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THE IDEA OF LAPIDARY MEDICINE: ITS CIRCULATION AND PRACTICAL
APPLICATIONS IN MEDIEVAL AND EARLY MODERN ENGLAND: 1000-1750

by

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ABSTRACT OF THE DISSERTATION

The Idea of Lapidary Medicine: Its Circulation and Practical Applications

in Medieval and Early Modern England, 1000-1750

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This dissertation explores the transmission and circulation of ideas related to a rarely studied aspect of medieval and early modern medicine: the therapeutic application of gemstones. It traces the dissemination of ideas about the healing virtues of “stones” beginning with their Western origins in classical Greek and Roman texts to the manuscript culture of medieval Europe. Then the study continues with a close look at the development of lapidary theory in the print culture of early modern England, especially popular advice manuals. Finally, the dissertation examines the practice of lapidary medicine as it is recorded in a range of archival sources, such as wills and apothecary inventories, as well as in iconographic and archeological evidence found in portraits, woodcuts, and surviving examples of jewelry. The study demonstrates that lapidary theory was part of the orthodox medical tradition of early modern England and that ideas about lapidary healing circulated widely through the use of popular medical advice manuals. Furthermore, it presents evidence that lapidary materials were commonly sold

by seventeenth-century jewelers and apothecary shops and were therefore widely available to early modern consumers.

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Chapter One: An Introduction to Lapidary Medicine

Human beings are fascinated by products of nature more enduring than themselves: the glossy smooth surface of a pearl, the play of fire and light in the depths of a piece of amber, or the magnetic force of a loadstone. From the time people began to collect and investigate such items, a system of beliefs developed based upon their real and imagined physical attributes, including special “virtues” that could be employed to heal or and protect against myriad dangers. During the medieval and early modern periods in Western Europe these beliefs developed into a complex system of healing based upon the medicinal properties thought to reside in a wide array of substances collectively classified as “stones.” In an age when university-trained physicians toiled alongside clergy, barbers, midwives, apothecaries, and a wide variety of uneducated “empiric” practitioners in the art of healing, the medicinal use of gemstones was a therapy widely embraced in some form by society as a whole. Noble and peasant, erudite and unlettered, clergy and laity all engaged in the therapeutic use of gemstones as remedies that were believed to possess the power to prevent and cure a wide variety of physical, mental, and spiritual ailments.

Although archeological evidence suggests that a Western cultural tradition associating healing and prophylactic properties with stones existed even in pre-historic times, the first written evidence for the theory and use of lapidary medicine lies within the scholarly textual tradition of ancient Greece and Rome. During the medieval and early modern periods, scholars and university-trained physicians advocated gemstones as a form of medicine on the basis of this classical knowledge which held that metals and gemstones possessed natural properties inherent in their specific form and substance.

The Church upheld and expanded on these theories, seeing gemstones and their healing properties as a part of the natural world created by God for the use and benefit of mankind. The idea of lapidary medicine circulated within the general populace of medieval Europe through a rich oral tradition, a method of dissemination radically altered by the advent of the printing press and spread of print culture. The therapeutic use of gemstones and jewelry flourished in Western culture as an orthodox medical practice well into the eighteenth century when the advancements of the Enlightenment and Scientific Revolution finally brought the theory and efficacy of such treatments into question.

My study traces the dissemination of the idea of lapidary medicine from its foundation in the texts of classical Greece and Rome, through the Middle Ages, to the zenith of popular implementation during the early modern period. A large part of this inquiry focuses on the transmission of the idea of lapidary medicine through the compilation and circulation of “lapidaries,” or texts which acted as catalogues of the physical and medicinal properties of stones. This study also examines the impact of such texts upon both popular and elite health care and the manner in which ideas contained within them contributed to the development of Western medical theory and practice. I look at issues internal to texts, such as their structure and composition, as well as to external forces that acted on the production and circulation of medieval and early modern lapidaries. The thesis also explores the connection between the idea of lapidary medicine as found in texts and the practical implementation of this form of healing within English society. This connection between theory and practice is demonstrated through the use of a wide variety of written documents such as legal documents, wills, jewelers’ manuals,

apothecary inventories, and apothecary bills, in addition to archeological and iconographic sources. By mean of this interdisciplinary approach, we can begin to complicate and enlarge our understanding of the art of healing and medical consumerism in the medieval and early modern periods. Although the practice of lapidary medicine extended to all parts of Western Europe, my study is concerned primarily with its manifestation in England spanning the years 1000 to 1750.

The term “lapidary medicine” does not appear in current historical surveys on the topic of medieval or early modern healing. It is a term I coined to define an idea and practice that played an integral role in pre-modern health care in the West, a practice that has thus far been largely ignored by researchers. While the current state of historical inquiry remains silent on this topic, the vernacular literature of the middle ages and early modern period in England reveals a general familiarity with the practice of lapidary medicine and the theories behind its use, demonstrating that the idea was not confined to written texts but had become part of popular consciousness on the topic of healing. Works of literature such as chivalric romances, fables, plays, and books of travel and exploration contain both subtle and obvious references to the idea that stones could heal, that a book called a “lapidary” contained knowledge of such stones, and that one might purchase a healing stone from sources such as a goldsmith, jeweler, or apothecary.

References to the idea of lapidary healing can be found in the earliest French and English chivalric romances, where stones with healing and protective powers appear in the swords and armor of warrior heroes and in the jewels of their fair ladies. Geoffrey Chaucer’s fourteenth-century version of the *Romaunt of the Rose* includes many

references to the virtues of stones, including one set into the girdle worn by the Lady Rychesse said to protect from venom and another that could cure palsy and toothache:

Rychesse a girdel hadde upon,
 The bokel of it was of a stoon
 Of vertu greet, and mochell of might;
 For who-so bar the stoon so bright,
 Of venim (thurte) him no-thing doute,...
 The mourdant, wrought in noble wyse,
 Was of a stoon ful precious,
 That was so fyn and vertuuous,
 That hool a man it coude make
 Of palsye, and of tooth-ake¹

In 1481, a mere five years after he first brought the printing press to London, William Caxton printed a book of parables entitled *This is the table of the historye of reynart the foxe*, which was based on an eleventh century tale called the *Roman de Renard*. Caxton's text contains the story of a fox who finds a ring set with an unusually colored stone that possesses great medicinal and restorative virtues:

yf ony man be seke in his body of venym / or ylle mete in his stomack / of colyk / stranguyllion / stone / fystel or kanker or ony other sekene / sauf only the very deth late hym leye this stone in a litle watre / And late hym drynke it / & he shal forthwyth be hole & al quyte of his seknessis²

The healing stone with the power to cure venom, colic, and cankers in this tale was laid upon the affected body parts or soaked in water, which would then be drunk, presumably just as any other medicine. These are only two of many examples found in medieval literature, but it is clear that popular audiences were in some way familiar with not only

¹ *The Romaunt of the Rose* lines 1085-1098. Walter W. Skeat, ed., *The Complete Works of Geoffrey Chaucer* (London: Oxford University Press, 1967), 139.

² William Caxton, *This is the table of the historye of reynart the foxe*, 1481.

the idea of stones possessing the ability to heal but also the procedures linked to the practical application of this theory.

Early print literature in England reveals cultural familiarity with the use of lapidary medicine, as well as the existence and use of lapidaries containing descriptions of the medicinal properties of stones. In 1481, in addition to the tale of *Reynart the foxe* William Caxton printed a text called *Hier begynneth the book callid the myrroure of the worlde* by Gossuin of Metz which details the various wonders of the world beyond England for its readers, including various stones found in India such as diamonds, emeralds, and carbuncles (garnets) as well as their medicinal virtues and applications. For interested member of his audience the author directs:

And who that wil more knowe of their vertues and bountees maye rede in the book called lapydayre/ in whiche he shal knowe the names and vertues³

A few years later, Caxton printed another work, this one by Geoffrey Chaucer, which also refers to the use of lapidaries as texts read by those wishing to learn more about the properties of gems, “Ful of the fynest stones fayre/ That men reden in the lapydayre.”⁴ These works were among the very first texts printed in England, compositions specifically chosen for popular consumption by a general readership. We can presume that Caxton and his associates would not have gone to the expense of publishing such works without a reasonable degree of certainty that they would generate public interest

³ Gossuin of Metz, *Hier begynneth the book callid the myrroure of the worlde*, 1481.

⁴ Gefferey Chaucer, *The book of fame made by Gefferey Chaucer* (London: Wylliam Caxton, 1483).

and could be sold at a profit. To this end, Caxton would have chosen those works which held wide popular appeal on topics in general demand.

Theater plays performed in early modern England also contain references to medicinal stones and procedures. England's most famous bard, William Shakespeare, alludes to a particular stone generally thought to protect against poison and venom in the following well-known quote,

“Sweet are the uses of adversity, Which, like the toad, ugly and venomous, Wears yet a precious jewel in his head.”⁵ While modern readers may miss the allusion, the reference to “toadstones” would have been clear to early modern audiences. Articles of jewelry set with toadstones, a healing gem thought to be found within the head of a toad, are common among extant pieces of seventeenth-century jewelry and are often found among the medicinal stones listed and described in early modern lapidaries.

The conclusions drawn in my study of lapidary medicine are largely based on the information gathered, presented, and disseminated in “lapidaries,” texts that functioned as repositories of knowledge and general advice manuals for the practice of lapidary medicine. These medical and mineralogical works detail the various properties of “stones,” a category which historically included gemstones, minerals, metals and metalloids, as well as a wide variety of other natural materials, such as fossils and animal products. Lapidaries exist in verse and prose, as individual works or as books or chapters within encyclopedias. Most often, they consist of a catalogue of stones, each entry containing a description of the physical properties of the substance followed by a list of its various medicinal virtues. These virtues extended to both physical and mental

Figure 1.1 Silver toadstone ring. England, 17th century. © Victoria and Albert.



⁵ *As You Like It* (Duke Senior at II, i)

afflictions, and were also sought after as preventative measures to ensure continued good health rather than to resolve an issue. Lapidaries aimed at wide popular appeal, particularly those produced in the marketplace of early modern print culture, also purported that some stones had fantastical virtues such as the ability to render wearers invisible, to allow one to steal without being caught, or to enable the possessor to seduce members of their preferred sex. Many lapidaries also provide readers with information as to the countries and regions in which various stones were thought to originate, while others speculate as to the natural forces and circumstances responsible for their formation. Both medieval and early modern lapidary texts often include practical information as to the specific therapeutic application of each stone, such as recommendations for the types which should be set into an item of jewelry or worn on a particular body part, how to apply them directly to the skin as hot or cold compresses, or instructions on how to formulate tinctures infused with stones in whole or powdered form.

Examples from medieval and early modern lapidaries provide a modern observer with a sense of how a reader in the past might have used these texts to identify stones and applied them as a form of healing. The following excerpt from Marbode of Rennes' eleventh-century verse lapidary *De lapidibus* describes the appearance of the stone *chrysolito*,⁶ provides a list of its healing virtues, and offers instructions on how to best apply it in a medical capacity:

The golden Chrysolite a fiery blaze
Mixed with the hue of ocean's green displays;

⁶ The stone, also referred to as *topasion* in medieval and early modern lapidaries, is known in modern English as topaz. In this case, Marbode makes reference to a yellow or golden variety of this stone.

Enchased in gold its strong protective might
 Drives far away the terrors of the night;
 Strung on the hairs plucked from an ass's tail;
 The mightiest demons neath its influence quail.
 This potent amulet, of old renowned,
 Wear like a bracelet on thy left arm bound.⁷

The verse here demonstrates the most common method of medicinal application: setting or encasing the stone in jewelry, often an open-backed form that allowed the stone to be held in direct contact with the skin, thereby facilitating the transfer of healing virtues.

The text of the 1550 printed-edition of *The Book of Secrets*, loosely based on the scholarly thirteenth-century lapidary entitled *Book of Minerals* composed by Albertus Magnus, a medieval scholar, bishop, and eventual saint, recommends another common method of application based on this same principle: to simply press or hold the stone against the afflicted body part or the skin of the patient.

If thou wilt be acceptable, and pleasaunte.

Take the stone, which is called *Celidonium*,⁸ & of it there is some blacke, & some what read, & it is drawn out of the bealye of swallowes. If that whiche is somewhat read, be wrapped in a linnen cloth, or in a calues skyn, and borne vnder y^e left arme hole it is good agaynst madnesse, and olde syckenesses & diseases, & the sleping, or forgetfull sicknes, and Contra epidimiam, whiche is a scabbe that runneth thorough y hole bodye.⁹

⁷ This translation of the Latin hexameter into English rhyming verse provided by C. W. King's 1860 English translation of *de lapidibus*. See, John M. Riddle, *Marbode of Rennes' De Lapidibus Considered as a Medical Treatise with Text, Commentary, and C.W. King's translation Together with Text and Translation of Marbode's Minor Works on Stones* (Wiesbaden: Franz Steiner Verlag GMBH, 1977).

⁸ *Celidonium*, commonly called "Swallow stone" was a concretion or stone found in the intestines of birds.

⁹ Albertus Magnus, *The boke of secretes of Albertus Magnus of the vertues of herbes, stones, and certayne beasts : also, a boke of the same author, of the maruaylous thinges of the world, and of certayne effectes caused of certayne beastes*, 1560.

These texts not only provide their readers with a description of the physical appearance of a specific stone and where it might be found, but also offer practical instruction as to its method of application in order to treat mental and physical afflictions.

During the sixteenth and seventeenth centuries, in an age of printed texts that acted as personal manuals of healing, lapidaries increasingly advocated cures designed be taken internally. Gemstones, minerals, as well as plant and animal materials classified as “stones” were to be ground, mixed, dissolved and, at times, distilled using techniques of ‘physick’ as well as the budding science of ‘chymistry.’ Since this type of medicinal application of gemstones was beyond the skills and experience of jewelers or goldsmiths who fashioned stones into medicinal rings or pendants for external application, early modern medical consumers were left with two options for obtaining lapidary cures to be taken internally. The first was to purchase the required materials from a professional in the business of mixing medicinal potions, an apothecary; the second, to make the required preparation themselves with the helpful instructions provided by a printed advice manual. An excerpt from one such text, *Culpeper’s directory for midwives: or, A guide for women*, published in 1662 and attributed to the famous seventeenth-century herbalist and healer Nicholas Culpeper, offers the following advice for preparing a partially lapidary-based medication to stem abundant bleeding from a woman’s womb:

Take of the seed of White Henbane, red Coral, of each half a dram, white Camphor half a scruple, and give the quantity of half a dram at a time; powder of

Amber, Dragons-blood,¹⁰ Bloodstones,¹¹ Red Coral, Lettice seed, of each one dram, Balauſt two ſcruples, Bole armoniack two drams, given in three ounces of Plantain-water, Aſſes milk heated with Steel.¹²

Powdered and combined with ſeveral other animal and plant based ſubſtances thought to hold medicinal value; “ſtones” ſuch as red coral, amber, Dragon’s Blood, and bloodſtone were commonly recommended in manuals of popular healing printed in early modern London. Lapidary ingredients ſuch as theſe were widely available for purchase in the apothecary ſhops of ſeventeenth-century London, ſo that individuals might formulate their own medicines on the baſis of theſe texts, thereby ſaving the ſervice fees charged by an apothecary or phyſician.¹³ Lapidary medicines, particularly thoſe cures baſed on pearls, coral, and Bezoar ſtones, were alſo preſcribed by early modern phyſicians and commonly ſold pre-mixed by apothecaries, at an increased price, to the higheſt levels of English ſociety.¹⁴

¹⁰ Although it is an item commonly found liſted in medieval and early modern lapidaries, there is ſome confusion over the exact physical nature of the ſubſtance referred to as *Sanguis Draconis*, traditionally thought to be the congealed or petrified blood of a dragon ſince claſſical times. The term was uſed ſimultaneously in reference to mercury ſulfide, more commonly known as cinnabar, and the hardened reſin ſecreted by ſeveral ſpecies of Asian plant ſpecies, both having the ſimilar appearance of a bright red ‘ſtone.’ This confusion began with mixed Roman references, waned with the loſs of trade and thus the plant option in the medieval period, to become a problem again with the expansion of global trade in the early modern period.

¹¹ “Bloodſtone” in medieval and early modern English uſage referred to the ſtone heliotrope, a dark green chalcedony with red ſpots that contemporary writers likened to drops of blood. Claſſical authors ſuch as Pliny, however, uſed the term “bloodſtone” in reference to hematite, actually red oxide of iron, commenting on its “blood-red” appearance when ground as well as its healing properties connected with iſſues involving bleeding.

¹² Nicholas Culpeper, *Culpeper's directory for midwives: or, A guide for women*, 1662.

¹³ PRO C 104/130 Books of the apothecary's buſineſs, Eaſtwick & Coningsby, London 1661-1685.

¹⁴ Add. 69979. The apothecary bills of the houſehold of Lady Mary Coke, the daughter of Philip Stanhope, 2nd Earl of Cheſterfield, and firſt wife of Thomas Coke, Vice-Chamberlain to Queen Anne and George I, ſpanning the years 1695 to 1724.

While the basic purpose of lapidaries remained constant throughout the medieval and early modern periods, the form and content of these works evolved over time according to methods of circulation and the demands of popular consumption. For purposes of clarification, it is therefore necessary to define the exact nature of the various types of written works that I have chosen to include under the classification of “lapidary” throughout the course of this study.¹⁵ Operating under the most basic definition, a lapidary is a text which details the physical and medicinal properties of stones. Beginning in classical Greece and tracing the evolution of these texts in Western Europe, I have identified six different types of texts which fall into contemporary medieval or early modern definitions to constitute a “lapidary.”

The first form of lapidary found in the Western tradition exists in the form of the mineralogical studies produced in the classical Greece, such as the work *De lapidibus* by Theophrastus. This tradition continued in medieval Europe with the *Book of Minerals*, written by Albertus Magnus in the thirteenth-century and modeled upon the works of Greek philosophers such as Aristotle. During the early modern age texts of this nature continued to be produced, such as Georgius Agricola’s *De natura fossilium* published in 1548, a text which historians of science often characterize as the first modern geological work, and later with *Gemmarum et lapidum historia* by Anselmus Boetius de Boot published in 1636.¹⁶

¹⁵ Traditionally, lapidaries have been divided into three categories: the scientific lapidary, the magical or astrological lapidary, and the Christian or Christian symbolic lapidary. These categories were first defined in the works of Joan Evans and George Sarton in the 1920’s and 30’s and are still cited among historians. Such classification, however, are not useful to the present undertaking which considers the idea and practice of lapidary medicine, particularly in light of the fact that the last two categories of texts are rarely found among the compositions of medieval and early modern Europe.

¹⁶ Two of the most popular lapidaries in Continental Europe during the early modern period, neither of these texts appeared in print in England and so fall outside the scope of my chapter on early modern print lapidaries.

The second form of lapidary to appear in the West was the multi-volume encyclopedic works of Roman authors, such as Pliny the Elder, and early Christian writers, like Isidore of Seville, who sought to produce a vast compilation of universal knowledge. These works contain a specific section devoted to detailing the geographic origins, physical appearance, and natural properties, including medicinal ones, of a wide variety of stones and minerals. After the textual gap of the Early Middle Ages, this literary tradition continued in Europe with the production of several thirteenth-century encyclopedias written by clergy, primarily by members of mendicant orders, such as Arnold of Saxony, Bartholomew of England, Thomas of Cantimpré, and Vincent of Beauvais. These works were intended to serve as compendiums of knowledge to aid in preaching and serving the poor.

In contrast to the all-encompassing nature of encyclopedic lapidaries, the third form consists of verse lapidaries and is considerably simpler and more directed. This type of lapidary text usually exists as a verse or prose composition solely confined to the topic of stones, listing a selection of stones accompanied by their physical appearance, properties, origins, and medicinal applications, usually in alphabetical or near-alphabetical order. The tradition of the verse lapidary originates with the late eleventh-century composition of the poem entitled *De lapidibus* written by Marbode, Bishop of Rennes. The popularity of the verse lapidary was no doubt bolstered by the fact that its form and composition easily lent itself to a largely oral culture, allowing the transmission of ideas about lapidary medicine to those who did not have access to written texts.

The fourth form of lapidary text, prose lapidaries, appeared in Western Europe soon after the work of Marbode. Written in both Latin and the vernacular, the content of

many prose lapidaries produced in medieval Europe was often based on the form and content popular verse versions but without the rhyming meter. These texts range from relatively briefs works which address a dozen stones in just a few pages, to early modern printed works that provide a comprehensive description, not only of stones, but of theories related to their substance and formation, as well as philosophical inquiries into the orthodoxy of their medicinal use and opinions of efficacy.

The fifth type of lapidary consists of a text on any subject that includes a separate section specifically dedicated to providing the reader with information and instruction about the medicinal use of stones. This type of lapidary is commonly found within the myriad topics made available to a larger readership through the print revolution of early modern Europe. An example of this type of lapidary is *The accedens of armory* by Gerard Legh, which appeared in six print editions between the years 1562 and 1576. The stated intent of this text is to instruct noblemen on both chivalric behavior as well as a wide variety of activities and knowledge suited to men of their station. Included among these subjects one finds a list of gemstones, their physical appearance, medicinal uses, and other properties a nobleman might find useful such as those gems thought to bring forth courage on the battlefield.

The last form of lapidary included within the definition of this study are printed popular advice manuals that detail various healing substances and techniques in keeping with the principles of “physick.” This type of lapidary is the most common form found in England from the sixteenth to the eighteenth century. It contains practical advice for the use of lapidary based cures, both alone and mixed with those based on the wide range of plant, animal, and metal substances that made up the early modern pharmacopeia. In

the sixteenth century, these texts also appear as part of the new interest in Paracelsian or chemical cures, a field of inquiry which forms the basis of modern chemistry. Often, the stated purpose of these popular advice manuals is to allow every man (and even women and children) to act as their own physician, to diagnose and treat their own health issues based on the information provided within the texts. Since plant-based or herbal cures were always the most prevalent form of medicine employed during both the medieval and early modern periods, the lapidary content of these texts is always secondary. Therefore, in order for one of these popular advice manuals to meet this study's criteria of a "lapidary," cures based upon lapidary substances must figure significantly, yet proportionally, among plant, animal, and metal-based ingredients according to the standards of the contemporary pharmacopeia.¹⁷

Lapidary medicine, by its very definition, is a system of healing based on the use of "stones." Before further detailing the practice, it is necessary to define the physical nature of medicinal substances that fell into this broad category during the periods addressed within this study.¹⁸ Popular culture and the lapidary tradition of Western Europe include a wide assortment of materials, based upon both animal and vegetable matter as well as minerals, which were historically considered to be "stones." A typical medieval or early modern lapidary includes the physical descriptions and healing virtues of forty or more of these substances. The most common lapidary materials fall into the

¹⁷ According to my research on the inventories of a sixteenth-century London apothecary shop, the average percentage of medicines based on various substances are as follows: 74% plant-based, 8% animal-based, 5% metal or metalloid, 5% lapidary, and 8% based upon other chemical or mineral substances.

¹⁸ My thanks to Harold J. Cook for sharing his time while at the Institute for Advanced Study at Princeton as well as his insights into early modern medicine and thoughts on defining the parameters of the *materia medica* to be included within this study.

modern categorization of “gemstone,” including diamond, sapphire, ruby, emerald, topaz, garnet, amethyst, carnelian, opal, quartz or rock crystal, chalcedony, onyx, and jet.

Others types of rock or minerals not generally sought after for use in jewelry or prized for their physical beauty also appear in lapidaries such as forms of sulphur, lignite, slate, and asbestos. Some substances traditionally considered to be “stones” are actually metals or metalloids with a rock-like appearance such as hematite, forms of pyrite, cinnabar, calamine, and magnetite. Several animal and plant-based products such as coral, pearls, *aetites*, and *alectoria* are also included within the category, including fossilized substances such as amber and toadstones.¹⁹ Most of these substances are represented to some degree in classical lapidaries; however, a few materials were added to the category of “stone” during later periods. A substance labeled as “unicorn horn” first began to appear in lapidaries starting in the later Middle Ages, while a material known as Bezoar stone became popular in connection with an expansion of global trade in the early modern period.²⁰ For the purposes of this study, my definition of the term “stone” will consist of those substances that were traditional included within the majority of lapidary texts produced during both the medieval and early modern periods.

The reality of sorting through the various “stones” listed in medieval and early modern lapidaries, however, is far removed from any neat categorization manufactured by modern historians. Some stones were known by several names during the same

¹⁹ *Aetites* are “stones” or concretions obtained from the intestines of birds, usually swallow. *alectoria* are similar stones found inside cocks. Amber is actually fossilized tree resin. Toadstones, also known as *lapis bufonis*, *chelonites*, or *crapaudina*, were thought to be stones of medicinal value that were found in the heads of certain toads. In reality, toadstones are the fossilized teeth of a prehistoric fish, *Lepidotes*, which lived in the Jurassic and Cretaceous eras.

²⁰ Objects considered to be unicorn horns were actually the spiraling pointed tusks of the male narwhal, which perfectly imitated the mythical image of a unicorn. Substances known as Bezoar stones are actually concretions from inside an animal made up of undigested materials; they can be obtained from a number of animals such as goats, cows, and snakes. Bezoar stones first make an appearance in sixteenth-century English texts and are listed as originating from both the West and East Indies.

period, stemming from the use of both Latin and vernacular derivations or simple misspellings that were repeated by subsequent authors. The physical descriptions of many stones contained within lapidaries are vague or even contradictory. A stone such as sapphire might simply be described as “blue as the sea,” an accurate description but one that might be applied to any number of other blue stones according to the readers interpretation. Albertus Magnus describes the stone known as *gagate* as being of two types: transparent yellow and black, both of which are found on the seashore of Germany and England. Based on his sources and on consideration of the stones found in this geographic area suggests to me that two distinct substances, jet and amber, have become conflated and confused in this text.

In reading any medieval or early modern lapidary one must realize that present-day conceptualizations and techniques of mineralogical or gemological classification had yet to emerge. During the Middle Ages scholars and scientists only sought to identify the “virtues” inherent in a particular stone, with the idea of placing a stone within the correct “species” only emerging in the seventeenth century. Such tasks were complicated by the fact that throughout most of this period the only methods commonly available for determining the identity of a particular stone were visual observations based upon the general color and luster of the material and a test of comparative hardness. Problems related to the identification or classification of stones remain inherent in current gemology. For example, it requires both a great deal of experience as well as some form of magnification to tell the difference between similar looking gemstones such as like-colored rubies and garnets, aquamarine and blue topaz, and amethyst and purple fluorite. Further complicating the task of sorting stones is the fact that many gems and minerals

exhibit a wide range of physical characteristics. For example, natural rubies come in a range of colors from a pinkish-mauve form that is completely opaque to an utterly translucent, pigeons-blood red; sapphires naturally exist in a wide variety of colors including pink, a clear, colorless variety, and various colors of blue. Compilers of lapidaries, such as Pliny the Elder, confused some stones by placing them all together in a classification according to relative color. Tourmaline, which comes in a wide variety of colors including red, pink, yellow, green, blue and black, is one of the few gemstones not attributed with specific physical or healing properties within the medieval or early modern lapidaries because, like their classical predecessors, scholars of these periods often did not recognize it as a separate gemstone.

Due in part to these potential difficulties in sorting one gem from another, medieval and early modern texts reflect specific anxieties exhibited as well by consumers. Testing for false or inferior stones is a common theme in both medieval and early modern writings dealing with the topics of gemstones or jewelry, indicating that consumers were aware of the possibility of possessing a misidentified gemstone. Lapidaries, pharmaceutical texts, jeweler's inventories, and even popular literature include references to false gems and suggestions about how one might be able to test for authenticity. The possibility that a lapidary substance might be a fake or misidentified gem added a limiting factor to the therapeutic use of stones, and is cited as a means of explanation by practitioners and patients when this form of healing failed to produce the intended results.

The history of medicine as a separate field of inquiry began with the writings of “gentlemen scholars” and antiquarians of the nineteenth and early twentieth centuries.

Since these writers were often trained doctors working with the goal of producing a history of their profession, early studies primarily focused on the practices of university-trained physicians and on Galenic theories taught in medieval and early modern medical schools. The idea of “medicine” in the Western scholarly tradition therefore became focused on those practices which fit modern concepts and definitions, rather than an objective inquiry into the true diversity of Western medical theory and practice. The role of popular healthcare practitioners was therefore discounted or overlooked while traditional medical therapies based on the properties of herbs, stones, or animal products were labeled as magic or superstition. This trend largely continued until the last decades of the twentieth-century, when the interest of some professional historians turned to practitioners of medicine who had previously been marginalized in the Western tradition such as herbalists, apothecaries, and midwives.

While recent decades have seen the production of historical studies that contribute to a more complete picture of the culture and practice of medieval and early modern healing, a comprehensive study of the role of lapidary medicine is still notably absent from this field of inquiry. The exclusion of this form of healing from modern scholarly concepts of “medicine” is perhaps due to the fact that lapidary healing is no longer part of recognized ideas of “orthodox” medicine. Therefore, in the past century historians of medicine have generally considered the topic outside of the scope of their inquiries while historians of medieval and early modern magic and religion take up the topic only to conflate it with a multitude of other culturally extinct practices of those periods under a general heading of “magic.” In doing so, each field has overlooked the large amount of extant textual, iconographic, and archeological evidence that reveals a complex system of

scholarly rational behind the practice as well as widespread implementation among both elite and popular consumers, demonstrating the significance of the idea of lapidary medicine in the history of Western Europe.

The first texts directly relevant to a modern historical investigation of the topic of lapidary medicine are several nineteenth-century French literary studies that focused on the sources, composition, and transmission of lapidaries as a particular genre of medieval literature. The first and most significant of these works, entitled *Les lapidaires français du moyen âge des XIIe, XIIIe et XIVe siècles*, by Leopold Pannier, an archivist in the department of manuscripts at the *Bibliothèque Nationale* and a founding member of *Société des Anciens Textes Français*, was published in 1882.²¹ This work details the French lapidary tradition based on the Latin verse lapidary of Marbode of Rennes' *De lapidibus*, as well as the impact of this text on vernacular verse lapidary tradition in Western Europe during the twelfth, thirteenth, and fourteenth centuries. Pannier describes how Marbode's lapidary effectively re-popularized classical scientific theories about the natural healing properties inherent in gemstones and ultimately stimulated the production of a unique medieval lapidary tradition. He credits the profound impact of *De lapidibus*, which he notes acted as the classic pharmaceutical text of Europe until the end of the sixteenth century, not on the original Latin version but on the translation of the text into the various vernacular languages of Western Europe, including French, Italian, Spanish, English, Irish, and Danish.²² Pannier also devotes some effort to relating the effect of these texts on the art of healing practiced by monks, doctors, and goldsmiths in

²¹ Leopold Pannier, *Les lapidaires français du moyen âge des XIIe, XIIIe et XIVe siècles* (Paris, 1882).

²² Ibid, 20.

Latin and Germanic Europe in the twelfth to thirteenth centuries as well as its effect on theories of medicine found in fourteenth-century Italy.²³

As a historical archivist primarily interested in medieval French poetry, Pannier's investigations are almost exclusively confined to verse versions of lapidaries. Pannier explains the brevity with which he addresses prose lapidaries by stating his view that "leur valeur littéraire est nulle."²⁴ Much of Pannier's study is therefore devoted to describing the various extant verse versions of *De lapidibus* to be found in French, German, and Italian archives, as well as to an analysis of the composition and sources of several other medieval vernacular verse lapidaries based on Marbode's work. *Les lapidaires français du moyen âge* is the only published work which includes the transcribed text of many of these less well-known medieval French lapidaries and Pannier's expertise and insights on the compilation and sources of these manuscripts are invaluable. Pannier makes other contributions to the study of lapidary medicine through his theories on the circulation of medieval verse lapidaries, which, like many other popular poems of the Middle Ages such as *Chanson de Roland* or the *Vie of Saint Alexis*, he contends were circulated by oral tradition and memorization.

The second influential French study also considers lapidaries primarily for their value as works of medieval literature rather than for what they might reveal about medieval social or cultural practices. French orientalist and specialist in the genre of lapidaries, Fernand de Mély's originally intended to produce a monumental work comprised of five volumes devoted to the study and analysis of Chinese, Greek, Oriental (those written in Arabic, Sanskrit, Armenian, and Hebrew), Latin, and Western

²³ Ibid, 21, 70.

²⁴ Ibid, 77.

vernacular lapidaries. His goal, however, fell short in that he published only those parts of his work devoted to the Chinese and Greek lapidary tradition, under the title of *Les lapidaires de l'antiquité et du moyen âge*, printed over the period 1896 to 1902.²⁵ The first book of this copious work, entitled, *Les lapidaires chinois*, addresses the development and compilation of Chinese lapidaries, and, to a lesser degree, those produced in Japan and areas of South Eastern Asia. While de Mély concedes that China possessed an ancient tradition of gemstone lore, he notes that stones were considered primarily as aesthetic objects and that no book entirely about the mineralogical and medicinal properties of stones appears in China until the 12th century. He argues that the academic tradition and structure of Chinese lapidaries, and to a lesser degree those of Japan, were influenced by the texts of classical authors such as Galen, Aristotle, and Pliny, via the circulation of European and Islamic texts in areas of mutual contact, such as Western Asia, and along trade routes. De Mély arrives at his conclusions about the transmission of classical lapidary tradition to the lapidaries of the East through an exhaustive comparison of the content, form, and language of the most influential lapidaries produced in China and Japan from the thirteenth to the nineteenth century. For example, de Mély examined the lapidary of the renown Chinese scholar Li Chi Tchen, which exists as a vast compilation of stones produced in 1546 by decree of the Ming Dynasty Emperor Wan Lib. He notes that this text, as well as other Chinese lapidaries, contains elements of gemstone lore specific to classical Western authors such as Pliny. In particular, Pliny's *Natural History* contains the idea that diamonds are so hard that they "cannot be broken, but by the blood of a goat."²⁶ This claim is based upon the

²⁵ Mély, F. de. *Les lapidaires de l'antiquité et du moyen age. Ouvrage publié sous les auspices du Ministère de l'instruction publique et de l'Académie des sciences*. Paris: E. Leroux, 1896.

²⁶ Ibid., 263.

classical belief that the purity of a diamond must be defiled, in this case by the baseness of goat's blood, in order for it to be subject to manipulation. Late medieval Armenian lapidaries incorporated this notion, yet changed the base substance responsible for violating the diamond from goat's blood to the horn of a stag. This Armenian tradition is found in Asian lapidaries, which, Mély argues, incorporated Pliny's works through contact with Armenian sources, such as lapidaries. Although Mély's work is, admittedly, more than a century old, his conclusions were based on a vast library of Chinese texts collected by the French Journal *Asiatique* in the eighteenth and nineteenth centuries. Although his conclusions may be revised in light of future investigations, at the present time no other historian has sought to reexamine the complex connections between Western and Eastern lapidaries, a topic for future investigations by global historians.

The second and third volumes in de Mély's series, jointly titled *Les lapidaires grecs*, are devoted to the study of ancient Greek lapidaries, including those attributed to Cyranides, Damigeron, Socrates, Dionysius, pseudo-Dioscorides, pseudo-Hippocrates, Epiphanius, and Psellos. De Mély not only provides commentary on the production and composition of these texts, but also on variant editions for several of them. *Les lapidaires grecs* begins by placing the Greek lapidary into its historical contexts, thereafter providing French translations of Theophrastus' *Peri Lithon*, Strabo's *Geography*, Dioscorides' *Materia Medica*, and Plutarch's *Treatise on Rivers and Mountains*, followed by the text of *Cyranides*. Although the production of this series ceased before the addition of the accompanying commentary to these influential Greek texts, de Mély's work also provides essential scholarship to the study of several important lapidaries of the Western tradition.

Nearly a half century after the work of Pannier and de Mély, English antiquarian Joan Evans emerged as the foremost authority on European lapidary tradition and the practice of using gemstones and jewelry as healing aids. Primary evidence for evaluating the practice of lapidary medicine within Western Europe exists in three main areas: written sources, surviving artifacts, and iconographic evidence. The treatment of this subject falls along the same lines in that academics writing on the topic of medieval jewelry often approach the subject from the very different, and usually narrowed, perspectives of linguists, antiquarians, or scholars of art history. The work of Joan Evans is unique within studies of medieval jewelry in that she draws upon each of these disciplines to present a more integrated vision of the role of jewelry within the history of Western Europe. Writing in the early decades of the twentieth century, Evans employed impressive linguistic and archival skills, combined with an exhaustive knowledge of archaeology, paleography, art history, and literature, to produce a number of academic studies on the topics of medieval literature, art, dress, and jewelry.

Evans' most influential works include *Magical Jewels of the Middle Ages and Renaissance Particularly in England*, *History of Jewellery: 1100-1870*, *English Jewellery from the fifth century A.D. to 1800*, and *English Posies and Posy Rings*, as well as several other works on the topic of medieval art, lapidaries, and costume.²⁷ An Oxford-trained archeologist and historian, Evans' bases her works on historical research drawn from primary documents and archival sources, medieval literature and art, as well

²⁷ See Joan Evans, *Magical Jewels of the Middle Ages and the Renaissance, Particularly in England* (London: Oxford University Press, 1921), Joan Evans, *History of Jewellery: 1100-1870* (New York: Dover Publications, 1990), Joan Evans, *English Jewellery from the Fifth Century A.D. to 1800* (London, Methuen & Co. Ltd., 1921), Joan Evans, *English Posies and Posy Rings* (London: Oxford University Press, H. Milford, 1931).

as extensive archeological evidence.²⁸ She draws much of her archaeological evidence from private collections of medieval jewelry, most notably that of her father, Sir John Evans, and her half-brother, world-renown archeologist, Sir Arthur Evans.²⁹ Unlike many other historians of jewelry, Evans documents articles of jewelry mentioned within her works, noting the collection or museum which houses the artifact as well as the translator of any garbled or obscure inscriptions. Evans' work benefits from her family connections, which allowed her access to private collections held by other British aristocrats.³⁰ Citations in her works reveal that she also had access to many articles of medieval jewelry sold at various British auction houses during the early decades of the twentieth century. Many of these jewels were part of large, privately owned collections which were broken up and sold off piecemeal and therefore are now lost to current historians.³¹

In 1924, together with Paul Studer, a professor of Romance languages, Evans co-edited *Anglo-Norman Lapidaries*, a work that contains transcriptions and analyzes vernacular prose versions of Marbode's lapidary along with several other Anglo-Norman prose lapidaries produced in England.³² Later, in 1933, she co-edited a counterpart to this

²⁸ Although Evans holds real and honorary degrees, including a masters and doctorate from Oxford and Cambridge, her works usually list her merely as "Librarian of St. Hugh's College, Oxford."

²⁹ In *English Posies and Posy Rings* Evans frequently cites and describes articles of jewelry found in private collections sold at English auction houses such as the *Catalogue of the Collection of F.A. Harmon Oates*, sold at Sotheby's Feb. 20, 1929. Many of these articles of jewelry were sold to individual collectors and as such passed out of the reach of other historians who have since compiled works on the subject of medieval jewelry. Several medieval rings now part of the Victoria and Albert collection were also donated by Joan Evans from her personal collection of medieval and early modern jewelry.

³⁰ Since many of these collections have since been dismantled and sold off they are no longer readily available to historians, Evans' documentation and analysis of these jewels is one of the few records left of their existence.

³¹ This is indicated by the references provided by Evans in "Abbreviations of Sources" listed in *English Posies and Posy Rings*. See, Evans, *English Posies and Posy Rings*, xxviii-xxxii.

³² Paul Studer and Joan Evans, *Anglo-Norman Lapidaries* (Paris: Edouard Champion, 1924.)

volume with Mary S. Serjeantson entitled *English Medieval Lapidaries*, which analyzed the composition of an Old English lapidary, thirteen Anglo-Norman texts, and a number of fifteenth- and sixteenth-century lapidaries written in English.³³ In *English Posies and Posy Rings*, a work entirely devoted to the inscriptions found upon predominantly medieval English posy rings, Evans also developed a system of symbols to indicate the type of metal found in each ring, whether it was ornamented or plain, the location of inscriptions, and the type of lettering used.

While Evans' surveys of medieval jewels are acknowledged as basic works in the field and her studies of lapidaries provide the transcribed texts of many rare manuscript works, her most important contribution to the topic of lapidary medicine is *Magical Jewels of the Middle Ages and Renaissance Particularly in England*, a study of the "magical" uses of jewelry in the history of Western Europe. Whereas social historians of the last century have primarily focused on the economic aspects of jewelry as a visible form of wealth and personal adornment for the privileged classes, the works of Evans, and *Magical Jewels* in particular, document an ordered system of belief connected to the therapeutic uses of jewelry and gemstones that is notably absent from the more recent historiography of medieval and early modern medicine. While the main body of the book centers on the role of jewelry in medieval and renaissance England, Evans puts these periods in context by tracing the textual origins of the phenomenon from classical times to the Enlightenment. She begins with a chapter that explores the intellectual origins of the belief, starting with the rational thought of Hellenic philosophers, healers, and writers

³³ Joan Evans and Mary S. Serjeantson, *English Medieval Lapidaries* (London: Humphrey Milford Oxford University Press, 1933).

who theorized that certain gemstones and metals possessed specific natural properties inherent in their substance that could be utilized for medicinal applications. Evans characterizes the Hellenic approach to the power of gemstones as a rational one, devoid of the magical aspects which she argues crept into writings produced in the Hellenistic Age and during the Roman Republic and Empire. She then details the development of early Christian lapidaries, texts which blended classical thought with early Christian teachings and integrated elements of pagan traditions with the mineralogical knowledge of the ancient world.³⁴ Evans contends that while the early Christian Church was opposed to magic in all forms, it nevertheless affirmed the orthodoxy of using amulets to heal and protect, a practice which grew in popularity to flourish within all levels of society in the Later Middle Ages.³⁵ Next Evans turns to the Arabic tradition of lapidaries, noting that they derived much of their references to medicinal virtues found in gemstones from the same ancient Greek sources that influenced Western Europe. She notes, however, that Arabic lapidaries, which would later enter Europe through their use in Spain, integrated elements of astrology with medical science and were produced within a tradition of experimentation and research often absent in the West.³⁶

The next three chapters of *Magical Jewels* are specifically devoted to the production of lapidaries in Western Europe during the Middle Ages. Evans provides a detailed account of the characteristics common to lapidaries available in Europe after the

³⁴ Lapidaries were the mineralogical text books of the Middle Ages that detailed not only the physical properties of gemstones and jewelry but often their magical and medicinal properties as well. During the later Middle Ages, scholars in Western Europe relied heavily on various classical lapidaries and created their own based upon a blend of this information mixed with popular beliefs.

³⁵ Evans, *Magical Jewels*, 29.

³⁶ While Evans does not explicitly state so, these last two characteristics are absent from the Classical and Christian lapidary tradition prevalent throughout Western Europe and which were compiled without the Arabic influences present within medieval Spain.

eleventh century, also offering a detailed description of the forms of religious jewelry that became popular during this time, such as the use of reliquary pendants, which claimed to draw upon the power of God and the intercession of saints to protect and heal. From the Middle Ages, Evans moves forward in time to detail the lapidary texts of the Renaissance, Reformation, and, finally, the Scientific Revolution of the eighteenth century. She argues that interest in lapidaries expanded during the Renaissance since they, more than any other type of medieval literature, were directly descended from classical texts.³⁷ *Magical Jewels* closes with a chapter that explains how general belief in the healing properties of stones waned during the Scientific Revolution, a time in which concepts of the universe fundamentally changed and widespread use of experimentation weakened such traditional beliefs.

While Evans's works are solidly based in original archival research, they were written at a time when modern historical method was still in its infancy and therefore they lack many elements one would expect to find in a modern study. Evans employs a largely antiquarian approach to the subject, presenting a traditional linear progression of events from the Ancient World to the Scientific Revolution in a largely descriptive manner, primarily focusing on the academic transmission of ideas rather than any deeper analysis of social significance or cultural context. As can only be expected of historians of this era, Evans' focus is firmly upon the elite social and academic tradition. While she notes that certain texts of lapidary medicine were largely based on the work of previous authors, she offers no theory or explanation as to how texts and ideas of lapidary medicine might have circulated. Moreover, she is silent on the reception and popularity of ideas in vernacular texts outside of scholarly circles. Also absent is any inquiry into

³⁷ Evans, *Magical Jewels*, 140.

the practical application of the information contained within lapidary texts. Other than noting that lapidaries were produced in exceptionally large numbers when compared with other forms of contemporary literature and providing descriptions of certain articles of extant jewelry that appear to have been intended for use in “magical” healing, Evans provides no links from texts to individuals.

After Evans, the topic of lapidary healing was largely forgotten or ignored by twentieth-century historians. The exception is a short revival of interest in the subject that took place in the late 1960’s through the 1980’s, possibly through the influences of the New Age movement, which resulted in the appearance of critical translations of several influential classical and medieval lapidary texts as well as some archival projects that surveyed the number and location of extant lapidaries. These studies include the translation of Damigeron’s *De virtutibus lapidum*, or the *Virtue of Stones*, a second-century Roman work. While not produced with a strictly scholarly audience in mind, this text remains the only available English translation of this influential work.³⁸ Also important is Dorothy Wyckoff’s critical translation with commentary of Albertus Magnus’ *Book of Minerals*.³⁹ The contributions of Wyckoff are particularly useful in that they offer material insights into the substances described in this thirteenth-century lapidary. Wyckoff, a professor of geology at Bryn Mawr College, categorizes the text as a work of “science” according to contemporary definitions and distances *Book of Minerals* from several alchemical treatises attributed to Albertus, stating that the text is free from the “obscurity and mystification” commonly found in alchemical works.⁴⁰ A

³⁸ Damigeron, *De Virtutibus Lapidum*, trans. Patricia P. Tahil, ed. Joel Radcliffe (Seattle: Ars Obsura, 1989)

³⁹ Albertus Magnus, *Book of Minerals*, ed. Dorothy Wyckoff (Oxford: Clarendon Press, 1967)

⁴⁰ *Ibid.*, xxx.

few years after Wyckoff's translation of the *Book of Minerals*, Michael R. Best and Frank H. Brightman produced a critical edition of a pseudo Albertus Magnus work loosely based upon portions of the *Book of Minerals* entitled *The Book of Secrets of Albertus Magnus of the Virtues of Herbs, Stones and Certain Beasts*.⁴¹

The most influential of these recent studies of lapidary texts was produced by historian John Riddle. It considers the use and reception of Marbode of Rennes' *De lapidibus* as a medical treatise in medieval and early modern Europe.⁴² In his introduction, Riddle argues that the origins of the Scientific Revolution can be found in the late eleventh century, with a change in mindset in which medieval man actively began to search for knowledge by which to empower himself. He contends that however 'magical' lapidaries might appear to modern readers, they were, in fact, considered part of the medical and pharmaceutical literature of the age and that Marbode's treatise, in particular, long acted as a practical guide to the medicinal use of stones. Riddle therefore directly connects medieval attitudes about the use and acquisition of knowledge with the advent of modern science.

Riddle's work considers Marbodes' treatise strictly according to medieval sensibilities and he rejects placing modern distinctions or definitions upon historical texts or practices. Through evidence gathered from extensive archival research in medieval pharmaceutical manuscripts, he demonstrates the importance of looking at the form,

⁴¹ Albertus Magnus *The Book of Secrets of Albertus Magnus of the Virtues of Herbs, Stones and Certain Beasts*, eds. Michael R. Best and Frank H. Brightman (New York: Oxford University Press, 1973).

⁴² John M. Riddle, *Marbode of Rennes' (1035-1123), De lapidibus, considered as a Medical Treatise, with Text, Commentary and C. W. King's Translation* (Wiesbaden: Franz Steiner Verlag GMBH, 1977). Riddle also addresses the therapeutic use of stones and lapidaries as medieval medical texts in John M Riddle, "Lithotherapy in the Middle Ages: lapidaries considered as medical texts," *Pharmacy in History* 12 (1970), 39-50.

content, and even the bindings of lapidaries to find evidence of usage and intent. Riddle points to clues found in marginal notations and inscriptions as support for his argument that lapidaries were compiled and used as scientific treatises on the healing properties of stones and employed as medical and pharmaceutical guides. The work of John Riddle is almost unique among historians of the twentieth century in that it focuses on the use of lapidaries as part of medical literature and by the fact that he discounts modern definitions that label the practice of lapidary healing as “magical,” instead choosing to use terminology contemporary to the texts and their authors.

With the exception of the works of Joan Evans and John Riddle, there have been no major scholarly studies specifically dedicated to the study of lapidaries or the particular practice of using gemstones or jewelry as a form of medicine. However, in the last half of the twentieth century several prominent historians mention the topic as part of their larger studies of popular religion and magic. One of the most important and influential works produced on the topic of early modern religion, culture, and society, Keith Thomas' *Religion and the Decline of Magic* includes references to the traditional use of therapies based on theories of lapidary medicine within the category of “magical healing.”⁴³ Thomas describes the social, cultural, religious, and intellectual environment of early modern England, characterizing it as a pre-industrial, largely rural, and highly stratified society that exhibited a vast range in standards of living, education, and intellectual sensibilities. He contends that due to the physical and spiritual dangers inherent in their “intensely insecure environment” the society of early modern England was preoccupied with a search to find explanations for human misfortunes as well as

⁴³ Keith Thomas, *Religion and the Decline of Magic* (New York: Charles Scribner's Sons, 1971), 178-211.

solutions which would provide some sort of relief from them.⁴⁴ Thomas states that the concept of "medicine" to a member of early modern society was a peculiar blend of classical science, pagan magic, and Christian religion, far removed from the predominantly scientific discipline that it has become in the modern age, and that medical care was therefore sought from a wide range of practitioners. While acknowledging the blended nature of healthcare in this society, Thomas effectively divides his treatment of medical professionals and practices of healing into two categories: medicine and magic.

In the category of early modern medicine, Thomas places healthcare professionals such as physicians, surgeons, and apothecaries. To summarize the position and effectiveness of each of these he notes that due to reliance on Galenic humeral theory, orthodox medicine taught in universities and practiced by physicians was generally ineffective; additionally, the majority of the population could not afford the substantial fees charged by physicians.⁴⁵ The methods of surgeons, a separate and lower class of the medical profession, were perhaps even less appealing to a medical consumer in that they included amputations, trepanning, and the lancing of abscesses. He argues that such procedures were understandably terrifying to perspective patients and, in the absence of any antiseptics or anesthetics, could potentially prove to be more dangerous than the original complaint. Thomas notes that in seventeenth-century England, apothecaries took on the task of diagnosing illnesses and prescribing and supplying the appropriate "medicine." Having provided this overview of the medical establishment in early modern England, Thomas argues that such organized professionals had little impact on the healthcare practices of the bulk of society and that most early modern people

⁴⁴ Thomas, *Religion*, 4-5.

⁴⁵ *Ibid.*, 10-11.

bypassed licensed and educated practitioners altogether, instead seeking the aid of a wide range of alternative practitioners such as herbalists, sorcerers, and wise women, or else treating themselves and their households with folk remedies.⁴⁶ As part of the employment of private remedies, he briefly refers to printed texts such as Nicholas Culpepper's *A Physicall Directory*, first published in 1649, that were produced and sold in great numbers to individuals presumably wishing to see to their own medical needs.

