounding epilepsy and convulsions. While recent scholarship on recipes has highlighted the importance of early modern noblewomen's healing activities, it tends to divorce recipes and remedies from the social and cultural constructs of the diseases they were intended to treat. Although remedies and recipes to counter or cure epilepsy, infant convulsions, or "falling sickness," were common, the social understandings and significances of this disease, or diseases, are rarely investigated.³² This social context is particularly important in the case of childhood "epilepsy" as the understanding of it was by no means static in pre-modern

³¹ C. Campbell Orr, "Dynasticism and the World of the Court," in *A Companion to Eighteenth-Century Europe*, ed. Peter H. Wilson, Blackwell Publishing Ltd, 2009.

³² Owsei Tempkin's *The Falling Sickness*, which traces the history of epilepsy in Western civilization, is one of only a few examples that trace the history of a disease from a more socio-cultural perspective, and it is the only comprehensive history of epilepsy. Owsei Tempkin, *The Falling Sickness: A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology*, Johns Hopkins University Institute of the History of Medicine, first published 1945, republished JHU Press, 1994.

Europe. For example, it is significant that by the eighteenth-century infant convulsions were viewed as distinct from epilepsy.³³ Ancient medical authorities believed epilepsy was caused by afflictions of the brain, which could occur directly in the brain or sympathetically. Early modern physicians retained this understanding and, like their ancient counterparts, also believed that epilepsy, which was commonly brought on by fever, occurred most often in children. While adult epilepsy retained an air of incurability, childhood epilepsy, on the other hand, was typically perceived to be malady with more hope of a cure.³⁴

We can see this important distinction between the curable infant convulsions and the disease of epilepsy in Anna Maria Luisa's recipes. Her collection contains two recipes for the treatment of epilepsy or convulsions. The first, from the Medici grand-ducal *fonderia*, mentions epilepsy by name in its title, "Instructions for Use for Infants and for Adults, the Powders of his Majesty's *Fonderia* to counter Epilepsy."³⁵ As the title states, this grand-ducal remedy could be used for both children and adults:

... this dose must increase in proportion for age, when you want to use for one fully-grown person agrees to determine at least one *denaro* each time.

To the children, when the need requires, are given two doses a day, one in the morning and the other in the evening, and these should be mixed with the wetnurse's milk or mixed with baby food [*pappa*] or in a little spoon with a little

³³ Thomas Willis's treatise on epilepsy is included in a publication titled: *A Full View of All the Diseases Incident to Children*, printed in London 1742, 129–147.

³⁴ Harris, *A Full View of All the Diseases Incident to Children*, 129–147.

³⁵ ASF, MM 1, Ins. 2, Carta 176r. "Istruzione del modo di usare per I Fanciulli Lattanti, e per gl'Adulti la Polvere di Fonderia di S. A. Reale contro L'Epilessia."

Precipitation of white coral	2 ounces
Granules of Carabe [Arab name for yellow Amber]	1 ounce
Peony root	1 ounce
Peony seeds, shelled and washed	1 ounce

Pulverize everything, and pass through a fine sieve, and when mixed well, take 5 grains of this powder.³⁷

The more descriptive nature of this recipe makes sense, as this was the personal and prized *Infantiglioli* powder that Anna Maria Luisa had made at and distributed from her personal pharmacy at Villa la Quiete. This recipe was not intended to treat children with a heredity disease, but to cure infants of life-threatening convulsions, which had the potential to turn into a chronic disease or affliction.

Anna Maria Luisa's recipe for curing these convulsions draws on several strands of what was, by the early seventeenth century, considered traditional medicine. Her use of peony, for instance, harkened back to the pharmaceutical tradition established by such ancient authorities as Hippocrates and Pliny the Elder. Since Hippocrates had first advocated their use, peonies had been the principle drug in the treatment of epilepsy.³⁸ But by the sixteenth century the writings of

³⁷ ASF, MM 1, Ins. 2, fol. 177r. “Ricetta per fare la Polvere da Infantiglioli contro il Male Caduco, o sia mitrito. Sale, o Magistero di Cranio umano di Uomo morto violentemente, e che non sia stato sepolto oncia iii; Sale, o Magistero di Perle Orientali ii; Magistero di Coralli rossi oncia ii; Magistero di Coralli bianchi oncia ii; Sale di Carabe once i; Radice di Peonia once i; Semi di Peonia mondati dal suo guscio once I[.] Il tutto si polverizzi, e si passi per staccio fine, e si unisca bene insieme, e di d[ett]a Polvere se ne dà Grani cinque per presa.”

³⁸ Owsei Tempkin, *The Falling Sickness: A History of Epilepsy from the Greeks to the Beginning of Modern Neurology*, Baltimore: Johns Hopkins Press, second edition, 1971, 25.

Paracelsus and the work of other early modern Iatrochemists were also advocating the use of chemical remedies like preparations of gold and coral for the treatment of the disease. Paracelsus himself prescribed mistletoe, blood from a decapitated man, and pieces of human skull to treat epilepsy.³⁹

By the beginning of the seventeenth century it was commonplace to combine traditional therapeutics alongside new chemical techniques. For instance, an eighteenth-century English physician named Thomas Willis published a treatise on epilepsy in a book of childhood diseases, in which he, like the ancients, prescribed peonies for the treatment of the disease, but also, like his contemporaries, prescribed preparations of human skull, mistletoe, amber, and coral. The similarity in Willis's prescription and Anna Maria Luisa's recipe is striking. All but one of the Medici princess's ingredients—oriental pearls—were also advocated in Willis's treatise. While Anna Maria Luisa did not use all of the materials espoused by Willis, her ingredients were a careful cross section of materials from both traditional and contemporary medical authorities. When compared to contemporary treatises on infant convulsions or epilepsy, it is clear that Anna Maria Luisa's recipe included traditional Galenic therapies, like peonies, alongside more current chemical techniques, such as the precipitation reaction used to prepare the human skull and coral.