Under the second category of magical healing, Thomas combines a hodgepodge of cures provided by a wide variety of early modern practitioners including witches, sorcerers, cunning men, the village wise women, midwives, and even the patients themselves. He states that the "folk cures" offered by these individuals were based upon a mixture of common sense, nursing and midwifery experience, and the "lore" about the healing properties of plants and minerals.⁴⁷ Thus, what amounts to an immensely broad range of practices are collectively linked and conflated, although Thomas avers that they did not "reflect a single coherent cosmology."⁴⁸ Thomas states that there was little distinction between natural remedies and supernatural ones because many cures that "seem magical to us were in fact based upon obsolescent assumptions about the physical properties of natural substances." He later explains that the idea that substances such as stones and herbs held certain healing "virtues" was a "magical" cure in that it was justified by Neoplatonist beliefs in "occult influences and sympathies."⁴⁹ Furthermore,

⁴⁶ Ibid., 11-12.

⁴⁷ Ibid., 178.

⁴⁸ Ibid., 185.

⁴⁹ Ibid., 190.

Thomas argues that any cure which acts beyond the understanding and comprehension of the patient is, in some sense, magical.⁵⁰

While Thomas presents a comprehensive account of the varied types of popular medical practices in early modern England, he tends to simplify the specifics of healing outside medical orthodoxy, ultimately presenting an unsatisfactory explanation of lapidary medicine as little more than a superstitious attempt to find psychological security in a physical environment fraught with physical and spiritual dangers. There is also some sense of logical disconnect between Thomas's categorization of the practices of physicians and apothecaries as "medical" and those cures based in herbs and minerals as "magical" in light of the fact that physicians routinely prescribed cures based on the same Neoplatonist principles and subscribed to the belief that materials such as stones held healing virtues inherent in their natural substances. The trade of apothecaries, part of Thomas' medical establishment, was almost entirely based upon their prescription and supply of such items. Thomas specifically points to the use of *aetites* or eaglestones as one of the many cures based in ideas about the healing properties found in natural substances which he addresses under "magical cures," yet these stones appear in the *Pharmacopaeia Londinensis* of 1691 produced by the London College of Physicians, the licensing body for medical texts during this period.⁵¹ He labels both the self-administration of cures as well as the contents of such texts as "magical," yet many of these works were written or sold on the authority of noted physicians of the age and licensed by the College of Physicians. In each of these instances Thomas discards contemporary medieval and early modern conceptions of science and medicine, in favor

⁵⁰ Ibid., 191.

⁵¹ William Salmon, *Pharmacopaeia Londinensis*, 1691.

of imposing his own modern definitions. Although grounded in extensive archival research and a comprehensive knowledge of early modern society and culture, on the topic of healthcare and lapidary medicine *Religion and the Decline of Magic* presents an uneven treatment, marred by the blending of contemporary and modern perspectives.

Over the course of the last century, other less prominent historians of magic have also included references to aspects of lapidary medicine in their studies. A pioneer in the field of the study of the history of medieval magic and science, Lynn Thorndike addresses the medieval and early modern notion that healing properties reside in stones in his comprehensive, multi-volume series entitled *A History of Magic and Experimental Science*.⁵² In this work Thorndike considers the healing use of natural substances such as stones or herbs, linking such actions to the “magical” history of Europe from the Classical world through the Scientific Revolution and Enlightenment. Since Thorndike rarely considers the healing use of stones by themselves, but as part of “magical” actions in which they were used in conjunction with inscriptions of power or rituals, it is difficult to discern whether his evaluation of the practice as inherently “magical” is based upon beliefs in the healing power of stones or upon the “magical” and “superstitious” elements combined with them. However, it is clear that when considering the “occult” virtues of stones, properties often credited as responsible for their effectiveness in healing, Thorndike’s conception of the term is based upon the modern definition as relating to magic or the magical arts rather than the usage most often found in contemporary texts on the topic of healing.

⁵² Lynn Thorndike, *A History of Magic and Experimental Science* (New York: Columbia University Press, 1964).

In more recent years, historian Richard Kieckhefer discusses the healing use of stones in his book *Magic in the Middle Ages*, which seeks to define of the place of magic within the cultural history of Europe from the Middle Ages to the sixteenth century.⁵³ Written as a survey of the topic, he draws primarily upon secondary literature. Kieckhefer addresses lapidary cures in reference to the larger topics of medieval healing and courtly culture, basing much of his discussion upon information contained within Evans' *Magical Jewels* and John Riddle's introduction to Marbode of Rennes' *De lapidibus*, rather than any first hand knowledge of lapidary texts. His ultimate evaluation of medicinal use of stones and the production and reception of lapidaries, however, exhibits significant differences from either of these scholars.

Kieckhefer begins his discussion by defining the two types of magic recognized by medieval intellectuals: natural and demonic. He defines natural magic as one that dealt with the "occult" virtues found within products of nature such as stones, animals, and plants, noting that such studies were considered to be a branch of science in the Middle Ages. Kieckhefer defines the second form, demonic magic, as a perversion of religion in which the practitioner appealed to demons rather than God.⁵⁴ To clarify his categories, he explains that his methodological approach makes causation the deciding factor for which phenomena are included within his categorization of the "magical" elements within medieval society. Therefore, if a practice relies upon divine action or draws upon the powers of nature, he terms it natural magic; however, if one calls upon demonic aid or the "occult powers" believed to be present in nature it will be considered

⁵³ Richard Kieckhefer, *Magic in the Middle Ages* (Cambridge: Cambridge University Press, 1989).

⁵⁴ Kieckhefer, *Magic*, 9.

a demonic magic.⁵⁵ In this sense, Kieckhefer's evaluation of lapidary healing is flawed from the start in that the "occult" powers of stones were almost universally recognized by medieval and early modern peoples to be wholly natural properties, a fact that would seem to firmly place it firmly within the "non-magical" category.

Derived from the Latin "occultus," meaning hidden or concealed from the eye, the adjective "occult" is used in medieval and early modern lapidaries as simply "hidden" or "unseen." As in many texts from this period, John Maplet, author of *A greene forest, or A naturall historie vwherein may bee seene first the most sufferaigne vertues in all the whole kinde of stones & mettals*, clarifies the use of the word for his readers when used in connection with stones, plants, and animals. In describing the characteristics of a particular fish in comparison to the properties of a loadstone he states that both "amazeth also (euen as the Lodestone doth) the beholder by his hid and occult naturall set or vertue."⁵⁶ The magnetic qualities of a loadstone are often held as an example of occult virtues in that the properties of its substance that act to attract metals are not readily apparent to the observation of the human eye, but such abilities, noted by writers since ancient times, were not typically considered magical or supernatural by the members of classical, medieval, or early modern society. As if in anticipation of such an argument, Kieckhefer contends that while most properties of objects such as stones and herbs was attributed to their physical substance, "occult" properties responsible for healing were most often thought to be influenced by the stars and the planets.⁵⁷ While this contention

⁵⁵ Ibid., 14.

⁵⁶ John Maplet, *A greene forest, or A naturall historie vwherein may bee seene first the most sufferaigne vertues in all the whole kinde of stones & mettals*, 1567, 84.

⁵⁷ Ibid., 13.

is not supported by a close reading of the majority of lapidary texts, any belief in the physical influence of stars and planets was fully in keeping with medieval notions of science rather than the practice of magic.

Although Kieckhefer's stated methodological intent is to use contemporary medieval classifications, he often discounts the most typical characterizations of practices in order to apply modern definitions that work to expand the overall scope and importance of the concept of "magic." Kieckhefer concedes that many medieval scholars applied the label "magic" only to demonic involvement and that they "did not always" refer to occult powers as magical. In fact, he notes that intellectuals such as Thomas Aquinas and Roger Bacon would not have applied such a term to the study of occult powers, even those influenced by the stars and planets. They reserved the term "magic" for either the appeal to the power of demons or the use of deception and fraud.⁵⁸ Kieckhefer effectively negates the value and reliability of using contemporary definitions by arguing that even when medieval people used terms such as "cure" in regard to healing or "blessing" to refer to divine intervention, they were in fact describing magical practices which they did not differentiate from medical or religious ones.

While Kieckhefer includes intermittent discussion of lapidary healing under the topic of "folk medicine," he more fully addresses the topic in his treatment of the presence of magic in medieval court culture. He associates the use of gems primarily with the nobility, who he notes would have naturally possessed greater means to afford such items. He offers several instances of stones being employed for healing or protective purposes by members of nobility, such as a ruby and diamond ring found in the Palace of Eltham and one commissioned by the Duke of Burgundy that would protect

⁵⁸ Ibid., 12.

against poison, but cites the case of Richard de Preston, a grocer who donated a sapphire to the church of St. Paul's in London, as an example showing that gemstones were not exclusive to royalty and aristocrats.⁵⁹ Kieckhefer's description of lapidaries begins with the work of Marbode, but then focuses upon lapidaries as a form of literature especially popular at court. As evidence of this he cites a lapidary ascribed to King Alfonso the Wise of Castile and León and a later printed edition of an unnamed French lapidary that was supposedly translated from Latin for the sake of a René of Anjou.⁶⁰ However, the *Lapidary of Alphonse X* is widely known to have been written by Arab scholars who resided among the king's court and it is also the accepted view that many printed texts claimed to have been translated for individuals of note as a way of increasing their prestige and therefore their interest to general consumers.

As historians of magic, both Thorndike and Kieckhefer tend to focus on the most fantastical virtues ascribed to stones in lapidary texts, such as the ability of particular stones to make their wearers invisible, to cool boiling water, burn the hand of one who holds it, or to render a garment impervious to fire. While the inclusion of such marvelous and non-medicinal virtues might seem to provide a basis for classifying lapidaries as "magical" texts, they were often contemporary attempts to describe an actual physical property of a particular mineralogical substance. For example, one of the properties usually ascribed to the stone *asbeston* is the power to render cloth fireproof. In fact, *asbeston* is the substance we now refer to as asbestos, a silicate mineral with a threadlike texture that is still used for its flame-retardant and insulating properties. Additionally, the

⁵⁹ While not cited, these examples can be found in Joan Evans's *Magical Jewels*. See, Evans, *Magical Jewels*, 112, 113, 116.

⁶⁰ Kieckhefer, *Magic*, 105.

ability of the stone *perithe*, known today as pyrite, to burn the skin of a hand that touched it was likely referring to the fact that some copper pyrites produce sulphuric acid during processes of weathering, a substance which would produce “burns” when coming in contact with skin.⁶¹ Lapidaries often claim that the stone *beryllus* kindles fire, a property that was likely derived from the fact that spheres made from the stone were sometime used as burning glasses in the Middle Ages, just as Pliny notes that balls of rock or quartz crystal were used to make lenses for cauterization.⁶² While some of the properties ascribed to certain stones might seem fantastical to a modern audience, they often become much less so when read with an eye to the mineralogical knowledge of the ancients.

Debate over the application of anthropological methods and terminology has worked to change the way in which many historians approach their subjects and categorize the beliefs and actions of past societies. The implications of this new methodology for the present study of the idea of lapidary medicine suggest that the best approach is to allow medieval and early modern conceptualizations to define our present consideration of its theory and practice. In contrast to scholars such as Joan Evans, Keith Thomas, and Richard Kieckhefer, who labored to construct complex definitions of what constitutes a scientific, magical, or religious act and then apply these constructs to a society and culture in which these elements co-existed, I propose to judge the use of lapidary healing according to contemporary medieval and early modern values. My acceptance of their value system shapes all that follows in this study since the textual

⁶¹ See Dorothy Wyckoff’s commentary on the stone *perithe* in Wyckoff, *Book of Minerals*, 106.

⁶² *Ibid.*, 76. Also see *Nat. Hist.* 37: 9-10, 37: 23-29.

evidence related to the practice of lapidary medicine is in nearly universal agreement as to both the nature of the practice as well as the basis for its efficacy.⁶³

I accept the position set forth by anthropologist Hildred Geertz in her debate with historians such as Thomas.⁶⁴ Geertz raises concerns about how modern historians should apply anthropological methods to their studies of past societies. She inquires as to whether historians and anthropologists can attempt to define or analyze beliefs that might be categorized as magic, religion, or science across cultural or temporal boundaries. She contends that, in many instances, our own cultural biases have led to the classification of certain acts as “magical” practices rather than by how they were perceived by contemporaries. Geertz points out that researchers must be conscious of the differences which exist “between the ways of conceptualizing experience (or ordering, or describing, or explaining events) that the people under study used in living out their lives, on the one hand, and, on the other, the ways of conceptualizing experience that the scholar brings to his investigation of these people and their lives.”⁶⁵ She contends that the ideas and attitudes of the subjects are usually taken for granted and expressed through direct actions while the concepts of the scholar are determined from his own cultural tradition and expressed in his own language.⁶⁶ Through this framework she examines the characterization of early modern attitudes and practices found in *Religion and the*

⁶³ Many thanks to Monica Green for sharing her time and thoughts one afternoon in Princeton on methodologies related to the classification of healing advice found in medieval, particularly in regard to her use of terms such as “medicine” and “magic” in her study of the Trotula.

⁶⁴ Hildred Geertz, “An Anthropology of Religion and Magic I,” *Journal of Interdisciplinary History* 6 (Summer 1975): 73, and Keith Thomas, “An Anthropology of Religion and Magic II,” *Journal of Interdisciplinary History* 6 (Summer 1975): 95.

⁶⁵ Geertz, “An Anthropology,” 73.

⁶⁶ *Ibid.*, 73-74.

Decline of Magic and questions whether the use of terms such as “religious” and “magical” are, in fact, products of the author’s cultural tradition and biases rather than a definition which would have been recognized by the people of early modern England. To combat this type of methodological problem, Geertz suggests that historians wishing to utilize anthropological methods should define categories according to those used by the particular people or society under examination.⁶⁷ I agree!

While the six forms of lapidaries produced in Europe since the eleventh century vary in form and structure, nearly all include some sort of preface to the body of the text in which the author characterizes the intent of his work and provides an explanation as to the healing virtues found in stones. Employing surprisingly similar language, these sources typically state in clear terms that their purpose is to reveal the healing properties of various stones as part of the art of medicine or, in later periods, the practice of “physick.” The textual evidence is equally straightforward on the causation behind the healing powers of stones. Again the near universal consensus on this topic as revealed in both medieval and early modern sources is that the healing “virtue” of each stone stems from the natural properties of its individual form and substance. According to contemporary cosmology, all aspects of a natural universe, including stones, were created by God for the use and benefit of mankind. The utility of the stones is most often at the forefront of any discussion, the texts of lapidaries often reveal a belief that God has not only supplied man with such healing substances but also empowered him with the knowledge of use. In this manner medieval and early modern individual looked upon the medicinal properties of stones in much the same fashion as they regarded the usefulness

⁶⁷ Ibid.

of a mineral such as salt to act as an agent to preserve fresh meat and fish or the ability of a piece of flint to strike a spark for a fire. Some texts do include the influences of the stars or planets upon the properties contained within stones, but again these bodies were also contained within a natural universe created by God and the study of such influences was considered to be part of medieval science. Any mention of the use or power of “magic” would be out of character for a typical lapidary and therefore does not enter into a discussion of the practice of lapidary medicine as defined by these methodologies.

In recent decades, scholars working on the history of the book and the circulation of ideas have contributed to a change in the traditional historical conceptualizations of medieval and early modern medicine. The work of Elizabeth Eisenstein and, later, Adrian Johns, demonstrated the immense impact of print culture on early modern society.⁶⁸ Studies of the relationship between the size and price of printed texts and early modern popular consumption allow historians to form theories about the circulation and practical implementation of medical advice found in books. Rudolph Bell’s inquiry into the use of popular advice manuals in sixteenth-century Italy demonstrated the great ranges of printed self-help manuals containing medical advice during this period, particularly those marketed towards a female audience. In effect, these texts allowed early modern consumers to become their own medical practitioners, to take an active role in their own healthcare, resulting in a diffusion of much of the power and mystique that traditionally surrounded university-trained physicians.⁶⁹ Monica Green’s subsequent work on the

⁶⁸ See E. L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformation in Early-Modern Europe* (Cambridge: Cambridge University Press, 1979), E. L. Eisenstein, *The Printing Revolution in Early-Modern Europe* (Cambridge: Cambridge University Press, 1983), and Adrian Johns, *The Nature of the Book: Print Knowledge in the Making* (Chicago: University of Chicago Press, 1998).

⁶⁹ See Rudolph Bell, *How to Do It: Guides to Good Living for Renaissance Italians* (Chicago: The University of Chicago Press, 1999), 19. Special thanks to Rudolph Bell for originally suggesting the use of

production and use of medieval and early modern gynecological texts and the practice of midwifery has further drawn attention not only to texts about women's healthcare but also to female involvement in the practice of medicine.⁷⁰ Elizabeth Furdell's study of the connections between publishing and medicine in England reveals the fractured nature of the medical environment of early modern London, where consumer demand for less expensive alternatives to the exorbitant fees charged by physicians and even apothecaries resulted in the immense popularity of printed health care manuals.⁷¹ While these historians do not specifically address the use of lapidary healing as a separate, ordered system of medicine, their work acts to enrich our understanding of daily healthcare among the general popular of early modern Europe and expand historical definitions of "medicine" in Western society.

In the following chapters, my study traces the transmission of the idea of lapidary medicine in the West from its earliest origins in Hellenic Greece to its wide dissemination through the print culture of early modern England. Chapter 2 explores the mineralogical and medicinal treatises of the Classical World, including the works of Theophrastus, Dioscorides, and Pliny the Elder. These texts represent the basis for European lapidary knowledge and classification as well as the authority upon which medieval and early modern scholars, scientists, and healthcare practitioners later built their systems of belief about the efficacy of this form of healing. It also explores the vibrant oral and

printed texts and methodologies related to the history of the book as a basis for this inquiry into the idea and practice of lapidary medicine.

⁷⁰ See *The Trotula: a medieval compendium of women's medicine*, edited and translated by Monica H. Green, (Philadelphia: University of Pennsylvania Press, 2001) and Monica H. Green, *Making women's medicine masculine : the rise of male authority in pre-modern gynaecology* (New York: Oxford University Press, 2008).

⁷¹ See Elizabeth Furdell, *Publishing and Medicine in Early Modern England* (Rochester: the University of Rochester Press, 2002).

manuscript cultures of medieval Europe beginning in the eleventh century, when a widespread system of medicinal thought and practice based on the healing “virtues” of gemstones emerged in Western Europe. Chapter 3 reveals how the use of print technology in sixteenth-century England introduced popular advice manuals that combined lapidary practices with the use of herbs and Galenic principles of “physick,” exposing an even wider audience and readership to the idea. The final chapter uses a variety of archival sources including wills, legal documents, jeweler’s manuals, apothecary inventories, and apothecary bills, combined with material culture evidence in the form of paintings and surviving articles of jewelry to demonstrate the practical application of lapidary theory in medieval and early modern England.

Chapter Two: The Classical and Medieval Origins of Early Modern Lapidary Medicine

The idea of lapidary medicine evident in sixteenth- and seventeenth-century England is the product of nearly two millennia of development in theories about the healing virtues of stones. Beginning with the mineralogical treatises of ancient Greece, ideas about the nature, origin, and therapeutic application of stones grew in number and complexity throughout the medieval and early modern periods, evolving and adapting to social and cultural changes to form a cohesive medical theory. Classical works sought to reveal the properties of gems as one of many marvelous products of nature; medieval writers built upon these ideas, integrating them with a Christian cosmology that saw them as gifts from God provided for the use and benefit of mankind. Disseminated as mineralogical treatises, pharmaceutical texts, encyclopedic works, and even popular poems, lapidaries were rarely the original work of one author, but rather a compilation of assertions brought together from a variety of ancient and contemporary authorities. The aim of this chapter is to trace the development of lapidary theory from the classical world throughout the Middle Ages by examining the form and content of the twelve most influential lapidaries produced in Western European society during this period.

The earliest known Western work to expressly deal with the properties of “stones” in a medical sense is the ancient Greek treatise entitled *Περὶ Λίθων*, or simply “On Stones,” written by Theophrastus about 315 BCE. As a student of Plato and Aristotle, Theophrastus builds upon theories derived from both philosophers as to the nature of the physical world in order to produce the first focused and systematic study of minerals as a distinct substance. In the Socratic dialogue *Timaeus*, Plato suggests that of the four

elements that make up material in nature (earth, air, fire, and water) metals are primarily comprised of water while stones are formed from particles of earth.⁷² Aristotle expands upon these ideas in the last chapter of Book III of his work *Meteorologica*, which provides a brief account of both metals and “fossiles” as two corresponding bodies formed within the earth by “vaporous exhalations.”⁷³ Aristotle, himself, terms his treatment of metals and “fossiles” as a generalized account and therefore he does not attempt to provide specific details about any metals or mineralogical substances. The end of Book III alludes to a more focused treatment to follow; however, the next book of *Meteorologica* addresses other topics.⁷⁴

Theophrastus’ treatise, therefore, represents a possible attempt to rectify this omission by providing the specific discussion of minerals and stones that is absent from Aristotle’s work. Compiled as a companion piece to a separate text on the properties of metals that is now lost to historians, the treatise “On Stones” provides a philosophical and descriptive account of two types of materials formed within the earth: earths and stones.⁷⁵ Theophrastus states that while both these materials possess distinctive properties in respect to color, viscosity, smoothness, and solidity, only stones have the power to: 1) act upon other substances, 2) react to other substances, and 3) fail to react to other substances.⁷⁶ The majority of the text is therefore devoted to the exploration of theories

⁷² Plato, *Timaeus*, 59^{a-b}

⁷³ Aristotle, *Mete.*, 378^a15-30. Under the classification of “fossiles,” referring literally to substances dug, quarried or mined, Aristotle groups both minerals as well as stones that cannot be melted. See David E. Eichholz, “Aristotle’s Theory of the Formation of Metals and Minerals,” *Classical Quarterly* 43, nos. 3-4 (1949).

⁷⁴ Aristotle, *Mete.*, 378^b 1-5.

⁷⁵ Theophrastus, *De lap.* 1. Translation provided by Theophrastus, *De Lapidibus*, ed. and trans. D. E. Eichholz (Oxford: Clarendon Press, 1965).

⁷⁶ Theophrastus, *De lap.* 2-4.

relating to the natural origins and physical characteristics of stones in a general sense, rather than a catalogue of particular substances. Although Theophrastus mentions some fifty different mineralogical substances (including minerals, metalloids, and gemstones) in many instances he lists the name of a particular stone only as a means of providing a specific example of a more general property. For instance, to illustrate the power of stones to act upon another substance, he relates that amber possesses the power to attract pieces of straw or leaves and that another stone holds the power to draw iron.⁷⁷

Theophrastus also provides information as to the geographic origin of many stones found throughout the ancient world, their relative value, and some popular uses, such as stones that are commonly worn in jewelry or favored for signets.

Within the scope of his mineralogical study, Theophrastus originated several theories that would become part of both academic and popular consciousness on the nature of stones. In his introductory remarks on the “powers” of stones, he notes that the “greatest and most remarkable power, if this be true, is that possessed by the stones which bring forth other stones,”⁷⁸ a statement referring to a stone that Theophrastus does not name, but which later came to be known as *aëtites* or eaglestones, that were believed to “give birth” to other stones. The physical form of these stones, hollow geodes that often contained loose crystals, apparently gave rise to the belief that they procreated in some sense. Theophrastus also provides the first mention of a somewhat related belief:

⁷⁷ Theophrastus, *De lap.* 28-29. Although Theophrastus does not specifically identify the stone that attracts iron, which he says is rare, he almost certainly refers to naturally occurring loadstones. While some early modern writers recognized amber as some type of hardened sap, classical and medieval authors considered it to be merely another type of stone. Amber is only stone said by Aristotle to be formed by the refrigeration, specifically being submerged in a river. See, Aristotle, *Mete.*, 388^b21.

⁷⁸ Theophrastus, *De lap.* 5.

the idea that stones have either a male or female gender. In explaining the fact that some stones with the same name sometimes present a varied physical appearance, he notes, “For instance, there is the ‘sard,’ of which the transparent, ruddier kind is known as the ‘female,’ while the transparent but darker variety is known as the ‘male.’”⁷⁹ These ideas continue to appear in lapidary texts compiled throughout the classical, medieval and early modern periods and, according to the personal observations of English antiquarian Joan Evans, the classification of stones as “male” and “female” and the idea that stones could “breed” retained credence among people living in the English countryside until well into the twentieth century.⁸⁰

The substances Theophrastus chose to include within his study of “stones” undoubtedly encouraged the inclusion of non-geological materials within the Western lapidary tradition. “On Stones” contains significant discussion not only of the geographic origin of stones but also the methods by which they were obtained from rivers and mines. Most of the materials discussed by Theophrastus are undoubtedly “formed within the earth,” as he states in the first line of the treatise; however, a small number of substances classified as “stones which possess an unusual character” are readily acknowledged to be products of animals and plants. While noting that pearls grow within oysters in India and “certain islands in the Red Sea,” he still considers them to be a “precious stone” and notes that they are made into costly jewelry.⁸¹ Similarly, in reference to red coral, Theophrastus states that it is “just like a stone” but grows in the sea.⁸² Another stone,

⁷⁹ Theophrastus, *De lap.* 30.

⁸⁰ Evans, *Magical Jewels*, 15.

⁸¹ Theophrastus, *De lap.* 36.

⁸² Theophrastus, *De lap.* 38.

identified as *lyngurium*, is said to be clear and yellow, produced by the urine of a wild lynx who then buries it, only to be later found and dug up by men.⁸³ While Theophrastus' choice to include such materials in his definition of "stones" no doubt reflects contemporary cultural standards, it also set a precedent for future lapidaries, which routinely include references to these non-mineral substances.

Since Theophrastus intended his treatise as an Aristotelian study in mineralogy, he includes almost no information about the potential therapeutic uses of stones. The one exception is a mention of the medicinal properties of the stone *smaragus*, about which he states, "Moreover, it is good for the eyes, and signets carved of it are worn to be looked at."⁸⁴ Here Theophrastus offers the first reference to what would become a common property associated with *smaragus*: the pleasing and soothing nature of its color upon the eye. Later references in other texts to the medicinal use of this stone indicate that simply gazing upon it produces a healing effect, thus Theophrastus' comment that signets of *smaragus* are to be "looked at." Although Theophrastus provides no explanation as to the physical appearance of *smaragus*, later classical authors applied the term to a wide variety of green-colored gemstones, including emerald, serpentine, and green marble. Theophrastus vaguely refers to several forms of *smaragus* found in Babylon, Egypt, Laconia, and Tyre, but identifies the copper mines of Cyprus as the most accessible and well-known source for the stone. This statement indicates either malachite or diopside, a copper cyclosilicate mineral sometimes referred to as "copper-emerald," as likely

⁸³ Theophrastus, *De lap.* 28. This explanation of the origin of *lyngurium* first appears in "On Stones" and is adopted by classical, medieval, and early modern authors of lapidaries. This stone is likely a form of amber, since Theophrastus and other writers note that it attracts bits of straw and chaff in much the same way as amber. Another possibility is that it is a yellow variety of tourmaline, which has pyroelectric properties and exhibits a similar force of attraction when submitted to changes in temperature.

⁸⁴ Theophrastus, *De lap.* 24.

candidates for the common variety of *smaragus* named in “On Stones” and found in the ancient world.

The ultimate importance of Theophrastus’ work to the idea of lapidary medicine rests in his contribution to theories about the origin and properties of many mineralogical materials commonly found in texts of lapidary medicine until the end of the early modern period. Additionally, he was the first to describe and theorize about the specific properties of certain minerals, such as their magnetic attraction and piezoelectric and pyroelectric qualities. Theophrastus describes stones as one of many aspects of the natural world, identifying nothing fabulous or “magical” about such substances or their virtues. As a source for later lapidaries, the attitude expressed in “On Stones” prevailed for nearly two thousand years after his death. During the Middle Ages, the lapidary of Theophrastus continued to be consulted for facts about gemstones but it was not used as a model for further works on stones since mineralogy was rarely considered to be a separate topic outside the study of pharmacology.⁸⁵

Following Theophrastus, the next important work in the development of Western lapidary theory appears in a treatise on healing substances. Written around 65 CE by the Greek physician Dioscorides, *De materia medica* consists of a list of more than one thousand medicinal substances, primarily plant-based but also including a number of metals, minerals, and animal products, together with information for their preparation and

⁸⁵ After Theophrastus, the next directed study of minerals to appear in Western Europe was the sixteenth-century treatise *De re metallica* by Georgius Agricola, also known as Georg Bauer. Literally this title means "On the Nature of Metals." however Agricola’s definition of metals extended to include a wide variety minerals and stones. It is widely considered to be the first text of modern geology. Although compiled in 1562, *De re metallica* did not appear in print in England until 1912 and then only through a private printing available through subscription only and, therefore, falls outside the primary focus of my study.

use.⁸⁶ Produced in a province of the Roman Empire in Asia Minor, this text represents a compendium of Greco-Roman pharmaceutical knowledge and practical application. It also evidences the introduction or increased supply of several lapidary products made available in Western Europe along Roman trade routes that reached as far as Indian Ocean. Many of these materials do not routinely appear in medieval lapidaries, probably due to the decline in longdistance trade, but regain popularity in early modern texts in connection with renewed global exploration and commerce.

Although Dioscorides is primarily known for botanical recommendations, indeed the English translation of *De materia medica* is commonly known as the “Greek Herbal of Dioscorides,” he also includes a number of minerals and metals within his practice of pharmacology. The fifth book of *De materia medica* entitled “Of all Metallic Ores,” provides a description of the physical appearance, properties, and medical usages of ninety-nine substances, including minerals, earths, gemstones, metals, metalloids, and fossils. Unlike medieval lapidaries, which are most often arraigned in near alphabetical order, Dioscorides seems to organize mineralogical according to the nature of their substance: metallic ores and their products, pigments (which often include metallic ores), miscellaneous minerals, stones, earths, and products based in carbon.⁸⁷ However, there are no headings or internal divisions within the lapidary section of *De materia medica*, so without specific knowledge of the physical composition of each material the listing of substances seems little better than random. Materials that are routinely considered to be

⁸⁶ See Dioscorides Pedanius, *The Greek Herbal of Dioscorides*, trans. John Goodyer, ed. Robert Gunther (London: Hafner Publishing Company, 1968)

⁸⁷ For a detailed account of this system of organization see, John M. Riddle, *Dioscorides on Pharmacy and Medicine* (Austin: University of Texas Press, 1985), 147-149.

“stones” by other authors can be found scattered throughout the chapter, such as many gemstones, which he classifies as “earths.”

Dioscorides provides a detailed account of the medicinal properties and practical application of a wide range of lapidary materials that later became integrated into the general corpus medieval and early modern pharmacology. He lists gemstones prized for their use in jewelry such as sapphire,⁸⁸ turquoise, and jasper as well as more strictly utilitarian stones such as *magnes*,⁸⁹ gypsum, and hematite. Notably absent from *De materia medica* is any mention of the *smagadus*, which earlier had found favor with Theophrastus and subsequently would appear in nearly every other lapidary to follow. Although Dioscorides includes the description of *lyngurium* found in “On Stones,” he chooses to place the stone within a previous section devoted to the medicinal properties of “urines.” However, Dioscorides does follow the lapidary tradition established by Theophrastus by classifying some acknowledged animal-based materials, such as coral and sponges, as well as fossilized materials mistakenly thought to be formed in the earth, such as *Lapis ostracites*⁹⁰ and *Lapis judaicus*, within the same section as metals and stones.⁹¹ Although they did not always find favor with medieval authors, a number of metals and metalloids listed by Dioscorides can be found among the most popular lapidary materials to appear in early modern apothecary inventories, including cinnabar, calamine, and *Lapis tutiae* or tutty.⁹²

⁸⁸ In this instance, Dioscorides probably refers to the material that medieval and early modern peoples termed “Lapis lazuli.” In this instance, and in several others, the application of lapidary terms to particular substances shifted over time.

⁸⁹ Commonly referred to as the loadstone.

⁹⁰ Fossilized oysters.

⁹¹ Fossilized echinoid spines.

⁹² See Appendix C for the lapidary items found in the inventories of Estwick & Coningsby. PRO C 104/130. *Lapis tutiae*, or rock tutty, is zinc oxide.

The lapidary entries found in *De materia medica* typically offer vague or abbreviated accounts of the physical appearance of stones in favor of more detailed descriptions of their medicinal applications. Dioscorides advocates various application techniques for lapidary materials, both internal and external. Amulets are recommended only in the case of selenite, jasper, and serpentine. Hematite, which is said to be effective against afflictions of the eye, scabs, and the production of a nursing mother's milk, is to be ground up in pomegranate juice or wine. Calamine, recommended to facilitate the “binding” and filling of sores and the healing of ulcers, should be applied as an external plaster. This cure, in particular, enjoyed great popularity in the early modern period during which time apothecaries mixed calamine lotions and ointments for these same ailments.⁹³

Two popular lapidary applications commonly found in medieval and early modern popular advice manuals originated with Dioscorides. The first of these cures relates to the stone *aëtitis*, which he recommends should be tied to a woman's arm or thigh in order to aid in childbirth. He also advocates that this stone be used as an anti-epileptical agent and that it will “betray a thief” when mixed with meat;⁹⁴ however, only the gynecological cures achieved great popularity with later authors. Although not strictly medicinal, Dioscorides' recommended use for the stone *magnes* also commonly

⁹³ The 1668 and 1670 inventories of Estwick & Coningsby show eight hundred weight of *Lapis Calaminaris* in stock. Robert Boyle discusses the medicinal use of Lapis Calaminaris by chemists in Chapter 3 of his *Medicina hydrostatica*. See Robert Boyle, *Medicina hydrostatica, or, Hydrostaticks applied to the materia medica shewing how by the weight that divers bodies, us'd in physick, have in water: one may discover whether they be genuine or adulterate : to which is subjoyn'd a previous hydrostatical way of estimating ores*, 1690.

⁹⁴ Presumably the ingestion of this stone would produce an adverse reaction in thieves.

appears in medieval and early modern lapidaries, in particular, the suggestion that it can be employed by a husband in order to test his wife's chastity. He suggests:

...they say that this hath a discerning faculty of a woman that is chaste & of her that plays the adulteress with another man, for if any do set it secretly upon the beds for the chaste woman, who loves her husband, she being overborne into sleep, with certain natural faculty of the stone both opens her hands towards her husband, and cleaves close to him; but the other being troubled in dreams with foul labors, falls out of the bed.⁹⁵

While this usage of *magnes* is often cited by modern historians as an example of a “magical” property, contemporary authors recounted this tale as part of the stone's natural virtues. Dioscorides continues in his description by asserting that *magnes* frees one from strife and brings about concord.

In addition to specific cures made popular by *De materia medica*, the work as a whole produced a direct impact on the idea of lapidary medicine by integrating the use of lapidary materials into the Western European pharmacopoeia. As one of the most popular medical texts for sixteen centuries after its compilation, the work of Dioscorides firmly established “stones” as natural substances with medicinal properties that could be employed through a variety of techniques. Although some of the materials included in Dioscorides's treatise fell out of general popularity during the Middle Age, perhaps do to the lack of certain materials with sources in Asia or a preference for the use of amulets, the text itself set the standard for early modern apothecaries who integrated lapidary materials into the wider practice of pharmacology. The respect accorded Dioscorides also contributed to the popularity of the idea of lapidary medicine, in that many cures based on “stones” continued to be attributed to him throughout the medieval and early

⁹⁵ Dioscorides, *De materia medica*, 5, 148.

modern periods, many erroneously. Still, the implications are clear in that by associating Dioscorides, even falsely, with the idea of lapidary medicine, medieval and early modern writers accepted the therapeutic use of stones just as with any other classically inherited treatment, placing “stones” firmly within the category of medicine.

Although the work of Theophrastus and Dioscorides clearly contributed to the development of Western lapidary theory, the writings of Pliny the Elder are undoubtedly the most influential classical text when considering the development and production of medieval and early modern lapidaries. Pliny’s encyclopedic work, *Natural History*, one of the first reference books devoted to the exploration of natural phenomena, contains thirty-seven books devoted to the products of nature, seven of which include reference to lapidary products. Books XXXIII through XXXVII are devoted to the properties and man-made products of minerals, including a book on precious metals, base metals, earths, stones used primarily as building materials, and precious stones or stones with unusual properties. Additionally, Pliny mentions other lapidary materials, such as coral and pearls, in Book IX, on marine animals, and Book XXXII on the medicinal uses of marine animals. Out of these seven books, Book XXXVII, which discusses gemstones, is considered to be the most important to the study of lapidary medicine, since it contains the bulk of gemological information adopted by later authors. Within this work, Pliny describes the outward appearance, geographic origin, relative value, and medicinal properties of a vast array of minerals. Book XXXVII also represents a last remaining clue to lost ancient lapidary knowledge in that of the thirty-eight authoritative sources listed by Pliny, only the treatise “On Stones” by Theophrastus survives into the modern age. Much like Dioscorides’ *De material medica*, Pliny’s *Natural History* was not lost to

the West after the disintegration of the Roman Empire but continued to be studied and copied within Christian monasteries, offering a comprehensive source of lapidary information for the compilation of new lapidaries.

Pliny's stated purpose in compiling his *Natural History* was to produce a compendium of knowledge about the natural world; materials, he asserts, that are created by Nature for the benefit of mankind. Addressing the topic of "stones" in the last two books of his encyclopedia, he amends this characterization, suggesting that Nature produces stones for itself and that man is merely a greedy pillager, destroying mountains and natural barriers in search of material wealth.⁹⁶ Regardless, Pliny eventually turns to a discussion of their benefit to man with the following preface:

Now I shall discuss those kinds of gemstones that are acknowledged as such, beginning with the finest. And this shall not be my only aim, but to the greater profit of mankind I shall incidentally confute the abominable falsehoods of the Magi, since in very many of their statements about gems they have gone far beyond providing an alluring substitute for medical science into the realms of the supernatural.⁹⁷

Pliny's concern with the magical or superstitious use of stones is therefore connected to what he considered the unscrupulous practices of the "Magi" who threatened rational Roman stoicism with foreign superstitions.⁹⁸ The denunciation of certain aspects of lapidary healing stemming from this "magical" association, are therefore mainly confined

⁹⁶ *Nat. Hist.* 37. 1.

⁹⁷ *Nat. Hist.* 37. 14.

⁹⁸ The term "Magi" is usually translated into English as "magician;" however, in Roman times it denoted a follower of Zoroaster who practiced the art of astrology. Latin of the medieval Vulgate Bible refers to them as "astronomers" or "wise men" and this is how they were probably known to medieval people. For a helpful discussion of the Magi in classical culture see Roger Kenneth French, *Ancient Natural History: Histories of Nature* (London; Routledge, 1994), 225-228.

to the *Natural History* and were largely ignored by the authors of medieval and early modern lapidaries.

Pliny's *Natural History* is the first text to address the classification of therapeutic uses of gemstones as “medicinal” or “magical,” providing insight into how classical culture perceived the practice. While he refers to stones as “an alluring substitute for medical science,” Pliny, himself, supplied many medicinal virtues for gemstones. For example, in regard to the stone *smaragdus*,⁹⁹ the color of which he says is an even more intense green than the leaves of plants, Pliny states that strained eyes can be restored just by gazing upon it.¹⁰⁰ The stone *lyncurium*,¹⁰¹ or *sucinum* as Pliny most often terms it, is listed as a stone commonly employed as a preventative measure:

For even today the peasant women of Transpadane Gaul wear pieces of *sucinum* as necklaces, chiefly as adornment, but also because of its medicinal properties. *Sucinum*, indeed is supposed to be a phophylactic against tonsillitis and other affections of the pharynx, for the water near the Alps has properties that harm the human throat in various ways.¹⁰²

Using phrasing such as “is supposed” or “is said” allows Pliny to avoid absolutely advocating a practice he might have doubted, but for whatever reason felt reluctant to

⁹⁹ A slight variation in spelling can be seen in terminology used by both classical and medieval authors; however, the differences are usually slight and this rarely interferes with the identification of stones named in individual sources.

¹⁰⁰ *Nat. Hist.* 37. 16. While this sentiment is often repeated by later authors, the exact stone that Pliny refers to is somewhat vague in that he lists twelve kinds of *smaragdus*, including those stones we would now refer to as malachite, turquoise, emerald, green calamine, green porphyry, jasper.

¹⁰¹ Here Pliny refers to amber. While he recounts the story of the stones origins as lynx urine from Theophrastus (he gives Demonstratus as his source) he recognizes that the stone is actually a form of hardened sap.

¹⁰² *Nat. Hist.* 37. 11. Transpadane Gaul refers to the land between the Po and the Alps. Pliny's mention of throat problems might refers to goiters, a common medical affliction in pre-modern societies due to iodine deficiencies.

absolutely deny. In cases such as this when his phrasing indicates uncertainty, it may well be that he did not have any first hand knowledge of the stone or its specific uses.

In other instances, Pliny's description of the physical and medicinal qualities of a particular stone is absolute. In detailing the virtues of the stone *adamas*,¹⁰³ which he terms as "the most highly valued of human possessions," he states that it "prevails also over poisons and renders them powerless, dispels attacks of wild distraction and drives groundless fears from the mind."¹⁰⁴ Pliny's statement that the stone *adamas* could protect from poisons became a common feature of most lapidaries produced in Europe from the first century CE through the early modern period. Two other statements provided by Pliny, that *adamas* can only be broken by first steeping it in the blood of a goat that is still fresh and warm and that it can "snatch" iron away from a magnet, also found common credence in both popular and elite sources.¹⁰⁵ Both of these properties came to be routinely questioned only in the seventeenth century when early modern authors often noted that lapidaries used pieces of *adamas* itself to cut the stone (with no goat's blood) and scientists began to more thoroughly explore the force of magnetism through experimentation.

Another commonly held tenant of lapidary medicine first provided by Pliny in *Natural History* stems from his description of the properties of red coral, which he refers

¹⁰³ Pliny's description of this stones physical properties indicate the stone we now refer to as diamond. The term *adamas* was used in reference to diamonds in both elite and popular texts throughout the early modern period in both Continental Europe and Britain.

¹⁰⁴ *Nat. Hist.* 37. 15. Pliny describes several types of *adamas* from several different sources such as Ethiopia, India, Arabian, and Cyprus. While classifying all of these stones under the same name, he admits some types are not truly the same stone he describes as being strong enough to defy "natures most powerful substances."

¹⁰⁵ *Nat. Hist.* 37. 15. Here we see an example of what Pliny terms "natural aversion" in which foulness, provided in this case by the blood of a base animal, degrades the purity and strength of *adamas*.

to as *gorgonia*. He describes coral as a shrub that grows under water, where it is naturally soft, but it hardens and turns red when taken from the water.¹⁰⁶ As for its medicinal properties, he states, “Branches of coral, worn as an amulet by babies, are believed to be protective, and reduced to powder by fire and taken with water are helpful in gripings, bladder trouble and stone; similarly taken in wine, or if fever is present, in water, coral is soporific.”¹⁰⁷ This passage helped to bring about two popular lapidary practices in Western Europe: the prophylactic use of coral amulets in children and the ingestion of powdered coral. Red coral was among the most popular lapidary cures sold by early modern apothecaries in England and continued to be imported as a “drug” until well into the eighteenth century.¹⁰⁸ In addition to these medicinal uses, Pliny also states that the ash of coral branches is a good treatment for bringing up or spitting blood and is often employed as a component of eye salves, for filling up the “hollow” of ulcers, and for smoothing out scars.¹⁰⁹ Authors of later lapidaries often paired these purely medicinal uses offered by Pliny with the idea that coral “is said to keep off thunderbolts and whirlwinds.”¹¹⁰ This last statement was expanded to mean various forms of inclement weather so that coral was often said by later writers to be useful to sailors in

¹⁰⁶ The red coral found in the Mediterranean around Italy was the most prized variety used in lapidary medicine in Western Europe. Pliny’s tale of coral becoming “hard” upon being taken from the sea might be a confusion of the physical properties of “hard” and “soft” corals. The red coral described in this passage does not significantly change in hardness or density once brought from the water.

¹⁰⁷ *Nat. Hist.* 32. 11.

¹⁰⁸ See, PRO C 104/130 for the apothecary records of seventeenth-century English apothecary wholesaler Estwick and Coningsby and *Consolidation of the customs, and other duties: Tables of the net duties payable, and drawbacks allowed on goods, wares and merchandize imported, exported, or carried coastways; together with a list of the bounties*. Published under the inspection of Mr. Edward-James Mascall, ...Published by printed by P. Byrne, 1789 for records of customs charged on red coral imported in the category of “drug.”

¹⁰⁹ *Nat. Hist.* 32. 11.

¹¹⁰ *Nat. Hist.* 37. 59.

warding off storms.

Pliny's *Natural History* is also the source for another commonly held belief about the stone *galactitis*.¹¹¹ While authors such as Dioscorides note that the stone tastes or appears "milky," Pliny states:

It is noteworthy for the fact that when rubbed between the fingers it exhibits a milky smear and flavor, and in the rearing of children it ensures wet-nurses a plentiful flow of milk. Moreover, when it is tied to the necks of babies as an amulet, it is said to make their saliva flow, but we are told that when placed in the mouth it melts and also causes loss of memory.¹¹²

This statement about *galactitis*'s usefulness to nursing mothers commonly appears in medieval lapidaries and is an example of a sympathetic link between the physical properties of a stone and the medicinal virtues claimed for its use.

Although Pliny frequently cites medicinal uses for stones, he equally often derides popular beliefs and practices related to these beliefs, associating them with the work of the Magi. A good example of this duality in his opinions can be seen in his description of *haematitis*, or hematite. In addition to the stone's physical characteristics, Pliny adds, "We must not omit to mention the claims made for it, so that we may expose the treacherous frauds perpetrated by the Magi," in reference to the idea that *haematitis* allows its bearer to interfere with lawsuits or that an ointment of it is beneficial in battle.¹¹³ Pliny expresses a similar attitude in his description of amethyst in which he refutes the story that it can aid against drunkenness, "The Magi falsely claim that the

¹¹¹ From descriptions in various classical and medieval sources, this stone is undoubtedly some form of chalk.

¹¹² *Nat. Hist.* 37. 59.

¹¹³ *Nat. Hist.* 37. 60.

amethyst prevents drunkenness, and that it is this property that has given it its name.” The referenced connection between drunkenness and amethyst is another example of a sympathetic association between the physical attributes of a stone, in this case a wine-colored one that is said by Pliny to be found in shades of purple, rose, and red, and its purported medicinal properties. Pliny, however, strongly rejects the notion of a connection and asserts that the Magi “express a derisive contempt for mankind” with the spread of such falsities.¹¹⁴ Even with such a strong condemnation, the idea that amethyst could prevent drunkenness became one of the stone’s most commonly accepted attributes during the Middle Ages, an indication that medieval readers were either far more credulous than Pliny or for some other reason chose to dismiss his concerns about magical associations.

In addition to its relative availability during the medieval and early modern periods, the sheer size and scope of Pliny’s *Natural History* greatly determined its eventual role in the growth and circulation of lapidary theory. Nearly every gemstone to appear in later lapidary texts is described within one of the encyclopedia’s books. The Latin terminology for stones employed by Pliny was adopted by both medieval and early modern authors, even in vernacular texts or in cases when a vernacular alternative existed. The use of these terms allowed for the development of a common lapidary language; however, it also led to confusion when a Latin term used by Pliny for a dozen or so more different “varieties” of a particular “stone” was applied to a single substance in later centuries. Pliny’s importance extends beyond the primary use of *Natural History* since this text became the main source for later authors, such as Caius Julius Solinus, who transmitted large portions of lapidary information second hand.

¹¹⁴ *Nat. Hist.* 37. 49.

Solinus, a Latin writer of the late third-century, authored a popular text, entitled *Collectanea Rerum Memorabilium*, which greatly facilitated the circulation of lapidary knowledge during the medieval and early modern periods.¹¹⁵ Little is known about Solinus, with the exception of his name and the fact that he was a Roman citizen. The information presented in *Collectanea Rerum Memorabilium* is almost entirely compiled from earlier works, primarily Pliny's *Natural History*, drawing upon selected excerpts to create a narrative description of the lands, people, commodities, and marvels of the known world. Solinus weaves a wondrous tale of foreign lands, exotic peoples, strange creatures, and material wealth, transforming the material of an elite study into a popular work that appeals to the imagination. The importance of Solinus' role in the history of the idea of lapidary medicine largely rests upon his ability to relay a summary of elite, scholarly materials in an accessible and entertaining manner. Even the original title, *Collectanea Rerum Memorabilium*, was changed to the more popular *Polyhistor* during a sixth-century revision of the text. This term was eventually applied to Solinus, himself, as he is often cited by later authors as "Polyhistor" or "he who tells many things."

While gemstones and their medicinal applications are not Solinus' primary focus, they figure prominently in almost every chapter of *Collectanea Rerum Memorabilium*. Arraigned by countries, starting with Italy and extending to the lands known to Romans in the first century CE, he interweaves geographic information with strange tales of cannibals and tribes of one-legged peoples, fantastical beasts, and fabulous riches. In mentioning the mineralogical wealth of each country, Solinus invariably provides details

¹¹⁵ For the definitive critical edition of Solinus see Theodor Mommsen, *C. Iulii Solini Collectanea rerum memorabilium; recognovit Th. Mommsen* (Berolini: In aedibus Friderici Nicolai, 1864).

of the general appearance and physical properties of stones, including some advice on the practical application of lapidary cures. For example, he quotes Theophrastus' description of the appearance and properties of *smaragus*, includes Dioscorides' recommendation about the effectiveness of *aetities* in aiding women in childbirth, and repeats Pliny's statement that *adamas* protects against venom as well as some mental afflictions. Solinus also provides some new additions to lapidary theory, advocating that *lyncurion* can be used to combat scrofula. In keeping with the nature of the work, Solinus also provides some more fantastical properties of stones, choosing to include coral's ability to control "whorlwinds" over its ability to protect children and treat skin ulcers.¹¹⁶ Unlike Pliny, Solinus is completely unconcerned with the influences of "Magi" or the spread of magical or false attributes.

In addition to gemstones dug from the earth or drawn from the sea, Solinus details the physical properties of many fabulous stones originating from creatures. In a chapter entitled "Of Mauritania, and of Oliphants, and of Dragons, and where Cinnabar is made," he relates the story of a red stone, *cinnabaris*, produced when snakes or dragons suck the blood from elephants and are then crushed by the weight of their fallen bodies.¹¹⁷ This story is derived from a passage in *Natural History* in which Pliny describes *cinnabaris* as forming from the "gore of a snake crushed by the weight of dying elephants."¹¹⁸ Largely based on the story related in the widely circulating *Collectanea Rerum Memorabilium*, the lapidary material *cinnabaris* became more commonly known by the term *Sanguis*

¹¹⁶ Solinus, *Collectanea Rerum Memorabilium*, 7. Translation from Mommsen, *C. Iulii Solini Collectanea rerum memorabilium*, 1864.

¹¹⁷ Solinus, *Collectanea Rerum Memorabilium*, 37.

¹¹⁸ *Nat. Hist.* 33. 38.

Draconis in medieval lapidaries and does, in fact, resemble a bright red “stone.” This term for cinnabar, or mercury sulfide, was still used in seventeenth century England, when it appears as a popular item in early modern apothecary inventories.¹¹⁹

Solinus also includes Pliny’s story of the stone called *draconites*, which he says is found in the heads of serpents or “dragons.” The tale of the origins of *draconites* found in *Collectanea Rerum Memorabilium* is nearly identical to the explanation in *Natural History* of how herbs are used to put dragons to sleep so that men may approach them



Figure 2.1 Man slaying dragon to obtain the stone *draconites* from Hortus Sanitatis 1483.

unaware and cut the stone from their head while they are still alive.¹²⁰ These details about the origin and procurement of *draconites* appear in almost every later lapidary to include the stone, which was a common element of medieval texts on lapidary medicine. An image of a man slaying a dragon to extract stones appears in the first printed pharmaceutical text, the *Hortus Sanitatis*, written by Johannis de Cuba and published in Strasbourg in 1483.

Solinus is also largely responsible for the idea of a “unicorn” entering into the popular consciousness of medieval Europe. In Book VIII of *Natural History*, Pliny

¹¹⁹ There is a great deal of confusion as to the exact nature of the substance referred to as *Sanguis Draconis* in classical, medieval, and early modern sources. While many authors clearly refer to a “stone” and provide a description that clearly indicates the ore of mercury known as “cinnabar,” other sources state that *Sanguis Draconis* is a “gum” from a plant. It is likely that the term was applied to both cinnabar and a resinous secretion produced by several species of Asian climbing palms. The inventories of seventeenth-century apothecary wholesale company Estwick & Coningsby indicate multiple entries for *Sanguis Draconis*, but only about half of these offer the further notation “gumme,” perhaps a means of differentiating between the plant and mineral varieties.

¹²⁰ Solinus, *Collectanea Rerum Memorabilium*, 42 and *Nat. Hist.* 37. 57, 158.

describes a mythical beast that resembles a horse, with the head of a stag, feet of an elephant, and tail of a boar, which he refers to as *monoceros* on account of a single back horn that protrudes from the middle of the beast's forehead.¹²¹ Solinus slightly embellishes the original description, adding that the horn is of "wonderful brightness."¹²² Although the stories connected with each of these fabulous creatures can be found in Pliny's *Natural History*, the inclusion of such tales within popularly circulating texts such as *Collectanea Rerum Memorabilium* allowed for a wider dissemination of these ideas during the Middle Ages and ensured the place of "stones" such as *sanguis draconis*, *draconites*, and unicorn horn within later lapidaries. While Solinus follows Pliny and offers no medicinal virtues for these substances, the fantastic tales he relates fired the medieval imagination and later authors who cite Solinus as a source of lapidary information often include such stones and ascribe to them new curative powers.

Our next major author, Damigeron, wrote *De virtutibus lapidum*; it draws upon classical sources in much the same manner as Solinus but demonstrates a marked shift in the form and content of Western lapidaries. A true "lapidary" in the sense that it consists solely of a list of stones and their individual "virtues," the form of *De virtutibus lapidum* reflects the most common composition and arrangement for medieval treatises on gems. The origins of the text are obscure, although it appears to be based on the ancient Greek work *Lithica*, ascribed to a writer named Orpheus, which consisted of 770 lines on the properties of about thirty gemstones. Damigeron's version appears to be a fifth- or sixth-century Latin translation of a fourth-century copy of *Lithica*.¹²³ The Latin text of *De*

¹²¹ *Nat. Hist.* 8. 31.

¹²² Solinus, *Collectanea Rerum Memorabilium*, 64.

¹²³ Lynn Thorndike, *History of Magic and Experimental Science*, vol. 1 (New York: Columbia University Press, 1923), 293.

virtutibus lapidum begins, “Evax, King of Arabia to the Emperor Tiberius, greeting,” causing Damigeron to be cited as “Evax” in most later lapidaries.

Damigeron’s lapidary reflects the changing religious environment of late antiquity and is the first to consider the medicinal virtues of stones within a Christian cosmology. The text of *De virtutibus lapidum* reveals a curious mixture of Christian and pagan values, calling upon the help of the Virgin Mary and the saints collectively in one entry and advocating the use of symbols connected with Hellenistic mystery cult religions in the next. In reference to the properties of the stone *heliotrope*, for example, Damigeron states, “He who wears this stone will never be deceived, such is the grace of this stone given by God to men.”¹²⁴ However, other entries indicate the influence of Roman pantheism. In a few instances, Damigeron directs his readers to carve a symbol related to one of the popular deities worshiped in late antiquity, such as his instructions on the use of *smaragdus*:

This is how the stone should be treated: Having obtained it, order it to be carved in the shape of a scarab beetle, with Isis on its belly, standing; then perforate it longitudinally. Then wear it, having consecrated it and mounted it on a brooch; and prepare a suitable place for it and it will adorn you and your belongings, and you will see the power of the stone given to it by God.¹²⁵

This reference to the cult of Isis, which still enjoyed a strong following throughout the Roman Empire in the fourth century, in combination with the Christian God indicates that an eclectic religious environment, in which Christianity had not yet become exclusive.

Still, the virtues of stones are now seen as gifts, not only from Nature, as Pliny states, but

¹²⁴ Damigeron, *De virtutibus lapidum*, 2. Translation from Damigeron, *De virtutibus lapidum*, trans. Patricia P. Tahil, ed. Joel Radcliffe (Seattle: Ars Obscura, 1989).

¹²⁵ Damigeron, *De virtutibus lapidum*, 15.

from the Christian God. This passage also makes reference to the practice of carving sigils into gems in order to increase the power of their virtues. The use of sigils retained popularity into the sixteenth century in Continental Europe as evidenced by Camillus Leonardus' *Speculum Lapidum*, in which he not only discusses the virtues of various stones but also considers their orthodoxy in connection with the Church.¹²⁶

Like many medieval lapidaries, *De virtutibus lapidum* reflects the values of a chaotic and turbulent society. In addition to the medicinal properties of stones, Damigeron offers advice to his readers on how to use gems to manipulate the spiritual and physical world around them to their advantage. Unlike previous authors, Damigeron provides a large amount of information about which stones can be used to summon ghosts, gain great wealth, resist the threats of kings and rulers, insure favorable outcomes in lawsuits, render the wearer invisible for the purposes of successful theft, and aid in the seduction of members of either sex. Modern historians tend to emphasize the “magical” quality of such proposed uses of stones, which may conform to present-day notions about what is or is not magical, but a view more in keeping with the mindset of medieval people would seek instead to understand how this lapidary advice offered readers a means they found efficacious in attempting to control their physical environment and continued good health. For example, coral is not only said to control storms, but also to heal the damage to crops produced by hail and to preserve houses from crime.¹²⁷ The stone *ortite* is said to provide protection from wild beasts, in addition to its usefulness as a contraceptive.¹²⁸ Some of the properties listed for stones are less benign, such as those

¹²⁶ Camillus Leonardus, *The mirror of stones*. London, 1750.

¹²⁷ Damigeron, *De virtutibus lapidum*, 7.

¹²⁸ Damigeron, *De virtutibus lapidum*, 16

asserted to be useful for thieves and robbers who wish to steal the goods of others.¹²⁹

Such assertions were readily incorporated by medieval authors of later lapidaries, perhaps indicating that they also lived in chaotic and dangerous times during which extreme measures might at least be tried in an effort to control the environment and to promote well being.

In contrast to Theophrastus and Pliny, who considered the medicinal properties of stones secondary to their origin and physical appearance, Damigeron's primary focus is upon medicinal properties. In many cases, his descriptions of stones are abbreviated in favor of lengthy assertions about their various physical and psychological applications. Some stones are recommended to be used in a specific form of jewelry, such as a ring, while others should be tied to the body with cloth, or ground and ingested in liquids. Many medicinal properties originally given by Dioscorides and Pliny are repeated, for example *adamas* is listed as an antidote for poison, *aëtities* to aid pregnant women, and *galicite* to provide "a continual supply of good abundant milk."¹³⁰ Damigeron also reiterates Dioscorides' tale of the properties of *magnes*, a stone he calls *magnitis*, recounting its use to test the chastity of wives. However, he attributes this test to the "Magi" stating, "The Magi confirmed how to test their wives' love for them and whether they always wished them well and whether they were diligent. They secretly put the stone under the head of their sleeping wives, and if one was an adulteress she would fall out of the bed on to the floor."¹³¹ Damigeron also includes the stone *smaragdus*, favored by Theophrastus and Pliny, yet he makes no mention of their claim that it heals the eyes,

¹²⁹ Damigeron, *De virtutibus lapidum*, 18, 24.

¹³⁰ Damigeron, *De virtutibus lapidum*, 3, 1, 34.

¹³¹ Damigeron, *De virtutibus lapidum*, 30.

instead listing its medicinal virtues as adding “substance to both the body and speech” and as promoting chastity for its wearer.¹³²

Written about a century later and drawing upon many of the same sources as Damigeron’s *De virtutibus lapidum*, an encyclopedic lapidary compiled in Visigothic Spain demonstrates the ongoing interest in the mineralogical wisdom of classical texts. Isidore, Bishop of Seville, devotes one book in his encyclopedia, the *Etymologies*, to stones and metals. He informs his readers at the outset that his source material is “gathered from my recollections of readings from antiquity” and, indeed, Book XVI on the properties of stones consists of excerpts and paraphrases from earlier authors, including Pliny, Solinus, and Augustine.¹³³ Like many other writers of lapidaries before and after his time, Isidore does not pretend to have conducted original research on stones.

Isidore organizes his lapidary chapter according to importance and then color of the stones he treats. After some discussion of dirt, dust, and “common stones,” he moves on to what he considers the “more important stones” such as *magnes*, *hematite*, *pyrite*, *dionysius*, *galactites*, and, *aëtites*. His classification seems to be based on the fact that many of these stones serve utilitarian purposes, either in industry or medicine. Here Isidore mentions a story derived from Augustine’s *City of God* in which a piece of *magnes* was held beneath a silver plate and used to move a piece of iron placed on the other side.¹³⁴ He notes several other physical properties of stones, commonly found in previous and later lapidaries, such as the ability of *amiantos* to resist flame and of *pyrite*

¹³² Damigeron, *De virtutibus lapidum*, 6.

¹³³ See, Isidore of Seville, *The Etymologies of Isidore of Seville*, trans. Stephen A. Barney et al. (Cambridge: Cambridge University Press, 2007).

¹³⁴ *City of God* 21.4

to burn the hand of anyone who squeezes it tightly.¹³⁵ Isidore also lists several commonly accepted medical uses for stones found in other lapidaries such as *dionysius* to protect against drunkenness, *galactites* to help women produce milk, and *aëtites* to aid in childbirth.¹³⁶

Isidore places his discussion of gemstones under a separate category that further divides stones into classifications based on color: green, red, purple, white, black, varicolored, crystalline (glittering), fiery, and golden. This organization is much like Pliny's system of classifying gems according to relative color and, again like Pliny, Isidore's primary interest in gems is not medical. His entries detail the physical appearance, nature, and natural origins of gems and less than a third of them are connected to any medicinal uses. Isidore does include Pliny's statements about *smaragdus*'s usefulness in soothing the eyes, further adding that the vivid green color of the stone "imbues the reflected air around it with greenness."¹³⁷ This statement was thereafter adopted by medieval authors who frequently include it as one of the stone's properties.

Isidore also reflects Pliny's attitude towards magic, specifically the actions of magicians. In several instances, Isidore states that some purportedly medicinal qualities ascribed to stones are, in fact, superstitions perpetuated by the "Magi." In regard to the stone *iaspis*, for example, he states, "This stone also provides a most blatant example of the shamelessness of magicians, because they claim that someone carrying an herb

¹³⁵ Isidore, *Etymologies*, XVI.iv.5, XVI.iv.19. Here *amiantos* refers to asbestos and *pyrite* to some form of copper pyrites that produce aids upon weathering that likely irritated the skin.

¹³⁶ Isidore, *Etymologies*, XVI. iv.7, XVI.iv.20., XVI iv.22.

¹³⁷ Isidore, *Etymologies*, XVI. vii.1.

blended with a heliotrope, once certain spells have been cast, cannot be seen.”¹³⁸ At no time does Isidore label these practices unchristian or consider them in regard to church doctrine; instead, his primary concern seems to be against false or deceptive claims. At the same time, much like Pliny, he does not absolutely condemn the claims of the Magi in all cases. For example in regard to the stone *androdamas*, he states “Magicians think that its name was assigned because it is said to calm and restrain passions and rages of the soul, if we may believe it.”¹³⁹

Isidore’s inclusion of a chapter on stones and gems within the *Etymologies* worked powerfully to spread the idea of lapidary medicine throughout medieval Europe. Nearly one thousand extant manuscripts of the *Etymologies* remain from the Middle Ages and from the fifteenth century there exist more than sixty complete manuscript copies of the entire text and about seventy fragments.¹⁴⁰ Isidore’s *Etymologies* was known in seventh- and eighth-century Britain and influenced Anglo-Saxon literature from the time of Bede onwards.¹⁴¹ One such text, a West Saxon lapidary from the eleventh century and, perhaps, the first treatise on lapidary medicine produced in a vernacular language, lists several medicinal properties for gemstones found in the *Etymologies*.¹⁴²

¹³⁸ Isidore, *Etymologies*, XVI.vii.8.

¹³⁹ Isidore, *Etymologies*, XVI.xv.8

¹⁴⁰ J. M. Fernandez Caton, *Las Etimologías, en la tradición manuscrita medieval estudiada por el Prof. Dr. Anspach* (Leon, 1996) as cited in Isidore of Seville, *The Etymologies of Isidore of Seville*. Translated by Stephen A. Barney et al. (Cambridge: Cambridge University Press, 2007), 24.

¹⁴¹ See R. M. Garrett, *Precious Stones in Old English Literature*, *Münchener Beiträge zur Romanischen und Englischen Philologie* 47 (Leipzig, 1909) and Peter Hunter Blair, *The World of Bede* (Cambridge: Cambridge University Press, 1990).

¹⁴² Cott. Tib. A. iii.

After the work of Isidore of Seville, a break in the tradition of Western lapidaries occurs. There are no extant new lapidaries from the period between the seventh and eleventh centuries, and none are referenced by medieval authors. The first independent composition after this period, written by Marbode, Bishop of Rennes, was to become the single most important text in the development and circulation of the idea of lapidary medicine during the later Middle Ages. The late eleventh-century prose composition entitled *Liber lapidum seu de gemmis*, or *De lapidibus*, addresses the physical appearance and healing properties of sixty stones. Originally written in Latin hexameter, this lapidary circulated widely throughout Western Europe in its original format as well as in a number of vernacular translations, including French, Provençal, Italian, Spanish, Irish, Danish and Hebrew.¹⁴³ The fact that *De lapidibus* was written in verse form, which surely facilitated oral circulation, further added to its popularity.

Although Marbode composed *De lapidibus* as a poem, the source material for this work is largely derived from Damigeron's *De virtutibus lapidum*. The relationship is set forth clearly as the text begins:

The lore of Evax, rich Arabian king,
Addressed to Nero in these lines I sing;
Tiberius Nero who, so willed it Fate,
Next to Augustus ruled the Roman state¹⁴⁴

The remainder of the text follows the same general organization as Damigeron and includes his descriptions of the physical and medicinal properties of gems. However, it is not a straightforward transcription of the *De virtutibus lapidum* in that Marbode also

¹⁴³ Evans, *Magical Jewels*, 33-34.

¹⁴⁴ Taken from the prologue to the text in C. W. King's translation contained within Riddle, *Marbode*, 34.

incorporates properties of gems found in Solinus and Isidore. In contrast, Marbode's text resembles Pliny's *Natural History* only in his descriptions of the properties of *adamant*¹⁴⁵ and *gagages*. In the tradition of Damigeron, and unlike Pliny and Isidore, Marbode demonstrates no skepticism about the properties he details, but rather a consistent belief in the power of stones as healing aids provided by God for the use of man. At the same time, *De lapidibus* is not the exclusively Christian text one might expect from a bishop, exhibiting strong elements of paganism undoubtedly inherited from Damigeron.

In addition to producing a lapidary which held popular appeal throughout Western Europe for centuries, Marbode contributed to the idea of lapidary healing by firmly establishing such applications as "medical." His intent to reveal "holy" and "healing" arts are stated in the preface:

Let thee at most this sacred volume know,
 A holy number, holy things we show;
 Who honor heaven and its commands attend,
 Whom manners grave, who holy lives commend
 For sure the hidden powers of gems to know,
 What great effects from hidden causes flow,
 A science this, to be to few confined
 And viewed with admiration by mankind.
 Hence may the healing art new aid derive,
 Taught by their virtue plagues away to drive.¹⁴⁶

Here Marbode expresses two beliefs closely integrated into the idea and practice of lapidary medicine in the Middle Ages. First, that the therapeutic use of gems was an orthodox practice of healing and "scientific" in the sense that it combined human wisdom

¹⁴⁵ *adamas* in Pliny, usually in reference to the stone we now call diamond.

¹⁴⁶ Riddle, *Marbode*, 34.

with healing agents found in nature. Second, the medicinal virtues of stones were “hidden” yet effective.

Internal evidence from manuscript copies of *De lapidibus* suggests that Marbode’s categorization of his work also extended to how medieval people perceived and used it. While conducting a study of this text, historian John Riddle found seventeen codices in which Marbode’s *De lapidibus* is paired and bound together with Macer’s *De herbis*, one of the most popular medieval treatises on the use of herbal medicine. Riddle argues that the implication of this pairing is clear: a one-volume practical guide to both plant-based and mineral healing. Furthermore, his review of extant manuscript versions of *De lapidibus* reveals that the text was often paired with other noted medical writers such as Dioscorides, Hippocrates, Galen, and Avicenna. Additionally, Riddle notes that many manuscripts of *De lapidibus* bear marginal notations indicating they were used in the practice of medicine, such as a text found in Vatican archives which provides the following introduction “Here is contained (the treatise) on the names of stones which are used in the art of medicine.”¹⁴⁷ Riddle also notes that two of the manuscripts he studied recorded that their owners bore the title “doctor of medicine” and that the marginal notes of these texts were medical in nature.¹⁴⁸ Far beyond the theoretical studies of mineralogy produced in the classical world, Marbode’s *De lapidibus* served as a utilitarian text by which man gained knowledge and power over his environment.

Late medieval lapidaries were most often compiled with the goal of producing a useful and practical work, rather than a purely theoretical treatise. In the thirteenth-century, mendicant orders produced four medieval encyclopedias as compendia of

¹⁴⁷ Ibid., 8. Riddle cites the manuscript as VA 2403, fol. 87.

¹⁴⁸ Ibid. Riddle cites one of these manuscripts as VA 10, 046, fol. 1-12v.

general knowledge and as teaching texts for preaching friars. Each of these contains a lapidary in the form of a book on the properties of stones or stones and metals, prefaced by a general consideration of stones as natural substances that derive their virtues from God. The first of these encyclopedias, *De finibus rerum naturalium*, was written by Arnoldus Saxo in the early thirteenth century. Part three of this work lists the properties of eighty-one stones in near alphabetical order. While the preface of this lapidary acknowledges Aristotle, Aaron, Euace [Evax] King of Arabia, and Dioscorides as sources, the text is little more than a loose prose translation of Marbodes' *De lapidibus* with a few references from another source identified as "Dyascorides."¹⁴⁹ Dominican theologian, preacher and hagiographer, Thomas of Cantimpré compiled a similar lapidary as part of his work entitled *De natura rerum*, written between 1228 and 1244. The lapidary section describes the properties of sixty-seven stones, also arraigned in near alphabetical order, and also chiefly drawn from Marbode's *De lapidibus*, cited in the preface as "Evax, rex Arabie."¹⁵⁰

The work of another Dominican, Vincent of Beauvais, represents an even greater contribution to the circulation of the idea of lapidary medicine in Continental Europe during the thirteenth century. Considered the most popular of all medieval encyclopedias, Vincent's work *Speculum majus* includes three parts: *Speculum naturale*, *Speculum doctrinale*, and *Speculum historiale*; Book VIII of *Speculum naturale* discusses the properties of minerals and metals and Book IX addresses the properties of gems. The

¹⁴⁹ "Euace King of Arabia" refers to "Evax," as Damigeron was often known. The source given as "Dyascorides" here is not *De materia medica* and is likely cited in error or taken from another text erroneously attributed to Dioscorides.

¹⁵⁰ For a critical commentary and printed edition of the Latin text see Thomas de Cantimpré, *Thomas Cantimpratensis, Liber de Natura Rerum* (Berlin: Walter de Gruyter, 1973).

sources listed in this lapidary include Pliny, Solinus, Isidore, Lapidarius, and “Diascorides,” along with contemporaries Arnold Saxo and Thomas de Cantimpré.¹⁵¹ This lapidary focuses on detailing primarily medicinal virtues, such as the statement that jasper dispels fears and can aid in childbirth.¹⁵² In addition to the other commonly ascribed virtues of coral, such as its powers as an amulet, Vincent also suggests its use to stop hemorrhages and against epilepsy. These two properties do not appear in classical texts or in Marbode’s *De lapidibus*, yet they became two of the most popular attributes ascribed to red coral during the late medieval and early modern periods, in particular, many internal cures for women related to the bloody flux, menstruation, or childbirth and children’s medicines recommend remedies based on ground red coral. The inclusion of these properties within one of the most widely circulating texts of natural science undoubtedly expanded the perceived medicinal virtues of coral.

Of the four encyclopedias compiled in the thirteenth-century, the most influential upon lapidary medicine in England, as opposed to the Continent, probably is *De proprietatibus rerum*, written by the English born Franciscan Bartholomaeus Anglicus around 1240. Although Bartholomaeus wrote this text while living in Magdeburg in Saxonia, it was translated into English in the fourteenth-century by John of Trevisa and was the first vernacular lapidary printed in England.¹⁵³ Much like the other encyclopedias produced by members of the mendicant orders during this period, *De proprietatibus*

¹⁵¹ “Lapidarius” here refers to Marbode.

¹⁵² Vincent of Beauvais, *Speculum naturale*, 9. 77. As contained within Vincent of Beauvais, *Speculum quadruplex sive, Speculum maius, naturale, doctrinale, morale, historiale*, vol. 4 (Graz: Akademische Druck Verlagsanstalt, 1964).

¹⁵³ Bartholomaeus Anglicus, *Bartholomeu[s] De proprietatib[us] re[rum]*, Westminster: Wynkyn de Worde, 1495.

rerum was written as an elementary compendium of secular knowledge meant to be used as a reference guide for preachers and general readers.

Book XVI of *De proprietatibus rerum* addresses the physical and medicinal properties of stones and metals. Like other medieval encyclopedists, Bartholomaeus' primary interest in gemstones relates to their medicinal properties; only a brief description of each stone is given and he does not attempt to theorize about the formation or origin of minerals as a separate substance. Bartholomaeus references a large number of sources by name including Aristotle, "Diascorides," Isidore of Seville, Lapidarius, Constantine of Africa, and Avicenna, often providing exact citations for book and chapter, particularly in regard to Isidore.¹⁵⁴ The medicinal properties he provides are much the same as those found in other thirteenth-century works, with one striking exception related to the virtues he cites from "Diascorides." Bartholomaeus lists "Diascorides" as the authority for a number of specific properties related to several stones, such as *adamante*, which he says is a "precious stoon of reconciliation and of loue."¹⁵⁵ He also cites "Diascorides" as the source for ascribing to amethyst the power to recover from drunkenness.¹⁵⁶ A textual comparison reveals that, while neither of these stones appears in *De materia medica*, they do turn up in Damigeron, along with many other statements attributed to this source. Therefore, it seems highly likely that the "Diascorides" source named by Bartholomaeus, the same source used by Arnoldus Saxo, is actually a copy of Damigeron's *De virtutibus lapidum*. This example serves to

¹⁵⁴ The Aristotle text cited here is obviously a Pseudo-Aristotle work. Again, "Lapidarius" refers to Marbode.

¹⁵⁵ Bartholomaeus Anglicus, *De proprietatibus rerum*, 16. 8.

¹⁵⁶ Bartholomaeus Anglicus, *De proprietatibus rerum*, 16. 9.

demonstrate that throughout the medieval and early modern periods Dioscorides was often erroneously named as the source for lapidary cures, sometimes due to confusion but also in an attempt to draw upon his respected authority.

Bartolomaeus Anglicus's *De proprietatibus rerum* is also notable for providing medieval readers with two popular tests for determining the authenticity of gemstones. In one test Bartolomaeus recommends placing sapphires in a box with a spider; if the spider dies after only a short time, the power of the stones is revealed. The details of the procedure he lists as follows:

And yf you put an attercoppe in a boxe and hold a very saphyrre of Inde at the mouth of the boxe only whyle, by virtue thereof the attercoppe¹⁵⁷ is overcome & dyeth as it were sodenly, as Dyase, sayth."¹⁵⁸

Bartolomaeus additionally suggests the following test for the stone Geraticen; it requires that a human subject be stripped naked and anointed with honey:

Geraticen is a blacke stone, but it passeth ye colour in vertue. For if a man wash cleane his owne mouth, & beareth the stone therein: he may anone tel what other men thinke of him, as it is said in Lapid. And maketh a man that beareth it well beloued: his vertue is prooued in this manner. If a man be nointed with hony, and is set among many flies, if the stone be present, the flies grieue him not; & if the stone be away then ye flies grieue, bite, sucke, and hurt the body.¹⁵⁹

¹⁵⁷ "Attercoppe" is an old English word for spider.

¹⁵⁸ Bartholomaeus Anglicus, *De proprietatibus rerum*, 16. 86. Translation from Bartholomaeus Anglicus, *Batman vppon Bartholome his booke De proprietatibus rerum, newly corrected, enlarged and amended: with such additions as are requisite, vnto euery seuerall booke: taken foorth of the most approued authors, the like heretofore not translated in English. Profitable for all estates, as well for the benefite of the mind as the bodie*. 1582. The mention of "Dyase" in this excerpt is in reference to Dioscorides, but is obviously the same erroneously attributed texts mentioned earlier.

¹⁵⁹ Bartholomaeus Anglicus, *De proprietatibus rerum*, 16. 52. This test does appear in reference to the stone Geranites in Marbode's *De lapidibus*, but it is originally found in Damigeron *De virtutibus lapidum*, 26. However, Bartholomaeus greatly expands the specific procedure of this test. Both Damigeron and Marbode suggest the use of both milk and honey.

If no flies alight upon the subject's body, the stone is proved true. Both these tests came to be repeated in various lapidaries throughout the later medieval and early modern periods. The procedure, however, was not confined to the stones that Bartholomaeus suggests, but was often expanded to apply to various other gems.

The *Hortus Sanitatis* printed in Strasbourg in 1483, for example, contains an illustration of a similar version of the honey test being conducted to determine the authenticity of garnets. A woodcut illustration shows the naked figure of a man whose body is apparently smeared with oil and honey and a table bearing a number of rings set with large gemstones. The failure of a stone to pass such a test, ironically, might in some cases have proven to be a comfort for those who accepted the claims of lapidary medicine. In cases in which the therapeutic use of gemstones did not produce the expected results, a stone could be dismissed as “false,” allowing continued belief in the restorative effects of a “true” version.

Another influential thirteenth-century study, by the renowned Dominican academic, natural philosopher, bishop and saint, Albertus Magnus, sought to combine utility with a comprehensive investigation of the specific nature and properties of gemstones, minerals, and metals. Intended as a compilation of all existing academic knowledge on the topic, *Mineralia* or the *Book of Minerals* is modeled on the work of Aristotle. In many respects it represents a return to the mineralogical studies of the classical age, containing information not only on the



Figure 2.2 Testing the authenticity of garnets with flies and honey. *Hortus Sanitatis* 1483.

properties of stones, but also theories about the nature of their substance and origin. Book II, tractate iii of the *Book of Minerals* details the physical properties and medicinal virtues of ninety-seven lapidary substances, a far more comprehensive account than most medieval works. Albert's sources include Marbode, as well as contemporary authors Arnoldus Saxo, Bartholomaeus, and Thomas de Cantimpré. Of particular importance to the idea and practical application of lapidary medicine is Book II, tractate iii, Chapter 6 which describes the practical application of gemstones used as ligatures and suspensions, which Albertus states are "conferred solely by natural powers."¹⁶⁰ Unlike many other medieval lapidaries, the *Book of Minerals* does not give the impression that it was meant to be used as a practical medicinal manual, but rather it is an academic compendium of contemporary knowledge and a new scientific analysis of the virtues of gemstones.

Book II, tractate i studies of the origins or "cause" of the powers found within gemstones. Far from being satisfied to simply ascribe their virtues to a vague and incomprehensible gift from God, Albertus seeks to find explanations in terms of contemporary natural science. Disputing theories put forth by other philosophers and scientists, he argues that any powers inherent in gemstones are the result of the specific form of the substance from which they are made, speculating on the very nature of matter itself and how this might impact the potency and effectiveness of individual stones.

Although most lapidaries simply refer to the "natural substance" of stones without any further explanation of how this substance might work to produce healing properties, one section of the *Book of Minerals* attempts to clarify medieval theories on the nature of matter and substance. Albertus explains the powers of gemstones based upon Aristotle's

¹⁶⁰ See Wyckoff, *Book of Minerals*, 1967.

concept of the relationship between the form of matter and its properties and functions.¹⁶¹

As the scientific explanation of the power found in precious stones he states:

...the power of stones is caused by the specific substantial form of the stone. There are some powers of mixed [bodies] that are caused by the constituents [in the mixture], and some caused by the specific form itself...for everything has its own proper work, its own good, according to the specific form by which it is shaped and perfected in its natural being. Every combination is thus the instrument of a specific form, since the form encloses everything; and when it ceases to exist, the combination is destroyed and dissolved.¹⁶²

Accordingly, this theory is also used to explain why the use of stones is not always effective:

But in comparison to the material which it shapes, form may be either more potent or less potent, as Hermes¹⁶³ correctly stated. And this is why, among stones of the same specific form, some are found to be more potent and some less potent in their effects; and perhaps some are even found to lack completely the effect [characteristic] of the specific form, because the material in them is disordered – just as a man, simply because he is a man, does not necessarily behave like a human being.¹⁶⁴

While such a scholarly effort to explain the power residing in stones is not the same as the attempts found in more popular lapidaries, the fundamental idea expressed by Albertus appears in every medieval and early modern lapidary that addresses causality.

The idea of lapidary medicine in Western Europe developed slowly from a single aspect of classical mineralogy into the complex system of healing employed in the Middle Ages. Far from being the revelation or invention of a single individual, lapidary

¹⁶¹ Translation from Wyckoff, *Book of Minerals*, 1967, 64.

¹⁶² Ibid., 65. Albertus Magnus, *Book of Minerals*, Book II, tractate i, Chapter 4.

¹⁶³ In reference to a Greek author that Albertus understood as a predecessor of Greek philosophers such as Plato and Aristotle. See, Wyckoff, *Book of Minerals*, 66.

¹⁶⁴ Albertus Magnus, *Book of Minerals* Book II, tractate i, Chapter 4.

theory grew through the very process of textual transmission, with each successive author adding to and shaping the body of knowledge. The twelve sources discussed in this chapter form the basis of all lapidaries compiled in the West during the medieval and early modern periods. Just as each of these texts was assembled through a process of collecting and edited information from a variety of sources, later texts are composed from a wide range of excerpts and paraphrases. Each new author filters available lapidary knowledge, deciding, for whatever reason, to include some stones and specific properties while excluding others. This process is amplified in the production of small, anonymous lapidary texts that continued to be compiled in England and Continental Europe throughout both of these periods. Since these texts contain little or no original material or additions, one can only speculate at the motivation behind the continued popular production of ostensibly new lapidary works. In the end the answer must lie in their overall utilitarian nature, which seemed to provide men and women with the knowledge and, therefore, the power, to control their environment.

Chapter Three: The Idea of Lapidary Medicine in English Print Culture 1473-1700

The implementation of print technology and the consequent development of a print market revolutionized methods of constructing and circulating knowledge in early modern England. Among the many social and cultural changes brought about by this new method of transmission, the growing availability of cheap, printed texts dramatically altered both the methods by which the idea of lapidary medicine circulated as well as its practical applications. In contrast to the expensive, hand-copied manuscripts of the Middle Ages, which largely reflected the tastes and interests of scholars and members of the nobility, print literature aimed at a mass market. Reflecting this changing dynamic, early modern print lapidaries most often took the form of easy-to-read advice manuals designed to provide their readers with direct access to medical information. The authors of such texts routinely state their purpose and intent as an effort “to allow every man, woman, and child” to act as their own medical practitioner, challenging the elevated authority of physicians and, eventually, even apothecaries. These manuals appear in a wide variety of forms, from handbooks on the practice of physick, surgery, and the production of chemical medicines to apothecary dispensatories and pharmacopeias detailing the specific properties of various medicinal substance along with advice on how to best administer them. As the popularity of medical advice manuals increased, so did the range of applications associated with lapidary cures. While medieval lapidaries had focused largely on the external application of stones as compresses or in forms of jewelry, printed texts came to contain detailed instructions on how to grind, distill, or mix lapidary materials with other items in the early modern pharmacopeia in order to produce

plasters, juleps, tonics, pills, and lozenges. This expansion of proposed lapidary medicinals reflected both the new science of physick, or chemistry, and the way print culture facilitated the extension of lapidary culture to the middling classes. This chapter explores the diverse forms of print lapidaries, their intended audience, and their reception within early modern English society.

My study of the dissemination of the idea of lapidary medicine through the medium of print culture is greatly facilitated by the availability of the electronic database Early English Books Online or EEBO. The eventual aim of the EEBO project is to obtain and record digital facsimile images of the content pages of every printed work produced in England, Ireland, Scotland, Wales, and British North America during the period 1473 to 1700, as well as English works printed elsewhere during this same time span. While the project is ongoing and has yet to reach this ultimate goal, at the time I concluded my research in December 2008 the latest update on total texts available through this system had reached 126,000 records, corresponding to STCI Units 1-78, Wing Units 1-129, all of the Thomason Tracts, and the Tract Supplement. By rough estimate, this constitutes 90% of EEBO's eventual goal. Within its geographic and temporal boundaries, the EEBO collection allows scholars to track and meaningfully quantify the flow of texts and ideas across more than two centuries throughout the Anglophone world in a way that is not feasible for any other time or place. Lapidaries, of course, circulated throughout Western Europe and they continue to do so even in our own times but no one can study everything and so I have chosen to concentrate on the fascinating period when print culture came of age in the West, with a particular focus on its English speaking regions.

The electronic storage and retrieval features of EEBO enable researchers to do what would be nearly impossible to achieve using traditional bibliographic methods. As a new and largely unexplored topic, a catalogue of printed sources had not been developed for the subject of lapidary medicine, leaving almost the entire body of English print literature as potential sources to be investigated. Written works labeled as “lapidaries” by the archivists and catalogers of previous centuries represent only a small portion of the printed texts that form the basis for my definition of this term, a classification more fully explained in the introductory chapter of this study. The use of various EEBO search functions reveals that, in addition to a wide variety of explicitly medical dispensaries and advice manuals, texts of lapidary medicine exist in many unexpected bibliographic subject categories, including travel narratives, encyclopedias, books on armor and heraldry, works devoted to sports and courtly behavior, instructional texts on the topic of courtship for both men and women, and social commentaries. Search functions that allow for inquiries based on the appearance of a single word within the body of available texts, also reveal evidence related to the practice and reception of lapidary medicine in religious polemics, plays, government decrees, and even foreign language conversation and phrase books. Before the advent of the EEBO database, locating references to a particular topic within such an extensive and varied body of texts, approximately 126,000 of them, using traditional research methods would have required a lifetime or perhaps many years by a formidable scholarly *équipe* resident in multiple rare book rooms.

However useful and revolutionary, electronic databases also present researchers with a new set of limitations and obstacles. The successful usage of “keyword,” “author

keyword,” “title keyword,” and “subject keyword” searches in EEBO is entirely dependant upon the skillfulness of individual users as well as their subject knowledge. For example, one seeking references to Marbode of Rennes must allow for alternate titles and spellings such as, Macer, Lapidarius, *Marbodeus*, *Mardodaeus*, Merboldus, and Marbod the Frenchman, none of which can be accommodated by EEBO’s otherwise robust use of wildcards, abbreviation symbols and the like. Variations in the vernacular and Latin terminology applied to individual items within the wide range of lapidary materials employed by classical, medieval, and early modern authors further complicates the use of search methodologies dependent upon exact spelling or alternates contained within a useful but necessarily generalized database of terms. For example, a search on the modern term “garnet” yields relatively little information until one also includes contemporary medieval and early modern terminology such as “carbuncle” and “granatus” as does a search for “Eaglestone” without knowledge of common alternates such as “aetites” and “echites.” Furthermore, keyword searches are limited to those texts within EEBO that have been fully digitized with optical character recognition software and are therefore available in “full text” as well as digital facsimile images. Decisions about which items to produce in “full text” reflect good judgments about the books scholars most frequently need to access in this form but this triage system leaves important but less “popular,” at least to a modern community of researchers, works waiting in the queue of work still to be done.

Although keyword searches within EEBO dramatically reduce the amount of time that must be spent reading through the texts of printed works searching for a particular reference, they cannot be seen as a replacement for the actual printed text, particularly in

regard to variations in print editions. While EEBO may be helpful in locating various editions of a particular printed work, one must always visually verify the contents in regard to subject matter. For example, the 1579 edition of William Bullein's popular advice manual entitled *Bulleins bulwarke of defence against all sicknesse, soarenesse, and vvoundes that doe dayly assaulte mankinde* contains a large number of references to lapidary materials; however, previous and later editions of this work, printed in 1558 and 1595 contain only a scant mention of the same.¹⁶⁵ If any print editions of a particular work are not available through the "full text" option of EEBO, the difference between versions must always be verified by a visual comparison of the facsimile pages of texts. While these images allow researchers access to materials held in archives in Europe and North America from the comforts of their own offices, the established standards of EEBO seek to present the "cleanest" copies of texts, the very opposite of what a scholar would choose if she were interested in determining questions of ownership and practical usage.

Before entering into a discussion of how the idea of lapidary medicine circulated within early modern printed texts, it is important to note what did not circulate. Many of the most popular classical and medieval lapidaries, judging by their wide availability in manuscript form throughout Western Europe during the Middle Ages failed to find a market in the print culture of early modern England. While these works may have remained an important part of popular and scholarly medical consciousness through plagiarism or other less obvious forms of filtering and knowledge borrowing, they did not succeed on their own. Some of these authors, such as Marbode, were commonly cited and even briefly quoted in printed books, while others, such as Vincent of Beauvais, were

¹⁶⁵ William Bullein's *Bulleins bulwarke of defence against all sicknesse, soarenesse, and vvoundes that doe dayly assaulte mankinde: which bulwarke is kept with Hilarius the gardener, [and] Health the phisicion, with the chirurgian, to helpe the wounded soldiours. Gathered and practised from the most worthy learned, both olde and new: to the great comfort of mankinde.* London: Thomas Marshe, 1579

only occasionally named as an authority to bolster the credibility of a particular medical or scientific claim. Several enormously influential scholarly works of the classical and medieval periods were available only in Latin manuscript form until the seventeenth or eighteenth centuries and many of those were not published in English until well into the twentieth. While interest in these texts and their authors remained, their availability in printed form was entirely dependent upon consumer demand and the ability of a printer to turn a profit on an edition of their work. The reality of early modern print culture was such that a popular advice manual by a celebrity physician who incorporated the work of a renowned classical or medieval healer seems to have sold far better than the original text itself.

Although numerous printed texts, particularly works of medicine and science, refer to the writings and authority of Theophrastus, Dioscorides, and Isidore of Seville, none of these authors appear in English print prior to 1700. Perhaps due to an increased scientific interest in investigation, rather than despite it, the work of Theophrastus “On Stones” was translated into English by John Hill and first published in 1747, with a second edition of this work following in 1774.¹⁶⁶ By comparison, the *Herbal of Dioscorides* was first translated into English in 1655, yet remained available only in manuscript form until finally being published in 1935.¹⁶⁷ While at least ten print editions of Isidore of Seville’s *The Etymologies* were printed in Continental Europe between 1470

¹⁶⁶ See, John Hill, *Theophrastus's History Of Stones: With An English Version, And Critical And Philosophical Notes, I*. London : C. Davis, 1746 and John Hill, *Theophrastus's History Of Stones: With An English Version, And Notes, Including The Modern History / by John Hill. Theophrastus*. London: Printed for the author, 1774.

¹⁶⁷ See, Dioscorides Pedanius, *De Materia Medica*. Translated by Lily Y. Beck Hildesheim, (Germany, Olms-Weidmann, 2005) and Alix Cooper, *Inventing the indigenous : local knowledge and natural history in early modern Europe* (Cambridge: Cambridge University Press, 2007).

and 1530, this text did not appear in English print during the early modern period; in fact, the first complete English translation only became available in 2006.¹⁶⁸ It is clear, however, that each of these sources continued to be extensively read and utilized by print authors, particularly those writing on the topics of science and medicine. Early modern books on medicine and healing that cite Theophrastus, Dioscorides, and Isidore as authorities are too numerous to mention; in fact, it would be far easier to name those few who do not reference their teachings and expertise.

Although Marbode of Rennes's verse work, *De lapidibus*, is arguably the most popular and influential text of lapidary medicine to circulate in Western Europe during the Middle Ages, it also did not directly enter into the print culture of early modern England. Like their medieval predecessors, early modern authors continued to incorporate the ideas of *De lapidibus* into their own lapidaries, presumably relying upon manuscript copies, thus assuring that the memory of Marbode would remain strong in the minds of English society. Indeed, evidence from sixteenth- and seventeenth-century print culture reveals that he continued to be known and esteemed as an eleventh-century poet who wrote on the virtues of gems. For example, an early print dictionary by Richard Huloet, published in 1572, entitled *Huloets dictionarie newelye corrected, amended, set in order and enlarged, vvith many names of men, tovvnnes, beastes, foules, fishes, trees, shrubbes, herbes, fruites, places, instrumentes &c.* quotes lines 150-154 of the Latin verse version of *De lapidibus* as part of its definition of an emerald:

Emerade stone. Smaragdus, di. mas. gen. Vne esmeraude.
Cal. Mira sunt, quae Smaragdo Marbodaeus tribuit his versib.

¹⁶⁸ Isidore of Seville, *The Etymologies of Isidore of Seville*. Edited and translated by Stephen A. Barney (Irvine: the University of California, Irvine, 2006).

Commodus iste lapis, scrutantibus abdita fertur:
 Cum praescire volunt, aut deuinare futura.
 Auget opes idem, sese reuerenter habentis
 Omnibus in causis dans persuasoria verba¹⁶⁹

Nearly a century later James Howell's work on the nationalistic characteristics of various European states entitled *A German diet, or, The ballance of Europe* includes Marbode's several verses on the stone *gagates* to describe gemstones found near an English castle:

there is *Mougrave* Castle, where there is good store of Rozin, with Jet and Agat stones, which is ranked among Jewels, as *Marbodaeus* sings wittily,

Nascitur in Lycia lapis, & prope gemma Gagates,
 Sed genus eximium faecunda Britannia mittit,
 Lucidus & niger est, levis & levissimus idem,
 Vicinas paleas t...ahit attritu calefactus,
 Ardet aqua lotus, restinguitur unctus olivo.¹⁷⁰

Each of these authors accurately quotes the Latin text of *de lapidibus*, indicating access to a text outside the print medium, whether in manuscript or oral form. Additionally, these examples demonstrate that Marbode's work remained relevant more than five hundred years after his death. Indeed, Edward Phillips lists Marbode among the most eminent poets "of all ages" in his *Theatrum poetarum*, published in 1675, characterizing him as "Merboldus, otherwise called Marbodaeus, a writer of Gems and precious stones in

¹⁶⁹ Huloet, Richard, *Huloets dictionarie newely corrected, amended, set in order and enlarged, vvith many names of men, tovvnes, beastes, foules, fishes, trees, shrubbes, herbes, frutes, places, instrumentes &c. And in eche place fit phrases, gathered out of the best Latin authors. Also the Frenche therevnto annexed, by vvhich you may finde the Latin or Frenche, of anye English woorde you will. By John Higgins late student in Oxeforde*, 1572.

¹⁷⁰ James Howell, *A German diet, or, The ballance of Europe wherein the power and vveaknes ... of all the kingdoms and states of Christendom are impartially poiz'd : at a solemn convention of som German princes in sundry elaborat orations pro & con*, 1653.

Hexameter Verse, who comes near to Verge of the Moderns: for he flourisht about the year 1050.”¹⁷¹

Of the four great encyclopedias of the Middle Ages discussed in Chapter Two, only the work of Bartholomaeus Anglicus successfully transitioned into print culture. William Caxton’s successor, Wynkyn de Worde, published John Trevisa’s English translation of Bartholomaeus Anglicus’ *De proprietatibus rerum* in 1495. Popular demand for this text is indicated not only by the fact that it was among the first printed books in English, but also by the presence of at least two more editions by other publishers which followed in 1535 and 1582. True to de Trevisa’s fourteenth-century translation, the printed editions contain references to the origins and medicinal virtues of various stones and mineral throughout the body of the text as well as a separate lapidary in Book 16 that details the properties of 104 stones in near alphabetical order. In almost every instance, the primary interest is upon the medicinal properties of each stone, including directions for application and methods to test for authenticity. In this sense the popularity of *De proprietatibus rerum* is undoubtedly tied to the innate practicality of the work, which not only supplied knowledge of the natural world to early modern readers, but taught them how to use it.

By contrast, the works of Arnoldus Saxo and Thomas de Cantimpré faded entirely from academic importance and popular consciousness during the early modern period, to be replaced by new authorities. *Speculum majus*, Vincent of Beauvais’s thirteenth-century encyclopedia, arguably the most wide read and influential of these works, fared little better. Three editions of a work entitled *Hier begynneth the book callid the myrrour*

¹⁷¹ Phillips, Edward, *Theatrum poetarum, or, A compleat collection of the poets especially the most eminent, of all ages, the antients distinguish't from the moderns in their several alphabets : with some observations and reflections upon many of them, particularly those of our own nation : together with a prefatory discourse of the poets and poetry in generall*, 1675.

of the worlde by Gossuin of Metz, published in 1481, 1490, and 1527, are often misattributed to Vincent of Beauvais, perhaps due to the similarities of the title to Beauvais' *speculum maius* or "the Great Mirror." While *the myrroure of the worlde* does contain some occasional references to the medicinal properties of certain stones, a close comparison of the text reveals that it does not actually contain any of the three parts of the encyclopedia in question. And although a Latin version of *Speculum Maius* appeared in print in the twentieth century, the text of this work has yet to be fully translated into English.

The *Natural History* of Pliny the Elder was also a source of practical knowledge, which is perhaps why it is one of the few classical works on the topic of lapidary medicine that maintained its authority and prestige throughout the Middle Ages and into the early modern print as well. As one of the foremost authorities on science and nature, Pliny was revered and highly sought after by medieval scholars. However, the sheer length of his thirty-seven volume work discouraged medieval copyists from undertaking such an arduous task and they settled for writing out limited excerpts or particular volumes of interest. The expense of producing a complete printed version of the *Natural History* resulted in similar trimmings. The first print editions of this work, entitled *The secrets amd wonders of the worlde* published in 1566, 1585, and 1587, follow much the same pattern in that they contain abstracts only of the first sixteen books of *Natural History*.¹⁷² The thirty-seventh book, which contains the vast majority of information relating to stones and minerals, did not become available in English print until the year 1601 when Adam Islip printed *The historie of the vworld Commonly called, the naturall*

¹⁷² See Pliny the Elder, *The secrets and wonders of the world A booke right rare and straunge, containing many excellent properties, giuen to man, beastes, foules, fishes and serpents, trees, plants &c. Abstracted out of that excellent naturall historiographer Plinie*. London: Henry Denham, 1585.

historie of C. Plinius Secundus, translated into English by Philemon Holland, a Cambridge trained physician. This complete collection of all thirty-seven books exists as massive folio edition weighing something in the excess of twenty pounds, and was no doubt far beyond the financial means of the ordinary Londoner. Nonetheless, three successive editions of the work attest to its popularity, perhaps as a showy display of luxury consumption but more probably as a reference work for sellers of pharmaceuticals. A separate edition of Philemon Holland's translation by a different printer also appeared in 1601, followed by two successive printings by Adam Islip in 1634 and 1635.

The wording and format of Holland's *The historie of the vworld* is a loose, colloquial translation of the original Latin text, with the notable difference that the seventeenth-century versions appear to have been printed for use as medical source books. As a "Doctor of Physicke," Holland's focus becomes clear with the addition of printed marginal notations that indicate which items are "medicinable" and those that are suited for use in the practice of "physick," a distinction that successfully orients much of the work towards the practical art of healing. In this sense, early modern translations of Pliny's *Natural History* are, in fact, popular advice manuals that could have been used as pharmaceutical references on stones and other natural materials. In the book's introduction, Holland provides his reasoning and motivation for undertaking the task of translation:

I am not of their minds, who desire that all humane learning in Arts and Naturall Philosophie should be reserued vnder locke and key of strange language, without the which no other man should haue accesse vnto it¹⁷³

¹⁷³ Pliny the Elder, *The historie of the vworld Commonly called, the naturall historie of C. Plinius Secundus. Translated into English by Philemon Holland Doctor in Physicke. The first tome* (London: Adam

Such sentiments are very much in keeping with other popular medical advice manuals of the same period, produced with the stated purpose of providing open access to healing knowledge.¹⁷⁴

However, the size and weight, and therefore overall cost, of these editions of the *Natural History* suggests they were not marketed towards the casual reader, but were likely used as reference books, probably by apothecaries. The text opens with an index of people, places, and natural substances, such as gemstones, often with the notation “medicinal,” a feature that would facilitate use by a physician or apothecary who would have likely kept such a text as a reference for himself or, in the case of an apothecary wishing to sell medicinal substances contained therein, their customers. Early modern representations of physicians at work or of the interiors of apothecary shops often show the presence of just such reference books, in use by either the practitioner or his patrons. Two continental editions of the *Hortus Santitatis*, the first printed pharmaceutical text and one that usually featured an extensive section on the medicinal uses of gemstones, contain just such illustrations. While these woodcuts do not appear in English editions of *Hortus Sanitatis*, a portion of the Dutch version of the same text appeared in print in sixteenth-century England under the title *The noble lyfe a[nd]*

Islip, 1601).

¹⁷⁴ Rudolph Bell previously noted this relationship in regard to Leonardo Fioravanti and the sale of popular advice manuals in sixteenth-century Italy. See, Bell, *How To Do It*, 279-280.



Figure 3.1 Physicians at work, consulting medical texts to aid in their diagnosis and treatment. From a print version of the *Hortus Sanitatis* printed by Jacob Meydenbach at Mainz, 1491.