As we can see in her correspondences, Anna Maria Luisa regularly sent fresh portions of her *Infantiglioli* powder to Dorothea Metternich in Bologna. In January of 1729 (1728 in the Florentine calendar), just five months after her previous shipment, Anna Maria Luisa sent another batch of *Infantiglioli* powder to Dorothea for the Princess of Carignano. In the accompanying letter Anna Maria Luisa explained:

³⁹ Tempkin, *The Falling Sickness*, 176.

In the winter the illness and the convulsions have a longer period and demand diligent attention, and greater caution, and I do not doubt, that she [the princess of Carignano] will use every diligence for his [the child] quickest restoration ...⁴⁰

The Princess's request for more *Infantiglioli* powder was a testament to her trust in Anna Maria Luisa as a medicinal authority and knowledge of infant fevers and convulsions.

The distinction between infant convulsions caused by fever and the disease of epilepsy was an important one for Anna Maria Luisa. It would have been socially and politically unwise for Anna Maria Luisa to market herself as an authority on and prescribe remedies for an incurable disease. Infant convulsions brought on by high fever, however, were a different story. Although dangerous and quite deadly, infant fevers and convulsions were treatable, and Anna Maria Luisa had the medical knowledge to do so. The origin of Anna Maria Luisa's infant convulsion powder is unclear. It might have been handed down by her grandmother, Vittoria della Rovere or gifted to her from another noblewoman.⁴¹ The formula does have much in common with contemporary recipes for convulsions, so it is also unclear just how propriety it

⁴⁰ ASF, MdP 6333, letter dated January 20, 1727 (1728). "Nell'Iverno le indispensazioni, e le convalescenze hanno un piú lungo periodo, e esigono un riguardo, e una cautela maggiore, e non dubito punto, che ella userá ogni dilegeinza per il di lui piu pronto ristabilimento, e averá anche Saputo quello della salute di Madama di Schellardt sua sorella, che é stata pure tanto incomodata dale febbri, che hanno generalmente regnato a Düsseldorf."

⁴¹ Sheila Barker, "The Contributions of Medici Women to Medicine in Grand Ducal Tuscany and Beyond." in *The Medici and Their Archive. Power and Representation in Early Modern Tuscany*, ed. Alessio Assonitis and Brian Sandberg (Turhnout: Harvey Miller/Brepols, 2016), 101-116.

actually was.⁴² That said, however, the tried and true nature of the recipe and its ingredients worked in Anna Maria Luisa's favor. Just as it was unwise to fashion herself an authority on an incurable disease, it would have been equally unwise to bet her medical authority and socio-political position on an unfamiliar recipe with unknown consequences. Clearly, Anna Maria had enough experience and belief in the effectiveness of the powder to send it to important individuals within as well as outside her social and political network.

Anna Maria Luisa distributed her convulsion powder with confidence. Clearly, she had a great deal of experience with the powder and believed in its efficacy. There is both historical and contemporary evidence that Anna Maria Luisa's infant convulsion powder actually worked. While early modern recipes and drugs do not need to be deemed efficacious by contemporary scientific standards to warrant study, the effectiveness of this particular recipe highlights Anna Maria Luisa's empirical medical knowledge and her effective socio-political use of that knowledge. The efficacious nature of the powder is evident in the number of requests for it that Anna Maria Luisa received. By the mid 1730s word of Anna Maria Luisa's infant convulsion powder had spread. In July of 1734 Anna Maria Luisa received a request for powder from Marchessa Lucrezia Bentivoglie Rodinelli in Ferrera for her young son.⁴³ In April of 1739, Anna Maria Luisa received a new request from Dorothea Angelelli Metternich. This time for a

⁴² Peony or peony root was widely used for "falling sickness" (epilepsy) in English household recipe books. For examples see the recipe for falling sickness in *The Queens closet opened incomparable secrets in physick, chyrurgery, preserving, and candying &c. which were presented unto the queen / by the most experienced persons of the times, many whereof were had in esteem when she pleased to descend to private recreations*, W. M., London: Printed for Nath. Brooke, 1659. Willis also recommends the use of Peony.

⁴³ ASF, MdP 6339, fol. 157r. Undated Letter. "Riconosco per un atto di somma clemenza di Vostra Altezza Serenissima la Polvere d'Infantiglioli che s'è degnata aggraziarmi e però con lo spirito piu somesso mi presento all' AVS umiliandole le i miei più vivi ringraziamenti..."