Figure 3.2 The interior of an apothecary's shop, showing a reference book and the traditional jars used to hold pharmaceutical materials. *Hortus Sanitatis* by Johann Prüss, Strasbourg c. 1497.

*natures of man of bestes, serpentys, fowles a[nd] fisshes [that] be moste knoweu by Laurence Andrew.*¹⁷⁵

Another classical source of lapidary medicine that successfully transitioned from wide manuscript circulation in the Middle Ages to the print culture of early modern England is the work of Gaius Julius Solinus. Although the 1585 and 1592 abridged versions of Pliny's *Natural History* claim to also contain copies of Solinus' most popular composition, *Polyhistor*, the author's work did not appear in English print until the issue of two variant editions in 1587. Both of these texts are based upon an English translation completed by Arthur Golding, which also appeared in a joint edition with the printed works of Pomponius Mela.¹⁷⁶ Despite the knowledge that much of his work was drawn from previous authors Pliny and Pomponius Mela, evidence from seventeenth-century popular advice manuals such as *Pseudodoxia epidemica* by Sir Thomas Browne indicate that Solinus was still being read as an authority on the use of gems. In reference to the properties of crystal Browne writes, "*Crystallum esse lapidem ex aqua pura concreatum non tamen frigore sed divini caloris v. Solinus who transcribed Plinie, and therefore in almost all subscribed unto him, hath in this point dissented from him. Putant quidam glaciem coire, & in Crystallum corporari sed frustra.*"¹⁷⁷ Although *Polyhistor* is

¹⁷⁵ Andrew Laurence, *The noble lyfe a[nd] natures of man of bestes, serpentys, fowles a[nd] fisshes [that] be moste knoweu* (Antwerp : Emptred by me Ioh[a]n of Doesborowe, 1527?).

¹⁷⁶ Arthur Golding's translation of *Polyhistor* remains the only English version of this text even today. For the joint compilation with the works of Pomponius Mela, see Pomponius Mela, *The rare and singuler worke of Pomponius Mela, that excellent and worthy cosmographer, of the situation of the world most orderly prepared, and deuised euery parte by it selfe: with the longitude and latitude of euerie kingdome, regent, prouince, riuers, mountaines, citties and countries. VWherevnto is added, that learned worke of Iulius Solinus Polyhistor, with a necessarie table for thys booke: right pleasant and profitable for gentlemen, marchaunts, mariners, and trauellers. Translated into Englishe, by Arthur Golding Gentleman* (London: John Charlewood, 1590).

¹⁷⁷ Browne, Thomas, *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths by Thomas Browne* (London: T.H. for E. Dod, 1646).

primarily a description of the geographic, social, and religious character of the ancient Mediterranean, it also provides information on the natural origins and physical properties of many stones and minerals. While not formatted to facilitate use as a popular advice manual on lapidary healing, invocations of Solinus throughout medical and mineralogical print literature demonstrate that his work continued to be used as a reference for the virtues of gemstones well into the seventeenth century.

There is also some evidence to suggest that travel narratives widely available during the medieval and early modern periods, such as Solinus' *Polyhistor*, Marco Polo's *The Travels of Marco Polo*, and John of Manderville's *Itinerarium* were used as practical guides by European sailors and explorers, specifically in regard to non-Western sources of gemstones.¹⁷⁸ In particular, Christopher Columbus is known to have been inspired by the tales of material wealth to be found in the East, as depicted in both Marco Polo's account of his travels in Asia, and in de Manderville's *Itinerarium*, the supposed account of an English knight who wrote of his travels in the Holy Land, North Africa, and Asia in the late fourteenth century. Columbus' personal copy of the Latin text of *The Travels of Marco Polo*, housed at the Bibliotheca Colombina in Seville, bears several handwritten remarks demonstrating significant interest in places in the text which specify geographic locations rich in gemstones. Columbus' marginal notations on Chapters XXII indicate the importance of a source location said to be rich in sapphire, topaz, and ruby, in one place indicating "Hic est Rubinus."¹⁷⁹ His written comments on Chapter XXIII also suggest his interest in specific gemstones found in Asia. In several instances, he notes

¹⁷⁸ My thanks to Paul Fisher for sharing his thoughts on the practical use of ancient travel narratives by medieval and early modern sailors.

¹⁷⁹ The digital image of this text page can be found at <http://en.wikipedia.org/wiki/File:ColombusNotesToMarcoPolo.jpg#filelinks> (accessed March 3, 2009).

the location of places said to possess great quantities of pearls, topaz, ruby and other precious stones, hand copying the text's references to "preciosissimus lapidibus" in the margins along with the word "perle" in connection to those instances in which the text refers to these gems using the Latin term "margarite." John of Mandeville's *Itinerarium* also includes significant discussion of the foreign sources of gemstones in connection with their known medicinal properties. For instance, Mandeville cites the teachings of Isidore of Seville and Bartholomaeus Anglicus when describing the virtues of the diamonds that he claims to have seen growing on rock crystals in India. On the authority of these scholars, he recommends carrying a diamond to protect from evil dreams and wicked spirits, to keep limbs healthy, heal lunatics, and to act as a shield from the dangers of wild animals and their poison.¹⁸⁰ While each of these works consists of largely fantastical assertions, they do provide a vague, but relatively accurate account of foreign sources of gemstones in the medieval and early modern periods. Many of the claims made in such travel narratives are confirmed in the manuscript account written by an English seventeenth-century lapidary and jeweler, indicating the sources and relative prices of various types of precious stones.¹⁸¹

The lapidary of Albertus Magnus also found an audience in early modern English print culture, although in a popularized form very different from the scholarly, investigative nature of the original work. While evidence suggests that *Mineralia*, or the *Book of Minerals*, continued to circulate as a manuscript and was employed as a book of reference by specialists in the field of gemstones such as jewelers and lapidaries, the elite scholarly nature of this work lacked appeal for the ordinary reader. A more general

¹⁸⁰ John Mandeville, *Itinerarium* (New York: Penguin Books, 1983), 118-119.

¹⁸¹ Sloane 2539.

interest in stones and the popular demand for texts addressing their healing virtues, however, ensured that some aspects of the *Book of Minerals* survived in a pseudo-Albertus Magnus work entitled *Liber aggregationis*, or *The boke of secretes of Albertus Magnus*, which claimed to reveal to its readers the “secret” virtues of herbs, stones, and animals. As a distinct literary genre, books of “secrets” that purported to contain fabulous, desirable knowledge were popular throughout the medieval and early modern periods, first as manuscripts and then as printed texts. Such works were often falsely ascribed to ancient and contemporary authorities, such as Pliny, Isidore, Dioscorides and Albertus Magnus, as a means of strengthening their credibility and appeal. While the exact source materials for the first and third sections of *The boke of secretes* are uncertain, the second book “of the virtues of certain stones” is clearly taken from the *Book of Minerals*.

The *Book of Secrets* ascribed to Albertus Magnus first appeared in English print in a Latin version, entitled *Liber aggregationis*, published in 1483.¹⁸² At least ten English versions of this text followed over the next two centuries, published in 1560, 1565, 1570, 1599, 1617, 1626, 1637, and 1681-84. Both the Latin and English versions detail the physical and medicinal properties of forty-five stones, detailing the geographic origins, physical appearance, and “marvelous operations” of each. While the vast majority of this information is drawn directly from the *Book of Minerals*, facts relating to each stone are edited in the *Book of Secrets* so as to emphasize their fantastic and the medicinal qualities.

¹⁸² Albertus Magnus, *Liber aggregationis seu liber secreto[rum] Alberti magni de virtutibus herba[rum] lapidum [et] animalium quorund[am] Liber primus de viribus quarund[am] herba[rum]*. [[London] : Per me Wilhelmum de Mechlinia impressus in opulentissima ciuitate Londoniaru[m] iuxta pontem qui vulgariter dicitur flete brigge, c. 1483.

Although a modern editor viewed the enormous and sustained popularity of this text with some wonderment, the appeal of the *Book of Secrets* for early modern readers is less surprising in the context of the overall popularity of this genre.¹⁸³ First and foremost, the text is a popular medical advice manual, one which offers the reader an assortment of medicinal substances guaranteed to cure a wide variety of mental, physical, and even social ills. The format is that of a practical medical reference, rather than a scientific treatise, such as the *Book of Minerals*, or a compendium of natural knowledge, such as *De proprietatibus rerum*. Although the second book begins with a list of the stones contained therein, the lapidary itself is structured by headings that provide a list of possible problems the reader might wish to address. This structure is characteristic of practical print manuals that allow readers with a specific problem to quickly identify its solution rather than making them read through a list of stones and their properties to find the right topic. For example:

If thou wilt cure melancholy, or a feuer quartaine, in any man.

Take the stone, which is called Lapis lazuli. It is like to the colour of the heaven, and there is within it little bodyes of golde. And it is sure and proued, that it cureth melancholye, and the feuer quartayne.¹⁸⁴

Often the text provides the reader with detailed instruction on the use of a particular stone, such as the need to wrap it in the leaves of certain plants, to place it under the tongue, or to bind it to a particular part of the body. Taken as a whole, the lapidary

¹⁸³ See Best and Brightmans' introduction in Albertus Magnus *The Book of Secrets of Albertus Magnus of the Virtues of Herbs, Stones and Certain Beasts*, eds. Michael R. Best and Frank H. Brightman (New York: Oxford University Press, 1973).

¹⁸⁴ Albertus Magnus, *The boke of secretes of Albertus Magnus of the vertues of herbes, stones, and certayne beasts* : also, a boke of the same author, of the maruaylous thinges of the world, and of certayne effectes caused of certayne beastes, 1560.

contained within the *Book of Secrets* offers cures for a wide variety of human ailments including blindness, gout, bleeding, fevers, venom, dropsy, scabs on the skin, epilepsy, pregnancy; it even suggests stones that might work as analgesics for mental and physical pain.

In addition to strictly medicinal topics, the lapidary section of the *Book of Secrets* also provides advice on lapidary remedies for various social issues such as engendering good relations between a husband and wife, overcoming an enemy, and walking safely amongst strangers. For instance:

If thou wilt knowe whyther thy wyfe is chaste, or no.

Take the stone, which is called Magnes in English, the lode stone, it is of sadde¹⁸⁵ blew coloure, and it is founde in the sea of Inde sometime in partes of Almaine, in the prouince, which is called East Fraunce. Laye thys stone vnder the head of a wyfe, & yf she be chast, she wil embrace her husbände, if she be not chaste, she wil fall anone forth of the bedde.

Moreouer, yf thys stone be put brayed, and scattered vpon coles, in foure corners of the house, they that be sleapyng, shall flee the house, and leaue all.¹⁸⁶

This test for faithfulness, which as we have seen was originally found in Dioscorides' *Materia Medica*, appears in many medieval and early modern lapidaries, including Albertus' *Book of Minerals*. While such assertions may appear fantastical to modern readers and were occasionally mocked by early modern authors, loadstones were widely and cheaply available during in the sixteenth century and such a test may have provided some peace of mind for uneasy husbands, at least those whose wives did not routinely fall out of bed.

¹⁸⁵ Medieval and early modern texts describe the colors of many stones as either "sad," meaning pale, or "bright," meaning strong or vivid.

¹⁸⁶ Albertus Magnus, *The boke of secretes*, 1560.

The second use for the loadstone given in the *Book of Secrets* – inducing all the residents to flee the house -- also is found within the original text of Albertus Magnus’ *Book of Minerals*, which provides as well the reasoning, curiously absent from the *Book of Secrets*, that a nefarious person might wish a house to be abandoned: “and then the thieves steal whatever they want.” While the idea that certain natural substances, such as herbs or stones, can aid in thievery goes back at least to Damigeron’s classic text *On Stones*, the inclusion of such “virtues” in printed texts such as the *Book of Secrets* demonstrates the timelessness of common fears and concerns that early modern Londoners sought to resolve by using the wisdom contained in cheap, printed texts available from a host of booksellers. For two centuries, the *Book of Secrets* fulfilled the need for practical, and undoubtedly sought after, advice on how to use stones to bring about relief from sorrow, punishment of enemies, interpretation of dreams, protection of animals from dogs and hunters, augmentation of riches, detection of poisoned meat, allaying of drunkenness, and sheltering from the wrath of tempests.

Other types of popular print literature lend insight into the popular reception and use of the *Book of Secrets* by early modern English readers. One such text, a conversational phrase book in both English and French, entitled *Ortho-epia Gallica Eliots fruits for the French*, acts as an instructional manual for gentlemen so that they may teach themselves “to speake truely, speedily and volubly the French-tongue.”¹⁸⁷ As with any modern language instructional text, this phrase book presents reader with

¹⁸⁷ John Eliot, *Ortho-epia Gallica Eliots fruits for the French: enterlaced vwith a double nevv inuention, vvhich teacheth to speake truely, speedily and volubly the French-tongue. Pend for the practise, pleasure, and profit of all English gentlemen, who will endeuour by their owne paine, studie, and dilligence, to attaine the naturall accent, the true pronounciation, the swift and glib grace of this noble, famous, and courtly language* (London: Richard Field, 1593).

sample dialogues designed to prepare them to take part in conversations on commonplace topics dealing with everyday situations such as purchasing a book, ordering an article of clothing from a tailor, finding a room at an inn, or playful banter between gentleman playing cards or drinking together. One such useful scenario presents a sample dialogue between a patron who has read a popular medical advice manual attributed to Albertus Magnus and now seeks to purchase one of the recommended cures from the local apothecary:

The Apoticarie. Chap. 7.

Poticarie, have you made my drinke?
 Who prescribed you this receipt?
 Tis maister Doctor.
 What Doctor?
 Will you know? Know you not the hand?
 No truly.
 Albertus Magnus is the author, I have translated it out of his workes of the secrets of damsels.
 Do you beleeeve this monstrous lyar?
 Is he so great a lyar?
 He sayth that there is vertue in stones, in hearbs, and in words, to make men in love with women, and women with men. No, no, tis another thing that I will do. I will coniure a spirit, and will go invisible.
 Let me see your Receit. Read it.
 Take a Frogs tongue, and the blood of a bat.
 And how must I use them?
 beat them well together in a mortar.
 Doth it bind or loose?
 Yea, yea, and make a man go to the &c. lustily.
 Take then a viol and stop it well.
 Whats that within that box there?
 Tis pepper or Ginger.
 What haue you vvithin this great sacke?
 They are cloves, nutmegs, saffron, cynnamon and almonds.
 What fine drogues are within these boxes there bepainted with shapes of Harpies, of hares, of flying horses and flying harts? There is within them, balme, ambre, amomum, muske, civet, perles, and other precious drugs.
 Have you no preseruatiue against the disease? you know what I meane.
 Lay an emplaister to it.

You neede no other Treacle for that.
 I dare not purge, for the time is not good.
 Haue you a hard belly?
 I am alwaies bound in my bellie almost, bring me a glistre to morrow morning.
 I vnderstand you well now, let me alone.
 Farewell till to morrow morning.¹⁸⁸

Presumably designed to present a typical interaction between a medical practitioner and his patient, this conversation refers to, and seems to conflate, two popular medical advice manuals available during this period that were attributed to Albertus Magnus. The first reference, in which the patient states that he has “translated it out of his workes of the secrets of damsels,” alludes to a Latin version of a work most commonly known as *De secretis mulierum: item de virtutibus herbarum lapidum et animalium*, published in England in 1483 as *Secreta mulierum et virorum*. However, the characterization of the text that immediately follows (*He sayth that there is vertue in stones...*) seems to apply more specifically to the contents of the *Book of Secrets*, which had been published in at least six versions at the time of the issue of Eliot’s *Ortho-epia Gallica*.

If a sample dialogue at the apothecary’s shop can be taken as a generic representation of the relationship between printed advice manuals and healthcare practitioners of the period, it indicates that stones were considered to be among common “fine” and “precious” drugs since two lapidary materials, pearls and amber, are listed as being held in painted boxes among the other medical substances for sale. At the same time, the content of the conversation also demonstrates varying levels of skepticism and belief within early modern English society.

Another popular medieval text of lapidary healing widely available to early modern medical consumers was the *Thesaurus pauperum*, or *Treasury of the Poor*, which

¹⁸⁸

Ibid.

offers a host of cosmetic and medicinal cures for the common man. This work, first translated into English by Humfrey Lloyd and published under the title *Treasury of Health*, added materials intended to help the reader identify the symptoms of disease, a compendium of other medicinal cures, and a collection of aphorisms attributed to Hippocrates and “Iacobus de Partybus.” Although the medieval author of the original work eventually became Pope John XXI, the early modern expanded English version simply attributed the medicinal advice contained therein to “Petrus Hispanus,” as he was known before ascending the papal throne. Seven extant editions of the *Treasury of Health* remain today, published in 1550 (two variant editions), 1553, 1556, 1558, 1570, 1585. Taken together these texts demonstrate not only the continued popularity of the *Treasury of Health* over a thirty-five year period in sixteenth-century London but also a high level of public demand for the cures it offered.

The text begins with a preface by Lloyd addressed directly to his readers in which he explains that the cures offered were compiled from the works of the “most noble and Auncient phisicians” Hippocrates, Galen, Dioscorides, and Avicenna by Petrus Hispanus. Omitting any reference to the papacy, Lloyd characterized Petrus as a man of great knowledge and long practice although he “chaunced in a barbarous and rude tyme.”¹⁸⁹ While medieval scholars, healers, and medical advice generally continued to be revered in the early modern period, such negative characterizations of the Middle Ages are commonly found within the prefaces of medieval medical works that circulated the

¹⁸⁹ John XXI, Pope, *The treasury of healthe conteynyng many profitable medycines gathered out of Hypocrates, Galen and Auycen, by one Petrus Hyspanus [and] translated into Englysh by Humfre Lloyd who hath added therunto the causes and sygnes of euery dysease, wyth the Aphorismes of Hypocrates, and Iacobus de Partybus redacted to a certayne order according to the membres of mans body, and a compendiose table conteynyng the purginge and confortatyue medycynes, wyth the expositio[n] of certayne names [and] weyghtes in this boke containd wyth an epystle of Diocles vnto kyng Antigonus.* (London: Wyllyam Coplande, 1553).

within sixteenth- and seventeenth-century English print culture. Like many other popular medical advice manuals of this time, the *Treasury of Health* purports to offer knowledge of the art of Physick, presented in a clear and simple manner for the consumer who might act his or her own physician. However, Lloyd also impresses upon his reader the importance of prudent use of the knowledge his text provides and warns against doing harm in the application of his medical advice.

The contents of the *Treasury of Health* follow the widely repeated pattern of providing the reader with the “causes” and “signs” of a particular health problem, followed by a number different “remedies.” The medical issues addressed range from baldness and toothache to the flux and childbirth. The suggested remedies most often rely on the use of commonly obtained pharmaceutical items of the day, comprised of plant-, animal-, mineral-, or metal-based materials. The *Treasury of Health*’s previous, medieval title, the *Treasury of the Poor*, is indicative of the contents of this text in that much of the *materia medica* contained therein are items a reader would have had common access to without resorting to purchasing them from an apothecary shop, such as many forms of animal “pisse” and “dounge.” Many other materials are as simple as burned barley bread, the milk of an ass, willow twigs, or the ashes of a snail or frog.

Among these simple pharmaceutical remedies, one also finds a large number of lapidary materials such as pearls, red and white coral, amber, lapis lazuli, *lapis armenius*, *lapis tutia*, loadstone, sapphire, and emerald. For example, the *Treasury of Health* suggests that coral can be used to remove a decayed tooth stating, “Put the powder of redde Coral in the hole of thy tothe and it wyl fall out by the rote.” It also recommends coral to sooth the gums, “The powder of corall being layd theron also is mooste

pryncypall in comfortyng the gumes.” A printed marginal notation in the text attributes this last medical advice to “Auicen” or Avicenna. Another cure, “A saphix & a smaradge heale y^e eyes of them whome they touché,” is attributed to “Lapida” or Lapidarius, a name by which Marbode was commonly known.¹⁹⁰ Yet another lapidary treatment is attributed to Dioscorides, “The pouder of the stone magnes dronke w^t milke, resolueth y^e dropsy.”¹⁹¹

While many of the remedies rely on the simply application of a stone or other medical material to the affected body part, other therapies require specific measurements of various different pharmaceutical products, indicating the eventual involvement of an apothecary:

Of the sodeyne losing of strength and debilitie of the vytall spirites.

Geue the pacyent thys pastr folowing, take the scraping of gold {dram} i. margarites of both sortes . {dram} i. of mastike . {dram} ii. of cubebes of spodium of the scrapinge of luory, the bone of an hartes herte, of burnt Sylke, of roses of eche . {dram} ii, of white and redde coral of eche . {dram} i. of cloues {dram} i of suger two pound of muske of amber of eche . i {dram} . make a plaster or a pouder therof it doth wonderfully comfort in all kynde syncop, yf it be of to much swette or heat, geue vnto the pacient Suger of rosys wyth cold water & sprynkle on hym some rose water, oral doth greatly comforte the harte the wod of aloes, muske, amber, mastike, & such lyke doo comfort y^e heart renewyng y^e liuelines of y^e spirites, and naturall heate.¹⁹²

The text then states that “margarites” (pearls) and coral strengthen the “vytall spirytes by purifyeng the bloud in the body and by alteryng the vnnaturall heate.” Although many lapidary materials, such as the fine gemstones used in jewelry, are commonly associated

¹⁹⁰ The sapphire and the *smaragdus* are listed as effective cures for eye afflictions by Marbode in *de lapidibus*.

¹⁹¹ This property and use of the stone *magnes* (loadstone) does not appear in *de materia medica*..

¹⁹² John XXI, Pope, *The treasury of healthe*, 1553.

with wealth, it is clear from their inclusion in *The Treasury of Health*, which contains a preponderance of cheaply obtainable medicines, that such materials, undoubtedly in their poorer quality forms, may have been deemed to be within the economic reach of at least some considerable portion of early modern book readers.

In addition to continuing the traditions of classical and medieval lapidaries, English print literature also reveals innovative practices of lapidary medicine. In 1618, James I of England issued a two-page printed proclamation heralding the compilation of a new text, entitled the *Pharmacopoea Londinensis*, by the Royal College of Physicians of London. The proclamation commanded that hereafter all apothecaries must use this massive Latin catalogue, and the standardized weights and measures prescribed therein, to compile their medications “which heretofore have been variously and differently composed, and made according as mens severall fancies have lead them, to the great danger of Our Subjects in their lives and health.”¹⁹³ Similar proclamations seeking to enforce standardization in the production and sale of pharmaceutical products were also issued by the crown in 1620 and 1721. The original Latin text of the *Pharmacopoea Londinensis* appeared in at least seventeen print editions published in the years 1618, 1627, 1632, 1639, 1650, 1651, 1655, 1662, 1668, 1677, 1678, 1689, and 1699.¹⁹⁴ Thereafter, the *Pharmacopoea Londinensis* became the official source and reference book for apothecaries and, as such, many popular medical advice manuals of the same period make reference to it as a book that required apothecaries to keep certain medicinal

¹⁹³ James I, King of England, *By the King. A proclamation commanding all apothecaries of this realme, to follow the dispensatory lately compiled by the Colledge of Physitions of London*. London: Norton and Iohn Bill, 1618.

¹⁹⁴ Two variant editions of the Latin form of text were printed in the years 1618, 1655, 1668, and 1677.

wares in stock. However, the *Pharmacopoea Londinensis* restricted its ideas and information to those who could read Latin. Popular demand for a more accessible English version of the same work motivated Nicholas Culpeper to offer a translation in 1649 with sixteen subsequent editions published in 1650, 1651, 1653, 1654, 1655, 1659, 1661, 1667, 1669, 1672, 1675, 1679, 1683, and 1695.¹⁹⁵ Print editions of yet another English language version, this one translated by William Salmon, appeared in 1678, 1682, 1685, and 1691.¹⁹⁶ Between the two translations and the Latin edition, we have at least thirty-nine printings of a text that always contained a separate lapidary section detailing the properties of various “stones,” as well as numerous other references to lapidary materials throughout. Although the number, type, and organization of lapidary materials found within different editions of the *Pharmacopoea Londinensis* varies, the section “Of Stones” in the 1691 edition, one of the largest compiled, lists at least 110 stones and non-mineral based lapidary products, such as coral syrup and magistry of pearl.

Closer examination of Nicholas Culpeper’s 1646 English translations, entitled *The London dispensatory*, reveals a traditional organization based on categorizing medicines as products of the natural world. Within this conceptualization, one that would have been familiar to seventeenth-century readers, medicines are listed according to their natural origin. Therefore, one finds products such as amber, coral, and pearls in the category “Belonging to the Sea,” while items such as cockstones and unicorn’s horn are found listed under the heading “Parts of Living Creatures and Excrements.” Another category entitled “Mettals, Minerals, and Stones” contains list of the physical and

¹⁹⁵ Two variant editions of Culpeper’s text were printed in the years 1649 and 1654.

¹⁹⁶ Two variant editions of Salmon’s text were printed in 1691.

medicinal properties of eighteen gemstones including, jacinth, ruby, garnet, diamond, sapphire, emerald, topaz, jasper, topaz, amethyst, lapis lazuli, Bezoar stone, and toadstones. The text also provides specific instructions on how to use various items, such as the following for entry for *aëtites* or eaglestones:

Aetites, or the stone with child,¹⁹⁷ because being hollow in the middle, it contains another little stone within it, it is found in an Eagles nest, and in many other places; this stone being bound to the left arm of women with child, staies their miscarriage or abortion, but when the time of their labor comes, remove it from their arm, and bind it to the inside of their thigh, and it brings sorth the child, and that (almost) without any pain at all.¹⁹⁸

Two printed marginal notations connected to this entry correctly identify both Dioscorides and Pliny as the original sources for this information.¹⁹⁹ At the end of the section devoted to stones, Culpeper offers the following reassurance about their effectiveness, as if in response to some degree of skepticism within society:

And thus I end the Stones, the vertues of which if any think incredible, I answer, 1. I quoted the Authors where I had them, 2. I know nothing to the contrary but why it may be as possible as the sound of a Trumpet is to incite a man to valor, or of a Fiddle to dauncing; and if I have added a few Simples which the Colledg left out, I hope my fault is not much, or at least wise, venial.

¹⁹⁷ “Eaglestones,” or *aëtites*, are what is known as “geodes” in modern terminology. Often these hollow rock formations enclose crystals that break loose and therefore seem to form a “pregnant” stone or a stone within a stone.

¹⁹⁸ Nicholas Culpeper, *Pharmacopoeia Londinensis, or, The London dispensatory further adorned by the studies and collections of the Fellows, now living of the said colledg*, 1653.

¹⁹⁹ See, Pliny *Nat. His.* XXXVI, 151 and Dioscorides *Materia Medica* V, 161.

At the very least, so many re-printings suggest that the substances touted in this work must have been routinely available for purchase in apothecary shops throughout most of the sixteenth century.²⁰⁰

Although texts such as the *Pharmacopoeia Londinensis* point to apothecaries as the chief suppliers of early modern pharmaceuticals, including stones, several seventeenth-century printed manuals of popular healing demonstrate a growing dissatisfaction with the prices being charged by apothecaries and a new emphasis on the self-preparation of lapidary cures. Once such work, by Gideon Harvey, who styled himself ‘Physician in Ordinary to his Majesty,’ directs those who wish to avoid paying physicians to use his guide to self-diagnose physical conditions and formulate their own mixed medicines in order to save on medical expenses. Warning his readers against the various unregulated medical practitioners or ‘empirics’ who proliferated in English society at the time, Harvey urges his readers to take control of their own medical care with his instructions on how to prepare for themselves a variety of ‘Simples and Compositions’ prescribed by physicians or sold by apothecaries and druggists.

No doubt capitalizing on the long-standing popularity of the English versions of the *Pharmacopoeia Londinensis*, Harvey assures his readers in *The family-physician, and the house-apothecary* that he has “pick'd out such Medicines of the *London-Dispensatory* as are most usual, which being reduced to a small number, may without any great defray of charges, be kept ready at your Houses.”²⁰¹ He offers detailed instructions on

²⁰⁰ As described in the following chapter, the inventories of the sixteenth-century apothecary wholesale company Estwick and Coningsby evidence the availability of a vast array of lapidary materials described in printed sources.

²⁰¹ Gideon Harvey, *The family-physician, and the house-apothecary containing I. Medicines against all such diseases people usually advise with apothecaries to be cured of, II. Instructions, whereby to prepare at your own houses all kinds of necessary medicines that are prepared by apothecaries, or prescribed by physicians, III. The exact prices of all drugs, herbs, seeds, simple and compound medicines, as they are sold at the druggists, or may be sold by the apothecaries, IV. That it's plainly made to appear,*

measurements and techniques “whereby to prepare at your own houses all kinds of necessary medicines that are prepared by apothecaries, or prescribed by physicians” such as medicinal waters, syrups, electuaries, pills, trochiscs or lozenges, emplasters, unguents, and oils. Conveniently included is a pricelist for a variety of medicinal substances and compounds for sale by local druggists and apothecaries needed to produce these cures so that it is “plainly made to appear, that in preparing medicines thus at your own houses, that it's not onely a far safer way, but you shall also save nineteen shillings in twenty, comparing it with the extravagant rates of many apothecaries.”²⁰² Although Harvey claims the title of physician as well as of “Mountebank, Surgeon, Apothecary, or Chymist,” many of his writings are strongly-worded polemics against the recognized medical establishment, including physicians, surgeons, apothecaries, druggists and chemists, most of whom, he feels, are unscrupulous in their practices and fees. “I must tell you, I have oft seen Bills of *Apothecaries* risen to twenty, & sometimes thirty pounds in the time of a Fortnight” he warns, adding that he has seen instances of apothecaries charging £50 for substances that cost a mere 40 s. wholesale.²⁰³ To support such claims, Harvey offers a listing of the current wholesale prices of a host of popular pharmaceuticals, including twenty-eight lapidary items.

Another new development in early modern England is the printing of lapidaries specifically aimed at the needs of women and their young children. Red and white coral, amber, and pearls, in particular, commonly appear in connection with gynecological

that in preparing medicines thus at your own houses, that it's not onely a far safer way, but you shall also save nineteen shillings in twenty, comparing it with the extravagant rates of many apothecaries (London: M.R., 1678).

²⁰² Ibid.

²⁰³ Ibid.

issues and the care of infants. One of the most popular of these texts, *A directory for midvvives* by Nicholas Culpeper, was first published in 1651 with at least eleven subsequent editions in 1652, 1656, 1662, 1668, 1671, 1671, 1675, 1676, 1684, and 1700. Culpeper, directs his readers to employ *aetites* as well as the herb Tansy to help dispel afterbirth. In regard to the use of amber to cure “the flux of the womb” he states:

Let her, if she please, plunge her body with Pills of Amber (you may find them and the way how to make them, in my Translation of the London Dispensatory) she may take a scruple at night going to bed, they will not work till the next day, and use this diverse nights.²⁰⁴

In the 1700 version of this text, *aëtites* is recommended for use in easing difficulties in birth. Held to the “privities,” the stone is said to draw the child and the afterbirth out in much the same way that a loadstone magnetically draws iron. This same edition also recommends other lapidary cures to aid in childbirth, such as a piece of red coral held near “the said place” and holding a loadstone in one’s left hand.²⁰⁵ The unusually high number of print editions of this text produced in the second half of the seventeenth century makes it one of the most popular manuals for midwives during the early modern period and attests to the popular reception and continued demand for such cures.

²⁰⁴ Nicholas Culpeper, *A directory for midvvives or, a guide for women, in their conception, bearing, and suckling their children. Containing, 1. The anatomie of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying-in. 9. Of nursing children. By Nich. Culpeper, Gent. Student in physick and astrologie.* (London: Peter Cole, 1651.

²⁰⁵ Nicholas Culpeper, *A directory for midwives: or, A guide for women in their conception, bearing, and suckling their children. The first part contains, 1. The anatomy of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labour. 8. A guide for women in their lying-in. 9. Of nursing children. To cure all diseases in women, read the second part of this book. By Nicholas Culpeper, Gent. student in physic and astrology. , London : printed, and are to be sold by most book sellers in London and Westminster, 1700.*

Another practical advice manual for women, entitled *The womans doctour, or, An exact and distinct explanation of all such diseases as are peculiar to that sex*, written by Nicolaas Fonteyn in 1652, also suggests various lapidary cures for women.²⁰⁶ Fonteyn describes an affliction called a *Mola*, or a “shapeless lump of Flesh” that develops a woman’s womb and is sometimes mistaken for a pregnancy, as consisting of hardened, congealed menstrual blood.²⁰⁷ To expel the mass he instructs, “you must be diligent to strengthen the Patient with broths made of the flesh of *Capons*, and *Partridges*, and with such things as will stay the bloud, and refresh the exhausted spirits; such as are *Chalybeated wine*, *Sugar of Pearle*, *Corall*, &c.”²⁰⁸ For situations in which pregnant women have “water flowing away from the Matrices” and experience gastrointestinal issues, Fonteyn dictates the following recipe for a plaster to be applied to her “privie parts”:

Take two drams of Loadstone beaten to powder.
 Spikenard,
 Mastick.
 Red corall, of each a dram.
 Two ounces of oyle of quinces.
 Six drams of white wax.
 Mingle them and make a Plaister.²⁰⁹

²⁰⁶ Nicolaas Fonteyn, *The womans doctour, or, An exact and distinct explanation of all such diseases as are peculiar to that sex with choise and experimentall remedies against the same : being safe in the composition, pleasant in the use, effectuall in the operation, cheap in the price / faithfully translated out of the works of that learned philosopher and eminent physitian Nicholas Fontanus*, 1652.

²⁰⁷ Fonteyn’s description of this condition presumably refers to some manner of fibroid tumour or cancerous growth in the uterus.

²⁰⁸ Fonteyn, Nicolaas, *The womans doctour*, 154.

²⁰⁹ *Ibid.*, 184-5.

This remedy was to be used in conjunction with ingesting a tonic, not only to relieve a pregnant woman's physical symptoms but also to protect against premature birth of the child.

John Pechey, author of several bestselling advice manuals featuring lapidary materials, also published a text entitled *The compleat midwife's practice enlarged in the most weighty and high concernments of the birth of man containing a perfect directory or rules for midwives and nurses*, which offers lapidary based cures for children, as well as their mothers. Instead of parading the names of ancient or medieval medical authorities, Peachy contends that his cures are derived from “most Famous Woman of the World, *Madam Louise Burgeois*, late Midwife to the Queen of *France*.” In making this claim he is engaging in direct competition with the highly popular gynecological text authored by Nicholas Culpeper. Peachy writes, “that small piece of his [Culpeper's], intituled, *The Directory for Midwives*, is the most desperately deficient of them all; except he writ it for necessity, he could certainly have never been so idle to have exposed it to the light.”²¹⁰ From the many cures supposedly derived from the famous French midwife, Peachy suggests the following recipe employing two common lapidary cures to cure smallpox in children, “Take of Cordial-waters two ounces and a half, syrup of Lemons one ounce, mingle it, and use it often; four or five hours after, give him of powder of Unicorns-horn, and Bezoar.” And here is another, meant to prevent a stillbirth: “Take Mace, Saunders, Rhubarb, Pearl, and Coral, Sena, of each 25 grains, with one ounce and half of Sugar; let every Tablet weigh six drams.”

²¹⁰ John Pechey, *The compleat midwife's practice enlarged in the most weighty and high concernments of the birth of man containing a perfect directory or rules for midwives and nurses : as also a guide for women in their conception, bearing and nursing of children from the experience of our English authors, viz., Sir Theodore Mayern, Dr. Chamberlain, Mr. Nich. Culpeper ... : with instructions of the Queen of France's midwife to her daughter*, 1698.

In addition to their inclusion in medical works, lapidary healing advice in early modern print also appears in guidebooks for chivalry, heraldry, sport, and social conduct. Since these texts are almost exclusively directed towards a male audience, the associated lapidary advice often focuses on the properties of stones said to be helpful in battle or that engender physical or mental traits desirable in manly men. Ironically enough, the first of such works printed in England is attributed to a female author, Juliana Berners, a fourteenth-century nun thought to have been the prioress of a nunnery near St. Albans.²¹¹ First published in 1486, the *The booke of S. Albans* includes sections detailing the masculine arts of hawking, hunting, coat-armor, fishing, and the heraldic use of arms. At the beginning of the section about coat armor, which Berners contends began at the siege of the Troy, appears a list of nine heraldic stones: topasion, smaragdus, amatis, margaret, aloys, ruby, saphyre, diamond, and carbunckle. The properties ascribed to each of these gems apply almost exclusively to mental and physical strength in battle. For example about diamonds, Berners writes:

The eight stone is a diamond a blacke stone, and called sable in armes, the vertue thereof is, the gentleman which beareth it in his coate armor shall be durable and vnfainting in his kings battaile, which stone was kept in the Cherubins crowne, which neuer fainted, or shrunke in the warre against Lucifer.²¹²

Thus, the use of stones in armor is linked not only to heightened performance in earthly battles but also to the struggle of God and his angels against the devil. A second edition

²¹¹ See the introduction of *Juliana Barnes, Book containing the treatise of hawking, hunting, coat-armor, fishing, and blasing of arms. As printed at Westminister, by Wynkyn de Worde, the Year of the Incarnation of our Lord 1496* (London: 1810).

²¹² Juliana Berners, *Here in thys boke afore ar contenynt the bokys of haukyng and huntyng with other plesuris dyuerse as in the boke apperis and also of cootarmuris a nobull werke* (St. Albans: S.n., 1486)

of Berners' text, entitled *The gentlemans academie. Or, The booke of S. Albans*, appeared in an expanded and edited form by Gervase Markham in 1595.

Another lapidary text written specifically for men, and the most popular as measured by number of printed versions, is *The accedence of armorie* by Gerard Legh, first published in 1562 with at least five subsequent editions in 1568, 1576, 1591, 1597, and 1612. Citing the ancient authority of Aristotle, Plato, Isidore, and Dioscorides, Legh sets forth his intent to include the “prowes and vertues” of metals and stones within his work on armor and heraldry since “knowledge of such things is a science and an art that every herald should know.”²¹³ Following in Juliana Berners' tradition, Legh discusses gemstones in connection with the correct manner for a knight to “blaze arms.” In so doing, he relates the nine fields of a warrior's shield to the colors of two precious metals, gold and silver, and seven gemstones characterized by the colors “Red, light Blew, Blacke, Green, Violet, Orenge Tawney²¹⁴, and Murray.²¹⁵” Legh therefore connects the stones topaz, pearl, sapphire, diamond, emerald, amethyst, jacinth, and sardonix (a list that differs somewhat from that provided by Berners) with various medicinal properties helpful to knights on campaign or in battle. In addition to claims related to strength and mental fortitude, Legh also asserts virtues of stones that are related to more ordinary health issues such as stomach complaints, injuries to limbs, and fevers. On the healing properties of sapphires he writes:

²¹³ Gerard Legh, *The accedence of armorie*, (London: Richard Tottell, 1591)

²¹⁴ Described as a mixture of red and yellow. Legh comments that it is a very popular color with French knights but used by few English ones.

²¹⁵ Although Legh does not describe this color, he later identified it as “Sanguine” and associated with the stone Sardonix. Legh commonly associates stones with like colors; however, the link to Sardonix is particularly vague in that Sardonix is a cryptocrystalline form of quartz, that comes in a wide variety of banded colors, with the exception of blue or purple.

...which as Isidore telleth is both nobel and excellent and to be worn upon the fingers of princes. Dioscorides writeth of it, saying: It lighteneth the bodie and preserveth the limmes whole....he saith also it hath a singuler vertue, to accord people in strife, and to abate unkinde heat of burning feavers. Bound to the poulse, it helpeth against melancholie, and stauncheth bleeding that commeth of anquish, and is a remedie against venome, and preserveth the fight.²¹⁶

Berners' and Legh's treatment of the properties of gemstones useful in battle accords with widely told tales of actual practice. Albertus Magnus, in his *Book of Minerals* tells of an amulet of the stone *prassius* that protected Alexander the Great on campaign until he removed it and was thereafter bitten by a serpent.²¹⁷ Medieval records indicate that Eleanor, Infanta of Castile and Queen of Edward I of England, gave her husband a gold pendant in 1299 set with a large sapphire *ad pendendum circa collum* to protect his health.²¹⁸ Additionally, a ruby known as the "Black Prince," which was given to the Edward, the Black Prince by Don Pedro the Cruel of Castile in 1367, was later worn by Henry V during the battle at Agincourt.²¹⁹ Although history records that many European kings and princes owned particular jewels, some of which were captured at the end of a lost battle, historians have thus far largely failed to consider that such riches might have involved healing properties in addition to their obvious functions as representations of personal wealth and forms of personal adornment.

Following the success of *The accedence of armorie*, John Bossewell's *VVorkes of armorie deuyded into three bookes, entituled, the concordes of armorie, the armorie of*

²¹⁶ *The accedence of armorie*, 1591, fol. 7.

²¹⁷ Albertus Magnus, *Book of Minerals*, Book II, tractate ii.

²¹⁸ Evans, *History of Jewellery*, 52

²¹⁹ Fred W. Burgess, *Antique Jewelry and Trinkets* (New York: Tudor Publishing Company, n.d.), 184. The stone known as the "Black Prince" now rests in the crown of England.

honor, and of coates and creastes, collected and gathered by Iohn Bossewell Gentleman appeared in 1572 with at least one following edition in 1597. Largely based in Legh's text, Bossewell also associates nine stones with the two metals and seven colors used the heraldic decoration of shields; however, the format of this text places the discussion of all nine stones together in the traditional configuration of a lapidary. While acknowledging the contributions of Legh, Bossewell states that he wishes to provide further description of the properties of stones supplied by Isidore of Seville in chapters 7, 8, 9, 10, and 13 of the *The Etymologies*, and that, furthermore, he has translated them from the original Latin since "no person which would couet to haue the name of a gentleman, ought to be altogether ignorant in the same tongue." As a comparison to Legh's text on sapphires quoted above, Bosswell's entry for the same stone reads:

The *Saphire*, is a *Gemme* skye coloured or Blewe, like to the Skye in the most faire wether. Amongest all the kyndes of *Gemmes*, it is one of the noblest and most royall, and therefore mete to be worne onely vpon Kynges and Princes fyngers. Nothing in the worlde doth more recreate or delight the eyes then the *Smaradge*, & *Saphire* doe. It is meruelous effectuous agaynste all venyme. Wherefore, yf thou put a *Spider* into a Boxe, it beyng shutt, & vpo~ the mouth therof thou layest the true *Saphire*, and do kepe the *Spider* within the same but a very short tyme, the *Spider* beyng vanquished and ouercome by the vertue thereof, dyeth sodenly.²²⁰ *Isidore* saieth, {quod} *Saphirus caeruleus est cum purpura, habens pulueres aureos sparsos: optimus apud Medos, nusquam tamen perlucidus*. It is also rekned by *Isidore*, to be one of the kyndes of the *Amathistes*. *Albertus Magnus* sayeth, that he proued it twise, that with the onely touchyng of this precious Stone, the partie so diseased, hath bene ridde of the greuous sore the *Carboncle*. The *Saphire* for his soueraignetie, is called of the *Lapidarie*, the *Gemme of Gemmes*. In olde tyme it was consecrated onely to *Apollo*.²²¹

²²⁰ A well-known method for determining not only the authenticity of stones, but the strength of there healing virtues.

²²¹ John Bossewell, *VVorkes of armorie deuyded into three bookes, entituled, the concordes of armorie, the armorie of honor, and of coates and creastes, collected and gathered by Iohn Bossewell Gentleman*, 1572.

In addition to entries such as these on the medicinal uses of the nine corresponding gems, Bossewell also provides evidence of the traditional display of gems by royalty and the nobility in conjunction with their heraldic meanings.

Print literature also demonstrates the developing global trade in pharmaceuticals, indicating a growing consumer demand for foreign medical products, including lapidary materials, from South America, the Caribbean, India, and China. In addition his popular gynecological texts and medical dispensaries, John Pechey was also credited, perhaps wrongly, with the authorship of several short pamphlets on the healing properties found in particular nuts, herbs, or stones of the “Indies.”²²² One such work, entitled *Some observations made upon the serpent stones imported from India shewing their admirable virtues in curing malignant spotted feavers*, addresses the medicinal virtues *Indian Serpent Stones*, more commonly referred to as Bezoar or Goa stones.²²³ In the introduction of this eight-page work, the author states that:

For my own part I declare, I knew no better Remedy than the *Indian Serpent Stones*, for it powerfully expels Poysons of all sorts, both externally and internally applied, it resists Putrefaction, promotes insensible transpiration, raiseth the Vital Spirits, comforts the Heart, and gives a new Fermentation to the Blood, and helps Nature to cast off all Malignity.

To bolster his claims, the author cites the authority of Robert Boyle’s *Discourse of Specifick Remedies* in which Boyle claimed to have cured a cat bitten by a viper with the

²²² The author of these works identifies himself merely as “a doctor of Physick in the country” and they were only later attributed to John Pechey or Peachi, probably erroneously.

²²³ Bezoar stones are concretions formed in the gastrointestinal tract of animals from non-digestible food materials. The most sought after Bezoar stones mentioned in early modern texts were derived from goats, but they can be found in almost any animal, including snakes.

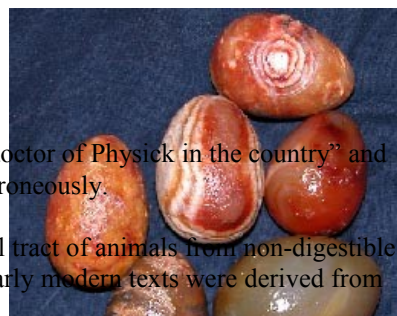


Figure 4.1 Bezoar stones derived from the intestines of snakes.

internal application of a powdered form of such a stone.²²⁴ Additionally, the pamphlet's author claims three instances in which he effected cures by using *Indian Serpent Stones*. The first of these cases involved a young man possessed of a “dangerous Feavor and all the Symptoms of Malignity very well known to Physitians” who was given a tincture made of the powdered stone. The second patient was “An Ancient Gentlewoman who had a high Malignant Feavor” who was given the stone only after the author found “all Remedies fruitless” and who afterwards made a speedy recovery. The third patient was a man “about Fifty who was seized as if he had been infected with the Plague, had Swellings under his Arms, and all other Pestilential symptoms upon him.” The author claims that this patient's health was restored in a “miraculous manner” by administering only a few drops of a mixture made from the powdered stone. Such inexpensive lapidary texts not only fueled belief in the healing properties thought to reside in this particular stone, but arguably may have increased consumer interest and demand for an item that commanded very high prices when compared to other lapidary substances sold by apothecaries, jewelers, lapidaries, and goldsmiths.

Although classical and medieval lapidaries commonly addressed both physical and psychological afflictions, the early modern period in England saw the production of the first text of lapidary medicine devoted exclusively to ensuring mental health. Robert Burton's *The anatomy of melancholy* appeared in print in 1621 with nine subsequent editions in 1624, 1628, 1632, 1638, 1652, 1651, 1652, 1660, and 1676. Although the *Anatomy of Melancholy* refers to the medicinal use of precious stones and minerals throughout, it offers one separate section devoted to detailing the specific virtues and

²²⁴ The author refers to a printed text by Robert Boyle more fully entitled *Of the reconcileableness of specifick medicines to the corpuscular philosophy to which is annexed a discourse about the advantages of the use of simple medicines*, in which he recounts such as story in regards to a stone derived from the head of “an enormously great African Serpent.”

application of such materials. Section four, subsection four, entitled “Prectious stones, Mettals, Minerals, Alteratives” lists the medicinal properties of coral, garnet, jacinth, topaz, chrysolite, sapphire, beryl, onyx, *Chelidonium*, unicorn’s horn, and Bezoar stone.

In regard to the use of stones to resist sorrow and relieve madness he relates:

Granatus a pretious stone so called, because it is like the kernels of a Pomegranate, an vnperfect kind of Ruby, though somewhat ruddy, yet more obscure then a Ruby, it comes from *Calecut*, if hung about the necke, or taken in drinke, it much resisteth sorrow, & recreates the heart. The same properties I finde ascribed to the *Iacinthe* and *Topaze*, they allay anger, grieffe, diminish madnesse, and much delight and exhilerate the mind. If it be either carried about, or taken in a potion, it will increase wisdom, saith *Cardan*, expell feare, hee brags that he hath cured many mad men with it, which when they by the stone, were as mad againe as ever they were at first.²²⁵

In general, the lapidary cures suggested by Burton are administered externally, such as in the form of amulets. This might be due to the fact that he relies largely on classical and medieval authors, whose ministrations preceded the wider reliance on ingestion found in early modern works such as the *Pharmacopoea Londinensis* or popular manuals on the practice of “Physick.”

Despite this inclusion of lapidary cures, Burton prefaces his section on stones with a personal statement against their purported therapeutic value. He states that although many use such products in Physick and believe that they can work wonders “no man shall perswade me, for my part I haue found by experience there is no vertue in them.”²²⁶ In spite of this negative assessment, he states the need to offer the other side of

²²⁵ Robert Burton, *The anatomy of melancholy vwhat it is. VVith all the kindes, causes, symptomes, prognostickes, and seuerall cures of it. In three maine partitions with their seuerall sections, members, and subsections. Philosophically, medicinally, historically, opened and cut vp. By Democritus Iunior. With a satyricall preface, conducing to the following discourse.* 1621.

²²⁶ Ibid.

the argument, acknowledging that authorities such as Dioscorides, Cardan, Renodeus, Encelius, Marbodeus, and Mathiolus accept the healing powers of stones. In offering the most extreme views on either side of the debate he states that:

Erastus concludes all their Philosophicall stones and potable gold, &c. to bee no better then poyson. Paracelsus and his Chymisticall followers will cure all manner of diseases with Mineralls, accounting them the only physicke on the otherside. Paracelsus calcs Galen, Hippocrates, and al their adherents, Infants, Idiots, Sophisters, &c. not worthy the name of Physitions, for want of these remedies, and bragges that by them he can make a man liue 160 yeares, or to the worlds end.²²⁷

However, in the end Burton concludes that “the middle sort approue of Mineralls, though not in so high a degree.” This evaluation coincides with the majority of printed texts of popular healing found in seventeenth century England, which generally include lapidary materials although not nearly to the degree that they recommend plant-based and animal-based pharmaceuticals.

In addition to Burton, the works of other early modern authors demonstrate that, much as with other medical therapies, faith in the healing power of gemstones was by no means universal. While few authors of the period absolutely deny that stones hold any medicinal virtue, many writers express skepticism about aspects of the claims made for certain stones. For example, in *A watch-man for the pest Teaching the true rules of preservation from the pestilent contagion*, printed in 1625, Stephen Bradwell discusses “simple” amulets comprised of materials such as unicorn’s horn, Bezoar stone (which he terms “best of all”), Hyacinth, and Smaragdus (emerald) as effective means of combating the plague. He confirms that amulets are meant to be hung about a patient’s neck so that they come into direct contact with the naked skin above the heart, but at the same time he

²²⁷

Ibid.

admits to doubt and uncertainty about the exact process: “but how the influence of such stones may be conveyed out of their hard bodies to the heart, is hard for me to vnderstand.”²²⁸ In the end, Bradwell expresses a preference for another form of cure and suggests a formula that calls for a variety of herbs and flowers to be mixed together and enclosed in fabric to make a “compound” amulet instead.

In a later text, printed in 1646, *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths*, Thomas Browne inquires into the physical nature of stones and the mechanical operation of their healing virtues, finding evidence to both support and question the effectiveness of lapidary healing. As if in response to a commonly posed question about the physical aspects of the procedure, such as why stones do not become smaller or lighter as their healing emanations are drawn away from them and into the body of a patient, Browne states:

For possible it is that bodyes may emit a vertue and operation without abatement of weight, as is most evident in the Loadstone, whose effluencies are both continuall and communicable without a minoration of gravity. And the like is observable in bodies electricall, whose emissions are lesse subtile. So will a Diamond or Saphire emit an effluvium sufficient to move the needle or a straw without diminution of weight. Nor will polished amber although it send forth a grosse and corporall exhalement be found a long time defective upon the exactest scales.²²⁹

It is clear that Browne sees the measurable yet invisible magnetic qualities of loadstones and amber as a natural effect of their physical substance. It is also apparent in Browne, as in many other seventeenth and eighteenth century texts, that advocacy of lapidary

²²⁸ Bradwell, Stephen. *A vvatch-man for the pest Teaching the true rules of preservation from the pestilent contagion, at this time fearefully over-flowing this famous cittie of London. Collected out of the best authors, mixed with auncient experience, and moulded into a new and most plaine method; by Steven Bradvell of London, Physition.* 1625.

²²⁹ Ibid.

medicine was not merely based upon the authority of ancient and medieval authors. Early modern works display a growing interest in experimentation. For example, the “polished amber” mentioned by Browne refers not to the finish of a stone but to the well-known piezoelectric property of amber, by which an electrical charge is generated in response to mechanical friction, such as rubbing the surface of the stone with a soft cloth. While this effect is noted by both classical and medieval authors in regard to stones such as tourmaline and amber, it is only within the early modern period that such properties began to be closely studied through scientific experimentation, such as the measurement of weight in relation to use. This changing attitude is also demonstrated by Browne’s application of atomist theory, as seen in his citation of René Descartes:

Now whether these effluviūms do flye by streated Atomes and winding particles as Renatus des Cartes conceaveth, or glide by streames attracted from either pole and hemispheare of the earth unto the Aequator, as Sir Kenelme Digby excellently declareth, it takes not away this vertue of the earth, but more distinctly sets downe the gests and progresse thereof, and are conceits of eminent use to salve magneticall phenomena's.²³⁰

Rather than being troubled by the lack of a definitive explanation for the action of the “effusions” of healing substances, such as the loadstone, Brown sees them as questions still to be answered labeling them “part of Philosophy but yet in discovery, and will I feare prove the last leafe to be turned over in the booke of Nature.”

However, Browne does express frustration with the seemingly endless jumble of properties commonly found listed in lapidaries and popular advice manuals, stating that an individual “must have more heads then Janus, that makes out half of those vertues

²³⁰

Ibid.

ascribed unto stones.” While confirming several medicinal properties of individual stones, he questions the validity of others:

That Lapis Lazul hath in it a purgative faculty we know, that Bezoar is Antidotall, Lapis Judaicus diureticall, Corall Antipilepticall, we will not deny. That Cornelians, Jaspis, Heliotropes, and bloudstones, may be of vertue to those intentions they are implyed, experience and visible effects will make us doubt. But that an Amethyst prevents inebriation, that an Emerald will breake if worne in copulation. That a Diamond laid under the pillow, will betray the incontinency of a wife. That a Saphyre is preservative against enchantments; that the fume of an Agath will avert a tempest, or the wearing of a Crysoprase make one out of love with gold, as some have delivered, we are yet, I confesse to believe, and in that infidelity are likely to end our dayes.²³¹

Browne terms the medicinal virtues he holds in doubt as “traditionall falsities” and complains that contemporary authors have either misunderstood or corrupted the original ancient and medieval sources. Of the more fantastical properties ascribed to stones, he is much more scornful. Citing the fact that many of these qualities can be tested and shown false by experimentation, he mocks the ancient idea that one might test for chastity with a loadstone or use one to aid in an act of robbery:

...and such as men are apt enough to experiment, and therewith discovers the incontinencie of a wife by placing the Loadstone under her pillow; for then shee will not be able to remaine in bed with her husband. The same he also makes a helpe unto theevery; for theeves saith he, having a designe upon a house, doe make a fire at the foure corners thereof, and therein the fragments of Loadstone, whence ariseth a fume that so d sturbeth the inhabitants, that they forsake the house and leave it to he spoyl of the robbers. This relation how ridiculous soever, hath Albertus taken up above a thousand years after, & Marbodeus the Frenchman hath continued it the same in Latine verse...²³²

²³¹ Sir Thomas Browne, *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths by Thomas Browne*. 1646.

²³² *Ibid.*, 75. The idea that a loadstone could be used as a measure of chastity by placing it under the bed or pillow of a sleeping woman is an ancient one and can be found in Damigeron’s *de virtutibus lapidum*, as does the notion that various stones could help a thief steal from a particular person or enter his house for such a purpose.

Browne not only recognizes Marbode's influence on later writers, his comments indicate a level of familiarity with the verse text of *De lapidibus*, likely by means of a manuscript copy or, perhaps, oral form, since it did not appear in print in England during this period. Additionally, his comments about Albertus Magnus suggest a familiarity with either the *Book of Minerals* in manuscript form or a print version of the *Book of Secrets*.

While consideration of individual authors and texts demonstrates the changed nature of the idea of lapidary medicine within print culture, perhaps the most important revelation is derived from considering print lapidaries as a whole. My research, using the EEBO database and then checking for additional printings listed in the catalogues of the British Library and the National Union Catalog, reveals a total of at least 243 separate printings of medical lapidaries. If we take a middling estimate of average print runs, say 750 copies, there were at least 182,000 books of lapidary medicine printed in Britain during the years 1473-1700.²³³ The significance of this number becomes more apparent when one considered that the population of England and Wales was about 2.4 million in the year 1500, 4.5 million in 1600, and eventually rose to about 5.5 around 1700.²³⁴ The population of London alone reached 40-50,000 in 1500, 200,000 in the year 1600, and about 500,000 in the year 1700.²³⁵ However, the dissemination of the idea of lapidary medicine should not be measured merely by print runs. Although the numbers of printed

²³³ Although there is some dispute as to the average number of print run editions in early modern England, this number is calculated based an average number of 750 books per print run for each extant edition. See James Raven, *The Business of Books: Booksellers and the English Book Trade 1450-1850* (New Haven: Yale University Press), 304.

²³⁴ R. O. Bucholz. *Early Modern England, 1485-1714: a narrative history* (Malden, MA: Blackwell Publishing, 2004), 152.

²³⁵ Lena Cowen Orlin, *Material London, Ca. 1600* (Philidelphia: University of Pennsylvania Press, 2000) 22.

texts indicate a high level of popular demand, the idea of lapidary medicine no doubt also spread through books circulating in lending libraries, those which were shared between friends and family members, resold in one of the many second-hand bookshops, or read aloud.

Chapter Four: Evidence for Lapidary Medicine in Practice

Siche a virtue es in the stane
 In alle this world wote I nane
 Sich stone in a ryng;
 A man that had it in were
 One his body for to bere
 Ther schold no dyntys him dere
 Ne to dethe bringe

-The Romance of Sir Perceval de Galles, 14th c.

As demonstrated in the previous chapter, the vast number of printed manuals of health and healing produced in England from the fifteenth through the seventeenth century attests to the popularity and appeal of lapidary medicine – at least in theory. A survey of the numbers of printed books produced and sold during this period provides historians with evidence that medieval and early modern Englishmen and women found the idea of using lapidary medicine attractive, plausible, and practical enough to spend their coins on manuals of general knowledge and instruction. What studies of popular print culture cannot determine, however, is the extent to which ideas about the use of lapidary medicine were practically implemented by members of society. Drawing upon a wide variety of written documents in connection with archeological and iconographic sources we can begin to form an understanding of the relationships between the theory of lapidary medicine and its actual practice. This chapter addresses at varying lengths, seven categories of evidence related to the lapidary medicinal practice: (1) legal documents, (2) wills, (3) jewelers manuals, (4) apothecary inventories, (5) apothecary bills, (6) archaeological evidence in the form of surviving pieces of jewelry and (7) images from early modern portraits. Together, these categories of evidence allow us to complicate and enlarge our understanding of the art of healing during this era. These

sources not only substantiate the general acceptance and widespread use of this form of medicine, they also provide information as to where medieval and early modern people might have obtained materials used in the practice of lapidary medicine, the most popular lapidary substances available in England during this period, as well as an indication of the relative price of these items.

A full treatment of legal records that reflect in one way or another on the practice of lapidary medicine would take several lifetimes of research since the records themselves obviously are not organized in ways that would allow anything more than the proverbial “needle in a haystack” approach. Nonetheless, in the spirit of alerting scholars focused more specifically than I am on legal documents, I want to provide three examples of legal records from medieval and early modern England that offer specific insight into the practice of lapidary medicine.

The Roll of the King’s Court from the year 1220 records the details of a lawsuit filed due to a dispute over the ownership of some gemstones of medicinal value. The facts of the case go like this: Englishwoman Alice de Lundreford fell ill and sent fellow noble Philip de Albin a request that he loan her three gold rings with which she might cure her affliction. Philip dutifully sent his squire to Alice with said rings, and through their power she recovered. However when Philip sought to recover his rings, Alice begged in God’s name that they might remain with her, for she insisted that she would not long survive without them. When Philip finally brought a lawsuit in the King’s Court in an attempt to force the return of his rings, Alice testified that all her worldly possessions had been stripped from her during the war between King John and his barons and that, furthermore, she had never received the rings from Philip in the first place. In

the end, Alice was forced to pay Philip ten marks in compensation for the lost articles of jewelry, though Philip lamented that he would not have taken fifty marks for one of the sapphires which had been set into one of the lost rings.²³⁶ The actions of both defendant and plaintiff in this case were motivated not by a desire for the material wealth represented by gold or gemstones but rather the more valuable medicinal virtues of these specific jewels. The extraordinary pains that both the plaintiff and defendant endured in order to retain or recover these items attests to their strong belief in the power and validity of lapidary medicine. Additionally, the actions of the court in this case imply that assertions about the medicinal value of articles of jewelry and gemstone were met with general acceptance and credibility by educated members of society.

My second example involves a far more serious legal proceeding. The 1684 reprint of Matthew Paris' thirteenth-century work, *Matthaei Paris monachi Albanensis Angli Historia major juxta exemplar Londinense*, reveals the details of another court case involving popular belief in the powerful virtues of gemstones. In this history of England, Paris recounts the indictment against Hubert de Burgh, Chief Justiciar of England, whose enemies accused him of various crimes against the king and crown, ultimately resulting in his removal from office and imprisonment. One of these accusations alleged that de Burgh furtively removed from the realms treasury a gemstone possessing the virtue to protect the life of its wearer, thus rendering him invincible in battle. The more damaging implications of this crime lay in the fact that de Burgh was further accused of giving the stone to Llewellyn, prince of North Wales, who was the mortal enemy of his king, Henry III.²³⁷ Cases such as this one serve to demonstrate the powerful faith medieval people

²³⁶ Roll of the King's Court, 70 m. 3d., 71 m. 2d. as cited in *Sussex Archaeological Collections*, (52, 1909), 193 and Evans, *Magical Jewels*, 112.

²³⁷ Matthew Paris, *Matthaei Paris monachi Albanensis Angli Historia major juxta exemplar Londinense 1640 verbatim recusa : et cum Rogeri Wendoveri, Willielmi Rishangeri, auctorisque majori*

invested in the power of lapidary medicine to not only cure diseases but also protect them from a host of earthly ills and dangers. Notions of the physical protections offered by gemstones present in medieval Europe became part of the Western lapidary tradition during Roman times, including claims that certain stones could protect their wearers during combat, induce bravery, and even assure success in battle. As we have seen, in early modern England, printed books of chivalry and courtliness often included lapidary sections containing detailed descriptions of the physical appearance and natural virtues of gemstones. Readers may recall the most popular of such works *The accedens of armory* by Gerard Legh was printed in six editions between the years 1562 and 1576.

My third example comes from records of a legal dispute over the sale of a medicinal stone in seventeenth-century London. In the case of *Chandelor v. Lopus* a dispute arose between the plaintiff, Lopus, who purchased a Bezoar stone from Chandelor, a goldsmith, for the price of £100.²³⁸ This stone was later determined not to be a Bezoar (by means unmentioned in the record) causing Lopus to bring legal action against Chandelor in 1603 to recover the original purchase price of the item. Lopus alleged that he had purchased the Bezoar stone from Chandelor on the basis of the goldsmith's specialized knowledge of stones and Chandelor's assurances that it was a true Bezoar which, according to the principles of lapidary medicine, would combat all manner of poisons and venoms. The King's Bench decided the case in the favor of Lopus, ruling that he had a reasonable expectation that the stone he purchased was

minorique historiis, chronicisque mss, in Bibliotheca Regia, Collegii Corporis Christi Catabrigiae, Cottoni'aque fidelit'er collata: huic editioni accesserunt duorum Offerum Merciorum regum, & viginti trium Abbatum S. Albani vitae: una cum libro additamentorum / per eundem authorem, 1684.

²³⁸ See, *Chandelor v. Lopus*, Cro. Jac. 4, 79 Eng. Rep. 3 (1603) for the original court case brought before the King's Bench and *Chandelor v. Lopus*, 79 Eng. Rep. 3 (Ex. Ch. 166-7) for the appeal brought in the Court of the Exchequer.

genuine. The defendant, Chandelor, however, appealed this decision to the Court of the Exchequer, arguing that Lopus had not alleged deliberate fraud, only that the stone purchased was not as represented. In this appeal all justices of the Exchequer except one ruled in favor of Chandelor, stating that even if the goldsmith had known the Bezoar was false at the time of the sale, it was not an actionable offence if he had not given a specific warranty as to its nature. The court's ruling specifically states that a mere affirmation of the quality or properties of a stone was not sufficient guarantee since it is the common practice of every merchant to affirm the quality of his wares, whether true or not. The final ruling of *Chandelor v. Lopus* had a lasting impact on contract law and warranties, ushering the ancient adage of *caveat emptor* into the official body of English common law. Buyers were thereafter warned that they must accept responsibility for judging the true quality and worth of items purchased and that a merchant is not liable for damages unless he gives a specific warranty of his wares at the time of a sale.

The implications of *Chandelor v. Lopus* have long been studied by legal and economic historians to better understand the workings of the English justice system and the later consequences of this decision on early modern trade and consumerism; however, the case also yields valuable evidence for the study of lapidary medicine. The details contained within the court records indicate that, in addition to skills in jewelry design and production, early modern goldsmiths might be expected to possess a specialized knowledge of healing powers of stones and act as dispensers of this information as well as suppliers of lapidary materials. The court record also represents some proof of actual practice since it states that Lopus only brought suit after attempting to use his purchase and finding it did not work. Many seventeenth-century print and manuscript sources

demonstrate a general concern about the dangers of poisons and venoms, in particular those from snakes and scorpions, and indicate that Bezoar stones were both expensive and highly sought after for this purpose. However, manuals of healing printed in the decades surrounding *Chandelor v. Lopus* indicate that the stone was also commonly sought after as a cure for another physical danger: the plague. The connection between the use of Bezoar and the plague is particularly relevant when one considers that the date that original case was brought to the King's Court, 1603, was a year in which a plague epidemic struck London. It is therefore possible that Lopus' purchase was made in the hope that it would offer protection from Europe's greatest scourge.

The verdicts of *Chandelor v. Lopus* can also be analyzed for what they might indicate about levels of belief and skepticism in early modern England as to the general use and effectiveness of lapidary medicine. Whether bought to combat venom, plague or a host of worldly illnesses, it seems likely that Lopus possessed a genuine belief in and expectation about the effectiveness of Bezoar stones. Although Lopus' conviction as to the power and worth of a Bezoar stone appears strong, some modern legal historians have theorized that the reversal of the decision by the Court of the Exchequer must have been largely motivated by judicial skepticism. According to this theory, as wise and educated men, the barons and justices who ruled in favor of *Chandelor* would have seen the folly in Lopus' actions and beliefs and therefore have little pity for his financial loss. It is a mistake, however, to apply modern values and definitions of medicine to the actions of a seventeenth-century consumer. Arguments of judicial skepticism must also take into account the fact that the King's Court originally found in favor of the plaintiff as well as the fact that *Chandelor's* appeal was based on a narrow question over Lopus' failure to

allege deliberate fraud. Economic historians, such as Walton H. Hamilton provide yet another interpretation, suggesting that the judges' decision in favor of Chandelor was motivated, not by their sense of justice, but by financial interests and a desire to promote sellerism in the interest of trade.²³⁹

I turn now to a second category of evidence about the practice of lapidary medicine: inheritance records. Again, the proverbial “needle in the haystack” problem exists and my purpose is simply to illustrate how scholars working with such documents systematically might be on the lookout for clues about lapidary medicinal practices. A selection of these will demonstrate not only the ownership and use of medicinal jewelry in medieval and early modern England but also indicate a degree of familiarity with lapidary texts. Surviving wills and inventories from this period have long been used as a measure of personal wealth, providing historians with detailed descriptions of an individuals most prized material possessions. It is therefore not surprising that wills and inventories should be useful as an indication of the types of jewelry commonly held by medieval and early modern peoples. Wills are also useful in determining patterns of inheritance and, accordingly, a study of English wills reveal jewelry, often items specifically related to lapidary medicine, being passed from one family member to another. These documents also show that most articles of lapidary medicine, indeed jewelry in general, were considered to be gender neutral. Items of jewelry owned and worn by men are often bequeathed to women and vice versa. The fact that many items of jewelry were gender neutral during the medieval and early modern periods would have worked well in connection with the principals of lapidary medicine. Lapidaries contain

²³⁹ For more on the legal implications see, R. C. McMurtrie, *Harvard Law Review*, Vol. 1, No. 4 (Nov. 15, 1887) 191-195, and for a well-known economic interpretation see, Walton H. Hamilton, “The Ancient Maxim *Caveat Emptor*.” *Yale Law Journal* 40 (June): 1133-87.

no cures specific to men or women, other than those related to childbirth and menstruation. While some stones might prevent miscarriages and other promote bravery in battle, such virtues did not exclude the items' other, more general healing properties that were equally applicable to men, women and children.

The first is the will of William Salvayne Armigeri dated September 9, 1440 in the country of York, one that includes mention of two lapidary items bequeathed to female relatives:

Aliciaē filiāe eorum annulum aureum cum lapide beryls.
Sibillāe sorori meāe xl^s et j par preclarum de corall cum gaudiis de gagate.²⁴⁰

The first item of interest is a ring of gold, set with a stone specifically identified as a 'beryl,' which William left to his niece Alicia, daughter of his brother, Lord John Salvayne, and his wife, Joanna. Beryl is a stone commonly found in the popular lapidaries that circulated in England during the fifteenth century.²⁴¹ The second item of interest in the will is string of coral beads together with bead jewels of "gagate." Although coral, particularly red coral, was valued not only for its intrinsic beauty, but also for its healing and protective properties since Roman times, it is the second item referenced that specifically links this entry to lapidary medicine. "Gagate," or the stone *gagates*, is a term frequently found in both medieval and early modern lapidaries and refers to two substances more commonly known in England as jet and amber.

²⁴⁰ Publications of the Surtees Society, *Wills and Inventories*, Vol. 2. (London: Wm. Dawson and Sons LTD. 1967), 87.

²⁴¹ Harley 614. In popular lapidaries of the time Beryl is described as a pale to clear colored stone which was thought to be useful in curing a host of earthly ills such as watery eyes, pains in the liver, shortness of breath; it was even thought to promote harmony between a husband and wife.

A second will, that of Unfray Brigham, a merchant from Newcastle-upon-Tyne, dated July 1570 also contains mention of gemstones and items specific to lapidary medicine:

Item to my two susters two Jewells of precious stones and to Anne y^e unicorne horne. Item to m'garett litle y^e iewell of em'aude.²⁴²

This bequest not only indicates that precious stones, including an emerald, were within the financial means of a member of the merchant class, it also shows the transfer of ownership of one of the more exotic and fabulous items contained within lapidaries: a piece of a unicorn's horn. Unicorn's horns were thought to possess special healing properties and were so costly that they often fetched prices greater than the most valuable precious stones of diamonds, sapphires, emeralds, and rubies. In reality, these items were the tooth or 'horn' of a narwal, but their spiral tapering form perfectly mimicked the image of a unicorn's horn as described in Western European mythology. While absent from classical lapidaries and encyclopedias, unicorn's horns figure prominently in medieval lapidary manuscripts as well as in printed manuals of popular medicine until the beginning of the eighteenth century. Unicorn horns fashioned into pendants and rings are commonly listed in the inventories of members of the royal houses of England and France during the fourteenth century, and England's Edward VI had a pendant especially fashioned for him.²⁴³ The will of Unfray Brigham suggests that, however rare and sought after, they were obtainable in some form by the merchant class. By the seventeenth-century, unicorn's horns often appear in printed English pharmacopeias and

²⁴² Publications of the Surtees Society, *Wills and Inventories*, 328.

²⁴³ John Antis, *Register of the Most Noble Order of the Garter*, vol. 1, (1724), 115, note M.

dispensatories as medicinal “stones” that were to be ground and taken internally. One manuscript from this period housed in the British Library lists the prices of unicorn’s horn ranging from £5 to £10 an ounce, depending on how much the merchant could get for them.²⁴⁴

Further evidence of items used in the practice of lapidary medicine can be found in the wills and inventories of royal houses of England and Scotland. One such item, included within the *Extracts from public records and other sources relating to the Crown jewels, plate, etc.* exists as a handwritten record of "An inventory of the Jewells, plate, money, and other goods found in the custodye of the severall servants of the late Queene of Scotts," dated 20 Feb. 1586.²⁴⁵ The record lists a number of valuable items, including jewelry, which Queen Mary of Scots bequeathed to various servants and members of her household before her execution. The document indicates that the items were already in the possession of those indented to receive them, with the exception of a few items which were being held in the custody of “Andrew W. Melvin, Gent.” until they can be delivered to the King of the Scots. Among those items to be delivered to Queen Mary’s son, James VI of Scotland who would later become James I of England, we find listed:

A peece of an Unicornes horne, with a little pendant of gold.²⁴⁶

While the majority of the personal items held by the queen in her last days were given to members of her household, the unicorn’s horn pendant, as an overtly medicinal and protective article, was reserved for her son.

²⁴⁴ Sloane 2539.

²⁴⁵ Stowe 560.

²⁴⁶ *Ibid.*, fol. 27v.

The inventory then lists various items of value in connection with the names of individual members of the late queen's household. It appears that before her death the queen assigned various articles of her personal jewelry to friends and servants, doing so in a way that suggests that articles of jewelry, medicinal jewelry in particular, were bequeathed to those best suited to make use of them. Listed as being left "In the Custody of Melvin the Phisicon" are:

A little bottle of gold contayninge a stone medicinable for the Collicke
 Another little Bottell of Silver contayning a stone medicinable against
 poyson
 A Ring of Gold with a fayre tabled Saphir
 A lesser ring of gold enameled²⁴⁷

All but the last of these items would have been recognized as eminently suitable for healing under the principles of lapidary medicine in sixteenth-century England. Not only are the medicinal virtues and uses of the first two items clearly stated, their careful enclosure within bottles of gold and silver signifies their respective value to their owner. Since each of them appears to have permanent storage containers of some worth, it is likely that these stones were never intended for use as jewelry. Instead, they were likely applied externally, such as pressing the stone against an affected body part, or taken in an internal sense either by soaking them in a liquid, such as wine, that was later drunk or by the ingestion of small shavings.

In addition to the medicinal stones willed to her physician, another item listed in the inventory of the Queen of Scots holds therapeutic potential. Under the heading of items "In the Custody of Hanniball and Elizabeth Curles" a marginal note reads "for

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Ibid.

Curles young child.” Grouped in conjunction with this notation appears a list of articles particularly suited to the tastes and uses of a young child:

A little Beare enameled white.
Two small rings of gold, one of them with five little opales
a little chayne of corral and mother of pearle²⁴⁸

The enameled bear was likely intended to delight a youthful imagination and the “small” rings of gold were probably willed because they were an appropriate size. The third item on this list, however, is one which according to lapidary tradition had medicinal significance specific to a child according to lapidary tradition. Many medieval lapidaries as well as their early modern print counterparts commonly recommend that parents place coral around the necks of infants and young children in order to ward off “falling sickness” and to ease the pains of teething.

It is worth noting that in each of these wills articles of medicinal jewelry can be specifically distinguished from those items which might have been classified as decorative or utilitarian, such as signet or seal rings. Williams Salvayne’s will expressly describes the articles bequeathed to his niece and sister in lapidary terminology rather than the names by which they were commonly known or in more general terms such as “a pale stone” or “yellow beads.” While it is difficult to precisely determine the intended use of the emerald and two other precious jewels listed in Unfray Brigham’s will, unicorn horn is an item valued almost exclusively for its legendary powers of healing. Although many stones, such as sapphires, rubies, topaz, and pearls, were valued for their intrinsic beauty in addition to medicinal virtues, other items like the horn of a unicorn, toadstones, and draconites, were desired for their healing virtues, rather than any physical

²⁴⁸ Ibid., fol. 29.

attractiveness. While terminology and cultural traditions provide suggestions about therapeutic use in these instances rather than absolute proof, there can be no doubt as to the healing applications and use of the two items listed in the inventory of the jewels of Queen Mary of Scots as “stone medicinal.” While all wills and inventories are not so specific, indeed many simply list a “gold ring with a stone,” the presence of lapidary or healing terminology within this type of document allows for a more directed study of the items of jewelry to be found in extant medieval and early modern wills. Such an investigation might yield valuable data about the social and economic status of those who commonly practiced lapidary medicine, as well as the particular lapidary items most frequently found in England during this period.

In addition to legal documents, another form of written evidence relating to the popular use of lapidary medicine is texts produced by professionals specializing in the sale and production of gemstones and jewelry. Once an individual acquired the knowledge required to practice lapidary medicine, whether through oral tradition, manuscript, or printed manuals of popular healing, the next step would be to acquire the necessary materials. The business practices and guild regulations of goldsmiths have long been studied by historians of jewelry and therefore will not be repeated here. Rather, I will discuss another professional supplier of items specific to lapidary medicine. Frequent references within early modern print culture indicate that the most common source for obtaining gemstones or jewelry specifically for the purpose of practicing lapidary medicine was a ‘lapidary’ or ‘lapidarie.’ Thomas Blount’s *Glossographia* published in 1661 defines a Lapidary (lapidarius) as “a Jeweller, or one that works with

or in stones, or that sells, polishes, or is skil'd in stones.”²⁴⁹ Although information about references to specific individuals working under the title ‘lapidary’ in medieval and early modern England are scarce, it is clear that they were skilled craftsmen who dealt in gemstones and performed various tasks relating to their use in jewelry. While these tasks might include the cutting, polishing, and setting of stones, as stone and particularly diamond cutting became a more and more specialized trade, it appears that the term “lapidary” came to represent a jeweler skilled in the production of jewelry with set stones.

References in print literature suggest that lapidaries acted not only as skilled craftsmen but also as specialized dispensers of knowledge about the healing virtues of particular stones. In this sense, they were human storehouses of the knowledge contained within written lapidaries for those who either could not read or who did not have personal access to manuscript or printed manuals of lapidary medicine. Although not fully comparable to the elevated reputation of physicians, it is apparent from early modern print culture in England that lapidaries were respected, professional members of society whose knowledge and good judgment were highly valued. One perhaps unexpected source area in which we find references to the status and skills of a lapidary is the religious polemic of the sixteenth and seventeenth centuries. These texts often ask readers to apply their skills of perception and discernment to the theological arguments presented in the same skillful manner that a lapidary judges the nature and quality of gemstones. The sixteenth-century *A briefe of the Bible drawne first into English poësy, and then illustrated by apte annotations* by Henoeh Clapham comments that,

²⁴⁹ Thomas Blount, *Glossographia, or, A dictionary interpreting all such hard words of whatsoever language now used in our refined English tongue with etymologies, definitions and historical observations on the same : also the terms of divinity, law, physick, mathematicks and other arts and sciences explicated*, 1661.

A vvise Lapidarie chooseth not stones so much for outward quantitie, as inherent qualitie: nor I hope, vvill you so much measure my guift with the bodily eye as by the Line of the Mind, or spirituall eye.²⁵⁰

An early seventeenth century printed text entitled *The trying out of the truth begunn and prosecuted in certayn letters and passages between Iohn Aynsworth and Henry Aynsworth*; contains several references to the skill and good judgment of lapidaries to discern the inherent virtues and qualities of gems:

the operation of the stone or herb depends of the skil and knowledge of the herbalist and lapidarie, and their skil and knowledge depends of the innated and inward proprietie of the stone and herbe.²⁵¹

The authors of both these works ask the reader to apply the same good judgment to the theological argument presented that a skillful lapidary employs to evaluate the virtues of stones. We can infer from this comparison that lapidaries, or at least their power of discernment and reasoning, occupied a position of some respect. These sources specifically identify a lapidary as the preeminent expert on stones, comparable to an herbalist dispensing herbal cures. While lapidary cures were dispensed in some manner by a variety of experts, such as goldsmiths, jewelers, and apothecaries, professional lapidaries were considered the highest authorities on the healing virtues of stones.

A manuscript housed in the British Library provides evidence of the connection between those who sold gemstones and those who dispensed knowledge about their medicinal properties. Produced by an unknown English author, the text entitled “Of the

²⁵⁰ Henoeh Clapham, *A briefe of the Bible drawne first into English poësy, and then illustrated by apte annotations: together vvith some other necessary appendices*, 1596.

²⁵¹ John Aynsworth, *The trying out of the truth begunn and prosecuted in certayn letters and passages between Iohn Aynsworth and Henry Aynsworth*, 1615.

originall Nature and vertues of Pretious Stones” appears to be the work of a practical lapidary who ran a jewelry business in the second half of the seventeenth century.²⁵² In addition to detailing the physical and healing properties of more than seventy-two lapidary substances, the author provides a wealth of practical and economic information about the trade, production, sale, and use of articles of medicinal jewelry. He begins his compilation with praise of the excellent properties and virtues of gemstones:

Off all yet infinitt benefitts and gifts of God and Nature bestowed on man kind gems and stones which are called pretious doe not Challenge to them selves the meanest place fore above all other Creatures the excell so much in sinceritie in purity Clearness and Beutie

These lines echo a nearly universal sentiment to be found within medieval and early modern works of lapidary medicine: gemstones are products of nature created by God for the use of mankind. The author of this lapidary manuscript provides eighty-three chapters on gemstones, describing their healing benefits as products of their natural properties in the infinitely practical manner of a businessman. Interspersed with traditional lapidary knowledge, he offers personal advice and instruction on the use, value, and trade of stones as if to an apprentice or one preparing to take over his business. At no time does the author address any metal working techniques, or indeed, any aspects of the sale or production of jewelry that do not involve the use of gemstones.

It is clear from a close examination of this text, which I shall hereafter refer to as the Sloane Lapidary, that the unknown author draws much of his accumulated knowledge of the physical and medicinal properties of gemstones, from several other scholarly and popular lapidary texts. Ranging from classical works to elite medieval treatises that were

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Sloane 2539.

revised and reprinted for seventeenth-century popular consumption, these texts would have been available in either manuscript or printed form for those who sought, as the author's work suggest, to gather specialized information on the physical and healing properties of gemstones. The author of the Sloane Lapidary mentions Aristotle, Dioscorides, and Pliny by name as experts from whom he draws, but more often he refers to another authority, unnamed but referred to as "my Author." From this unnamed source the author obtains much of his academic information as to the origin and physical or medicinal properties of gemstones. A textual comparison of the Sloane Lapidary and the lapidary texts which circulated in England during the middle ages and early modern periods reveals that this unnamed source is likely to be the *Book of Minerals*, or *Mineralia*, originally by the thirteenth-century scholar Albertus Magnus, a work considered earlier in chapter three.

A textual comparison of excerpts from the Sloane Lapidary and a transcription of the *Book of Minerals* by Albertus Magnus illustrate strong parallels between these two texts. Additionally, a comparison both of these texts to the Pseudo Albertus Magnus printed text *Book of Secrets* excludes it as a source even though this popularized version was widely accessible in England for nearly a century before the compilation of the Sloane Lapidary. Figure 4.1 provides a comparison of the text on the stone *gagates* for each of these works. The similarities between the popular version, the *Book of Secrets*,

Figure 4.1 A comparison of entries on the stone Gagates.

Albertus Magnus <i>Book of Minerals</i> ²⁵³	Lapidary Manuscript Sloane 2539	Pseudo Albertus Magnus <i>Book of Secrets, 1550</i> ²⁵⁴
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²⁵³ Translation from Albertus Magnus, *Book of Minerals*, translated by Dorothy Wyckoff (Oxford: Clarendon Press, 1967).

²⁵⁴ *The booke of secretes of Albertus Magnus of the vertues of herbes, stones and certayne beastes. Also a booke of the same author of the maruaylous thinges of the world, and of certayn effectes caused of certayne beastes*, 1565.

Gagates is kacabre, which I consider to be one of the gemstones. It is found in Libya and in Britain near the seashore and a great deal is found in the sea along the northern coast of Teutonia. In England, too, it is frequently found. It is of two colours, namely black and yellow, but the yellow is nearly as transparent as *topasion*. Some is also grey, rather pale with a yellowish tinge. If rubbed it attracts straw, and if ignited it burns like incense. It is said to benefit those who suffer from dropsy; and it tightens loose teeth, they say. It is known from experience that water in which it has been washed, or its fumes applied from beneath, will provoke menstruation in women. It is also reported to put serpents to flight, and it is a remedy for disorders of the stomach and belly, and for phantasms due to melancholy. They say, too, that experience shows that if water in which it has been washed is strained and given with some scrapings to a virgin, after drinking it she retains it and does not urinate; but if a she is not a virgin, she urinates at once. And this is the way virginity should be tested. And they say that it is good against the pains of childbirth.

Of the stone called Gagates. Gagates is called Amber in English & my Author thinks it worthy to be accounted amongst the kinds of Gemmes or precious stones it is found in Libia & Britannie neare the see bankes & is found in A Bundantey in the sea banks that broacheth the East parts of Germania It is also found in England & is of 2 coullars blacke & safron or yellowish but the yellow cular being well polished is almost as transparent as the Topas ther is some found also no so yellow but declining too paleness joyned with a citerane or light color and being hard rubbed on a dry Cloth it draweth chaft or a light straw to it & being lighted it burneth like frankensense. It is experonocod that being made in a fumigation & put under the nether parts of a woman it provoketh the menstrene or terms of women and being shaven or given too a maide to Drinke it she doth presently make water upon it she is a Maide but if she is not a Maide she will not water presently.

Take the stone *Gagates* which is the same that is called *Kakabre*, and it is found in Libya and Britannia, the most noble Isle in the world, wherein is contained both countries, England and Scotland. It is of double color; black, and of the colour saffron, and it is found gray coloured, turning to paleness. It healeth the dropsy, and it bindeth the bellies that have a lax. And Avicenna saith, that if the stone be broken and washed, or be given to a woman to be washed, if she be not a virgin, she will piss soon, if she be a virgin she will not piss.

and its scholarly source are readily apparent, yet, as with many lapidary entries in the *Book of Secrets*, the information is noticeably abbreviated. As with many other entries for individual stones found in the Sloane Lapidary, both the content and organization of this text show strong parallels to the *Book of Minerals*. A comparison of the content of all three also reveals that many statements about the nature and virtues of *gagates* found

in the Sloane Lapidary do not appear in the printed popular version and therefore must have drawn from a more complete manuscript source. However, it should also be noted that, as sometimes happens when copying from one source to another, the author of the Sloane Lapidary makes occasional copy or transcription errors, such as his reversal of the means by which one can test for virginity.

In addition to parallels in content and organization, evidence that Albertus Magnus is the unnamed source listed only as “my Author” in the Sloane lapidary manual is provided through anecdotal stories unique to the *Book of Minerals*. In order to trace the transmission and dissemination of ideas about lapidary medicine from one source to another, it is useful to compare the later use of anecdotes originating with a specific author or text. In particular, within Albertus Magnus’ description of the origins and properties of *draconites*, fabulous stones thought to be found in the heads of dragons, the scholar shares the following personal experience:

I myself have seen in Swabia in Germany a stone upon which more than fifty serpents had collected, in a certain meadow among the mountains. And when the lord of the land was passing by that way, his soldiers, drawing their swords, cut the serpents into many small pieces. At the bottom lay one large serpent cut into many parts; and under its head there was found a black stone shaped like a truncated pyramid.²⁵⁵

By comparison, the author of the Sloane Lapidary offers these details within his entry on *draconites*:

My Author sayeth as he travelled in some part of Almanian about Swabialand he found the ware the now gathered together more than 500 serpents between the hills there in a meadow and as he was passing thru by he caused the Lord of the ground too command his soldiers with naked swords to cuts these serpents in many pieces. In the bottom ther lay a great great serpent cut in pieces & in the head of the serpent being opened was found a stone a black collar in forme of a

²⁵⁵ Translation from Albertus Magnus, *Book of Minerals*, translated by Dorothy Wyckoff (Oxford: Clarendon Press, 1967).

piramigde broken or cut off²⁵⁶

The stories themselves are nearly identical in detail and structure, but more revealing is that the author of the Sloane Lapidary states that it was “his Author” who personally witnessed these events. While the *Book of Minerals* has long been considered an influential source on lapidary theory and tradition, at least up until the time of Georgius Agricola in the mid-sixteenth century, the Sloane Lapidary demonstrates that its influence extended into the late-seventeenth century in England. It also indicates that even after the print revolution made printed texts widely accessible, manuscript culture was not lost, particularly in the case of specialized texts.

A comparison of the stones listed in the Sloane Lapidary with a selection of the most popular sources from the classical world to the late seventeenth-century provides us with a sense of other sources he might have drawn upon as well as historical trends in the popular use of stones. As previously stated, entries from the Sloane Lapidary refers to several other well-known authorities in lapidary medicine such as Aristotle, Dioscorides, and Pliny the Elder. References to the first two authors were almost certainly absorbed from other texts, such as Albertus Magnus, Bartholomaeus Anglicus, or one of the printed lapidary manuals widely available during this period. As discussed in chapter two of this study, Dioscorides was often cited as a respected authority on the healing virtues of gemstones and the use lapidary medicine yet his actual body of work provides few insights into the medicinal use of stones. Similarly, the *Lapidary of Aristotle*, in reality a pseudo-Aristotelian work, cannot have been the source of much of anything since it only entered into European lapidary tradition through a few excerpts contained in

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Sloane 2539, fol. 51r.

Arabic texts. Information on the properties and uses of gemstones from Pliny the Elder, however, would have been available to the author of the Sloane Lapidary through several printed versions of his *Natural History*, published and sold by English bookmakers in the early seventeenth century.²⁵⁷

Figure 4.2 compares the stones found in the Sloane Lapidary to five of the most influential works of the Western European lapidary tradition: Pliny the Elder's *Natural History*, Marbode's *de lapidibus*, the *Book of Minerals*, the *Book of Secrets*, and a late seventeenth-century edition of the *Pharmacopoea Londoninsis*. This textual comparison of "stones" reveals that while certain lapidary substances such as diamond, emerald, sapphire, heliotrope, and eaglestones remained constant in their popularity and classification as gemstones, the classification and use of other substances fluctuated by period. For example, the fabulous stone Galaricides appears to have faded after the late middle ages and does not commonly appear in early modern printed manuals of healing, while items like Bezoars and unicorn horns are a relatively late addition to texts of lapidary medicine. It also demonstrates that certain lapidary items, such as pearls, were commonly but not universally included in works on healing "stones." The corresponding modern names for lapidary items demonstrate that properties and

Figure 4.2

<u>Modern name for stone</u>	Sloane Manuscript	Pliny, <i>Natural History</i>	Marbode, <i>De Lapidibus</i>	Albertus Magnus, <i>Book of Minerals</i>	Book of Secrets ²⁵⁸	Pharmacopoea Londoninsis ²⁵⁹
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²⁵⁷ See, Pliny, the Elder, *The historie of the vworld: commonly called, The naturall historie of C. Plinius Secundus. Translated into English by Philemon Holland Doctor of Physicke. The first [-second] tome*, 1634.

²⁵⁸ Albertus Magnus, *The booke of secretes of Albertus Magnus of the vertues of herbes, stones and certayne beastes. Also a booke of the same author of the maruaylous thinges of the world, and of certayn effectes caused of certayne beastes*, 1565.

²⁵⁹ Salmon, William, *Pharmacopoeia Londinensis, or, The new London dispensatory* (London, 1691).

<i>Diamond</i>	Adamas	•	•	•	•	•
<i>Agate</i>	Achatos	•	•		•	•
<i>Stone found inside birds</i>	Alectorios	•	•	•	•	•
<i>Amethyst</i>	Amatista	•	•	•	•	•
<i>Hollow geode, concretion</i>	Eagle Stone, Aëtites	•	•	•	•	•
<i>Pyrite</i>	Andirodamas	•	•	•		
<i>Unidentifiable</i>	Apistos, Arpistos					
<i>Animal calculus</i>	Bezoar Stone					•
<i>Beryl</i>	Berillus	•	•	•	•	•
<i>Balas ruby, spinel</i>	Ballasr, Blagmis			•		
<i>Fossilized Lepidotes teeth</i>	Lapis Bufon (Toadstone)		•			
<i>Ruby, spinel, garnet</i>	Ruby, Carbuncle	•	•	•		•
<i>Chalcedony</i>	Chalcedonius, Calcodon		•	•	•	•
<i>Green Chalcedony</i>	Crisopasius, Crisopagion	•	•	•		•
<i>Yellow topaz, zircon</i>	Crisolite, Crisolitus	•		•	•	
<i>Adventurine feldspar?</i>	Crisprasius, Prasius	•	•	•		•
<i>Stone found inside swallow</i>	Chelidonium	•	•	•	•	
<i>Coral</i>	Corallius, Corallus	•	•	•	•	•
<i>Carnelian</i>	Corneolus		•	•		
<i>Clear quartz, moonstone</i>	Ceranius, Ceramius	•	•			
<i>Diamond or corundum</i>	Chalazia, gelatia	•			•	
<i>Moonstone</i>	Solinites, Chelonites		•	•		
<i>Clear quartz Crystal</i>	Cristall, Cristallus	•	•	•	•	•
<i>Black igneous rock</i>	Calcephonos	•	•	•		
<i>Prism of quartz crystal</i>	Lapis Demoins (Iris)		•	•		
<i>Beryl or quartz</i>	Dinoches		•	•		
<i>Uncertain, mettalic sulfates?</i>	Dionisias		•	•		
<i>Stone from dragon's head</i>	Draconites	•		•		
<i>Pyrite</i>	Epistrites		•	•	•	
<i>Transparent Chalcedony</i>	Enydros, Etindros	•	•	•		
<i>Opal</i>	Exacontalitos	•	•	•		
<i>Garnet</i>	Granatus			•		•
<i>Arsenic ore?</i>	Geranites, Heracites	•	•			
<i>Jet, sometimes amber</i>	Gagates		•	•	•	
<i>Unidentifiable</i>	Gagatromins		•	•	•	
<i>Chalk or limestone</i>	Gallactis, Gallacitus	•	•			
<i>Sapphire, zircon, corundum</i>	Hyacinthus, Jacinth	•	•	•	•	•

Continued:

<i>Modern name for stone</i>	Sloane Manuscript	Pliny, <i>Natural History</i>	Marbode, <i>De Lapidibus</i>	Albertus Magnus, <i>Book of Mineral s</i>	Book of Secrets	Pharmacopoea Londoninsis
<i>Dark green Chalcedony</i>	Hellatropia, (bloodstone)	•	•	•	•	•
<i>Hematite</i>	Hematiss, (bloodstone)	•	•	•		•
<i>Magnetite</i>	Heraclius (loadstone)					

<i>Eye agate or Opal?</i>	Hiena (hyena stone)	•	•	•		
<i>Jasper</i>	Jaspis	•	•	•		•
<i>Amber</i>	Juris (amber)					
<i>Amber</i>	Lincurius (linx urine)	•	•	•		•
<i>Sulphur</i>	Lixparis, Lipares	•	•	•	•	
<i>Magnetite</i>	Magnes (loadstone)	•	•	•	•	•
<i>Mix of mettalic sulphates</i>	Medus, Media		•	•		
<i>Onyx</i>	Onyx	•	•	•	•	•
<i>Form of iron?</i>	Orities, Siderites	•	•	•	•	
<i>Opal</i>	Opallus, Opthamus	•	•	•	•	•
<i>Alabaster?</i>	Otullus, Pledopaly					
<i>Geode</i>	Pycanites, peantis	•	•			
<i>Opal</i>	Pantherus	•	•	•		
<i>Pyrite</i>	Pyrites	•	•	•		•
<i>Found in a lapwing's nest</i>	Quiritia			•	•	•
<i>Stone from brain of bird</i>	Quandros			•		
<i>Ruby, spinel, tourmaline</i>	Rubinus					
<i>Ruby, spinel, tourmaline</i>	Rubas (kind of Rubio)					
<i>Sapphire</i>	Saphirus	•	•	•	•	•
<i>Emerald</i>	Smaragdus	•	•	•	•	
<i>Sard</i>	Sardius	•	•	•		•
<i>Sardonyx</i>	Sardonix	•	•	•		•
<i>Barnacle shells</i>	Sagda		•	•		
<i>Spinel</i>	Spinellagus					
<i>Topaz</i>	Topasion			•	•	•
<i>Fossilized echinoid</i>	Tecolithus/Cecolites	•	•			•
<i>Turquoise</i>	Turicus/Turchois			•		•
<i>Pearl</i>	Pearl, Margarita		•	•		•
<i>Mercury sulfide, cinnabar</i>	Sanguis draconis	•		•		
<i>Mercury sulfide, cinnabar</i>	Varach, Dragon's blood			•		
<i>Tusk of narwhal</i>	Unicorn's Horn					•
<i>Lapis Lazuli</i>	Lazerous, Zameth			•		•
<i>Amber</i>	Amber	•		•	•	•

mineralogical identity of several were often confused and either combined or conflated.

As lapidary and jeweler, the author of the Sloane Lapidary provides practical information as to the criteria by which gemstones were judged during the seventeenth-century. Theories of lapidary medicine contained in Western Europe texts operated on the notion that individual stones within any gemstone classification can possess varying

amounts of healing virtues, depending on their quality. For example, while any diamond might cure or protect from poison, some diamonds possess greater healing virtues than others. It is likely due to this principle that Alice de Lundreford refused to return the rings she had borrowed from Philip de Albini and why he later continued to lament the loss of a particular sapphire even after the court's ruling had ordered monetary compensation for the items. But various sources refer to specific stones possessing exceptional healing "virtues," they generally do not provide the precise criteria by which a gemstone's material or medicinal worth might be judged. As a practical text in addition to compilation of the healing virtues of stones, Sloane Lapidary represents an unique insight into the criteria by which stones were judged and valued. For the author of this text, there is little distinction between physical beauty and the quality of medicinal virtues. In this sense perfection of physical form equates to the stones "hidden" virtues, excepting those few stones which were not typically used in any form of jewelry and held no expectation of an outward aesthetic.

In the second chapter of this work, the author states that stones are distinguished by their "Coullor brightness hardness," yet his evaluation of the value of various types of gemstones reveals that they are more often judged by depth or lack of color, clarity, size, and cut. The text contains the greatest amount of information on diamonds, or the stone Adamas, often the first stone to be mentioned in a lapidary and recognized since classical times as the hardest of substances. The author demonstrates obvious familiarity with the origin, trade, and value of this stone and states that they exist in two different forms: those that are as clear as water and those which are dark or black. The clear "brite" diamonds are the more highly valued and the author states that a one carat diamond

which is “shining and clear but which has a yellow or blackish tint to it” will sell for £13 5s. while one that is of “clear white perfection” could sell for £30, £35 or £40. However, the author notes that the actual price depends upon the merchant. As if writing for the benefit of an apprentice lapidary or jeweler, the author explains that the cut of the diamond also determines its value and that one must therefore only buy stones of the best proportions, recommending table cut or pointed diamonds as the most pleasing.

Colored gems are judged in much the same fashion, with the exception that in the case of these stones depth and brightness of color is more highly valued than pale stones. On the topic of sapphires the author asserts that the best color is of the “Azure sky & is the most excellent blue.” Later, however, he warns that extremely dark stones, pale to colorless ones, and yellow sapphires are not as valuable. In addition to color, these stones should be “faire with no spots,” indicating that inclusions were noticed and impacted upon the over-all value of a stone. Much the same standards were applied to rubies, which should be of a deep yet bright red “with outt faults or spots of Chaleodon.” Those which are of inferior color and quality he refers to as “Balas” rubies, which he states are sold by the carat “from 4s. to 8s. and not more.”

Opaque or non-crystalline varieties of gems, such as opals and coral, appear to be judged by much the same principles, with the exception that shine is emphasized in place of clarity. The author of the Sloane lapidary praises the appearance of opals as possessing the colors of other stones, such as the red of the carbuncle, green of the emerald, combined with the shine of a pearl. He notes that opals are of great worth if they are fair in color, comparable to the value of a diamond or a ruby of equal size, if

they also possess a high shine.²⁶⁰ While coral can be found in both red and white, he informs us, red variety that is more highly valued. He describes how, after careful extraction from the sea, the branches are filed and polished with sand and thereafter oiled, to produce a smooth shiny surface. He states that a big branch is worth £10 the ounce “by reason of the waste and labour in the filing and polishing.” It is apparent that the author, as a practical jeweler as well as a lapidary, is only interested in the branched and polished pieces of coral typically used as amulets, and he includes no information as to any healing properties of coral taken internally.

In addition to physical beauty, the Sloane Lapidary reveals that there is another important factor in determining the value of a particular stone: its geographic origin. In nearly all cases of stones which can be found in both the “West,” designated as Europe and the Americas, and the “East,” usually India and China, the eastern version is judged to be of greater value. The author states that oriental sapphires from India and Ceylon are worth more than Occidental counterparts, that emeralds from Peru are “not as much esteemed” as those from India, and that pearls from Borneo and China are much superior to those of the Spanish Indies and have “great difference in the price.” In the case of pearls, the author does qualify his assertion by mentioning that those pearls from the Portuguese West Indies were nothing inferior to those from the East, only few in numbers. Occasionally the author of the Sloane Lapidary indicates the Eastern preference is based on some aspect of their physical appearance, but more commonly it appears that lapidary theory held that these stones possessed superior hidden virtues, particularly in regard to healing properties. In this manner the term “occidental” entered

²⁶⁰ Several of the stones that the author of the Sloane manuscript lists in his lapidary are actually opals, including *Pantherus* and *Exacontalitos*; however, these remarks are only in reference to the white opal, which he refers to as the stone *Opallus*.

the English vernacular as an adjective, which applied in a general sense became synonymous for “inferior.”