Contessa Virginia who desired a portion of the miraculous powder.⁴⁴ In September of that same year, Anna Maria Luisa also received a letter from Paolo Zambecari who pleaded with the Electress to send some “powders of Infantiglioli.” In his letter Paolo stated that “he knew of the benefit of the powders because they saved more than one of his children.” He also added that “the benefits of these powders had been proven by others.”⁴⁵

Not only did Anna Maria Luisa receive numerous requests for the powder, the language used to describe her *Infantiglioli* powder also highlights its contemporary perception as highly effective. In his letter, Paolo referred to the powder as “miraculous” as did Baroness Massimiliana Moltke. In her letter thanking Anna Maria Luisa, Massimiliana praised the powders effectiveness stating that the children she treated with the powder had been so violently taken by convulsions that the physicians had “given up on them.” Not only had the “miraculous powders” from “*la Serenissima Elettrice*” cured the children, the baroness also stated that a number of months had passed and the children remained in perfect health.⁴⁶ In addition to the testimonies of the recipients of Anna Maria Luisa’s *Infantiglioli* powder, there is also present-

⁴⁴ ASF, MdP 6309, fol. 427r. Undated Letter. “Sono così animato dalla viva conoscenza dell’Animo Clementissimo, e benefico di Vostra Altezza Elettorale che per implorarne le grazie mi faccio rispettoso coraggio di umigliare le mie riverenti Suppliche, per procurarmi con queste un favore ch’ io considero de maggiori che possa spiccarsi dalla beneficenza di Vostra Altezza, mentre la prego a graziarmi di una porzione di sue miracolose polveri per gl’Infantiglioli,”

⁴⁵ ASF, MdP 6309, fol. 427r. Undated Letter. “di queste altra volta onorato devo riconoscere dal loro meraviglioso effetto donatomi più di un figlio; vantaggio sperimentato da qualch’ altro mio amico, a cui avendo dovvo far parte di esse ...”

⁴⁶ ASF, MdP 6341, fol. 126r. “... a Vostra Altezza Elettorale e Serenissima le mie infinite grazie delle polveri miracolose mandate mi l’anno passato[...] sorpresi più giorni gagliardamente dalle convulsioni e già abbandonati dai medici furono interamente ristabiliti, sicché godono da più mesi a questa parte una perfettissima salute e posso dire, che questa nobilita ne conserva una perpetua memoria e riconoscenza a quell gran beneficio, che Vostra Altezza Elettoralee S[erenissi]ma volse rendere a questo paese.”

day research that indicates that her miraculous powder did indeed work. Modern scientific analysis of the chemical compounds isolated from the genus *Paeonia* reveal that extracts from the roots of Greek Peony do indeed have anticonvulsant properties.⁴⁷

The worth of Anna Maria Luisa's *Infantiglioli* powder was reflected in the nature of the patients it reputedly cured. As a deadly affliction that specifically plagued infants and children, convulsions were of great concern to aristocratic families. Anna Maria Luisa's correspondence reveals the widespread anxiety surrounding infant convulsions, which, by often causing the death of young noble children, threatened the continuity of the patrilineal line.

As Anna Maria Luisa knew all too well, producing heirs and safeguarding the health of the next generation was critical to the continuation of dynastic lines and the prevention of wars of succession. Anna Maria Luisa's medical knowledge was purposefully focused on the health of mothers and children. Many of her letters centered on reports of health, births, diseases, and deaths amongst noblewomen and their children. After returning to the Tuscan court, Anna Maria Luisa remained particularly focused on the health of the Palatine princesses and princes. Infant mortality continued to create a problem of succession within her deceased husband's court.

When Anna Maria Luisa and her husband, Elector Palatine Johann Willhelm II failed to produce an heir, Johann's brother Charles III Philip succeeded as elector. Despite three marriages, however, Charles III Philip, like his brother, failed to produce a male heir. Just as

⁴⁷ All of the three extracts from roots of the Greek *Paeonia* species, one of which is native to Italy, (*P. parnassica*, *P. mascula* ssp. *hellenica*, and *P. clusii* ssp. *clusii*) showed anticonvulsant activities. The study concluded that the anticonvulsant action of peony roots is primarily due to albiflorin and gallotannin. See Chun-Nian He, Yong Peng, Yao-Chun Zhang, Li-Jia Xu, Jing Gu, and Pei-Gen Xiao, "Phytochemical and Biological Studies of Paeoniaceae," in *Chemistry & Biodiversity* – Vol. 7 (2010).

hope had lied with Anna Maria Luisa for the Medici line, the pressure to produce a Palatine heir now fell to Charles only surviving child, his daughter and Anna Maria Luisa's niece, Elisabeth Auguste Sofie (1693–1728). Anna Maria Luisa enjoyed a close relationship with her niece and took great interest in Elisabeth and her children's health. She asked for and received regular correspondence from Countess of Winekelhäusen, the Great Mistress to Elisabeth, regarding the health and wellbeing of Elisabeth and her young children.

On April 29th 1727 Anna Maria Luisa wrote to the Countess of Winekelhäusen to say that she was very relieved to hear that the young Palatine prince remained in good health despite the pain of teething and implored the countess to let her know “when she [Elisabeth] will soon give us another Palatine Prince.”⁴⁸ By 1727 Anna Maria Luisa's niece, Elisabeth, had already given birth to six children. Her first-born son and daughter had both died, her son at six years of age and her daughter in infancy. After the death of her first two children, Elisabeth gave birth to three girls in 1721, 1722, and 1724. Finally, in 1725 she gave birth to an heir, Charles Philip August. The health of Elisabeth (to bear more children) and the health of Charles Philip August were the main focus of Anna Maria Luisa's epistolary exchanges with Countess Winekelhäusen.

Sadly, just a couple of months later, Anna Maria Luisa received word that the young Palatine Prince had died. She wrote to Countess Winekelhäusen in June of 1727:

On my return to Florence I found your letter from the 25th of last month, that gave me a new subject of affliction. I speak of the death of our young Prince, that surprised me, and significantly touched me. It was the most beautiful jewel we had in the Palatine House

⁴⁸ ASF, MdP 6332, fols. 96-97. “Je m’ en flate beaucoup, et je vous seray bien obligée lors que vous pourrez me mander, qu’elle est dans un état a pouvoir nous donner bientôt un autre Prince Palatin.”

[...] and be persuaded of the one I have felt of this inestimable lost [...] Only tell her, please that I really hope, that her discomfort leads to give us soon a subject of new hopes. I have no doubt, that according to the opinion of doctors she will have all the possible care to regain, and to preserve her health which become more necessary [...]⁴⁹

The death of the young heir was a devastating setback for the House of Wittelsbach. Not only was the house now faced extinction, but the issue of succession could potentially plunge the region into a bloody war of succession. Hope for the Wittelsbach line was renewed when Anna Maria Luisa received word from Countess Winekelhäusen that Elisabeth was again with child in August of 1727. In her return letter to the Countess, Anna Maria Luisa was optimistic and quick to dispense medical advice to Elisabeth: “Madam the Princess does well to stay in bed, and to save as much strength as she can, in these beginnings, because the dangers and inconveniences will naturally decrease as her pregnancy will progress.”⁵⁰ Grateful for her aunt’s advice and

⁴⁹ ASF, MdP 6332, fols. 148 – 149. “Je trouvay a mon retour a Florence vôtre lettre du 25 du mois passé, qui me donna un nouveau sujet d’affliction. Je parle de la mort de nôtre jeune Prince, qui m’ à surprise, et touchée sensiblement. C’ était le plus beau bijou que nous eussions dans la maison Palatine. Vous pouviez vous epargner de me peindre la juste, et vive douleur de Monsieur l’ Electeur, de Monsieur le Prince, et de Madame la Princesse ma niece, pouvant en être persuadé par celle, que j’ ay ressentie pour cette perte inestimable. Je comprends même fort bien la peine qu’ un cœur comme le vôtre, doit avoir éprouvé dans cette occasion, et il est naturel que vôtre santé en ait souffert. Il faut pourtant se resigner aux ordres de la Providence, la quelle aiant voulu placer dans le Ciel le jeune Prince, que nous regretons aura peut être bientôt la bonté d’ essuier nos larmes, et de reparer la perte, que nous venons de faire. Je l’ espere, et j’ aime trop Madame la Princesse pour avoir la force de vous dire, que vous lui fassiez de ma part aucun compliment sur ce facheux evenement. Vous lui direz seulement, s’ il vous plait que je souhaite beaucoup, que ses incommoditer aboutissent a nous donner dans peu un sujet des nouvelles esperences. Je ne doute pas, que suivant advis des Medicins elle aura tous les soins possibles pour reparer, et consêrver sa santé qui nous est devenue plus nécessaire.”

⁵⁰ ASF, MdP 6332, fol. 205. “Madame la Princesse fait tres bien de se tenir au lit, et de se menager autant, qu’ elle peut, dans ces commencemens, car les dangers, et les incommoditer diminuront naturellement a mesure, que sa grossesse avancera.”

medicinal remedies gifted to the Palatine court, Elisabeth sent Anna Maria Luisa good news of her progressing pregnancy along with a “beautiful and magnificent” piece of jewelry.⁵¹

Despite Anna Maria Luisa’s attentive advice and medicinal gifts, both Elisabeth and her son died during childbirth in January of 1728. Her husband’s dynastic line now faced the same uncertainty of her own. While deeply saddened by the loss of her niece, Anna Maria Luisa turned her medical gaze to her brother in-law, the reigning and now heir-less Elector. Anna Maria Luisa knew the importance of safeguarding the Elector’s health and longevity so that he could negotiate and manage the succession of the Palatinate. After receiving word that both Countess Winekelhäusen and the Elector were in poor health, Anna Maria Luisa sent the Countess a viper remedy along with medicinal advice for the Elector.

[...] She said she has found you in a very good state of health, and I think, that the use of vipers that did you well [and] will continue to be useful. There are people who, with a happy success, use this remedy, that purifies blood, and does other good things. I would have liked that you gave me better news of Monsieur the Elector for which the conversation is necessary and I have a great interest in it. If it was allowed to state my opinion, I would dare to assure his majesty the Elector would be better off with a good diet, than all those remedies, we could give. I am certain that his caution, and the sincerity of his Doctors will make him know the usefulness of this method to prefer it to all others. I speak from experience, and I find myself with a life very well-ordered [...]

⁵¹ ASF, MdP 6332, fols. 441 - 443

⁵² ASF, MdP 6333, letter dated August 20, 1728. “Elle vue mande de vous avoir trouvée en tres bon etat de santé, et je crois, que l'usage des Viperes, qui vois á fait du bien, continuera a vous etre utile il y a bien des gens qui emploient avec un heureux succes ce remede, qui purifie le sang, et fait d'autres bous effects. J'aurois bien voulu que vous me essier donne des meilleures

Anna Maria Luisa's gift of a viper therapeutic and emphasis on diet over remedies are interesting. She reiterated her point in her own hand in a post script:

I am saddened about the precious Health of his majesty the Elector, I hope you will give me better news about it, and it is best to keep away from violent remedies, as well as the most innocent ones [only] when necessity demands of it. The ones that do not bother the stomach are the best, but a good diet is the safest.⁵³

In her letter, it appears that Anna Maria Luisa was actually devaluing her own medicinal remedies, suggesting that the key to the Elector's health was diet over drugs. However, she was skillfully doing the opposite. As a noblewoman and non-medical professional, Anna Maria Luisa had to be careful not to undermine the authority or remedies of male medical professionals.