The Sloane Lapidary also contains partial records of items of jewelry he produced or purchased during the years 1670-1671. Written in the same hand as the rest of the Lapidary, these accounts provide an approximate date for the compilation of the main text. At the end of the manual’s eighty-three chapters on the properties and virtues of gems, upon what were likely some blank pages left over from the compilation of the planned text, these few haphazard notations are written from the bottom to the top of the page. These inventories record amounts of gold used or acquired by the business, listing the items the author made from bulk gold in the form of ingots, as well as gold items purchased by the business. These items are listed in Appendix A.

While incomplete, these records provide evidence of the forms of jewelry in popular demand in seventeenth-century England as well as those gemstones most commonly available and sought after by consumer. A comparison of the stones which appear in these records shows that diamonds are by far the most frequently utilized gemstone set in jewelry made or acquired by the business during this period. Counting the number of different gemstones represented in the account we see that there are sixty-one diamonds, eighteen amethysts, five garnets, four rubies, four opal, three onyx, one agate, one lapis lazuli, and nine turquoise stones, some new and some reused. As a man of long experience in the gemstone trade and jewelry business, we can assume that the jeweler produced items which were in common demand and upon which he could make a profit. While diamonds, in general, are the most valuable of gemstones, notations found within the body of the Sloane Lapidary provide added insight as to the nature of these

items. Included within the entry on diamonds, the author indicates that diamonds imported from Goa, India, were available in large quantities from Portuguese merchants and some stones were “bought here by myself in London.” Listed among stones purchased are:

18 Brite Diamons	6 ½ carotts
11 brite stones	7 ¼ carotts
12 brite stones	6 carotts
9 more for poynts	3 carotts
13 Rock stones	7 ¼ carotts
13 for nayls (naife)	5 ¼ carotts

The “brite” diamonds listed here are the author’s manner of indicating that they were of a clear white color. The “poynts” diamonds are those which were shaped into a point or a pyramid shape that is commonly described in both medieval and early modern sources and which is well represented among surviving articles of jewelry from these periods.²⁶¹

The “rock” stones are those which have not been cut and are still in their natural crystalline shape, and “nayls,” the authors term for “naife” diamonds or those which are uncut, unpolished stones possessing a natural luster. As part of the practical business knowledge imparted to his unknown and presumably less experienced reader, the author of the Sloane Lapidary characterizes these “naife” diamonds as those which are of inferior color and quality.

In addition to information on quality and color this record provides us with valuable insight into the size of the sixty-one diamonds listed as having been incorporated into jewelry in the years 1670-71. Dividing the carat totals by number of diamonds included reveals that the 18 “Brite Diamons” were 1.4 grains each on average,

²⁶¹ This pointed shape results from a naturally occurring octahedron diamond crystal.

or about 1/3 of a carat. The pointed diamonds were 1.3 grains apiece on average and the naifes were 1.6. The author of the Sloane Lapidary lists several gold rings set with between two and seven diamonds for the year 1671. From the information provided it appears these stones might have been white or dark, point cut or unpolished, and ranging in weight from 2.6 to 1.3 grains on average. Surviving examples of jewelry from this period indicate that many diamonds were in fact, within the 1-2 grain range and often dark and unpolished or uncut. (See Figure 4. 3)

One piece of information notably absent from the inventories of jewelry and stones of the Sloane Lapidary is any indication of price.

Since the record of jewelry produced or acquired by the business in 1670-71 was intended only as an accounting of the amounts of gold, no price values are listed for any of the

items. Historically, jewelry and gemstones receive a large markup from wholesale to retail prices. While it is difficult to estimate the price, and therefore relative affordability, of the listed stones and items of jewelry, the author does provide some price values within the body of the manuscript. In particular, he lists and sketches some gemstones notable for their beauty and size, together with the prices for which he bought and sold them. Among these stones were three rubies: one 1½ carat stone was purchased for £35 sterling and sold for £65, another, a 2½ carat stone purchased for £66 and sold for £126. These sales show 86% and 91% markups, respectively. The author mentions a third ruby, a 16 carat stone he describes as a “great rock but full of streaks and calcedon” that

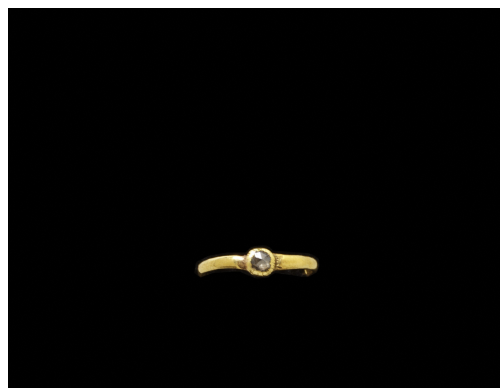


Figure 4. 3 Gold ring, inscribed and set with a cut diamond. England, 17th c.
© Victoria and Albert Museum

he bought for £75 and sold for £103, only a 37% markup. Presumably the value of the much larger stone was greatly reduced due to large inclusions. Additionally, the details of a 6 1/3 carat sapphire of note are recorded in a marginal notation which indicates that it was bought for £31 and sold for £46, a 48% price markup.

The only items of jewelry within the Sloane Lapidary that are associated with sale prices are found written in a small table on the reverse of a folio, as if to make use of a blank page. This table appears on a page near the chapter on Carnelians and counts the number of these stones that the author possessed and sold during an unknown period of time.

Carnelian Rings

	£	s.	d.
Sold three Carnelian rings for	0	8	6
For another Carnelian ring for	0	2	6
For another Carnelian ring	0	1	6
To my sister a Carnelian	0	0	0
For another Carnelian	0	2	0
For another Carnelian at	0	1	6
For another Carnelian at	0	2	0
For another Carnelian at	0	5	0
For eight of one	0	12	0
For another	0	2	6
For another	0	2	6

On the topic of the value of carnelians, the author writes that they are a stone found near the Rhone river that is well-known but “small esteemed” and of comparatively small value. He describes the stones as “so red all most the color of vermillion” with virtues which “restraineith blood and hemorages.” While some stones sold for 2s. or 5s. apiece, the prices which occur most frequently are sales at either 2s. 6d. or 1s. 6d, perhaps indicating two standard sizes of rings or stones. It is also likely that all of these stones

were set in gold since it is the only metal the author of the Sloan Lapidary records as purchased or used.

The record of the sale prices for carnelian rings allows for an estimate of their affordability in relation to the general population of seventeenth-century England. From 1600 to 1630 the average wage of a skilled laborer was about 1s. per day. That amount increased to around 1s. 6d. per day by mid-century and reached a level of about 2s. for skilled laborers in the early eighteenth century.²⁶² At a price of 1s. 6d. or 2s. 6d., a carnelian ring such as described in the Sloane Lapidary would therefore not have been beyond the financial means of skilled laborer, even as a frivolous item of adornment. Yet, as the Sloane Lapidary manual reveals, according to the theory of lapidary medicine, such a ring would have also been seen as a medical investment, capable of combating hemorrhages. Compared to the price of seeking medical advice and aid from a London physician, a service costing between 6s. 8d. and 10s. per visit during the first half of the seventeenth century, the purchase of a reusable medicinal ring would have seemed like a bargain.²⁶³

While the author of the Sloane Lapidary is concerned with the healing properties of gemstones only in so far as they were used in jewelry, his manuscript provides evidence of a close relationship among lapidaries, physicians, and apothecaries, professionals linked in common use of lapidary materials in the practice of their healing arts. Within his entry on the stone Crisolite, the author states that an “excellent”

²⁶² See, James Turol Rogers, *Six Centuries of Work and Wages: the History of English Labour* (London: George Allen & Unwin Ltd., 1949), 404, and Peter Earle, *The Making of the English Middle Class: Business, Society and Family Life in London, 1660–1730* (Berkeley: University of California Press, 1989), 303.

²⁶³ For this estimate of the cost of the services of a London physician see, Doreen G. Nagy, *Popular Medicine in Seventeenth-Century England* (Bowling Green: Bowling Green State University Press), 21.

physician writes of “an excellent cure which he did upon 2 of his patients with this stone.” The patients in this case were troubled by “ague;” one for fifteen days, the other for six months. According to the author, the physician was able to cure these patients by putting powdered Crisolite in wine and administering it as an internal cure for fifteen days, after which they were both delivered from the disease, never to be troubled by it again. This example, which the author might have read in any number of popular print manuals sold under the authority of well-known physicians, demonstrates that lapidary cures were accepted and administered even by well-respected physicians. It also shows that lapidary cures taken internally were not expected to work immediately or with only a single dose, but might be taken faithfully and repeatedly over an extended period of time until the desired results were achieved.

The Sloane Lapidary also demonstrates that a lapidary might act as a supplier of medicinal gemstones, selling them to other health care providers such as physicians and apothecaries. On the topic of Bezoars, it offers several internal cures, undoubtedly because these stones were rarely used in jewelry. In stating that the Eastern Bezoar is more esteemed than those found in the Spanish East Indies, the author recounts that when Spanish ships are “taken at sea” by the English, the stolen bounty often includes Bezoar stones. He explains that these stones are then ground and sold at the very low price of 4s. per troy ounce, and that he had purchased a quantity of these in order to resell them to an apothecary at a profit but “could make no more of them.” The author further demonstrates his familiarity with the dispensing of lapidary cures by apothecaries when, on the topic of pearls, he explains that small pearls are “sold cheap” to physicians and

apothecaries and that ‘seed pearls’ are those too small to be handled and are therefore stamped into powder, presumably to be administered internally.

Just as the Sloane Lapidary reveals details about the practice of lapidary medicine through the use of jewelry, documents produced by apothecaries provide insight into the use of gemstones in popular medicines and cures taken internally. Although medieval lapidary tradition most commonly applied gemstones externally, focusing on direct contact with a patient’s skin, the printed dispensatories and pharmacopeias of the early modern period advocated a greater number of lapidary cures formulated to be taken internally. During the sixteenth century, gemstones, minerals, and other lapidary substances such as horns, fossils, and ‘stones’ found within living creatures were commonly ground, mixed, dissolved, and administered according to methods and principles of ‘physick.’ Beginning in the seventeenth century, these items were also distilled and altered according to the new techniques of the budding science of ‘chymistry.’ Since these manipulations were outside the skills and experience of the typical jeweler and lapidary, and beneath the elevated social status of college-trained physicians, the practice of dispensing lapidary cures in the form of compounds to be taken internally fell to those in the business of mixing medicinal potions: the apothecaries. At the top of English medical society physicians reigned supreme. In theory they prescribed cures based on Galenic principles, prescriptions that apothecaries would then fill in their shops. In reality, only comparatively rich members of society could afford the services of a physician so the majority of the population went directly to the apothecaries. As shown in the previous chapter, this tendency created a large demand for popular manuals of healing. A large number of works published during the sixteenth

and seventeenth centuries began with the promise that they will allow readers to act as their own physicians begin enabling them to diagnose their own ailments and thereafter seek out appropriate cures at the local apothecary shop. For the medical theory and promise of these printed manuals of lapidary medicine to work, perspective practitioners needed a reliable source of lapidary materials.

Reliable evidence as to which lapidary materials were commonly found for sale within an early modern apothecary shop is an inventory of supplies on hand. The records of seventeenth-century apothecary wholesaler Estwick & Coningsby provide a rare and highly detailed record of the supplies held in a particular London apothecary shop during the years 1661 to 1675.²⁶⁴ Estwick & Coningsby operated as a prosperous business partnership between Francis Estwick and John Coningsby for several decades in London, until the death of one brought the surviving partner into court, accused of not paying his debts.²⁶⁵ As part of this court case, inventory records of the business were submitted to Court of the Chancery and, as they were never reclaimed, now reside in the National Record of Archives in Kew. Among books of petty cash and other economic accounts, one notebook contains five separate inventories for the goods in the shop of a particular seller listed as “C. Garrett” whose shop was located at “60 Hethrop in West Smythfield.”²⁶⁶ Individual inventory headings indicate that they were conducted because Estwick and Coningsby possessed some manner of financial stake in Garrett’s shop,

²⁶⁴ PRO C 104/130. The PRO listings date the accounts books as covering the years 1667-1685 when the records themselves indicate that the dates covered are, in fact, 1661-1685.

²⁶⁵ For more on Estwick and Coningsby see Margaret Evans, “Francis Estwick & John Coningsby: a seventeenth-century business partnership” (M.Sc. dissertation, London School of Economics, 1977).

²⁶⁶ Smithfield is the area just north of the London city walls, the location of one of London’s great meat markets since the twelfth century and it also housed a wholesale food market in the mid-seventeenth century.

referring to the items listed as “All our Goods” and the fact that they were conducted as a means of “cashing up.”

The Estwick and Coningsby notebook lists five detailed inventories taken in the years 1661, 1664, 1668, 1670 and 1675. Each inventory provides a thorough account of all the supplies on hand, including the names of hundreds of early modern ‘drugges,’ quantities of each on hand, price per unit, and value of the total amount of each substance. Many items are listed multiple times; on these occasions the compiler usually provides clarifications about the differences in the form, origin, or quality of the material. An examination of the contents of these accounts reveals that the shop in West Smithfield consistently stocked a large number of lapidary substances. In addition to materials native to the British Isles such as Scottish pearls, jet, and Irish slate, the inventories demonstrate that English apothecary shops of this era sold quantities of imported stones such as sapphire, emerald, rubies, coral, and oriental Bezoar.

These five inventories allow for a detailed comparison between the medical products commonly included in popular printed pharmacopeias and dispensaries as well as those items which physically existed in a local London apothecary. Current historical work on print culture in early modern England postulate how the price, size, and number of editions of each book translates into readership statistics, but these studies cannot speak fully to the number of individuals who acted upon the medical advice found in printed manuals of healing. The Estwick and Coningsby records, on the other hand, attest to a material consumer demand for a wide variety of pharmaceutical products, or “simple medicaments” as they were termed. These “simples,” ranging from the exceedingly ordinary to the exceptionally strange and exotic, are based on animal,

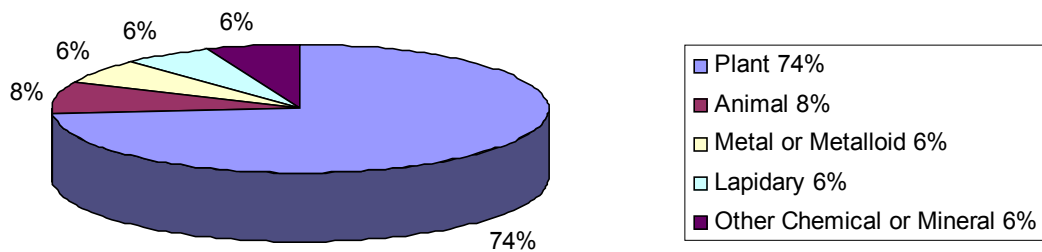
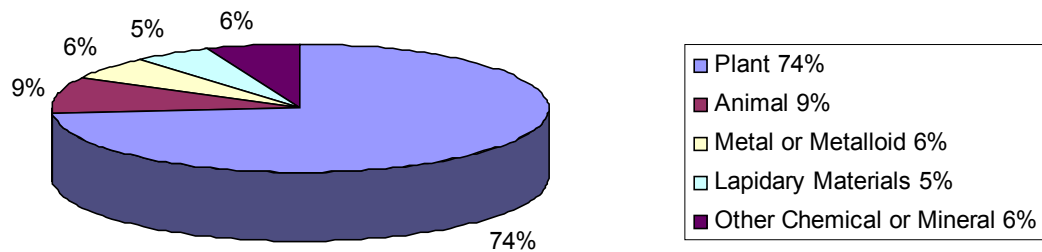
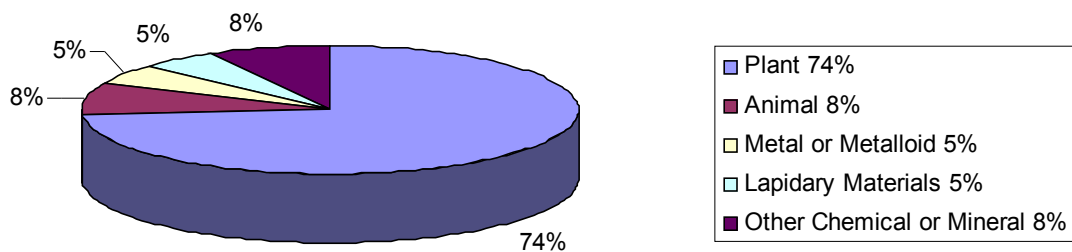
vegetable, and mineral products. As one might expect, the majority of simples are plant derivatives, including gums, seeds, roots, fruits, and leaves. Among the wide variety of plant based items one finds species commonly found in the British Isles alongside the native flora of the Americas and Asia. Animal products include such items as sponges, fox lungs, musk, hart's horn, goat's blood, pig fat, and even the remains of mummified human beings. The various metals or metalloids found in the inventories range from inert metals such as gold to potentially dangerous substances like arsenic, mercury, and lead, which was often used as a sweetener in medicinal tonics or juleps.

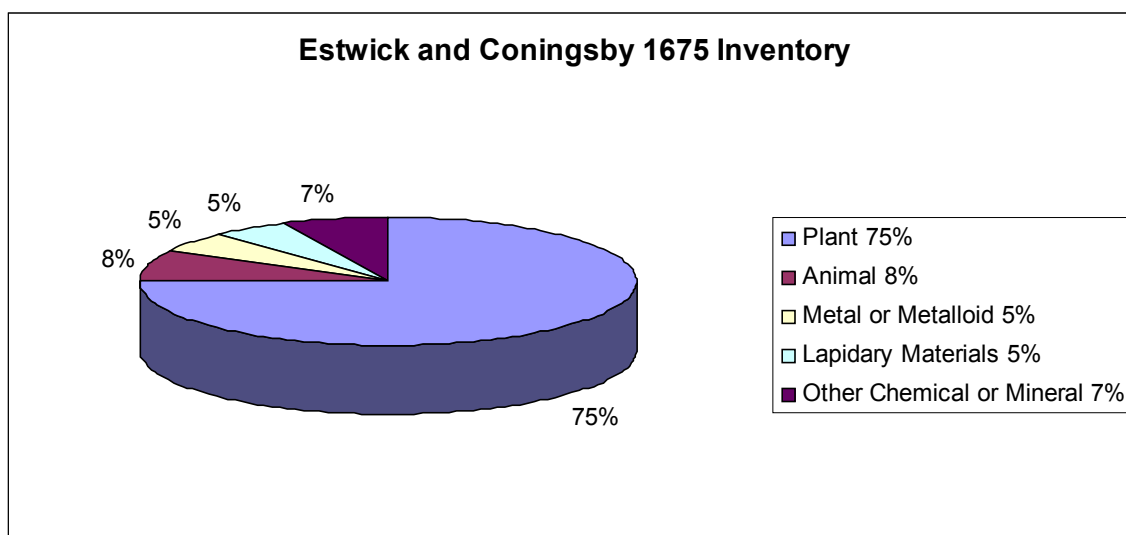
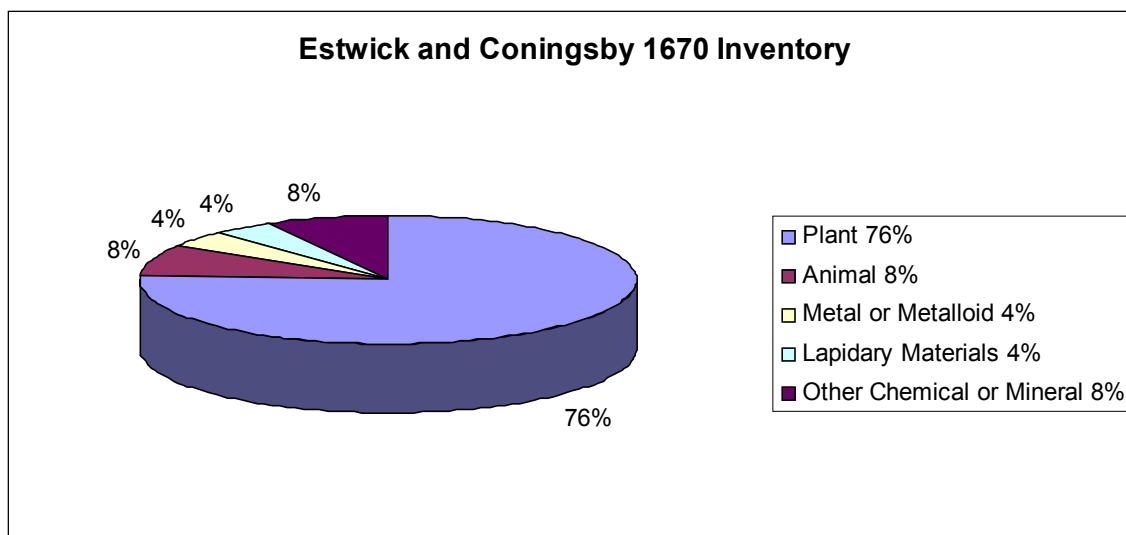
A third category that contemporary observers would have applied to certain items listed in Estwick and Coningsby's inventories is that of "lapidary materials." This division comprises those items which were commonly classified as "stones" within medieval lapidaries as well as in early modern pharmacopeias and popular printed manuals of healing. Included are all the traditionally recognized gemstones such as sapphires, emeralds, rubies, amethyst, together with plant-based items such as amber and jet, products of animals such as coral, pearls, and fossils, as well as those metals and chemical compounds that appear to resemble stones or rocks, such as mercury sulfide and zinc carbonate. While this division crosses the diverse physical origins of the materials included within it, it is a categorization that both contemporary medical practitioners and consumers recognized as valid, based upon an inherited understanding of lapidary medicine from classical and medieval sources. The remainder of items listed in the Estwick and Coningsby inventories are other mineral or chemical compounds which cannot be classified into categories of animal, vegetable, or mineral and were not traditionally found in texts of lapidary medicine, such as borax and sal armoniacum.

The information in these inventory accounts also allows for a study of the comparative percentages of drugs or simples derived from each of the established categories. The fact that Estwick and Coningsby took five separate inventories of the same shop and attached warehouse over a span of fifteen-years provides us with more than a brief glimpse into a particular moment in time. The thoroughness of these consecutive accounts allows us to estimate the physical origins of the entire contents of C. Garrett's shop, but also those items which were consistently held on hand in small or large quantities, thereby suggesting levels of sustained popular demand. Even taking into account that the supplies of imported substances necessarily were irregular in the seventeenth century, the results are remarkably consistent as to the amounts of drugs present in the shop and warehouse which were based in plants, animals, metals, lapidary materials, and other chemical or mineral substances. The percentage of variance in any one category shows a maximum 2% among the five inventory years.

The inventories of Estwick and Coningsby, taken as a whole, provide a fascinating glimpse into the many strange and exotic items classified as "drugges" during this period. For the purposes of this study, however, my primary interest is in an isolation of just the lapidary items most commonly found on the inventories. The thoroughness allows for comparisons of amounts on hand, and well as studies of the

Figure 4.4 Inventories of Estwick & Coningsby 1661, 1664, 1668, 1670, and 1675

Estwick and Coningsby 1661 Inventory**Estwick and Coningsby 1664 Inventory****Estwick and Coningsby 1668 Inventory**



relative values of each substance according to weight. For nearly every item, the inventory lists an amount on hand followed by a price value per unit and a total representing the entire value of stock on hand. A comparison of quantities, unit values and sum totals reveals that the amounts are listed according to the English Avoirdupois system of weights, which uses a sixteen ounce pound, rather than a troy or apothecary weight system, which employs a twelve ounce pound. (See, Appendix B) It is therefore apparent that while English apothecaries made up their prescriptions according to

apothecary weights, they bought and sold them at wholesale under the avoirdupois system. The lapidary materials found in the Estwick and Coningsby inventories are shown in Appendix C.

From the lists, I extracted those materials which commonly would have been considered “stones” by medieval and early modern standards and which were commonly found in the popular print manuals of healing. Many of these stones, such as garnet, sapphire, amethyst, emerald, ruby, and topaz, are gems that were also frequently employed in external cures in the form of jewelry. However, when these stones are listed according to their Latin classifications, terminology which oddly enough is not always the same as the names by which they were known in classical and medieval lapidaries written in Latin, they are always meant as ingestible drugs. This practice can be seen as late at the beginning of the nineteenth century when published manuals of the customs and duties to be levied upon goods imported into England list these stones twice: once as precious gems by their common English names and once as drugs under the terminology that also appears in the Estwick and Coningsby inventories.²⁶⁷

However, there is one stone that does not appear in the inventories: the diamond. Although diamonds are usually the first stone to be listed in any written lapidary, since classical times their medicinal use has always associated with jewelry, rather than any internal cures. The *Pharmacopaeia Londinensis* of 1691 explains the absence of diamonds from apothecary records:

The Diamond is the hardest of all gems. It is never given inwardly, but only worn as Rings, Ect. So it's said to take away Fears, Melancholy, and to strengthen the heart.

²⁶⁷ *Consolidation of the Customs, and Other Duties: Tables of the Net Duties Payable, and Drawbacks Allowed on Goods, Wares and Merchandize Imported, Exported, Or Carried Coastways; Together with a List of the Bounties. Published Under the Inspection of Mr. Edward-James Mascal, 1789.*

Many of the lapidary items occur more than once, or even twice as gems and drug, within the same account. This is typically due to the fact that the shop had several varieties or forms of the substance on hand. For example, each inventory includes multiple entries for pearls and coral. Most of the pearls found in an apothecary shop would have been ground into a fine powder and used in various medicines such as draughts, waters, or juleps, and, as such, were likely small pearls unsuited for use in jewelry. The 1661 and 1664 inventories note these as “Scotch” freshwater pearls, found in great abundance in the streams and rivers in Scotland and, to a lesser degree, England. The 1675 inventory lists both “Scotch” and “seed” pearls, indicating that there was some difference between the two, with those listed as “seed” valued at a much higher price per unit. For example, “Scotch” pearls are valued at 16d. per oz while “seed” pearls fetch 5s. 4d. per ounce in the 1675 inventory, the same price as sapphire and emerald are valued at in other years. As seed pearls are usually the smallest in size, indeed the Sloane Lapidary characterizes them as “too small to handle,” this vast difference in price might be attributed to the fact that they are imports from the West Indies or the East and therefore considered to be more potent and medicinally valuable. In addition to these two types, the inventories also categorize some entries of pearls as “oriental,” selling at 6s. an ounce in the 1661 inventory, and “occidental,” selling at 5s. an ounce in the 1664 price. Unless there was some mysterious price deflation between the two years, the oriental pearls appear to sell at 1 s. more per ounce, reflecting once again the belief that “oriental” lapidary materials were intrinsically superior.

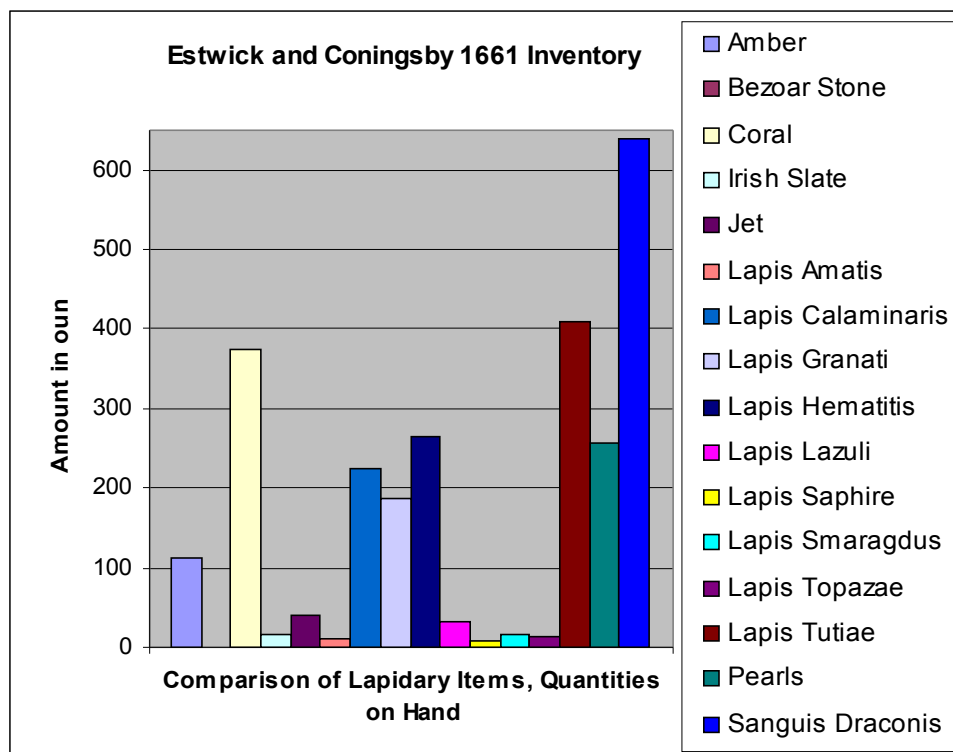
The inventories also specify between different grades (fine, coarse, middle, worst) and colors (red or white) of coral. Popular print manuals of healing routinely state that red coral possess the best medicinal qualities. The *Pharmacopaeia Londinensis* of 1691 categorizes the inferior “pale” or white coral as “female” and the superior red coral as “male,” and recommends using only the red. While some coral was used in whole branches as amulets, the coral found in the Estwick and Coningsby inventories was almost certainly broken or ground, a state which would explain the classifications of “fine,” “middle,” and “coarse.”

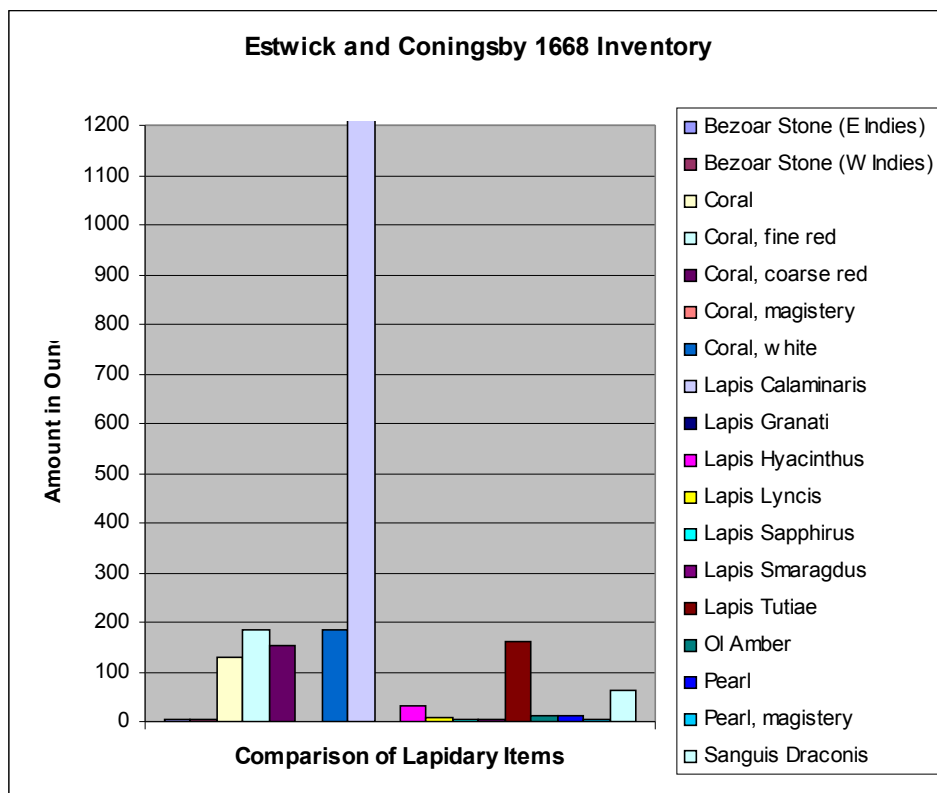
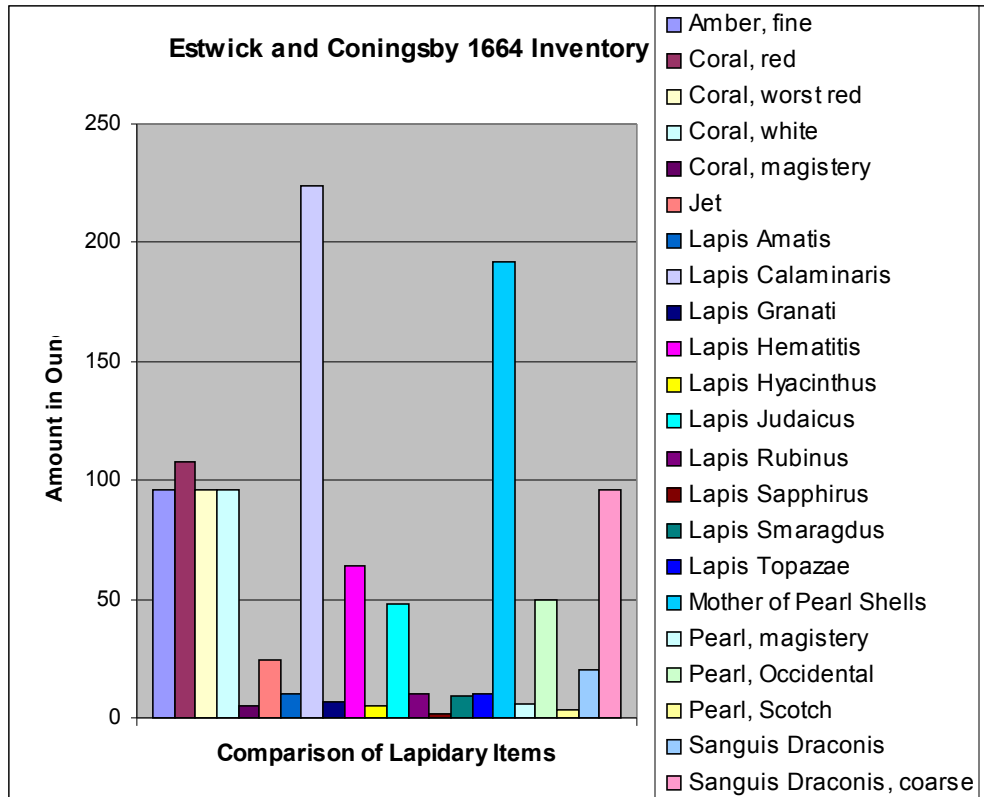
While the majority of items listed in the inventories are in their natural state, albeit broken or ground, a few items, such as magistery of coral and pearl and oil of amber, are medicinal forms which require chemical or physical manipulation on part of the apothecary. In keeping with the rise of Paracelsian or chemical medical theory in the mid-seventeenth century, use of magisteries commonly appears in the popular manuals of healing produced in England. A magistery, in this sense, is simply the solid precipitate remaining after ground coral or pearl has been dissolved in vinegar. The *Pharmacopaeia Londinensis* of 1691 provides detailed instructions on how to grind coral or pearls using an iron mortar, how to dissolve them in a precise amount and strength of vinegar and then how to precipitate the mixture by adding Oil of Tartar, Vitriol, or Sulphur. Due to the increased time and effort needed to produce this substance, magisteries of both coral or pearls are listed at a higher price in each inventory than bulk natural forms of the substance.

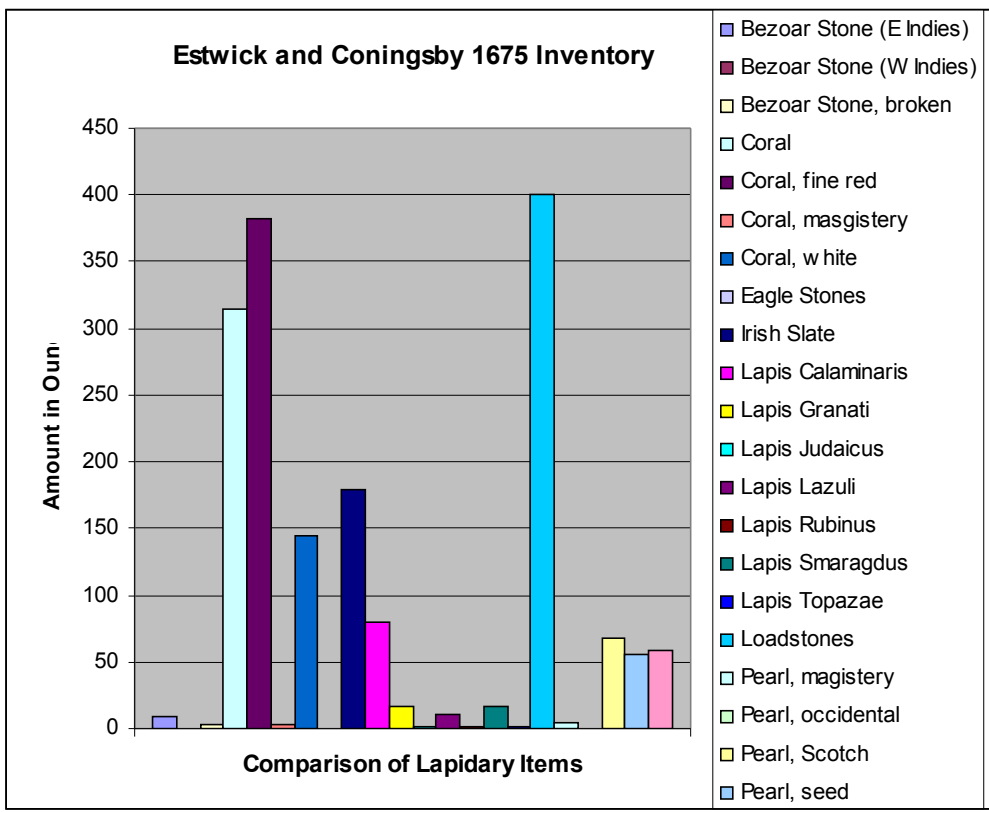
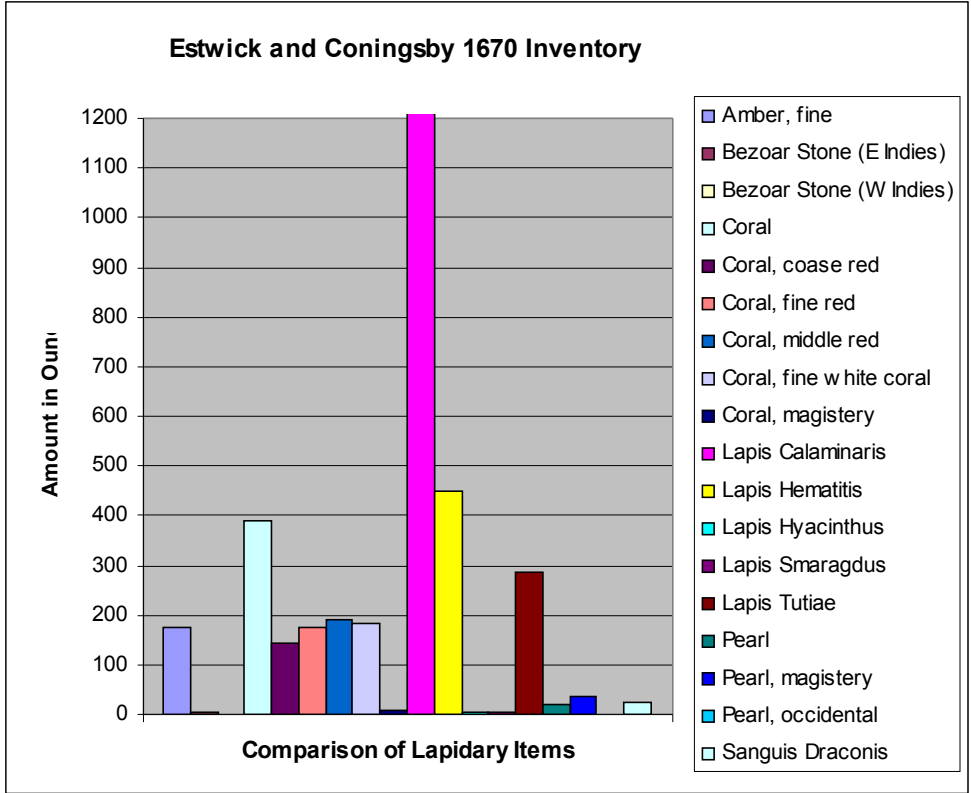
The lapidary items found in the Estwick and Coningsby records can also be analyzed as to the quantities of each that were present in the shop in West Smithfield in

any particular year. Had the documentary evidence been confined to just one year or inventory it would have been impossible to discern whether stock of a particular item had merely run low on that particular date, but since five complete inventories exist for five different years, it is possible to draw some conclusions about patterns of demand and use of particular lapidary items. Charts which visually represent the combined amounts of various lapidary substances present in each inventory are useful for this comparison:

Figure 4.5 Lapidary Materials in the Estwick & Coningsby Inventories







As one might expect, the quantities of lapidary substances contained in these inventories largely coincide with the items of the same nature most commonly touted in printed manuals of popular healing. In both cases, coral and pearl are found and recommended in large quantities for all manner of afflictions, red coral in particular. Comparatively, the more expensive magisteries of each, as well as the more valuable oriental pearls, appear in greatly reduced quantities, perhaps indicating that they were less affordable to consumers. Gemstones traditionally valued for their use in medicinal jewelry, such as sapphire, emerald, ruby, garnet, and topaz, also appear in comparatively small quantities. This is likely due to their price, often held at 5s. 4d an ounce, combined with the fact that they were more commonly recommended to be used externally and would therefore more likely to be purchased from a lapidary, goldsmith, or jeweler.

Analyzing the quantities through comparative charts of this nature also draws attention to several lapidary substances that seem to be disproportionately represented, in particular, loadstones or hematite, *lapis tutiae*, *lapis calaminaris*, and *sanguis draconis*. Each of these items, however, is either a metal or a metalloid and therefore extremely dense and heavy compared to other lapidary items. Loadstones or hematite, as a form of iron oxide, is not only extremely heavy, but was also commonly used in amulets or as whole stones held in the hand. *Lapis tutiae*, zinc oxide, and *lapis calaminaris*, zinc carbonate, are also very heavy, dense, metals that one would expect to see disproportionately in a comparison of weight; yet, the amount of “eight hundredweights” that appears in both the 1668 and 1670 inventories initially seems an impossibly large amount. However, when one considers its specific gravity of 4.4, this weight would only yield 2.9 cubic feet of area, the equivalent of a few buckets or perhaps a wooden barrel.

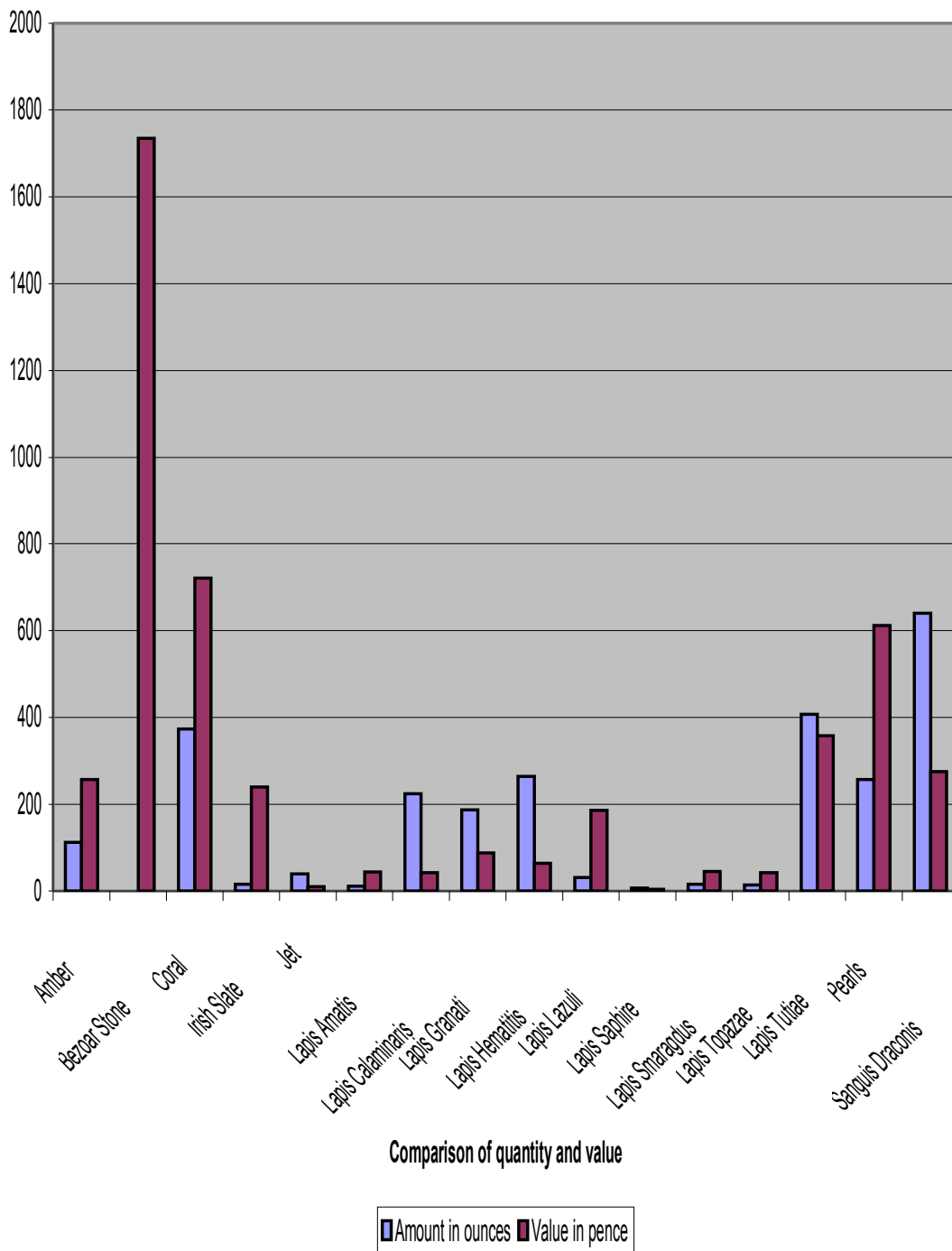
The amount of both *lapis tutiae* and *lapis calminaris* are further explained in that they were often used to make plasters or ointments for irritated skin, ulcers, or other wounds, therapeutic mixtures popularly known today as calamine lotion.

The lapidary materials found listed within the inventories can also be analyzed according to price versus quantity. From this comparison it is readily apparent which items combined low price with high quantity suggesting large, popular consumption. It is also apparent that some items, such as Bezoar stones, were enormously expensive even in small quantities.

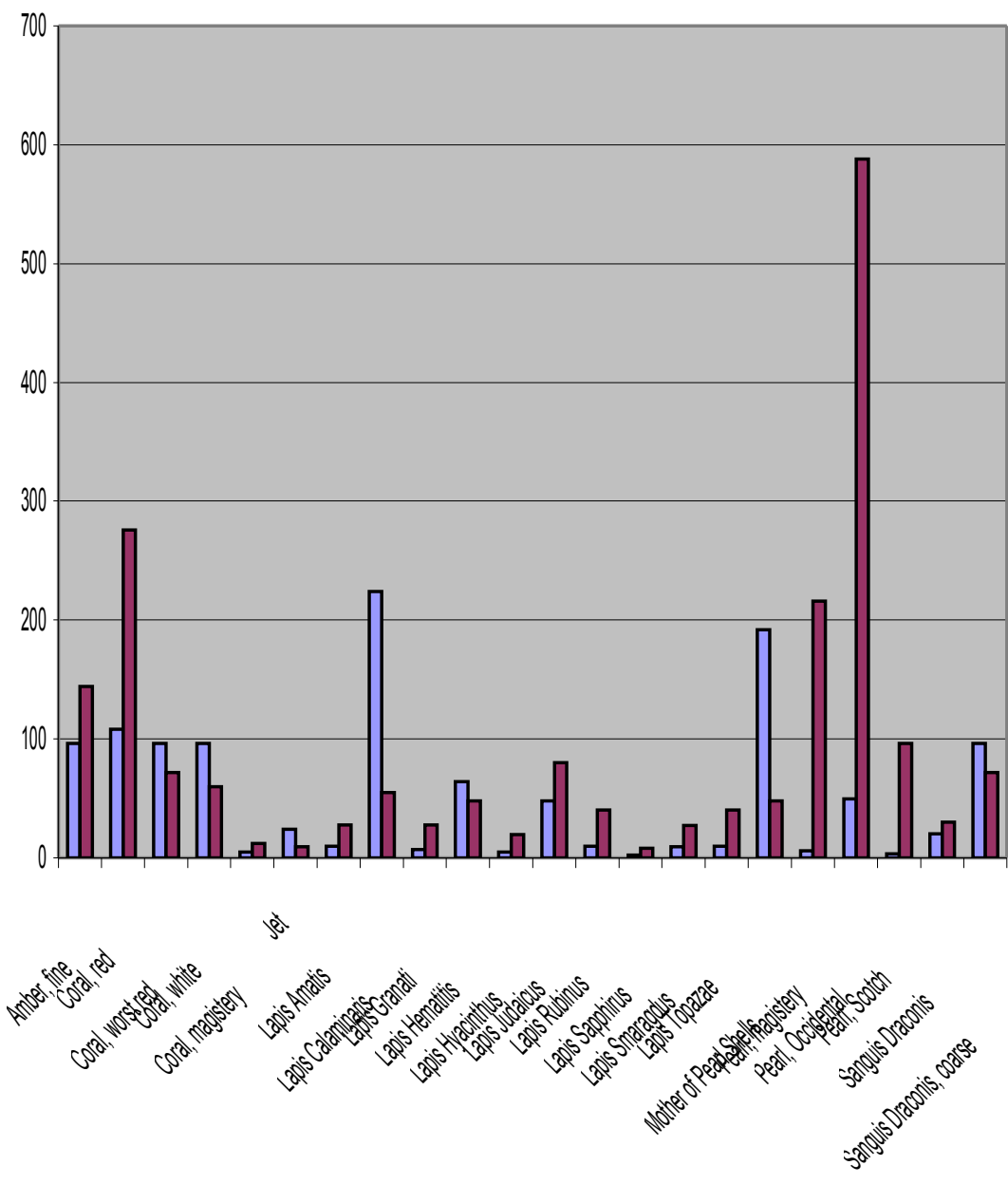
While these records demonstrate that the materials needed to formulate lapidary cures were widely available to seventeenth-century consumers through London apothecaries, they do not indicate the prices charged or paid at retail by the patrons of these shops. Since the measurements of apothecary items are given in avoirdupois weights, the units in which apothecaries bought their wares, it is logical to assume that any values provided for these wholesale weighs are also wholesale prices. Without any notation that might indicate the selling price of these items, it is impossible to estimate the markup on the wholesale ingredients. Popular healing manuals printed in the decades before and after the compilation of these inventories show growing dissatisfaction with the prices being charged by suppliers of apothecary remedies. John Cooke's *Unum Necessarium or The Poor Man's Case* published in 1647 argues not only that physician's fees are well above the means of ordinary people, but also that many poor people died because they were unable to afford the prices charged by apothecaries, who he contended often sold goods at a five hundred percent profit.²⁶⁸ Gideon Harvey, who styled himself

²⁶⁸ John Cooke, *Unum Necessarium or The Poor Man's Case*, 1647.