Without overstepping her inferior status as a woman, Anna Maria Luisa subtly underscored her medical knowledge. She knew the potential dangers of remedies, and that dangerous remedies

nouvelles de Monsieur l'Electeur, dont la conservation [sic] si necessaire et l' y preus un tres grand interêt. S' il ni estoit permis de dire mon advis l' oserois d'assurer que S. A. Electorale retrousevoit beaucoup mieux d' un regime regle, que des tous les remedes, qu'ou pourroit luy donner. Je suis pertuadeè, que sa poudence, et la sincerite des ses Medicins luy ferout connoitre l' utilite de cette methode pour la prefere a toute autre chose. Je parle en cela par experience et je me trouve si bien de la vie regleè ...”

⁵³ ASF, MdP 6333, letter dated August 20, 1728. “Je suis en peine pour la precieuse Santé de S. A. El., j’espere que vous m’ en donnerez des mailleures Nouvelles, et il faut bien se garder des remesdes violents, et quand la necessité le veut les plus innocents, et qui ne troublent pas l’estomac sons les mailleurs, mais le bon regime es le plus assure.” The letters from Anna Maria Luisa preserved in the ASF, MdP are minutes (or first drafts) written by her court secretary. Anna Maria Luisa would review the minutes and make changes or add post scripts before the final letter was composed and dispatched. The minutes were archived and grouped with corresponding letters received whenever possible.

often upset the stomach. The eighteenth-century pluralistic medical market of early modern Europe offered a dizzying array of remedies produced and peddled by physicians, apothecaries, *virtuosi*, prince- and princess-practitioners, and charlatans alike. With the explosion of exotic *materia medica* and international trade, new and unknown medicines flooded the market. As we saw with Anna Maria Luisa's own St. Ignacious Beans, which were actually poisonous strychnine, eighteenth-century therapeutics could be as deadly as they were efficacious. Knowing which remedies were "violent" and which did "not bother the stomach" required extensive empirical knowledge. Anna Maria Luisa was sure to remind the countess and elector that she had such empirical knowledge by adding that she "speak[s] from experience."⁵⁴

The rise of empirical knowledge, or knowledge based on observation and experience, over theory is seen as an important turning point in both the histories of science and medicine. While scholars debate over why and when this transformation occurred, all agree that it did occur and that it transformed the ways in which knowledge was produced and valued over the course of the sixteenth, seventeenth, and eighteenth centuries. Recipes were and remain to be associated with empirical knowledge as they are the product of doing and making, often repeatedly over time and with modifications based on experience along the way. Meredith Ray argues that the increasing emphasis on empiricism and the corresponding fixation with unlocking the "secrets of nature," often via recipes, "fostered women's continued engagement with scientific culture and expanded the range of their activity."⁵⁵

⁵⁴ ASF, MdP 6333, letter dated August 20, 1728. "Je parle en cela par experience ..."

⁵⁵ Meredith Ray, *Daughters of Alchemy*, 3.

In addition to the empirical nature of recipes, early modern courts are also seen as sites where empirical knowledge was highly valued and even privileged. Anna Maria Luisa was the product of one such court. Early modern courts, such as the Medici, valorized curiosity and thus stimulated innovation. Furthermore, the space of the court, free from the constraints of the university, created a space that encouraged a dialogue between traditional and new forms of knowledge.⁵⁶ Anna Maria Luisa's medical knowledge was informed by the vibrant scientific cultural of the late Medici court. She had excellent empirical knowledge of viper remedies thanks to the late Medici Court's doctor and superintendent of the grand-ducal *fonderia*, Francesco Redi. Redi had conducted numerous experiments on the effects of viper venom at the Tuscan court. In 1660, Redi tested the effects of viper venom on animals through controlled observations.⁵⁷ Based on his experiences and observations, Redi concluded that vipers could indeed be safely ingested and used in medicinal remedies.⁵⁸

Francesco Redi was also a proponent of diet to regulate health and prevent illness. Both Anna Maria Luisa and her father followed a strict diet based on Redi's advice.⁵⁹ In fact, Anna Maria Luisa attributed much of her good health and longevity to her diet. When discussing the

⁵⁶ Paula Findlen, "Controlling the experiment: rhetoric, court patronage and the experimental method of Francesco Redi," *History of Science* 31 (1): 1993, 35-64.

⁵⁷ Gentilcore, *Medical Charlatanism in Early Modern Italy*, 145.

⁵⁸ For more on Redi's experiments with vipers, see his famed publication - *New experiments upon vipers: with exquisite remedies, that may be drawn from them, as well for the cure of their bitings, as for that of other maladies*. For a translation of Redi's work in English see *Francesco Redi on Vipers* translated by Peter Klerner Knoefel, Brill Archive, 1988. See also Martha Baldwin, "The Snakestone Experiments: An Early Modern Medical Debate." *Isis* 86, no. 3 (1995): 394-418.