Estwick and Coningsby 1661 Inventory



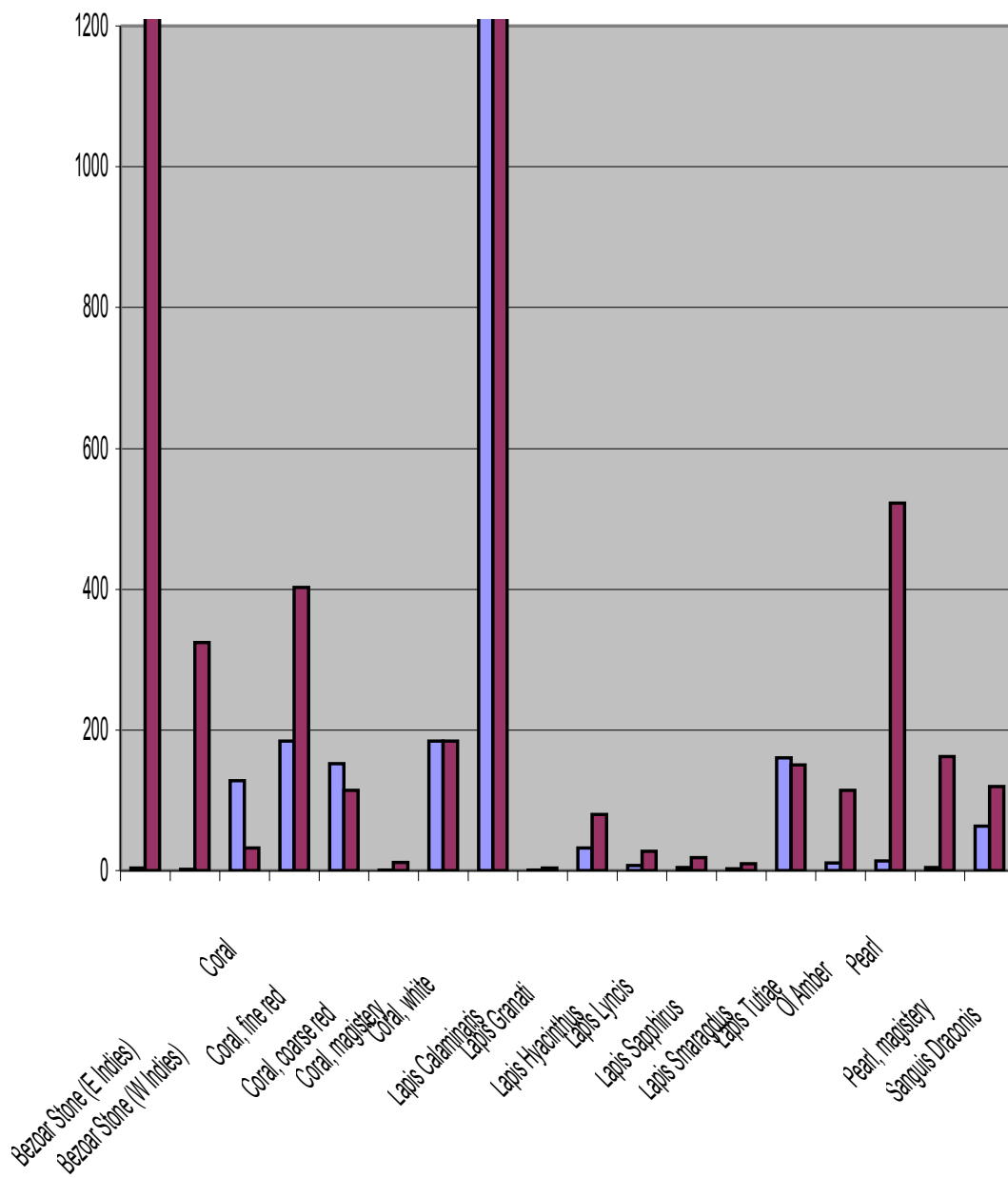
Estwick and Coningsby 1664 Inventory



Comparison of quantity and value

■ Amount in ounces ■ Value in pence

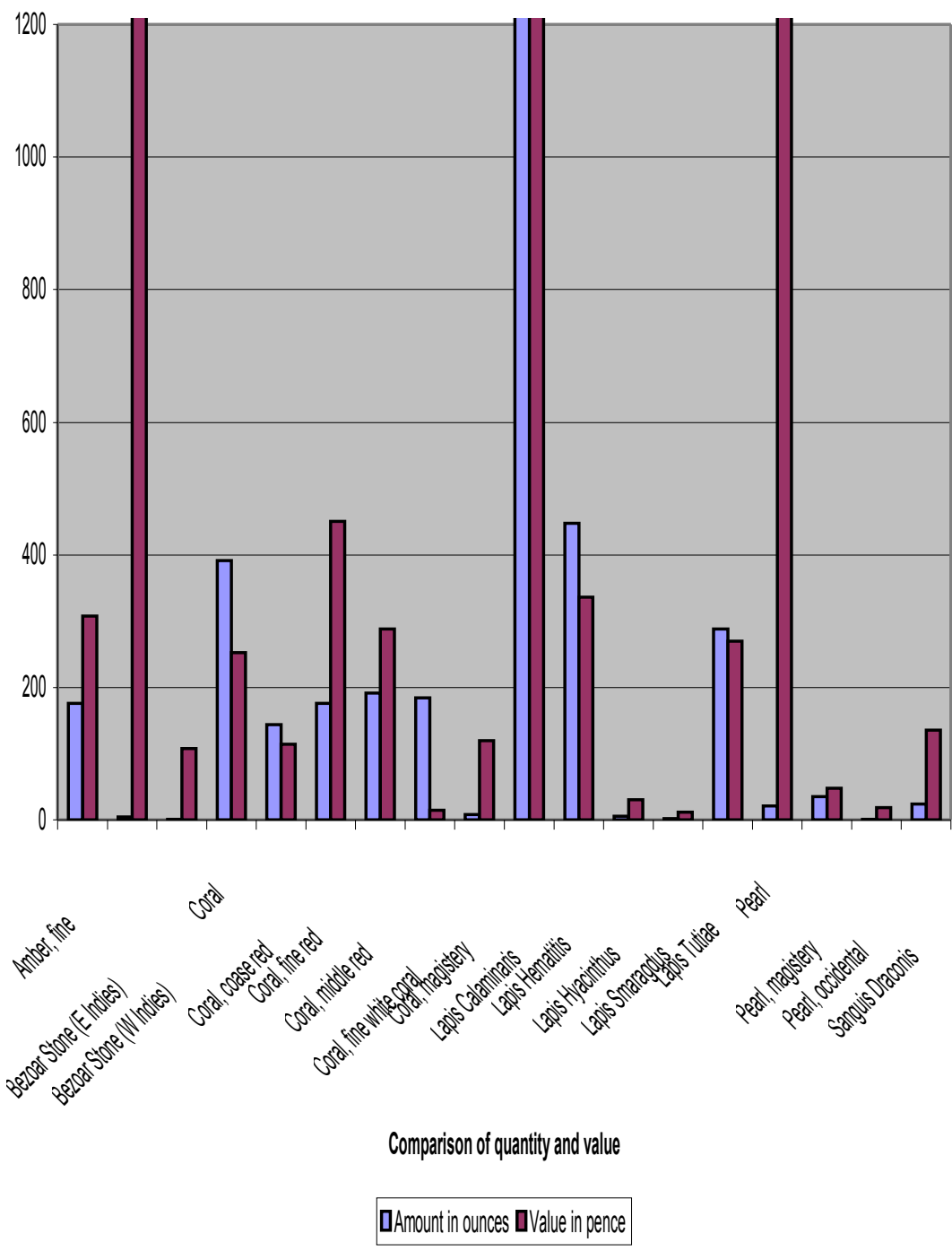
Estwick and Coningsby 1668 Inventory



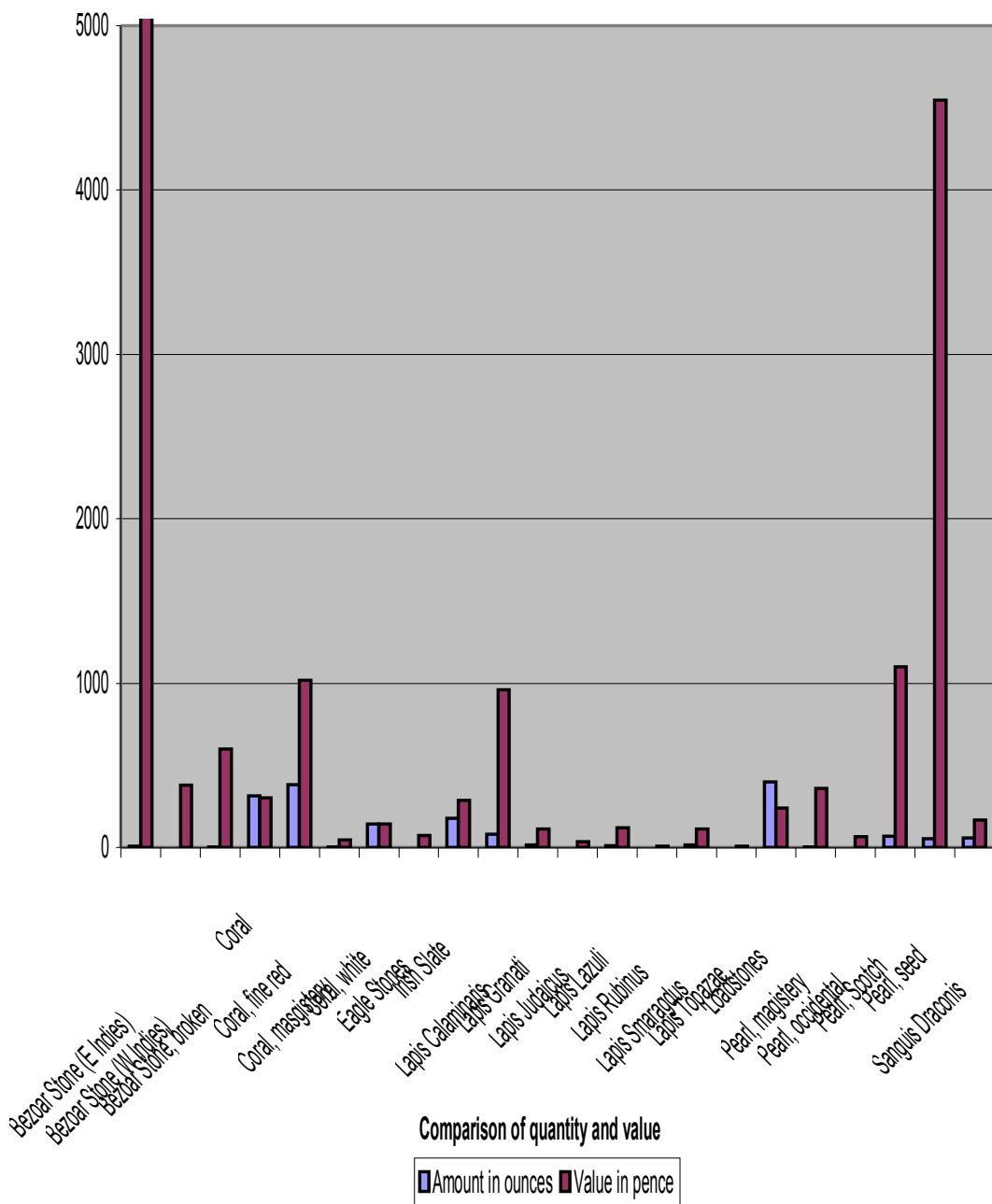
Comparison of quantity and value

■ Amount in ounces ■ Value in pence

Estwick and Coningsby 1670 Inventory



Estwick and Coningsby 1675 Inventory



‘Physician in Ordinary to his Majesty’ is credited for authoring several manuals specifically directed to those who wished to avoid paying the “extravagant rates” physicians and apothecaries charged to prescribe and formulate various cures and medicines.²⁶⁹ Harvey’s chief argument for producing one’s own medicinal cures at home rather than purchasing them from an apothecary is based on the idea that, due to sharply inflated prices, the resulting high bills could potentially bankrupt even a prosperous family.

A fleeting glimpse at prices charged by a seller, the apothecary bills of the Coke family, an aristocratic household in late seventeenth- and early eighteenth-century London, provide us with some understanding of the services, prepared cures, and fees of London apothecaries.²⁷⁰ The household of Lady Mary Coke, daughter of Philip Stanhope, 2nd Earl of Chesterfield, and first wife of Thomas Coke, Vice-Chamberlain to Queen Anne and George I, cannot be said to be in any way representative of the average English family and its circumstances. However, much that is revealed by an examination of these surviving bills is applicable to a general inquiry into the use of lapidary medicine as provided by apothecaries. As a collection which spans the years 1695 to 1724, these accounts also provide some idea of how apothecary prices and the price of some lapidary medicines might have increased over the span of two decades.

A review of the items most commonly found in these bills reveals that the majority of named items and cures were prepared medicines of plant-based materials. However, I did find expenditures for three popular lapidary cures: Gascoins powder, pearl juleps, and bezoar powder. Gascoins powder is a prepared medicine which includes

²⁶⁹ See, Gideon Harvey, *The family-physician, and the house-apothecary*, 1678.

²⁷⁰ Add 69979.

several traditional lapidary items among its ingredients. Harvey Gideon offers a recipe in his *The family-physician* published in 1678:

Take prepar'd Pearl, Crabs Eyes, red Coral, white Amber, Harts-horn, Oriental Bezoar-Stone, of each a quarter of an ounce; of the black tops of Crabs claws, one ounce and half; beat them all into powder, and mix them. The mixt Powdery ou may make into Balls, by incorporating it with Gelly of Hartshorn, or thin mucilage of Gum-arabick extracted with Carduus-water²⁷¹

The Coke family commonly purchased doses of Gascoins powder in multiple doses, each at the standard price of 1s.

A shilling for a dose of Gascoins powder is a sum that is far less than the 3s. 6d. price recorded as the cost of a standard pearl julep, or even the 2s. 6d. charged for a pearl julep given to a child. The Coke family bills record that pearl juleps, prepared with an indeterminate amount of pearl, were routinely purchased for all members of the family, particularly Thomas Coke. A julep in this sense was simply a sweet drink intended to disguise the taste of medicine. The bills further indicate that the household occasionally purchased a “pint bottle pearl julep” for 4s. 6d. Perhaps the most interesting aspect of the purchase of pearl juleps is that their price consistently remained at 3s. 6d. for a period of twenty years, even when supplied by several different apothecaries. In comparison to other items commonly listed, such as purging pills at 2s., vomiting powder at 2s., and expectorating mixtures at 3s., prices for a dose of Gascoins powder seem relatively cheap and a standard pearl julep comparatively dear.

²⁷¹ Gideon Harvey, *The family-physician, and the house-apothecary containing I. Medicines against all such diseases people usually advise with apothecaries to be cured of, II. Instructions, whereby to prepare at your own houses all kinds of necessary medicines that are prepared by apothecaries, or prescribed by physicians, III. The exact prices of all drugs, herbs, seeds, simple and compound medicines, as they are sold at the druggists, or may be sold by the apothecaries, IV. That it's plainly made to appear, that in preparing medicines thus at your own houses, that it's not onely a far safer way, but you shall also save nineteen shillings in twenty, comparing it with the extravagant rates of many apothecaries*, 1678

The third lapidary item of note to appear in the Coke bills are entries for doses of Bezoar powder. One bill dated 1705 reveals that on February 25 two doses of Bezoar powder were delivered to “Wife Coke” and that four more were delivered to the household two days later on the 27th of the month. At a standard price of 10s. per dose, this lapidary cure is by far the most expensive ordered by the household, even in comparison with payment for medical procedures apparently preformed by the apothecary, such as bloodletting, for which cost only 2s.

The next category of evidence about lapidary medicinal use I wish to address in this chapter is archeological. Compared to archival sources, archaeological evidence in the form of jewelry is limited. Due to the value of their physical components, relatively few pieces of medieval or early modern jewelry made of precious metals and containing gemstones have survived to the present day. Loose gemstones or intact articles of jewelry were often used as collateral or as disposable wealth during this period and the precious components of jewelry, disassembled and melted down, often served as a currency or reserve funds in times of economic hardship. Additionally, the whims of changing fashions often resulted in articles of jewelry being melted down so that gemstones could be set into new, more fashionable designs or refashioned into different items altogether depending on popular trends. Those articles of jewelry that survived from this period into the modern day are usually items lost or forgotten and accidentally found in the modern age, such as a fourteenth-century gold ring found in the ruins of the Palace of Eltham, which was set with a small cabochon ruby and five crystalline diamonds.²⁷² Another source of medieval jewelry still in existence is tombs or graves,

²⁷² Joan Evans, *English Jewellery from the Fifth Century A.D. to 1800* (London, Methuen & Co. Ltd., 1921), 63.

especially the burial places of royalty and church officials. When the tomb of Edward I of England was opened in 1774, he was found to be wearing a jeweled ring brooch and jewel-embroidered clothing. Other articles of jewelry survived through the centuries either because they were part of the crown jewels or because they remained in the hands of a single family that had the good fortune not to run into financial problems, sufficient to cause such valuable articles to be sold or broken down. The Glenlyon brooch is one example of medicinal jewelry that was preserved in this manner by the Cambell family of Glenlyon, Scotland. This fourteenth-century example of a circular brooch was crafted in silver by an unknown Scottish artisan and contains several crudely set pearls and gemstones. The brooch is inscribed with the traditional names of the Magi, *Caspar Melchior Baltazar*, in addition to the word *Consummatum*, which was commonly believed to be the last word of Christ and was considered to be powerful and effective talismans to insure health and general well-being. Whether the Glenlyon brooch was never refashioned because of its comparatively low material value, the power of its inscription, or personal affection of the members of the Cambell family is impossible to say but it was kept with the family for generations before finally being acquired by the British Museum in 1897.

Many articles of medieval and early modern English jewelry housed in the British Museum and the Victoria and Albert Museum in London are the products of private bequests. Most of the medieval and early modern rings, the items of jewelry which most commonly survive from this period, held in the British Museum were donated by Sir August Wollaston Franks, a nineteenth-century medieval antiquary.²⁷³ In

²⁷³ For details of this bequest and a list of the rings housed in the British Museum see, O. M. Dalton, *Franks Bequest. Catalogue of the Finger Rings. Early Christian, Byzantine, Teutonic, Medieval and Later. Bequeathed By Sir Augustus Wollaston Franks, K.C.B., in which are included the other rings of the same periods in the museum.* London, British Museum, 1912.

much the same manner, many of the examples of English finger rings housed in the Victoria and Albert Museum are the gifts of private individuals, including Dame Joan Evans, historian of medieval jewelry and art.

Several items of jewelry exist within both of these collections that may enrich our understanding of the stones and articles of jewelry described in the Sloane Lapidary, as well as other materials of lapidary medicine mentioned in English print lapidaries.



Figure 4.7 A silver gray toadstone set in gold. Possibly English. c. 1600-1700.
© Victoria and Albert Museum

In particular, the collection of the British Museum contains several examples of toadstones rings. As one of many fabulous stones found in medieval or early modern periods, surviving examples of toadstone jewelry allow historians to judge what materials might have been used under this label. As these rings demonstrate, the majority of items described as “toadstones” in early modern sources are, in fact, the fossilized teeth of the fish genus *Lepidotes*. A close examination of the toadstones set into rings at the British Museum reveals that traces of the roots of these teeth can usually be seen beneath the glossy, rounded top surface. These surviving examples also demonstrate the wide varieties of colors to be found in medieval and early modern toadstones, thereby accounting for the varying and conflicting physical descriptions that appear in lapidaries. The author of the Sloane Lapidary states that while toadstones are not of great worth, their value is related to their size and “beauty.” In seeming accord with this principle, many of the stones found set in gold at the British Museum and the Victoria and Albert Museum are examples which exhibit a pale luminous gray finish, almost like

that of a pearl, while the roughly shaped and textured examples are often set in silver.

(See, Figure 4.7)

Extant rings also provide us with insight into the physical appearance of medieval and modern gemstones. The author of the Sloane Lapidary states that stones are valued according to the depth and brightness of their color, the clarity of the stone and the absence of spots or blemishes, and the proportion or cut of the stone. However, surviving

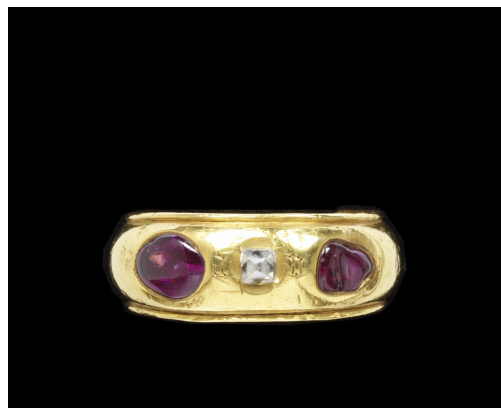


Figure 4.8 Engraved gold ring set with a point-cut diamond and rubies. England, 1400-1500. © Victoria and Albert Museum

examples show that stones with less than perfect clarity and proportion were commonly utilized by medieval and early modern jewelers and often set in high-grade gold. (See, Figure 4.8) Several rings donated to the museum illustrate the appearance of the lesser valued black diamonds as well as the “pointed” or pyramid shape popular throughout the middle ages and early modern periods. An examination of these rings also reveals that the pyramid shape of some small diamonds is the natural form of uncut diamond crystals, rather than the skillful work of a lapidary. (See Figure 4.8)

My final category of evidence is iconographic. Effigies and portraits are seen as valuable evidence of the manner in which particular articles of jewelry was worn as well as an indication of changing fashions in jewelry and clothing. For example, the effigy of the Archbishop Chichele in Canturbury Cathedral shows the bishop wearing a personal ring on his thumb as well as his Episcopal ring. However, the use of this type of source is not



Figure 4.9 Engraved gold ring set with half an uncut diamond crystal. c. 1450-1525. © Victoria and Albert Museum

without methodological problems in that medieval artists did not always strive for exact representations of clothing or jewelry and works such as effigies were often produced decades after the death of their subjects. Portraits from sixteenth- and seventeenth-century England, however, present fewer methodological issues since jewelry was more often faithfully portrayed at this time, so much so that on more than one occasion the identity of the individual represented has been determined by the coat of arms on signet rings. For example, the details of the armorial inscription of the Marquis of Winchester can be identified in his portrait held by the Society of Antiquaries of London. Early modern portraits are also particularly important to a study of jewelry and gemstones in that they are often the only surviving representations of items now lost to historians. A brooch called "The Brethren," comprised of three large cabochon balas rubies, a great pointed diamond, and pearls, was taken from its original owner, Charles the Bold of Burgundy, and added to the royal regalia of England by Henry VIII. It was kept intact by Elizabeth I; but when a trend for the refashioning of jewels swept Europe, James I of England commissioned an Edinburgh jeweler to refashion it.²⁷⁴ The only record of "The Brethren" now exists in a portrait of Henry VIII, which clearly depicts him wearing this brooch.

In the study of lapidary medicine, the use of portraits, woodcuts, and other drawings provides historians with visual confirmation of the medicinal uses of jewelry described in written sources. The "little chayne of corral and mother of pearle" listed in the inventory of Mary Queen of Scots was most likely given to a child because red coral was thought to protect the health of infants and young children. While this item can be

²⁷⁴ Frances Rogers and Alice Beard, *5000 Years of Gems and Jewelry* (New York: J. Lippincott Company, 1947), 125.

recognized as having medicinal value, the description leaves us with little detail about its appearance. A painting by an artist only known as F.F. entitled *Portrait of Three Tudor Children*, produced around the same time as the compilation of this inventory, illustrates type of coral jewelry worn by children of the late sixteenth century. (See Figure 4.10) The two children on the left side of this portrait wear several strands of red coral beads around their necks and one also bears several strands around her wrist. The beads appear to be linked together by small gold beads or findings in a strand or perhaps even the “chain” described in the inventory. The prominent display of red coral would have been recognized as a communicative symbol of protection and good health by contemporary viewers familiar with this cultural practice. Here the abundant strands of coral are not merely a visual statement of the wealth of these children, something which could have been communicated with other, more valuable gems; in fact the male child on the far left is without any particular ornament except the decorative buttons of his doublet, possibly suggesting a gender distinction in the use of coral to be considered shortly.

From the previous chapter readers may recall John Pechey, who details how red coral may be used both externally and internally to combat convulsions, nightmares, falling sickness, and teething pains in young children. A further use for coral is described in a section that reads:

Nurses in *England* hang it about Children's Necks, to promote Cutting of the Teeth; for, by reason it is soft and cold, Children love to have their Gums rub'd with it; and so the Eruption of the Teeth is render'd more easie²⁷⁵

Iconographic evidence found in early modern children's portraits produced in England demonstrates the manner in which coral was typically worn and used as “teething sticks.”

²⁷⁵ John Pechey, *The compleat herbal of physical plants containing all such English and foreign herbs, shrubs and trees as are used in physick and surgery*, 1694.

One such English work by an unknown artist, entitled *Portrait of a Boy with a Coral Rattle*, can be dated to the mid-seventeenth century. (See Figure 4.11) The portrait shows another upper class child wearing a short strand of red coral beads, a type that is commonly depicted in portraits of children found in Italy, Germany and the Netherlands from the thirteenth through the eighteenth century. The toddler in this painting is shown holding a golden rattle with a large branch of red coral protruding from the end, presumably for use as a “teething stick.” The rattle is tied to the child’s waist by a thick red sash as he hold it forth towards the viewer, as if to call attention to the significance of its meaning. The portrait is obviously meant to show a well-cared-for child surrounded by common articles daily life such as a wheeled, wooden walker to provide support his legs as he learns to walk, a pet dog to amuse and guard him, a coral necklace to protect him from a bevy of childhood illnesses, and a rattle with its practical “teething stick.”

Another English work, one by George Romney painted at the end of the seventeenth century entitled *Mrs. Marton and her son Oliver*, shows the continued use and popularity of such items. (See Figure 4.12) The child in this portrait also clasps a rattle with a comforting coral “teething stick” as if through familiar action. It is important to note that the dress and presentation of the children in these portraits were both planned and deliberate in their communication with the viewer. In each of these images, the use of coral was not only chosen to be part of the visual message, and the eye of the viewer is often directed towards its significance.

These depictions also reveal other details not contained within written sources about the use of use of coral by English children. This iconographic evidence confirms that, like most other forms of lapidary medicine, the use of coral beads or amulets was

employed in the case of both male and female children. At least one child in *Portrait of Three Tudor Children* is clearly female and the children shown in the other two paintings are identified by their titles as male. Judging from these portraits as well as other iconographic evidence from seventeenth- and eighteenth-century English paintings, it appears that while both sexes wore the coral as infants and toddlers, as directed by manuscript and print lapidary manuals, girls alone continued to wear it into middle childhood. Male children, such as the Tudor boy depicted in this portrait, are rarely shown wearing coral past the stage of toddler. Perhaps the discontinued use of coral for male children is an indication that young boys were encouraged to reflect masculine qualities and virtues and therefore to dispense sooner with childish associations.

Much like pieces of a puzzle, each of these seven categories of evidence provides us with insight into the practical use of lapidary healing. Wills from medieval and early modern England demonstrate who might have possessed and inherited articles of medicinal jewelry, just as legal cases record those who fought over these items as valuable property. A lapidary's manual not only provides some understanding of the practical side of the sale and production of items of lapidary medicine, but also acts as a window into common cultural practices and beliefs about gemstones. Furthermore, an examination of the sources used by the author of this manual reveals the roles of both manuscript and print culture in transmitting ideas of lapidary medicine in seventeenth-century England. Apothecary inventories represent documentary evidence that pharmaceutical items based on gemstones and other items traditionally classified as "stones" in popular healing manuals, were commonly available to consumers. Finally, archeological and iconographic evidence illustrate the appearance and use of items

described in written documents, allowing us to “see” into the past. While we can never hope to recreate a perfect image of the practical application of lapidary medicine in England, taken together, these documents and material evidence combine to provide a more detailed understanding of specific beliefs and practices related to the use of this form of healing. In doing so, they help to place the practice of lapidary medicine within the larger context of the history of medieval and early modern medicine.



Figure 4. 10 Portrait of Three Tudor Children. By F.F. Rafael Valls Gallery, London. Portrait of three children, two of whom wear strings of red coral beads. English, sixteenth century.



Figure 4.11 Portrait of a Boy with a Coral Rattle by an unknown painter. Norwich Castle Museum and Art Gallery. English school, c.1650-60.



Figure 4.12 *Mrs. Marton and her son Oliver* by George Romney. Southampton City Art Gallery, Hampshire. 1767-1794.

Figure 4.13

A gold rattle with a teething stick of red coral. London, England, 1811-12.
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Epilogue

Widespread belief in lapidary theory faded from the canon of Western medicine during the eighteenth century and soon came to be dismissed by scholars and medical practitioners as simply another example of superstition and quackery in pre-modern healthcare. The complex social, cultural, and intellectual developments responsible for this fall from grace must be left to a future study, but I do wish to suggest that these changes did not entail a complete erasure of the idea of lapidary medicine nor a halt of all practices related to the therapeutic use of “stones.” Despite its absence from mainstream medical and pharmaceutical texts, lapidary theory remained firmly entrenched within popular consciousness, manifest in cultural practices such as the wearing of protective stones corresponding to an individual’s birth month. More recently, the medical application of lapidary materials experienced a revival in the New Age movements of the late twentieth century and continues to be practiced today under the label of “alternative” healing.

Twenty-first century lapidary medicine exists in a variety of forms, from long-standing remedies found in every local drugstore to therapies based upon the “energy” of crystals that are comparatively new to the West. A search for “crystal healing” at the Amazon.com yields a result of nearly three-thousand modern-day “lapidaries.” Many of these texts are based upon Ayurveda, a system of Indian healing that dates from the Vedic period, and therefore bear little resemblance to Western lapidary theory as it developed in the medieval and early modern periods. Other works, however, rely upon traditional Western ideas and principles. Many of these texts read like twenty-first century versions of Damigeron’s *De virtutibus lapidum* or the pseudo Albertus Magnus

Book of Secrets. While these contemporary lapidaries include stones that were unknown in medieval and early modern Europe, such as apatite, chaorite, fire opal, and zoisite, the physical and emotional concerns they address are very much the same: eye complaints, acne, mental stability, emotional balance, effective social interaction, fertility, conception, sexual attraction, and the promotion of love. Today's lapidaries, as one might expect, focus on current issues that might be useful to their modern readers, such as allergic reactions, rates of metabolism, high cholesterol, radiation, and office politics. But remedies for the same concerns that troubled pre-modern societies continue to be offered as well, including epilepsy, drunkenness, snakebites, inclement weather, and even the threat of burglars and thieves.

Lapidary-based cures remain a significant aspect of contemporary healing, as exemplified in a variety of items found in drugstores, health spas, and many beauty and cosmetic lines. Within the range of materials included in the category of "stones" as accepted by classical, medieval, and early modern authors, one finds many of the metals and minerals contained today in vitamin supplements, such as iron, zinc, copper, and magnesium. Forms of zinc similar to the "stones" *lapis tutiae* and *lapis calaminaris* sold in early modern apothecary shops are now utilized as the active ingredient in sun block, throat lozenges, breath mints, and the pink calamine lotion most often associated with soothing a childhood bout of the chickenpox. In addition to the salts, sodas, and pumices now commonly used as laxatives and exfoliates, one of the most popular early modern lapidary therapies that continues in the modern age is the use of calcium carbonate as a remedy for heartburn or acid indigestion. Early modern popular advice manuals and apothecary inventories indicate that large quantities of seed pearls were held in stock to

be ground and ingested as a cure for stomach ailments, such as the “perle julep” frequently ordered by the Coke household in seventeenth- and eighteenth century London. In this manner, pearls served as a natural source of calcium carbonate, which is still utilized as the chief active ingredient in modern antacids such as Tums and Rolaids. Other therapeutic items frequently found in drugstores that operate according to lapidary theory are magnetic bracelets purported to ease joint and arthritis pain, treatments that coincide with the properties ascribed to the use of *magnes* or natural loadstones as found in pre-modern lapidaries.

Lapidary theory also survives in a variety of high-end cosmetic products and modern spa treatments. The Aveda Corporation’s skincare line currently offers a “Tourmaline Charged” moisturizing lotion and facial cleaner that is purported to work largely on the basis of finely ground particles of the gemstone tourmaline, which the company describes as “a naturally energizing mineral.”²⁷⁶ Although these products equally rely on plant and marine extracts in their formulation, advertisements solely feature radiant crystals of vibrant pink and green tourmaline in its natural state. Another specialty skin care company, La Mer, produces an eye “concentrate” that sells for over three hundred dollars per ounce and is advertised as “Rich in hematite, a naturally magnetic mineral known for its energies.”²⁷⁷ This emphasis on the beautifying properties of minerals continues with a number of cosmetic lines specializing in products comprised of “rare earths” or “pure” minerals, as opposed to modern chemical formulations.

Additionally, several skin care lines now offer topical acne treatments largely based on

²⁷⁶ http://www.aveda.com/templates/products2/spp.tmpl?CATEGORY_ID=CATEGORY10611&PRODUCT_ID=PROD5883 (accessed March 29, 2009).

²⁷⁷ http://www.cremedelamer.com/templates/products/sp_nonshaded.tmpl?CATEGORY_ID=CATEGORY5782&PRODUCT_ID=PROD11863 (accessed March 29, 2009).

the properties of sulfur, a chemical element often classified as a “stone” in pre-modern lapidaries due to the crystalline form of its natural state. Even hair treatments rely on the use, or at least the advertisement, of lapidary substances. The “Break’s Over” strengthening shampoo and conditioner, part of the Herbal Essences line found in drugstores and large discount chains, claims to be formulated “with anti-breakage potion, and a fusion of coco, mango, and pearls.”²⁷⁸ Lapidary theory is also evident in the “Hot Rock Massage” techniques offered by many spas and salons, a treatment that relies on one of the most common therapeutic techniques found in medieval and early modern lapidaries: the application of heated stones to particular body parts. Examples could be multiplied for many pages but I shall stop here.

In the end, my inquiry into lapidary medicine, a forgotten aspect of pre-modern healthcare, serves to remind us of the ingenuity of humankind and of the long history of inquiry, trial, and error that preceded our current state of medical and scientific knowledge. A comparison of past and present applications of lapidary theory reveals that, despite these advances in modern pharmacology and chemistry, people are still fascinated by the products of our natural world. Radiant crystals and luminous pearls still hold great allure, as does the idea that rare earths or pure minerals somehow represent more effective medical and cosmetic treatments than those offered by modern science. Surely the human yearning to be at one with nature contributes to the enduring popularity of lapidary theory, which is found in some form in all known cultures and civilizations.

Appendix A: Jewelry items listed in Sloane 2539

²⁷⁸ http://www.herbalessences.com/us/collections/breaks_over/shampoo.jsp (accessed March 29, 2009).

25th of January 1670**Units in Troy
Weights**

	oz.	d.	gr.
Made A Dublett Ring weight	0	2	0
Made a Amethyst and a pearl Ring weight	0	3	0
A plaine Slight Stone Ring weight	0	0	4
A seal ring A ring with an agate and a 3 stone diamond ring weight	0	4	12
An amethyst Ring weight	0	1	14
A Lapis Lazolloy ring	0	1	14
Made rings weight	0	4	12
Made an Amathos ring weight	0	1	6
A Seal ring for Mr. Marshall	0	2	6

11th January 1671

Made an amethyst Ring	0	2	10
Made a colett for My Uncoll Ring weights	0	5	15
Made an onox Ring weight	0	2	12
Made an Amethyst Ring weight	0	2	20
Made 4 slight stone rings	0	6	6
Made a plain Lockett weight	0	2	15
Made another Plaine Lockett weight	0	1	20

5th February 1671

A Mourning Ring weight in gold	0	2	18
Redditus A old stone diamont Ring	0	1	6
Redditus Mr. George Turquoise Stone Ring	0	1	15

15th February 1671

Made a 7 stone diamond ring weight	0	2	19
Made an opall Ring weighs	0	1	6
Made a dublett ring weighs	0	1	18
Mr George Turquoise Stone Ring	0	3	0
Made a 3 stone Diamond Ring weighs	0	2	9
Made a Ruby Dublett Ring weight	0	2	3
Made a Single stone opille ring weight	0	1	8
Made a Love Lockett	0	2	3
A diamond Ring with 9 diamonds	0	3	0

26th of April 1671

Redditus 2 stone rings weight	0	1	18
Redditus A large stone ring weight	0	5	16
Redditus an old Turquois stone ring weight	0	1	6
Redditus My Uncoll diamond Ring	0	2	12
Redditus 2 old diamont Rings weight	0	3	10
Redditus 2 old seal Rings weight	0	7	14
Made A Turquoise Stone Ring	0	2	6
Made A garnett ring with 2 pieces weight	0	1	0
Made An amethyst Ring	0	3	14
Made 2 diamond Rings weight	0	3	18
Made a 5 stone diamond Ring	0	1	21
Made a garnett ring and amethyst Ring dublet	0	3	15
Made a 7 stone diamond ring	0	3	9
Made a 3 amethyst Ring and opall ring	0	3	6
Made a 7 stone diamond ring weight	0	2	6
Made an onyx ring weight	0	2	8
An Amethyst Ring weight	0	2	3
Three haire rings weight	0	3	3
Made 2 Turquoise Stone Rings weight	0	3	0
Item An amethyst Ring weight	0	2	3
Made a Ring with an amethyst and 2 diamonds of a ring with a garnett dublett and 2 diamonds	0	2	20
A plain gold locket weights	0	2	0
Made A Ring with 2 Rubyos weighs	0	3	0
Made a Ruby Dubblet ring weight	0	1	3
A Carnelian Ring weight	0	3	18
Made 3 Amethyst Rings	0	5	0
Made a plain gold ring weight	0	1	19
Made Mr. Pickett A Turquois stone Ring	0	1	0
Made 2 New Rock Turquoise Stone Rings	0	2	12

22nd August 1671

Redditus A Mourning Ring weight	0	2	12
Redditus an old Lockett and old stone Ring weight	0	3	10
Made Ms Susan ring with 7 diamonds weight	0	2	2
Redditus A Mourning Ring weight	0	2	2
Made A opall past	0	2	14
Made an Amethyst ring weight	0	1	14

12th September 1671

Redditus a Mourning Ring weight	0	2	10
Redditus Mr. Preston old ring weight	0	2	0
Redditus 2 Ring weights	0	2	0
Redditus 2 Slight Ring weights	0	2	0

30th September 1671

Made an Amethyst Ring weight	0	1	11
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1st November 1671

Redditus 5 old Rings weight	0	7	6
Redditus a hoop ring and onex stone weight	0	4	14

English Troy Weights

troy grains	pennyweights	Ounces	pounds
1			
24	1		
480	20	1	
5,760	240	12	0

English Apothecary Weights

troy grains	scruples	Drams	ounces	pounds
1				
20	1			
60	3	1		
480	24	8	1	
5,760	288	96	12	1

English Avoirdupois Weights

troy grains	drams	Ounces	pounds	stone	hundred- weight	Tons
1						
27,344	1					
437.5	16	1				
7,000	256	16	1			
98,000	3,584	224	14	1		
784,000	28,672	1,792	112	8	1	
15,680,00	573,440	35,840	2,240	169	20	1

Appendix C: Lapidary items in the inventories of Estwick and Coningsby

October 1661

<i>Modern name for stone</i>		Quantity, price per unit	<u>Sum total</u>		
			£	S	d
<i>Jet</i>	Jet	2 ½ lb. at 4d.	0	0	10
<i>Zinc oxide, rock tutty</i>	Lapis Tutiae	25½ lb. at 14d	1	9	9
<i>Coral</i>	Coral, red	14 lb. at 14d.	0	16	4
<i>Coral</i>	Coral, white	1 lb. at 12d.	0	0	12
<i>Coral</i>	Coral, fine	5¾ lb. at 2s. 8d.	0	15	0
<i>Pearls, freshwater</i>	Pearls, Scotch	16 lb. at 2s. 8d.	2	4	0
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis, coarse	8 lb. at 3d. per lb.	0	2	0
<i>Hematite</i>	Lapis Hematitis	8 lb. at 3d. per lb.	0	2	0
<i>stone found inside animals</i>	Bezoar Stone, dust	3 oz. at 24s.	3	12	0
<i>stone found inside animals</i>	Bezoar Stone, long stones	1 oz. 7 drams at 36s.	3	7	6
<i>stone found inside animals</i>	Bezoar Stone (E Ind) dust	1 ¼ oz.	0	5	0
<i>Pearls</i>	Pearls, broken	2 d.	0	0	0
<i>Garnet</i>	Lapis Granati	11 oz. at 5s. 4d. per lb.	0	3	8
<i>Lapis Lazuli</i>	Lapis Lazuli	1 lb. 15 oz. at 8s. p. lb.	0	15	6
<i>Garnet</i>	Lapis Granite	11 oz. at 5s. 4d. per lb.	0	3	8
<i>Sapphire</i>	Lapis Sapphire	7 oz.	0	0	4
<i>Amethyst</i>	Lapis Amatis	11 oz. at 4d. per oz.	0	3	8
<i>Emerald</i>	Lapis Smaragdus	15 oz. at 3d. per oz.	0	3	9
<i>Topaz</i>	Lapis Topazae	14 oz. at 3d. per oz.	0	3	6
<i>Hematite</i>	Lapis Hematitis	5 lb. at 4d. per lb.	0	1	8
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	32 lb. at 12d. per lb.	1	12	0
<i>Coral</i>	Coral	at 28s. per ct.	2	4	9
<i>Slate</i>	Irish Slate	1 lb. at 1£	1	0	0
<i>Smithsonite, zinc carbinat</i>	Lapis Calaminaris	14 lb. at 3d.	0	3	6
<i>Hematite</i>	Lapis Hematitis	3 ½ lb. at 4d.	0	1	2
<i>Salt water pearls, Asia</i>	Pearl, Oriental	6 drams at 6s. per oz.	0	4	6
<i>Prepared amber</i>	OI Amber	7 lb. 2 oz. at 3 s.	1	1	4½
<i>Precipitate of pearl</i>	Pearl, magistery	5 drams at 4s. per oz.	0	2	6
<i>Precipitate of coral</i>	Coral, magistery	1 oz. at 3s.	0	3	0
<i>Coral</i>	Coral	1 ct. 3 grains at 20s.	1	15	0

September 1664

<i>Modern name for stone</i>	Quantity, price per unit	<u>Sum total</u>		
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			£	S	d
<i>Jet</i>	Jet	1½ lb. at 6d.	0	0	9
<i>Mother of Pearl</i>	Mother of Pearl Shells	12 lb. at 4d.	0	4	0
<i>Coral</i>	Coral, worst red	6 lb. at 12d.	0	6	0
<i>Fossilized echinoid spines</i>	Lapis Judaicus	3 lb. 2 oz. at 3s. 4d.	0	6	8
<i>Amethyst</i>	Lapis Amatis	10 oz. at 3s. 4d.	0	2	4
<i>Ruby</i>	Lapis Rubinus	10 oz. at 5s. 4d.	{	5	0
<i>Sapphire, zircon, corundum</i>	Lapis Hyacinthus	5 oz. at 5s. 4d.	0		
<i>Emerald</i>	Lapis Smaragdus	9 oz. at 4s.	0	2	3
<i>Amber</i>	Amber, fine	6 lb. at 2s.	0	12	0
<i>Hematite</i>	Lapis Hematitis	2 lb. at 12d.	0	2	0
<i>Sapphire</i>	Lapis Sapphirus	2 oz. at 5s. 4d.	{	3	0
<i>Garnet</i>	Lapis Granati	7 oz. at 5s. 4d.	0		
<i>Topaz</i>	Lapis Topazae	10 oz. at 4d.	0	3	4
<i>Coral</i>	Coral, white	6 lb. at 10d.	0	5	0
<i>Mercury sulfide, cinnabar</i>	Sanguis Draconis	1¼ at 2s. 4d.	0	2	6
<i>Mercury sulfide, cinnabar</i>	Sanguis Draconis, coarse	6 lb. at 12d.	0	6	0
<i>Coral</i>	Coral, red	6¾ lb at 3s. 4d.	1	3	0
<i>Precipitate of pearl</i>	Pearl, magistery	6 oz. at 3s.	0	18	0
<i>Prepared coral</i>	Coral, magistery	½ oz. at 2s.	0	1	0
<i>Smithsonite, zinc carbinat</i>	Lapis Calaminaris	14 lb. at 4d.	0	4	7
<i>Pearls, freshwater or seed</i>	Pearl, Scotch	3 oz. at 2s. 8d.	0	8	0
<i>Salt water pearls</i>	Pearl, Occidental	49 oz. 6 drams at 5s.	2	9	0
<i>Hematite</i>	Lapis Hematitis	2 lb. at 12d.	0	2	0
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	24 lb. at 12 d.	1	4	0

October 1668

Modern name for stone

Quantity, price per unit Sum total

			£	S	d
<i>Coral</i>	Coral, coarse red	9½ lb. at 12 d.	0	9	6
<i>Coral</i>	Coral, white	11½ lb. at 16d.	0	15	4
<i>Coral</i>	Coral, fine red	11½ at 3s.	1	14	6
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	4 lb.	0	10	0
<i>Smithsonite, zinc carbinat</i>	Lapis Calaminaris	8 cwt. at 18s.	7	4	0
<i>Zinc oxide, rock tutty</i>	Lapis Tutiae	10 lb. at 15d.	0	12	6
<i>Concretion from an animal</i>	Bezoar Stone (E Indies)	3½ oz. at 38s.	5	16	0
<i>Pearl</i>	Pearl	4½ oz.	0	13	6
<i>Amber</i>	OI Amber	8 oz. at 14s.	0	7	0
<i>Precipitate of pearl</i>	Pearl, magistery	4½ oz.	0	13	6
<i>Precipitate of coral</i>	Coral, magistery	½ oz.	0	1	0
<i>Pearl</i>	Pearl	9 oz. at 3s. 4d.	1	10	0
<i>Amber</i>	Lapis Lyncis	7 oz.	0	2	4
<i>Concretion from an animal</i>	Bezoar Stone (W Indies)	2 oz. 2 drams at 12s.	1	7	0
<i>Garnet</i>	Lapis Granati	1 oz. at 4d.	0	0	4
<i>Emerald</i>	Lapis Smaragdus	2½ oz.	0	0	10
<i>Sapphire, zircon, corundum</i>	Lapis Hyacinthus	2 lb. at 3s. 4d.	0	6	8
<i>Sapphire</i>	Lapis Sapphirus	4½ oz.	0	1	6
<i>Amber</i>	OI Amber	3 oz.	0	2	6

July 1670

*Modern name for stone*Quantity, price per unit Sum total

			£	S	d
<i>Coral</i>	Coral, coarse red	9 lb. at 12d.	0	9	6
<i>Amber</i>	Amber, fine	11 lb. at 2s. 4d.	1	5	8
<i>Coral</i>	Coral, fine red	11 lb. at at 3s. 4d.	1	17	6
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	1½ lb.	0	11	3
<i>Coral</i>	Coral, fine white coral	11½ lb.	0	1	3
<i>Precipitate of pearl</i>	Pearl, magistery	3½ oz. at 16d.	0	4	8
<i>Precipitate of coral</i>	Coral, magistery	8 oz.	0	10	0
<i>Sapphire, zircon, corundum</i>	Lapis Hyacinthus	5½ oz.	0	2	6
<i>Concretion from an animal</i>	Bezoar Stone (W Indies)	1 oz.	0	9	0
<i>Emerald</i>	Lapis Smaragdus	2 oz. at 6d.	0	1	0
<i>Pearl</i>	Pearl	21 oz.	6	6	0
<i>Pearl</i>	Pearl, occidental	½ oz.	0	1	6
<i>Concretion from an animal</i>	Bezoar Stone (E Indies)	4 oz. 5½ dram at 34s.	7	19	4
<i>Smithsonite, zinc carbinat</i>	Lapis Calaminaris	8 cwt.	6	8	0
<i>Hematite</i>	Lapis Hematitidis	28 lb.	1	8	0
<i>Coral</i>	Coral	3lb. 7 oz.	0	16	2
<i>Zinc oxide, rock tutty</i>	Lapis Tutiae	18 lb.	1	2	6
<i>Coral</i>	Coral, middle red	12 lb.	1	4	0

November 1675

*Modern name for stone*Quantity, price per unit Sum total

			£	S	d
<i>Irish Slate</i>	Irish Slate	11 lb. at 3d.	0	2	9
<i>Coral</i>	Coral, white	9 lb.	0	12	0
<i>Coral</i>	Coral, fine red	19¼ lb. at 3s. 4d.	3	4	0
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	10 oz.	0	5	0
<i>Coral</i>	Coral	24 oz.	0	4	0
<i>Coral</i>	Coral, masgistry	3 oz.	0	4	0
<i>Coral</i>	Pearl	5 oz.	1	10	0
<i>Hollow geode containing stone</i>	Eagle Stones	6 stones, 1s. per item	0	6	0
<i>Lapis Lazuli</i>	Lapis Lazuli	10 oz. at 1s.	0	10	0
<i>Coral</i>	Coral, fine red	14 oz.	0	4	0
<i>Pearl</i>	Pearl, Scotch	68 oz. at 16d.	4	10	4
<i>Pearl</i>	Pearl, seed	4¾ oz. at 5s. 4d.	1	5	4
<i>Concretion from an animal</i>	Bezoar Stone (E Indies)	27 drams	27	0	0
<i>Concretion from an animal</i>	Bezoar Stone (E Indies)	4 oz. 3 drams	4	2	6
<i>Concretion from an animal</i>	Bezoar Stone (E Indies)	3½ oz.	3	10	0
<i>Concretion from an animal</i>	Bezoar Stone, broken	2½ oz.	2	10	0
<i>Pearl</i>	Pearl, seed	51 oz. 3 drams	17	13	9
<i>Coral</i>	Coral	3 oz.	0	13	6
<i>Smithsonite, zinc carbinat</i>	Lapis Calaminaris	5 lb.	4	0	0
<i>Magnetite</i>	Loadstones	1/4 ctw.	1	0	0
<i>Cinnabar, mercury sulfide</i>	Sanguis Draconis	3 lb.	0	9	0
<i>Coral</i>	Coral, fine red	5 lb.	0	16	8
<i>Irish Slate</i>	Irish Slate	3 oz.	1	1	0
<i>Fossilized echinoid spines</i>	Lapis Judaicus	15 drams	0	3	0
<i>Concretion from an animal</i>	Bezoar Stone (W Indies)	1 ½ drams	1	11	6
<i>Pearl</i>	Pearl, occidens	4½ drams	0	5	6
<i>Garnet</i>	Lapis Granati	1 oz. 1 dram	{		
<i>Emerald</i>	Lapis Smaragdus	1 oz. 6 drams	1	0	0
<i>Topaz</i>	Lapis Topazae	1¼ oz.			
<i>Ruby</i>	Lapis Rubinus	1 oz. 5 drams	{		

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A. B. *The sick-mans rare jewel wherein is discovered a speedy way how every man may recover lost health, and prolong life, how he may know what disease he hath, and how he himself may apply proper remedies to every disease, with the description, definition, signs and syptoms [sic] of those diseases. (Viz.) The scurvy, leues venerea, gonorrhoea, dropsies, catarrhs, chollick, gouts, madness, frensies of all sorts, fever, jaundise, consumptions, ptisick, swoundings, histerick passions, pleurisies, cachexia's, worms, vapours, hypochondriack melancholly, stone, strangury, with the whole troop of diseases most afflicting the bodies of men, women and children; with a supply of suitable medicines; ... a piece profitable for every person and family, and all that travel by sea or land.* London: T.R. and N.T., 1674.

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Albertus Magnus. *The secrets of Albertus Magnus. Of the vertues of hearbes, stones, and certayne beasts. ; Whereunto is newly added, a short discourse of the seauen planets gouerning the natiuities of children. Also a booke of the same author, of the maruellous things of the worlde, and of certayne effects caused by certayne beasts.* London, 1599.

Albertus Magnus. *The secrets of Albertus Magnus Of the vertues of hearbs, stones, and certayne beasts. VVher[unto is newly added, a short discourse of the seauen planets gouerning the natiuities of children.] Also a book[e of the same author, of the merueilous things of the world.* London: W. Jaggard, 1617.

Albertus Magnus. *The secrets of Albertus Magnus Of the vertues of hearbs, stones, and certayne beasts. Whereunto is newly added, a short discourse of the seuen planets gouerning the natiuities of children. Also a booke of the same author, of the maruellous things of the world, and of certayne things caused of certayne beasts.* London: Isaac Iaggard, 1626.

Albertus Magnus, *The secrets of Albertus Magnus Of the vertues of herbes, stones, and certayne beasts. Wherunto is newly added, a short discourse of the seven planets governing the nativities of children. Also a booke of the same author, of the merueilous things of the world, and of certayne things caused of certain beastes.* London: T. Cotes, 1637.

Albertus Magnus, *The secrets of Albertus Magnus of the vertues of herbs, stones, and certain beasts : whereunto is newly added, a short discourse of the seven planets, governing the nativities of children : also a book of the same author, of the marvellous things of the world and of certain things, caused of certain beastes.* London: M.H. and J.M., 1681-1684.

A. M. *Queen Elizabeths closset of physical secrets, with certain approved medicines taken out of a manuscript found at the dessolution of one of our English abbies and supplied with the child-bearers cabinet, and preservative against the plague and small pox. Collected by the elaborate paines of four famons [sic] physitians, and presented to Queen Elizabeths own hands. ,* London : printed for Will. Sheares Junior, at the Blue-Bible in Bedford-street in Covent-Garden, 1656.

A. M. *A rich closet of physical secrets, collected by the elaborate paines of four severall students in physick, and digested together; viz. The child-bearers cabinet. A preservative against the plague and small pox. Physicall experiments presented to our late Queen Elizabeths own hands. With certain approved medicines, taken out of a manuscript, found at the dissolution of one of our English abbies, and supplied with some of his own experiments, by a late English doctor.* London: Gartrude Dawson, 1652.

Anon. *Here begynneth a lytell boke of the .xxiiii. stones pryncipalles that profyteth most to mans body, as the day [and] the nyght hath .xxiiii. houres, so be there .xxiiii. stones pryncipall.* London: R. Pynson, 1528?.

Anon, *Here begynneth a newe boke of medecynes intytulyd or callyd the Treasure of pore men whiche sheweth many dyuerse good medecines for dyuerse certayn dysseases as in the table of this present boke more playnly shall appere. The boke of medecines.* London: J. Rastell, 1526?.

Anon. *Here beginneth a good boke of medecines called the treasure of pore men.* London: Robert Redman, 1539.

Anon. *Here begynneth a good boke of medycynes: called the treasure of poore men.* London: Thomas Petyt, 1539.

Anon, *Here beginneth a good boke of medecines called the treasure of pore men.* London: Robert Redman, 1539.

Anon, *Here begynneth a good boke of medycynes: called the treasure of poore men.* London: Thomas Petyt, 1539.

Anon. *Here begynneth a good boke of medycynes: called the treasure of poore men.* London: Thomas Petyt, 1540.

Anon, *Here begynneth a good boke of medycynes: called the treasure of poore men.* London: Thomas Petyt, 1540.

Anon. *A physical dictionary. Or, An Interpretation of such crabbed words and terms of art, as are deriv'd from the Greek or Latin, and used in physick, anatomy, chirurgery, and chymistry. With a definition of most diseases incident to the body of man: and a description of the marks and characters used by doctors in their receipts. Published for the more perfect understanding of Mr. Tomlinson's translation of Rhaenodaeus dispensatory and whatever other books of physick and surgery are extant in the English tongue. This dictionary will be as useful and sufficient to all our late English practitioners in physick, or chirurgery (especially such as are not scholars) as any dictionary of ten shillings price. Approved by several doctors, surgeons, and apothecaries; and recommended by them in an epistle to all English practitioners in physick and chirurgerie.* London: G. Dawson, 1657.

Anon. *The Magick of Kirani, King of Persia, and of Harpocraton containing the magical and medicinal vertues of stones, herbes, fishes, beasts, and birds : a work much sought for by the learned but seen by few : said to have been in the Vatican-Library in Rome but not to be found there nor in all the famous libraries of the empire / now published and translated into English from a copy found in a private hand.* London: s.n.,1685.

Archer, John. *Secrets disclosed of consumptions shewing [h]ow to distinguish between scurvy and venereal disease : also, how to prevent and cure the fistula by chymical drops without cutting, also piles, haemorrhoids, and other diseases / by John Archer.* London, 1684.

Archer, John. *Secrets disclosed, or, The treatise of consumptions, their various causes and cure shewing also how to distinguish between the scurvy and venereal disease and how to prevent and cure fistula by chymical drops without cutting ... : how to know and cure the different piles, haemorrhoids, issuings and other diseases of the private parts : treating also of the virtues of the great East-India cordial stone or powder called Antonio : also the great force of magick and antipathy by a noble experiment.* London, 1693.

Banister, John. *A needefull, new, and necessarie treatise of chyrurgerie briefly comprehending the generall and particuler curation of vlcers, drawn foorth of sundrie worthy wryters, but especially of Antonius Calmeteus Vergesatus, and Ioannes Tagaltius, by Iohn Banister ... Hereunto is anexed certaine experiments of mine ovvne inuention, truely tried, and daily of me practised.* London: Thomas Marshe, 1575.

Banister, John. *An antidotarie chyrurgicall containing great varietie and choice of all sorts of medicines that commonly fal into the chyrurgions vse: partlie taken out of authors, olde and new, printed or written: partlie obtained by free gifte of sundrie worthie men of this profession within this land.* London: Thomas Orwin, 1589.

Barbette, Paul. *Thesaurus chirurgiae : the chirurgical and anatomical works of Paul Barbette ... composed according to the doctrine of the circulation of the blood, and other new inventions of the moderns : together with a treatise of the plague, illustrated with observations / translated out of Low-Dutch into English ... ; to which is added the surgeon's chest, furnished both with instruments and medicines ... and to make it more compleat, is adjoynd a treatise of diseases that for the most part attend camps and fleets; written in High-Dutch by Raymundus Minderius.* London: Henry Rodes, 1687.

Barker, Richard, Sir. *Sudorificum regale, or, The royal sudoforick.* London: J.D., 1676.

Bartholomaeus Anglicus, *Bartholomeu[s] de proprietatib[us] re[rum]*. Westminster: Wynkyn de Worde, 1495.

Bartholomaeus Anglicus. *Bertholomeus De proprietatibus rerum*. Londini: Thomae Bertheleti, 1535.

Bartholomaeus Anglicus. *Batman vppon Bartholome his booke De proprietatibus rerum, newly corrected, enlarged and amended: with such additions as are requisite, vnto euery seuerall booke: taken foorth of the most approued authors, the like heretofore not translated in English. Profitable for all estates, as well for the benefite of the mind as the bodie*. 1582. London: Thomas East, 1582.

Barrough, Philip. *The methode of phisicke conteyning the causes, signes, and cures of invvard diseases in mans body from the head to the foote. VVhereunto is added, the forme and rule of making remedies and medicines, which our phisitians commonly vse at this day, with the proportion, quantitie, & names of ech [sic] medicine*. London: Thomas Vautroullier, 1583.

Bate, John. *The mysteryes of nature, and art contened in foure severall tretises, the first of water workes the second of fyer workes, the third of drawing, colouring, painting, and engraving, the fourth of divers experiments, as wel serviceable as delightful: partly collected, and partly of the authors peculiar practice, and invention by I.B.* London: Thomas Harper, 1634.

Bauderon, Brice. *The expert phisician learnedly treating of all agues and feavers, whether simple or compound, shewing their different nature, causes, signes, and cure ... / written originally by that famous doctor in phisick, Bricius Bauderon ; and translated into English by B.W., licentiate in physick by the University of Oxford*. London: R.I., 1657.

Baxter, Nathaniel, *Sir Philip Sydneys ouránia that is, Endimions song and tragedie, containing all philosophie*, 1606.

Berlu, Jo. Jacob. *The treasury of drugs unlock'd, or, A full and true description of all sorts of drugs and chymical preparations sold by druggists whereby you may know the place of their growth and how to distinguish the good from the bad : very useful for all gentlemen, merchants, druggists, doctors, apothecaries, chirurgeons, and their apprentices ... the whole work alphabetically digested with a compleat catalogue of all drugs, &c.* London : Printed for John Harris ... and Tho. Howkins ..., 1690.

Berners, Juliana. *The gentlemans academie. Or, The booke of S. Albans containing three most exact and excellent bookes: the first of hawking, the second of all the proper termes of hunting, and the last of armorie: all compiled by Iuliana Barnes, in the yere from the incarnation of Christ 1486. And now reduced into a better method, by G.M.*, 1595.

Blankaart, Steven. *The physical dictionary. Wherein the terms of anatomy, the names and causes of diseases, chyurgical instruments and their use; are accurately describ'd. : Also the names and virtues of medicinal plants, minerals, stones, gums, salts, earths, &c. and the method of choosing the best drugs : the terms of chymistry, and of the*

apothecaries art ; and the various forms of medicines, and the ways of compounding them. / By Stephen Blancard M.D. Physick-Professor at Middleburg in Zealand. London, 1693.

Blount, Thomas Pope, Sir. *A natural history containing many not common observations extracted out of the best modern writers / by Sir Thomas Pope Blount, Baronet.* London, 1693.

Border, D. *Polypharmakos kai chymistes, or, The English unparalell'd physitian and chyrurgian shewing the true vse of all manner of plants and minerals in which is explained the whole art and secresy of physick and chyrurgery.* London: B. Alsop, 1651.

Bossewell, John. *Workes of armorie deuuyded into three bookes, entituled, the concordes of armorie, the armorie of honor, and of coates and creastes, collected and gathered by Iohn Bossewell Gentleman.* London: Richardi Totelli, 1572.

Bossewell, John. *Workes of armorie deuuyded into three bookes, entituled, the concordes of armorie, the armorie of honor, and of cotes and creastes, collected and gathered by Iohn Bossewell Gentleman.* London: Henrie Ballard, 1597.

Boyle, Robert. *Of the reconcileableness of specifick medicines to the corpuscular philosophy to which is annexed a discourse about the advantages of the use of simple medicines / by Robert Boyle.* London, 1685.

Boyle, Robert. *Medicinal experiments, or, A collection of choice remedies for the most part simple, and easily prepared by ... R. Boyle.* London, 1692.

Boyle, Robert. *Medicinal experiments, or, A collection of choice and safe remedies for the most part simple and easily prepared, useful in families, and very serviceable to country people / by R. Boyle ; to which is annexed a catalogue of his theological and philosophical books and tracts.* London, 1693.

Boyle, Robert. *Medicinal experiments, or, A collection of choice and safe remedies, for the most part simple and easily prepared very useful in families and fitted for the service of country people : the third and last volume, published from the author's original manuscripts : whereunto is added several other useful notes explicatory of the same.* London, 1694.

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquires into very many received tenents and commonly presumed truths by Thomas Brown, Dr of physick ; together with some marginall observations and a table alphabeticall at the end.* London: R.W., 1658.

Browne, Thomas, Sir. *Pseudodoxia epidemica: or, Enquiries into very many received tenents, and commonly presumed truths. By Thomas Brovvne Dr. of Physick* London, 1646.

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths by Thomas Browne*. London: T.H., 1646.

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths together with some marginal observations, and a table alphabeticall at the end*. London: A. Miller, 1650.

Browne, Thomas, Sir. *Nature's cabinet unlock'd. Wherein is discovered the natural causes of metals, stones, precious earths, juyces, humors, and spirits, the nature of plants in general; their affections, parts, and kinds in particular. Together with a description of the individual parts and species of all animate bodies, similar and dissimilar, median and organical, perfect and imperfect. With a compendious anatomy of the body of man, as also the manner of his formation in the womb. All things are artificial, for nature is the art of God*. London, 1657.

Browne, Thomas, Sir. *Nature's cabinet unlock'd wherein is discovered the natural causes of metals, stones, precious earths, juyces, humors, and spirits, the nature of plants in general, their affections, parts, and kinds in particular : together with a description of the individual parts and species of all animate bodies ... : with a compendious anatomy of the body of man, as also the manner of his formation in the womb*. London: Printed for Edw. Farnham, 1657.

Browne, Thomas, Sir. *Pseudodoxia epidemica: or, Enquiries into very many received tenents, and commonly presumed truths. By Thomas Brown Dr. of Physick ... Whereunto are now added two discourses the one of urn-burial, or sepulchrall urns, lately found in Norfolk. The other of the garden of Cyrus, or network plantations of the antients. Both newly written by the same author*. London, 1658.

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquiries into very many received tenents, and commonly presumed truths whereunto is added Religio medici, and A discourse of the sepulchral-urnes lately found in Norfolk : together with The garden of Cyrus, or, The quincuncial lozenge, or, Net-work plantations of the ancients, artificially, naturally, mystically considered : with sundry observations*. London, 1659.

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths by Thomas Browne ... with marginal observations, and a table alphabetical ; whereunto are now added two discourses, the one of urn-burial, or sepulchrall urns, lately found in Norfolk, the other of the Garden of Cyrus, or Network plantations of the antients ; both newly written by the same author*. London, 1669.

Bruele, Gualtherus. *Praxis medicinae, or, the physicians practice vwherein are contained inward diseases from the head to the foote: explayning the nature of each disease, with the part affected; and also the signes, causes, and prognostiques, and likewise what temperature of the ayre is most requisite for the patients abode, with direction for the*

diet he ought to obserue, together with experimentall cures for euery disease. ... Written by that famous and worthy physician, VValter Bruel. London: Iohn Norton, 1632.

Brunschwig, Hieronymus. *The noble experyence of the vertuous handy warke of surgeri, practysyd [and] compyled by the moost experte mayster Iherome of Bruynswyke, borne in Straesborowe in Almayne ... Item there after he hath authorysed and done it to vnderstande through the trewe sentences of the olde doctours and maysters very experte in the scyence of surgery, as Galienus, Ipocras, Auicenna, Gwydo, Haly abbas, Lancfrancus of mylen, Iamericus, Rogerius, Albucasis, Place[n]tinus, Brunus, Gwilhelmus de saliceto, [and] by many other maysters whose names be wryten in this same boke. ... Item yf ye fynde ony names of herbes or of other thynges wherof ye haue no knowlege, yt shall ye knowe playnly by the potecarys. Item here shall you fynde also for to make salues, plasters, powders, oyles, and drynkes for woundes. Item who so desyreth of this science ye playne knowlege let hym oftentimes rede this boke, and than he shall gette perfyte vnderstandynge of the noble surgery. London: Petrus Treueris, 1525.*

Browne, Thomas, Sir. *Pseudodoxia epidemica, or, Enquiries into very many received tenents and commonly presumed truths together with the Religio medici / by Thomas Brown ... the sixth and last edition, corrected and enlarged by the author ; with many explanations, additions and alterations throughout ; together with many more marginal observations, and a table alphabetical at the end. London: J.R., 1672.*

Bullein, William. *Bulleins bulwarke of defence against all sicknesse, soarenesse, and voundes that doe dayly assaulte mankinde: which bulwarke is kept with Hilarius the gardener, [and] Health the phisicion, with the chirurgian, to helpe the wounded soldiours. Gathered and practised from the most worthy learned, both olde and new: to the great comfort of mankinde: by VWilliam Bullein, Doctor of Phisicke. 1562.*

Burton, Robert. *The anatomy of melancholy vvhat it is. VVith all the kindes, causes, symptomes, prognostickes, and seuerall cures of it. In three maine partitions with their seuerall sections, members, and subsections. Philosophically, medicinally, historically, opened and cut vp. By Democritus Iunior. With a satyricall preface, conducing to the following discourse, 1621.*

Burton, Robert. *The anatomy of melancholy vvhat it is. VVith all the kindes, causes, symptomes, prognosticks, and seuerall cures of it. In three maine partitions, with their seuerall sections, members, and subsections. Philosophically, medicinally, historically opened and cut vp, by Democritus Iunior. With a satyricall preface, conducing to the following discourse. Oxford: John Lichfield, 1624.*

Burton, Robert. *The anatomy of melancholy What it is, with all the kinds causes, symptomes, prognostickes, & seuerall cures of it. In three partitions, with their severall sections, members & subsections. Philosophically, medicinally, historically, opened & cut up. By. Democritus Iunior. With a satyricall preface, conducing to the following discourse. , Oxford: John Lichfield, 1628.*

Burton, Robert, *The anatomy of melancholy What it is, with all the kinds causes, symptomes, prognostickes, & seuerall cures of it. In three partitions, with their severall sections, members & subsections. Philosophically, medicinally, historically, opened & cut up. By. Democritus Iunior. With a satyricall preface, conducing to the following discourse.* , Oxford : Printed [by John Lichfield] for Henry Cripps, 1632.

Burton, Robert. *The anatomy of melancholy What it is, with all the kinds causes, symptomes, prognostickes, & seuerall cures of it. In three partitions, with their severall sections, members & subsections. Philosophically, medicinally, historically, opened & cut up. By. Democritus Iunior. With a satyricall preface, conducing to the following discourse.* Oxford: Robert Young, Edinburgh, 1635?, Miles Flesher, London, 1638, and Leonard Lichfield and William Turner, Oxford, 1638.

Burton, Robert. *The anatomy of melancholy what it is, with all the kinds, causes, symptomes, prognostickes, & severall cures of it : in three partitions, with their severall sections, members, & subsections philosophically, medicinally, historically opened & cut up, with a satyricall preface conducing to the following discourse.* Oxford, 1651.

Burton, Robert. *The anatomy of melancholy what it is, with all the kinds, causes, symptomes, prognostickes, & severall cures of it : in three partitions with their severall sections, members, and subsections : philosophically, medicinally, historically opened & cut up / by Democritus junior.* London: Hen. Crips & Lodo. Lloyd, 1652.

Burton, Robert. *The anatomy of melancholy what it is, with all the kinds, causes, symptomes, prognostickes, & severall cures of it : in three partitions with their severall sections, members, & subsections philosophically, medicinally, historically opened & cut up : with a satyricall preface conducing to the following discourse / by Democritus Junior.* , London: E. Wallis, 1660.

Burton, Robert, *The anatomy of melancholy what it is, with all the kind causes, symptomes, prognostickes, & severall cures of it, in three partitions, with their severall sections, members & subsections, philosophically, medicinally, historically, opened & ... / by Democritus Junior ; with a satyricall preface conducing to the following discourse ...*, London: Printed for Peter Parker, 1676.

Chappuzeau, Samuel. *The history of jewels, and of the principal riches of the East and West taken from the relation of divers of the most famous travellers of our age : attended with fair discoveries conducing to the knowledge of the universe and trade,* 1671.

Culpeper, Nicholas. *Composita, or, A synopsis of the chiefest compositions in use now with Galenists collected by Nich. Culpeper ...* London: Printed by J.G, 1655.

Culpeper, Nicholas. *Composita, or, A synopsis of the chiefest compositions in use now with Galenists collected by Nich. Culpepper.* London: T.C., 1656.

Culpeper, Nicholas. *A directory for midwives or, a guide for women, in their conception, bearing, and suckling their children. Containing, 1. The anatomie of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying-in. 9. Of nursing children. By Nich. Culpeper, Gent. Student in physick and astrologie.* London: Peter Cole, 1651.

Culpeper, Nicholas, *A directory for midwives: or, A guide for women, in their conception, bearing, and suckling their children. Containing 1. The anatomy of the vessels of generation. 2. The formation of the childe in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labor 8. A guide for women in their lying-in. 9. Of nursing children. / by Nich. Culpeper.* London: Printed [s.n.,] 1652

Culpeper, Nicholas, *A directory for midwives, or, A guide for women in their [bracket] conception, bearing, and suckling their children.* London: Printed by Peter Cole, 1656.

Culpeper, Nicholas, *Culpeper's directory for midwives: or, A guide for women. The second part. Discovering, 1. The diseases in the privities of women. 2. The diseases of the privie part. 3. The diseases of the womb ... 14. The diseases and symptoms in children,* 1662.

Culpeper, Nicholas, *A directory for midwives: or, A guide for women, in their conception, bearing, and suckling their children. Containing, 1. The anatomy of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying-in. 9. Of nursing children.* Edinburgh: George Swintoun and James Glen, 1668.

Culpeper, Nicholas, *A directory for midwives: or a guide for women In their conception. Bearing; and suckling their children. The first part contains, 1. The anatomy of the vessels of generation. 2. The formation of the child in the womb. 3. What hinder conceptions, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying in. 9. Of nursing children. To cure all diseases in women, read the second part of this book. By Nicholas Culpeper Gent. student in physick and astrology.* London: John Streater, 1671.

Culpeper, Nicholas. *Culpeper's Directory for midwives: or, A guide for women The second part. Discovering, 1. The diseases in the privities of women. 2. The diseases of the privy part. 3. The diseases of the womb. 4. The symptomes of the womb. 5. The symptomes in the terms. 6. The symptomes that befall all virgins and women in their womb, after they are ripe of age. 7. The symptomes which are in conception. 8. The government of women with child. 9. The symptomes that happen in child-bearing. 10. The government of women in child-bed, and the diseases that come after travel. 11. The*

diseases of the breasts. 12. The symptomes of the breasts. 13. The diet and government of infants. 14. The diseases and symptomes in children. London: s.n., 1671?.

Culpeper, Nicholas. *A directory for midwives, or, A guide for women in their conception, bearing, and suckling their children the first part contains ... to cure all diseases in women, read the second part of this book / by Nicholas Culpepper.* London, 1675.

Culpeper, Nicholas. *Culpeper's Directory for midwives: or, A guide for women The second part. Discovering, 1. The diseases in the privities of women. 2. The diseases of the privy part. 3. The diseases of the womb. 4. The symptomes of the womb. 5. The symptomes in the terms. 6. The symptomes that befall all virgins and women in their womb, after they are ripe of age. 7. The symptomes which are in conception. 8. The government of women with child. 9. The symptomes that happen in child-bearing. 10. The government of women in child-bed, and the diseases that come after travel. 11. The diseases of the breasts. 12. The symptomes of the breasts. 13. The diet and government of infants. 14. The diseases and symptomes in children.* London, 1676.

Culpeper, Nicholas. *A directory for midwives: or, A guide for women in their conception. Bearing; and suckling their children. The first part contains, 1. The anatomy of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying-in. 9. Of nursing children. To cure all diseases in women, read the second part of this book. By Nicholas Culpeper gent. Student in physick and astrology.* London, 1684.

Culpeper, Nicholas. *A directory for midwives: or, A guide for women in their conception. Bearing; and suckling their children. The first part contains, 1. The anatomy of the vessels of generation. 2. The formation of the child in the womb. 3. What hinders conception, and its remedies. 4. What furthers conception. 5. A guide for women in conception. 6. Of miscarriage in women. 7. A guide for women in their labor. 8. A guide for women in their lying-in. 9. Of nursing children. To cure all diseases in women, read the second part of this book. By Nicholas Culpeper gent. Student in physick and astrology.* London, 1684.

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Culpeper, Nicholas. *Culpeper's last legacy left and bequeathed to his dearest wife, for the publicke good, being the choicest and most profitable of those secrets which while he lived were lockt up in his breast, and resolved never to be publisht till after his death. Containing sundry admirable experiences in severall sciences, more especially, in chyrgery and physick, viz. compounding of medicines, making of waters, syrups, oyles, electuaries, conserves, salts, pils, purges, and trochischs. With two particular treatises; the one of feavers; the other of pestilence; as also other rare and choice aphorisms, fitted to the understanding of the meanest capacities. Never publisht before in any of his other works. By Nicholas Culpeper, late student in astrology and physick.* London, 1655.

Culpeper, Nicholas. *Culpeper's last legacy left and bequeathed to his dearest wife for the publike good : being the choicest and most profitable of those secrets which while he lived were lockt up in his breast and resolved never to be publisht till after his death : containing sundry admirable experiences in severall sciences more especially in chyrgery and physick.* London, 1657.

Culpeper, Nicholas. *Culpeper's last legacy left and bequeathed to his dearest wife for the publick good, being the choicest and most profitable of those secrets which while he lived were lockt up in his breast, and resolved never to be publisht till after his death. : Containing sundry admirable experiences in several sciences, more especially in chyrgery, and physick, viz. compounding of medicines, making of waters, syrups, oyles, electuaries, conserves, salts, pills, purges and trochischs. : With two particular treatises, the one of feavers, the other of pestilence. : As also other rare and choice aphorisms, fitted to the understanding of the meanest capacities. Never publisht before in any of his other works. / by Nicholas Culpeper.* London, 1662.

Culpeper, Nicholas. *Culpeper's last legacy left and bequeathed to his dearest wife, for the publick good. Being the choycest and most profitable of those secrets which while he lived were lockt up in his breast, and resolved never to be publisht till after his death. Containing sundry admirable experiences in severall sciences, more especially in chyrgery and physick: viz. compounding of medicines, making of waters, syrups, oyles, electuaries, conserves, salts, pills, purges, and trochischs. With two particular treatises; the one of feavers, the other of pestilence: as also rare and choyce aphorismes and receipts, fitted to the understanding of the meanest capacities. The fourth impression; whereunto is added 200 choyce receipts, lately found, never publisht before in any of his other works; with a compleat table. By Nicholas Culpeper Gent. student in astrology and physick.* London: Tho. Ratcliffe, 1668.

Culpeper, Nicholas. *Culpeper's last legacy left and bequeathed to his dearest wife, for the publick good. Being the choicest and most profitable of those secrets which while he lived were lockt up in his breast, and resolved never to be publisht till after his death. Containing sundry admirable experiences in several sciences, more especially in chyrgery and physick: viz. compounding of medicines, making of waters, syrups, oyles, electuaries, conserves, salts, pills, purges, and trochischs. With two particular treatises; the one of feavers, the other of pestilence: as also rare and choice aphorisms and*

receipts, fitted to the understanding of the meanest capacities. The fifth impression; whereunto is added 200 choice receipts, lately found, never publisht before in any of his other works; with a compleat table. By Nicholas Culpeper Gent. student in astrology and physick. London, 1671.

Culpeper, Nicholas. Culpeper's last legacy: left and bequeathed to his dearest wife for the publick good. Being the choyceest and most profitable of those secrets which while he lived were lockt up in his breast, and resolved never to be publish'd till after his death. Containing sundry admirable experiences in several sciences, more especially in chirurgery, and physick: viz. compounding of medicines ... With two particular treatises; the one of fevers, the other of pestilence: as also other rare and choyce aphorisms and receipts ... With an addition of two hundred choyce receipts, lately found, never publish'd before in any of his other works; and a compleat table. London, 1676.

Culpeper, Nicholas. Culpeper's last legacy left and bequeathed to his dearest wife for the publick good being the choyceest and most profitable of those secrets which while he lived were lockt up in his breast and resolved never to be publish'd till after his death ... with an addition of two hundred choyce receipts lately found, never publish'd before in any of his other works, and a compleat table / by Nicholas Culpeper. London, 1677

Culpeper, Nicholas. Culpeper's last legacy left and bequeathed to his dearest wife for the publick good : being the choicest and most profitable of those secrets which while he lived were lock'd up in his breast and resolved never to be published till after his death : containing sundry admirable experiences in several sciences more especially in chyrrurgery and physick ... : with two particular treatises, the one of fevers, the other of pestilence...: with an addition of two hundred choice receipts. London, 1685.

Culpeper, Nicholas. A physicall directory, or, A translation of the London dispensatory made by the Colledge of Physicians in London. Being that book by which all apothecaries are strictly commanded to make all their physick with many hundred additions which the reader may find in every page marked with this letter A. Also there is added the use of all the simples beginning at the first page and ending at the 78 page. London, 1649.

Culpeper, Nicholas. A physicall directory, or, A translation of the London dispensatory made by the Colledge of Physicians in London. London: Peter Cole, 1649.

Culpeper, Nicholas. A physical directory, or, A translation of the dispensatory made by the Colledge of Physitians of London, and by them imposed upon all the apothecaries of England to make up their medicines. London: Peter Cole, 1650.

Culpeper, Nicholas. A Physical directory, or, A translation of the Dispensatory made by the Colledg of Physitians of London. London: Peter Cole, 1651.

Culpeper, Nicholas. Pharmacopoeia Londinensis, or, The London dispensatory further adorned by the studies and collections of the Fellows, now living of the said colledg. London: Peter Cole, 1653.

Culpeper, Nicholas. *Pharmacopoeia Londinensis: or the London dispensatory furhther adorned by the studies and collections of the fellows, now living of the said colledg. In this sixt edition you may find, 1 Three hundred useful additions. 2 All the notes that were in the margent are brought into the book between two such crotchets as these 3 The vertues, qualities, and properties of every simple. 4 The vertues and use of the compounds. 5 Cautions in giving al medicines that are dangerous. 6 All the medicines that were in the Old Latin dispensatory, and are left out in the New Latin one, are printed in this sixt impression in English with their vertues. 7 A key to Galen's Method of physick, containing thirthy three chapters. 8 In every page two columns. 9 In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found.*. London: Peter Cole, 1654.

Culpeper, Nicholas. *Pharmacopoeia Londinensis: or the London dispensatory.* London: Printed by a well-wisher to the common-wealth of England, 1654.

Culpeper, Nicholas. *Pharmacopoeia Londinensis: or the London dispensatory furhther adorned by the studies and collections of the fellows, now living of the said colledg. In this sixt edition you may find, 1 Three hundred useful additions. 2 All the notes that were in the margent are brought into the book between two such crotchets as these 3. On the top of the pages of this impression is printed The sixt edition, much enlarged. 4 The vertues, qualities, and properties of every simple. 5 The vertues and use of the compounds. 6 Cautions in giving al medicines that are dangerous. 7 All the medicines that were in the Old Latin dispensatory, and are left out in the New Latin one, are printed in this sixt impression in English with their vertues. 8 A key to Galen's Method of physick, containing thirty three chapters. 9 In every page two columns. 10 In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found.* London: Peter Cole, 1655.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The London dispensatory further adorned by the studies and collections of the fellows, now living of the said colledg in this sixt edition you may find, 1. three hundred useful additions, 2. all the notes that were in the margent are brought into the book between two such crotchets at these [], 3. on the top of the pages of this impression is printed, the sixt edition, much enlarged, 4. the vertues, qualities, and properties of every simple, 5. the vertues and use of the compounds, 6. cautions in giving al medicines that are dangerous, 7. all the medicines that were in the old Latin dispensatory, and are left out in the new Latin one, are printed in this sixt impression in English, with their vertues, 8. a key to Galen's Method of physick, containing thirty three chapters, 9. in every page two columns, 10. in this impression, the Latin name of every one of the compounds is printed, and what page of the new folio Latin book they are to be found.* London: Peter Cole, 1659.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The London dispensatory further adorned by the studies and collections of the fellows, now living of the said colledg, being that book by which all apothecaries are bound to make up all the medicines in their shops ... / by Nich. Culpeper ... ; in this impression, 1661, there is added, to the compounds, many vertues & uses more than ever were in any former impression, by*

divers learned and able doctors of physick, viz. W.R.A.C.J.W. and, by Abdiah Cole ..
London: Peter Cole and Edward Cole, 1661.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The London dispensatory further adorned by the studies and collections of the fellows now living, of said colledg : in this impression you may find, 1. Three hundred usefull additions, 2. All the notes that were in the margent are brought into the book between two such crotchets as these [], 3. The vertues, qualities, and properties of every simple, 4. The vertues and use of the compounds, 5. Cautions in giving all medicines that are dangerous, 6. All the medicines that were in the Old Latin Dispensatory, and are left out of the New Latin one, are printed in this impression in English, with their vertues, 7. A key to Galen and Hippocrates their method of physick, containing thirty three chapters, 8. In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found.* London: Printed by John Streater, 1667.

Culpeper, Nicholas. *Pharmacopoeia Londinensis; or, The London dispensatory further adorned by the studies and collections of the fellows now living, of the said Colledg. In this impression you may find. 1. Three hundred usefull additions. 2. All the notes that were in the margent are brought into the book between two such crotchets as are these [] 3. The vertues, qualities, and properties, of every simple, 4. The vertues and use of the compounds. 5. Cautions in giving all medicines that are dangerous. 6. All the medicines that were in the old Latin dispensatory, and are left out in the new Latin one, are printed in this impression in English, with their vertues. 7. A key to Galen and Hippocrates their Method of physick, containing thirty three chapters. 8. In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found.* London: John Streater, 1669.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The dispensatory further adorned by the studies and collections of the fellows now living of the said Colledg.* London: John Streater, 1672.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The dispensatory further adorned by the studies and collections of the fellows now living of the said Colledg.* London, 1675.

Culpeper, Nicholas. *Pharmacopoeia Londinensis; or, The London dispensatory further adorned by the studies and collections of the fellows now living, of the said college. In this impression you may find, 1. Three hundred useful additions. 2. All the notes that were in the margent are brought into the book between two such crotchets as these [] 3. The virtues, qualities, and properties of every simple. 4. The virtues and use of the compounds. 5. Cautions in giving all medicines that are dangerous. 6. All the medicines that were in the old Latin dispensatory, and are left out in the new Latin one, are printed in this impression in English, with their virtues. 7. A key to Galen and Hippocrates, their method of physick, containing thirty three chapters. 8. In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found.* London, 1679.

Culpeper, Nicholas. *Pharmacopoeia Londinensis, or, The London dispensatory*. London, 1683.

Culpeper, Nicholas. *Pharmacopoeia Londinensis: or the London dispensatory further adorned by the studies and collections of the fellows now living, of the said college. In this impression you may find, 1. Three hundred useful additions. 2. All the notes that were in the margin are brought into the book between two such crotchets as these 3. The virtues, qualities, and properties of every simple. 4. The virtues and use of the compounds. 5. Cautions in giving all medicines that are dangerous. 6. All the medicines that were in the Old Latin dispensatory, and are left out in the New Latin one, are printed in this impression in English with their virtues. 7. A key to Galen and Hippocrates, their method of physick, containing thirty three chapters. 8. In this impression, the Latin name of every one of the compounds is printed, and in what page of the new folio Latin book they are to be found*. London, 1695.

Culpeper, Nicholas. *Culpeper's school of physick, or, The experimental practice of the whole art wherein are contained all inward diseases from the head to the foot, with their proper and effectual cures, such diet set down as ought to be observed in sickness or in health : with other safe wayes for preserving of life ... / by Nich. Culpeper ... ; the narrative of the authors life is prefixed, with his nativity calculated, together with the testimony of his late wife, Mrs Alice Culpeper, and others*. London, 1659.

Culpeper, Nicholas. *Culpeper's school of physick. Or The experimental practice of the whole art. Wherein are contained all inward diseases from the head to the foot, with their proper and effectual cures, such diet set down as ought to be observed in sickness or in health. With other safe wayes for preserving of life, in excellent aphorismes, and approved medicines, so plainly and easily treated of, that the free-born student rightly understanding this method, may judge of the practice of physick, so far as it concerns himself, or the cure of others, &c. A work never before publisht, very necessary for all that desire to be rightly informed in physick, chyrurgery, chymistry, &c. / By Nich. Culpeper, late student in physick and astrology. The narrative of the authors life is prefixed, with his nativity calculated, together with the testimony of his late wife, Mrs. Alice Culpeper, and others. The general contents of this work are in the next page. With two perfect tables very useful to the reader*. London, 1659.

Culpeper, Nicholas. *Culpeper's school of physick: Or The experimental practice of the whole art Wherein are contained all inward diseases from the head to the foot, with their proper and effectual cures; such diet set down as ought to be observed in sickness or in health. With other safe wayes for preserving of life, in excellent aphorisms, and approved medicines, so plainly and easily treated of, that the free-born student rightly understanding this method, may judge of the practice of physick, so far as it concerns himself, or the cure of others, &c. A work never before publisht, very necessary for all that desire to be rightly informed in physick, chyrurgery, chymistry, &c. By Nich. Culpeper, late student in physick and astrology. The narrative of the authors life is prefixed, with his nativity calculated; together with the testimony of his late wife, Mrs.*

Alice Culpeper, and others. The general contents of this work are in the next page. With two perfect tables very useful to the reader. London, 1678.

Culpeper, Nicholas. *Culpeper's school of physick: Or The experimental practice of the whole art Wherein are contained all inward diseases from the head to the foot, with their proper and effectuall cures, such diet set down as ought to be observed in sickness or in health. With other safe waies for preserving of life, in excellent aphorisms, and approved medicines, so plainly and easily treated of, that the free-born student rightly understanding this method, may judg of the practice of physick, so far as it concerns himself, or the cure of others, &c. A work never before publisht, very necessary for all that desire to be rightly informed in physick, chyrurgery, chymistry, &c. By Nich. Culpeper, late student in physick and astrology. The narrative of the authors life is prefixed, with his nativity calculated; together with the testimony of his late wife, Mrs. Alice Culpeper, and others. The general contents of this work are in the next page: with two perfect t[ab]les very useful to the reader. London, 1678.*

Culpeper, Nicholas. *Culpeper's school of physick, or, The experimental practice of the whole art wherein are contained all inward diseases from the head to the foot, with their proper and effectual cures, such diet set down as ought to be observed in sickness or in health : with other safe waies for preserving of life ... / by Nich. Culpeper ... ; the narrative of the authors life is prefixed, with his nativity calculated, together with the testimony of his late wife, Mrs. Alice Culpeper, and others. London, 1678.*

Culpeper, Nicholas. *Culpeper's school of physick, or, the experimental practice of the whole art Wherein are contain'd, I. The English apothecary: or, the excellent virtues of our English herbs. II. Chymical and physical aphorisms and admirable secrets. III. The chirurgeon's guide: or, the errors of unskilful practitioners corrected. IV. The expert lapidary: or, a treatise physical of the secret virtues of stones. V. Doctor diet's directory: or, the physician's vade mecum; being safe rules to preserve health in a methodical way. As also, the mystery of the skill of physick made easie. VI. Chymical institutions; describing nature's choicest secrets in experienced chymical practice. A work very useful and necessary for the right information of all in physick, chirurgery, and chymistry, &c. By Nicholas Culpeper, late student in physick and astrology. With an account of the author's life, and the testimony of his wife, Mrs. Culpeper, and others. London, 1696.*

Flammel, Nicholas. *Nicholas Flammel, his exposition of the hieroglyphicall figures which he caused to bee painted vpon an arch in St. Innocents Church-yard, in Paris. Together with the secret booke of Artephius, and the epistle of Iohn Pontanus: concerning both the theoricke and the practicke of the philosophers stone. Faithfully, and (as the maiesty of the thing requireth) religiously done into English out of the French and Latine copies. By Eirenaeus Orandus, qui est, vera veris enodans. London: T[homas] S[nodham], 1624.*

Fonteyn, Nicolaas, *The womans doctour, or, An exact and distinct explanation of all such diseases as are peculiar to that sex with choise and experimentall remedies against the same : being safe in the composition, pleasant in the use, effectuall in the operation,*

cheap in the price / faithfully translated out of the works of that learned philosopher and eminent physitian Nicholas Fontanus, 1652.

Guybert, Philbert *The charitable physitian with the Charitable apothecary. Written in French by Philbert Guibert Esquire, and physitian regent in Paris: and by him after many severall editions, reviewed, corrected, amended, and augmented. And now faithfully translated into English, for the benefit of this kingdome, by I. W.* London: Thomas Harper, 1639.

Guybert, Philbert. *The charitable physitian with The charitable apothecary / vwritten in French by Philbert Guibert Esquire physitian regent in Paris, and by him after many severall editions, reviewed, corrected, amended, and augmented ; and now faithfully translated into English, for the benefit of this kingdome, by I.W. ,* London: Thomas Harper, 1639.

Harvey, Gideon. *Archelogia philosophica nova, or, New principles of philosophy containing philosophy in general, metaphysicks or ontology, dynamilogy or a discourse of power, religio philosophi or natural theology, physicks or natural philosophy / by Gideon Harvey, 1663*

Harvey, Gideon. *A discourse of the plague containing the nature, causes, signs, and presages of the pestilence in general, together with the state of the present contagion : also most rational preservatives for families, and choice curative medicines both for rich and poor, with several waies for purifying the air in houses, streets, etc. / published for the benefit of this great city of London, and suburbs by Gideon Harvey, 1665.*

Harvey, Gideon. *The family physician, and the house apothecary containing I. Medicines against all such diseases people usually advise with apothecaries to be cured of, II. Instructions, whereby to prepare at your own houses all kinds of necessary medicines that are prepared by apothecaries, or prescribed by physicians, III. The exact prices of all drugs, herbs, seeds, simple and compound medicines, as they are sold at the druggists, or may be sold by the apothecaries, IV. That it's plainly made to appear, that in preparing medicines thus at your own houses, that it's not onely a far safer way, but you shall also save nineteen shillings in twenty, comparing it with the extravagant rates of many apothecaries.* London, 1676.

Harvey, Gideon. *The family-physician, and the house-apothecary containing I. Medicines against all such diseases people usually advise with apothecaries to be cured of, II. Instructions, whereby to prepare at your own houses all kinds of necessary medicines that are prepared by apothecaries, or prescribed by physicians, III. The exact prices of all drugs, herbs, seeds, simple and compound medicines, as they are sold at the druggists, or may be sold by the apothecaries, IV. That it's plainly made to appear, that in preparing medicines thus at your own houses, that it's not onely a far safer way, but you shall also save nineteen shillings in twenty, comparing it with the extravagant rates of many apothecaries.* London, 1678.

Harvey, Gideon. *The art of curing diseases by expectation with remarks on a supposed great case of apoplectick fits: also most useful observations on coughs, consumptions, stone, dropsies, fevers, and small pox : with a confutation of dispensatories, and other various discourses in physick*, 1689.

Headrich, John. *Arcana philosophia, or, Chymical secrets containing the noted and useful chymical medicines of Dr. Wil. and Rich. Russel chymists, viz. I. Species vitae, alias universalis, II. Tinctura regalis, call'd scorbutick, &c., III. Species corroborativa, alias pleuretica, IV. Species proprietatis, V. Species minor, VI. A pestilential cordial, call'd his white cordial : as also several curious chymical processes and spagerick preparations of natural things for the use of medicin, and many other things of great use and vertue in eradicating the most stubborn diseases, likewise four curious small treatises, viz. the I. Of fevers, the II. Of the jaundies, the III. Of madness, and the IV. Of diarrhaeas, lientries &c., by the renowned and most aproved Dr. Aurelius Philipus Theophrastus Paracelsus, of Hoheneim / publish'd by John Headrich*, 1697.

Houpreght, John Frederick. *Aurifontina chymica, or, A collection of fourteen small treatises concerning the first matter of philosophers for the discovery of their (hitherto so much concealed) mercury which many have studiously endeavoured to hide, but these to make manifest for the benefit of mankind in general*. London, 1680.

John XXI, Pope. *The tresurie of healthe conteynyng many profitable medycines, gathered out of Hypocrates, Galen and Auycen, / by one Petrus Hyspanus & translated into Englysh by Humfre Lloyde who hath added therunto the causes and sygnes of euerye dysease, wyth the Aphorismes of Hypocrates, and Iacobus de Partybus, redacted to a certayne order according to the membres of mans body, and a compendiousse table conteynyng the purging and confortatyue medycynes, with the exposicyon of certayne names & weyghtes in this boke contayned, wyth an epystle of Diocles unto kyng Antigonus, at ye request of the right honorable Lord Stafford, for the noble pryncesse and his especial good lady the Duches of Northumberlande.. Aphorisms. Aphorisms. , London: Wyllyam Coplande., ca. 1550.*

John XXI, Pope. *The tresurie of health contayning many profitable medicines, gathered out of Hipocrates, Galen and Auicen / by one Petrus Hyspanus, and translated into English by Humfry Lloyd, who hath added thereunto the causes and signes of euery disease, with the Aphorismes of Hipocrates, and Iacobus de Partibus, redacted to a certaine order according to the members of mans bodie, and a compendious table containing the purging and confortative medicines, with the exposition of certaine names and weights in this booke contained, with an epistle of Diocles unto Kyng Antigonus.. London: William Copland, ca. 1550.*

John XXI, Pope. *The treasury of healthe conteynyng many profitable medycines gathered out of Hypocrates, Galen and Auycen, by one Petrus Hyspanus [and] translated into Englysh by Humfre Lloyde who hath added therunto the causes and sygnes of euerye dysease, wyth the Aphorismes of Hypocrates, and Iacobus de Partybus redacted to a certayne order according to the membres of mans body, and a compendiousse table*

conteynyng the purginge and confortatyue medycynes, wyth the exposicyo[n] of certayne names [and] weyghtes in this boke contayned wyth an epystle of Diocles vnto kyng Antigonus. London: Wyllyam Coplande, not before 23 Aug. 1553.

John XXI, Pope. *The treasuri of helth contaynyng many profytable medicines, gathered out of Hipocratz [sic], Gale[n] [and] Auicen by one Petrus Hyspanus [and] tra[n]slated into Englysh by Hu[m]fre Lloyd who hath added therunto ye causes [and] sygnes of euer[y] dysease, w[ith] the aphorismes of Hipocrates, and Iacobus de Partybus redacted to a certayne order according to ye me[m]bres of mans bodys, and a compendiousse table conteynyng the purging and confortatiue medicines, wyth the exposicion of certayne names [and] weyghtes in thys boke contayned wyth an epystle of Diocles vnto Kyng Antigonus.* London: Wyllyam Coplande, ca. 1556.

John XXI, Pope. *The treasuri of helth contaynyng many profytable medicines, gathered out of Hipocratis, Galen, and Auicen by Petrus Hyspanus and tra[n]slated into Englyshe by Humfrey Lloyd, who hath added therunto the causes and sygnes of euery dysease, with the aphorismes of Hipocrates and Iacobus de Partibus redacted to a certayne order accordinge to the me[m]bres of mans bodys, and a compendiousse table conteyning the purgyng [and] confortatiue medicines, wyth the exposition of certayne names and weightes in this boke contayned wyth an Epistle of Diocles vnto King Antigonus.* Epistola de secunda valetudine tuenda. English. Epistola de secunda valetudine tuenda. London: Willyam Coplande, 1558.

John XXI, Pope. *The tresurie of health contayning many profitable medicines, gathered out of Hipocrates, Galen and Auicen by one Petrus Hyspanus, and translated into English by Humfry Lloyd, who hath added therevnto the causes and signes of euery disease, with the aphorismes of Hipocrates, and Iacobus de Partibus, redacted to a certaine order according to the members of mans bodie, and a compendious table containing the purging and confortatiue medicines, with the exposition of certaine names and weights in this booke contained, with an Epistle of Diocles vnto Kyng Antigonus.* London: Thomas Hacket, c. 1570.

John XXI, Pope *The treasury of health containing many profitable medicines, gathered out of Hipocrates, Galen, and Auicen, by one Petrus Hyspanius & translated into English by Humfrie Lloyd, who hath added therevnto the causes and signes of euerie disease, with the aphorismes of Hypocrates, and Iacobus de Partibus, redacted to a certaine order according to the members of mans bodie, and a compendious table, containing the purging and confortatiue medicines, with the exposition of certaine names and waightes in this booke contained, with an Epistle of Diocles vnto King Antigonus.* Epistola de secunda valetudine tuenda. English. Epistola de secunda valetudine tuenda. London: Printed by Thomas East, 1585.

Johnson, Thomas. *Cornucopiae, or diuers secrets wherein is contained the rare secrets in man, beasts, foules, fishes, trees, plantes, stones and such like, most pleasant and profitable, and not before committed to bee printed in English. Newlie drawn out of diuers Latine authors into English by Thomas Iohnson.* London: J. Danter, 1595.

Johnson, Thomas. *Cornucopiae, or Diuers secrets vvherein is contained the rare secrets in man, beasts, foules, fishes, trees, plantes, stones and such like, most pleasant and profitable, and not before committed to bee printed in English. Newlie drawn out of diuers Latine authors into English by Thomas Iohnson.* London: J. Danter, 1596.

Legh, Gerard. *The accedens of armory.* London: Richard Tottill, 1562.

Legh, Gerard. *The accedens of armory.* London: Rychard Tottel, 1568.

Legh, Gerard. *The accedens of armory* , London: Rychard Tottel, 1576.

Legh, Gerard. *The accedence of armorie,* London: Rychard Tottell, 1591.

Legh, Gerard. *The accedence of armorie.* London: Henrie Ballard, 1597.

Legh, Gerard. *The accedence of armorie.* London: Iohn Iaggard, 1612.

Maplet, John. *A greene forest, or A naturall historie vvherein may bee seene first the most sufferaigne vertues in all the whole kinde of stones & mettals: next of plants, as of herbes, trees, [and] shrubs, lastly of brute beastes, foules, fishes, creeping wormes [and] serpents, and that alphabetically: so that a table shall not neede. Compiled by Iohn Maplet, M. of Arte, and student in Cambridge: entending hereby yt God might especially be glorified: and the people furerdered. Anno 1567.* London: Henry Denham, 1567.

Monardes, Nicolás. *Ioyfull newes out of the newfound world wherein are declared the rare and singular vertues of diuers and sundrie herbs, trees, oyles, plants, [and] stones, with their applications, aswell to the vse of phisicke, as chirurgery: which being wel applied, bring such present remedy for all diseases, as may seeme altogether incredible: notwithstanding by practize found out, to be true. Also the portrature of the sayde herbes, very aptly described: Englished by Iohn Frampton merchant. Newly corrected as by conference with the olde copies may a[ppear]e. Wherevnto are added three other booe[kes tre]ating of the Bezaar stone, the herbe es[cuer conera], the properties of yron and steele, in medicine and the benefite of snowe.* London: Thomas Dawson, 1580.

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