⁵⁹ Jacopo Riguccio Galluzzi, *Istoria Del Granducato Di Toscana: Sotto Il Governo Della Casa Medici*. Livorno: Stamperia Vignozzi, 1820-1821, Book 8, Chapter 10, 171-172.

importance of the Elector Palatine's diet in a letter to countess Winekelhäusen, she stated, "I speak from experience, and I find myself with a life very well-ordered, that I do, only with the assistance of God. I almost never had any need for medicine, to aid me."⁶⁰ Dietary regulation was one of the most ancient components of medicine, making the delineation between food and medicine difficult in early modern society. The humoral theories of early modern medicine ascribed specific therapeutic properties to food. Food and ingredients could enhance or alter the humoral balance of an individual, affecting their health. Anna Maria Luisa viewed food as a means to treat illness and stabilize health, which is why her medicinal recipe collection also contains several culinary recipes.⁶¹

Anna Maria Luisa dispensed therapeutics while safeguarding her position as a medical authority by only gifting and prescribing therapeutics that she had extensive empirical knowledge of, knowledge she gained through collecting recipes as well as the medicinal activities of the grand-ducal *spezzeria* and *fonderia*. Her political strategy of gifting remedies and prescribing medical advice would have been unsuccessful if she dispensed therapeutics with violent or unknown effects, or even worse, killed. While she had to remain cautious, opting to send less-exotic and more trusted remedies, Anna Maria Luisa was able to fashion herself as an authority on health and medicine and even achieve acclaim for her therapeutics because it fit within her socio-cultural role as a caregiver. As Alisha Rankin has argued, early modern noblewomen were recognized and praised for their healing activities not in spite of their gender,

⁶⁰ ASF, MdP 6333, letter dated August 20, 1728. "Je parle en cela par experience, et je me trouve si bien de la vie regleè, que je fais, qu' avec l' assistance de Dieu je n' ay, eu Presque jamais aucun besoin de la medicine ..."

⁶¹ While some recipe books phased out culinary recipes, cookery remained a common component of *ricettari* well into the seventeenth and eighteenth centuries.

but because of it.⁶² By the seventeenth century, the increasing prestige ascribed to experiential knowledge, the courtly interest in science and experimentation, and traditional associations of women as healers and caretakers combined to create a space in which noblewomen could successfully fashion themselves as legitimate healers and even medical practitioners.⁶³ As a noblewoman, it was Anna Maria Luisa's Christian duty to care for her family, households, and community. Thus, healing was something an aristocratic lady could and should do.⁶⁴ Anna Maria Luisa exercised her medical authority through accepted channels by dispensing medicine as charity and caring for her extended family and community. Her focus on aristocratic mothers and their children, however, was strategic.

As we can see in her numerous letters spanning more than two decades after her return to Florence, Anna Maria Luisa's medical expertise, advice, and charity focused almost exclusively on mothers and their children from prominent noble families. In addition to the *Infantiglioli* powder sent to the French and Viennese courts and remedies and medical advice sent to the Palatine court, Anna Maria Luisa sent pomades, essences, distilled waters, along with her famed powder to noblewomen across European courts. In 1725, Anna Maria Luisa sent Contessa Elena Feramosca Porto in Vincenzo a pomade to treat the smallpox of the countess's children. In her return letter, the countess thanked the Electress for the gift and affirmed that Anna Maria Luisa's pomade "freed" her daughter and first-born son from the "grave illness."⁶⁵

⁶² Alisha Rankin, *Panacea's Daughters*, 3.

⁶³ *Ibid.*, 4.

⁶⁴ *Ibid.*, 3.

⁶⁵ ASF, MdP 6333, letter dated June 19, 1725. "Non cessa Vostra Altezza Elettorale di beneficare sempre mai questa sua devotissima casa, e presentemente ne provo un saggio nella Pomata fattami capitare d'ordini di V. A. E. dal Signore Cosimo Bardi, con cui spero di liberare

In another letter sent to the mother of the Baron of Bouscheidt in Dusseldorf, Anna Maria Luisa offered advice on wet nurses along with a dose of her *infantiglioli* powder. In a post script written in her own hand, Anna Maria Luisa advised: “For the conservation of the infants it is necessary to observe the constitution of the wet nurses, and what they eat; there are several children who have been cured of convulsions by a cut, made behind the neck, or at the start the hairline, even when [the cuts] are very small.”⁶⁶

In addition to fulfilling her Christian duty, focusing on the health of mothers and children gave Anna Maria Luisa greater political cache, since the dynastic politics of the eighteenth century were plagued with a lack of heirs and numerous succession crises, much like the Medici’s and Palatine’s. In the span of just her lifetime, Anna Maria Luisa would see three major wars of succession: War of the Spanish Succession (1701–1714), War of the Polish Succession (1733–1738), and the War of the Austrian Succession (1740–1748). Each threatened the political stability of Europe and the future of Tuscany.

In the political milieu of the eighteenth century aristocratic legitimacy relied on dynastic titles, which were accumulated over long periods of time through marriage, conquest, treaties and diplomacy.⁶⁷ In this complex system of clientage and patronage the principle system through

dalle Macchie del Vaiolo la mia Figliuola già che iddio l’ha liberata dal grave male che ha sofferto come pure ha fatto il mio primogenito, che pero ha avuto molto minore incomodo.”

⁶⁶ ASF, MdP 6334, fol. 205. “Pour la conservation de vos Enfans il faut observer la constitution des Nourices, et ce qu’ells mangent; Il y a plusieurs Enfans qui ont été gueris des Convulsions par un Cautere, qu’ on Leur a fait derriere dans le Cou, ou commencent les Cheveux, et même ils entoient bien petites.”

⁶⁷ C. Campbell Orr, Chapter 26, “Dynasticism and the World of the Court,” section title, “Dynastic Strategies and Biological Luck,” in *A Companion to Eighteenth-Century Europe*.

which the nobility transmitted wealth, status, and privileges was through family inheritance.⁶⁸ Thus, much of the success and continuation of a dynastic line relied on “biological luck.”⁶⁹ The larger the aristocratic family, the wider its spread, influence, and endurance through strategic marriage alliances. Failure to produce an heir, however, was catastrophic. Furthermore, it was not just the king or duke who suffered if he could not produce an heir. As Hamish Scott explains, nobility was a collective in which family strategy always outweighed individual desires.⁷⁰ Just as the entire family would benefit from a rise in status, so too did the entire family suffer in its decline. In the case of a ruling family, if the ruler failed to produce an heir and the dynastic line ended, any remaining family members and branches suffered the loss of status, territory, and wealth as well.

Anna Maria Luisa’s medical knowledge and recipes increased her socio-political capital and kept her relevant after the loss of her own family’s status because it focused on safeguarding the next generation of dynastic lines. Over the course of the eighteenth century, infertility and disease had proven to be the greatest threats to dynastic power. If a noblewoman did succeed in getting pregnant, neonatal mortality rates were incredibly high.⁷¹ Anna Maria Luisa knew this reality all too well, as she suffered several miscarriages in her early years in Dusseldorf. Even if a woman made it term, childbirth could be fatal for both the mother and infant, as we saw with Anna Maria Luisa’s niece. Finally, surviving pregnancy and birth still was not guaranteed to

⁶⁸ Orr, “Dynasticism and the World of the Court,” section title, “Dynastic Strategies and Biological Luck.”

⁶⁹ Ibid.

⁷⁰ Scott Hamish, “Eighteenth-Century Nobility: Challenge and Renewal,” in *A Companion to Eighteenth-Century Europe*.

⁷¹ Lindemann, *Medicine and Society in Early Modern Europe*, 34.

produce an heir, as the most dangerous years of life were infancy and childhood.⁷² During the early years of childhood, children could fall victim to convulsions, high fever, smallpox, whooping cough, and infantile diarrheas among a host of other non-age-related illnesses.⁷³ The grim-realities of infant and childhood mortality, however, did not prevent women and families from doing all they could to fight the illnesses that afflicted their children. Thanks to Anna Maria Luisa's *infanglioli* powder and other medicinal recipes and gifts, select noblewomen had one more tool in their arsenal to save their children and protect their dynastic interests.

It is difficult to quantify the success of Anna Maria Luisa's medicinal strategy or to know if the children she treated would have died without her intervention. But the fame of Anna Maria Luisa as an authority in medical knowledge and therapeutics that could safeguard the next generation of European aristocracy was a meaningful and a powerful political tool. Through her medicinal remedies and medical knowledge, Anna Maria Luisa ingratiated herself with important political courts across Europe. In doing so, she established goodwill and maintained a network of communication with the very courts that would decide the fate of the Grand Duchy of Tuscany. Goodwill and communication would become especially important for Anna Maria Luisa after the death the last Medici Grand Duke, in 1737. With the death of her brother, Anna Maria Luisa became a guest of her own court. She alone would have to manage the difficult transfer of power to the Habsburg-Lorraine government under the new Grand Duke, Stephen of Lorraine.

Much scholarly attention has been placed on Anna Maria Luisa's successful legal strategy to safeguard the cultural and artistic patrimony of her family. The Family Pact, or

⁷² Lindemann, *Medicine and Society in Early Modern Europe*, 34.

⁷³ *Ibid.*, 37.

convenzione, created by Anna Maria Luisa in 1737, and modified numerous times until it was finally signed in 1743, conceded the transfer of Medici's property to the reigning Habsburg-Lorraine dynasty, but with one "small" caveat. Even though the Medici patrimony would be the property of the Habsburg-Lorraine Grand Duke, all of the artistic and cultural possessions of the Medici must remain in Florence, never to be removed from their place of origin. Historians past and present have celebrated Anna Maria Luisa for her ingenious maneuvering that safeguarded the Medici's treasures and established Florence as the "new Athens."⁷⁴

In 1740, with the sudden death of Holy Roman Emperor Charles VI, the vast Habsburg empire passed to his daughter, Maria Theresa, and her husband, Francis Stephen, the Duke of Lorraine and named successor of the Medici. Although legally recognized by her father as heir, alongside her husband, Maria Theresa and Francis Stephen spent the first eight years of their reign fighting Prussia, France, Bavaria, Spain, and other various European powers over the sprawling and incohesive Habsburg lands.⁷⁵ Worse yet, Maria Theresa's father's intervention in the Polish War of Succession left the empire in serious debt.⁷⁶ The financial situation of the Habsburgs gave Anna Maria Luisa pause over Francis Stephen's intentions with Tuscany. She distrusted Francis and feared for her family's immense treasures as well as for her personal and massive collection of precious jewels, which was valued at more than 4 million Florentine

⁷⁴ For more on Anna Maria Luisa and the Family Pact see Conticelli, "L'Elettrice Palatina e il Patto di famiglia;" Cascui ed., *La principessa saggia*, and *Anna Maria Luisa de' Medici elettrice palatina, 1667–1743*; and Contini "Il ritorno delle donne," in *Donne Medici*; and Anita Valentini, *Il Testamento di Anna Maria Luisa de' Medici*, Edizioni Polistampa, 2006.

⁷⁵ Edward Crankshaw, *Maria Teresa of Austria*, 2007, 3-14.

⁷⁶ *Ibid.*

scudi.⁷⁷ Yet, despite Tuscany's tempting riches, Francis Stephen agreed to Anna Maria Luisa's pact and even allowed her to remain in the Palazzo Pitti as regent. Although Francis severely limited any real governing authority she might have.⁷⁸ All in all, it was a win for the electress. Her status remained intact and she was able to ensure the safety of the Medici cultural patrimony.⁷⁹

Anna Maria Luisa's skillful political maneuvering via medicine for more than two decades solidified a network of elite friendships and confirmed her status as not only a medical expert, but also as a member, albeit last, of the illustrious Medici Dynasty. A dynasty that had enriched the scientific and artistic culture of courts throughout Europe. A dynasty many noblemen and women were indebted to because of such contributions and gifts.

⁷⁷ Cascui, "Anna Maria Luisa, Electress Palatine: Last Art patron and Collector of the Medici Dynasty," in *Medici Women: The Making of a Dynasty in Grand Ducal Tuscany*, Benadusi and Brown eds.

⁷⁸ Marcello Verga, "Anna Maria Luisa: Strategy and Myth," in *Medici Women*, p. 357

⁷⁹ For more on the life of Anna Maria Luisa de' Medici and the transfer of the Tuscan State see: Francini Ciaranfi A.M., "Anna Maria Ludovica de' Medici Elettrice Palatina," in *Donne di Casa Medici*, Firenze (Florence), 1993, p 93-110; Hermine Kühn-Steinhausen, *Anna Maria Luisa de' Medici Elettrice Palatina*, Firenze, 1967; and Stefano Cascui, *Anna Maria Luisa de' Medici Elettrice Palantina (1667-1743)*, Firenze, 1993, and "Anna Maria Luisa, Electress Palatine, last patron and collector of the Medici dynasty," in *Medici Women: the Making of a Dynasty in Grand Ducal Tuscany*, G. Benadusi and J. Brown, eds. (Center for Reformation and Renaissance Studies, Toronto: publication forthcoming, 2013).

Conclusion

By the late-seventeenth and early-eighteenth centuries, expanding colonial enterprises across North and South America, East Africa, India, and Southeast Asia provided an influx of previously unknown and exotic *naturalia* to Europe. Exotic objects, foreign *materia medica*, and indigenous knowledge transformed European medicine over the course of the seventeenth and eighteenth centuries. This, combined with the increasing European cultural interest with unlocking the secrets of nature through empirical knowledge, recast early modern recipes into agents of discovery and transmission. As such, recipes played a key role in the shaping of culture, commerce, and knowledge production in the early modern world.

For the late Medici court, recipes played a role in the display of wealth, the accumulation and performance of scientific and medicinal knowledge, and the court's ability to build and solidify social and political relationships. Recipes collected or created by the late Medici court, however, did not simply embody the court's scientific and medicinal culture, they also played a role in the fashioning and refashioning of identities as well as cultural tastes and perceptions, both at the Medici court and throughout its networks.

The recipes collected by the late Medici court, and particularly by Anna Maria Luisa, were more than simple remedies that employed common medicinal ingredients. In fact, the quality of ingredients used in Anna Maria Luisa's collection of recipes adds complexity to both contemporary recipe classifications and to women's recipes recently studied. Analysis of these

recipes' ingredients shows that women, in particular aristocratic women, had familiarity and knowledge of exotic ingredients as well as complex alchemical practices.

To access and collect exotic and rare medicinal ingredients, Cosimo III relied on a network of agents, merchants, and missionaries across Europe, South America, East Africa, India and Southeast Asia. The objects gained through these networks increased the value and prestige of medicines produced by the court and contributed to both the display and performance of wealth and knowledge at court. In order to compete culturally and intellectually within an expanding global colonial market that introduced a plethora of new and previously unknown objects to Europe, Cosimo III refocused the scientific culture of the court. Recipes and pharmaceutical patronage, as well as the colonial bioprospecting it fostered, produced tangible products. Thus, the courtly patronage of botany, medicine, and collecting exotics not only highlighted the late Medici court's splendor and command of nature, it also produced objects that were used to garner political and social favor.

Like her father, Cosimo III, Anna Maria Luisa also used recipes to maneuver politically and socially. Unlike her father, who focused on amassing a collection of rare objects and exotic medicines, Anna Maria Luisa specifically focused her medical authority and knowledge on the health of women and children. Anna Maria Luisa became widely known in circles of correspondence for her the infant convulsion powder that was produced at her personal pharmaceutical laboratory. This powder became her most precious commodity for saving the lives of the children of the European nobility. By gifting precious medical knowledge, Anna Maria Luisa was able to ingratiate herself to some of the most powerful courts of Europe. With the good will she established through recipe exchange and medicinal gifts, Anna Maria Luisa

maintained a network of communication with the very courts that would decide the fate of the Grand Duchy of Tuscany.

Anna Maria Luisa's collection of alchemical and medicinal recipes in addition to Cosimo III's pharmaceutical patronage reveals the cultural, social, and political importance of medicine at the late Medici court. Yet, it also calls into question long-held conclusions about the culture and vitality of the late Medici court more generally. While it is true that Florence's scientific academy dedicated to public and repetitious experimentation dissolved under the reign of Cosimo III, it is simply not true that all scientific endeavors ended during his tenure. The *Accademia del Cimento's* experimentation in the fields of thermometry, barometry, and pneumatics required costly purposed-built instruments and appealed to a small crowd of like-minded educated men. Health, however, especially the health of the nobility and their heirs, was a concern of all European courts. Recipes and medicine were objects that not only displayed wealth and knowledge, but also could be gifted and exchanged as meaningful and lucrative forms of social currency in court politics. Thus, an examination of the scientific and medicinal pursuits of the late Medici court through the lens of recipes reassesses the previously disregarded scientific culture of the late Medici court, re-centers one woman's role in the shaping of a scientific and medical court culture, and demonstrates how women negotiated social capital through recipes.

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