INTRODUCTION
"WHATEVER JEWELS MOTHER EARTH BRINGS FORTH FOR THE USES OF MEN . . ."

Camillo Leonardi and the Tradition of Magical/Astrological Lapidaries

The lapidary—a genre that discusses the natural, manifest, and occult (in the sense of hidden) properties of precious and semiprecious stones as well as of their graven images and applications—testifies to the medieval and early modern periods' great interest in the magical properties of gems. Such properties—*proprietas*, *vis*, *virtus*, or *natura*—were usually considered to be an aspect of natural magic, because they were believed to derive from both the natural elements and the occult properties of a stone's matter in addition to the influence of zodiacal powers associated with the planets, stars, and other celestial bodies.[1]

The *lapidarium* (from the Latin *lapis*, stone) was a popular genre of the medieval and Renaissance periods. Late nineteenth- and early twentieth-century English scholarship, though, largely ignored this genre.[2] Paul Studer and Joan Evans's 1924 work on Anglo-Norman lapidaries notwithstanding, it was only in the 1960s that these important primary sources began to receive closer attention.[3] Dorothy Wyckoff's 1967 translation of Albertus Magnus's (ca. 1200–1280) *Book of Minerals* (*De mineralibus*) represented an important step in expanding our understanding of lapidaries.[4] Though the 2007 edition of Isidore of Seville's (ca. 560–636 CE) *Etymologies* by Barney, Lewis, Beach, and Berghof and Attrell and Porreca's 2019 study and translation of the *Picatrix* are important correctives, much work remains to be done.[5]

A similar pattern of scholarship—late nineteenth- and early twentieth-century studies generally overlooking the subject followed by a burgeoning interest in the 1950s and 1960s, before more systematic efforts in the last twenty years—may be noted for the study of the engraved gems to which both the classical world and the early modern period attributed magical properties. This

was especially the case within the discipline of art history. Indeed, we can trace the general state of disregard in such circles to Winckelmann's 1764 framing of Greco-Roman art solely within the confines of a rational, sublime aesthetic.[6] As a result, many ancient, medieval, and Renaissance gems once appreciated for their magical properties were often neglected and largely uncatalogued in major European collections, since they were seen to be of little aesthetic value. Even scholarly interest in the subject is relatively recent. Only after Bonner published his 1950 study of ancient magical amulets and talismans did scholars begin to pay closer attention to this class of objects.[7] Bonner's work was followed, in 1964, by Delatte and Derchain's study of ancient magical gemstones held at the Bibliothèque nationale in Paris.[8] Attilio Mastrocinque has written extensively on ancient gems, while Simone Michel, Peter Zazoff, and Hilde Zazoff cataloged those of the British Museum.[9] The team behind the Campbell Bonner Magical Gems Database, launched in 2010, wants to go so far as to make the entire corpus of magical gems available online.[10]

The present volume contributes to the scholarly discourse on lapidaries and gems to expand our range of known primary sources. The ultimate aim is to better understand lapidaries and the gems and jewels that Renaissance individuals collected and used. Unfortunately, if and when we talk about the hidden properties of stones, the overwhelming tendency has been to consult "great" texts, such as those of the medieval bishop Marbode of Rennes (ca. 1035–1123) or the Renaissance philosopher Marsilio Ficino (1433–1499). What follows, by contrast, offers a lesser-known treatise but one no less important for examining the place, role, and function of stones, gems, and jewels in Renaissance society. Camillo Leonardi's (second half of the fifteenth century to first half of the sixteenth century) magnum opus *The Mirror of Stones* (*Speculum Lapidum*, 1502) was a bestseller in its day, offering a glimpse of the use of magical rings within a medical practice governed by astrological notions, according to which the signs of the zodiac and the planets ruled different parts of the human body and therefore its various illnesses.[11] Unlocking the hidden connections between these promised health and prosperity. Such a study also helps us appreciate that the magical properties and aesthetic qualities of rings were intrinsically intertwined.

Encyclopedic in scope—summarizing as it does all classical and medieval sources on the healing properties of stones (lithotherapy)—Leonardi's *Mirror of Stones* is often cited but has never been fully translated into English. Carla de Bellis briefly examined it in her 1985 study published in the Italian language and, more recently, Claude Lecouteux and Anne Monfort annotated and translated the third volume into French.[12] Following the lead of de Bellis, the treatise is surely deserving of attention, if for no other reason than it provides a

convenient summary of previous texts. But more than a summary, the treatise also allows us to investigate the role of medical astrology and astral magic in the life of an Italian court in the early modern period. Furthermore, the third volume features a discussion of engravers who would have been the author's contemporaries, thereby contextualizing images of astral magic within up-to-date notions of artistic practice.

The historians Lecouteux and Monfort focus primarily on Leonardi's list of astrological images, providing a close comparison of each one to its most likely earlier source (e.g., ancient lapidaries attributed to Ragiel/Raziel, Thetel/Tethel/Chael, and King Solomon).[13] Unlike their study, however, what follows provides a much better sense of the range of sources the author used and is attuned to the broader context in which he advocated for the use of precious and semiprecious stones. In terms of the history of art, Leonardi's work shows us the deep-rooted connections between magic and artistic production.

Since heavenly influences governed a variety of activities—from the political appointments of military generals to the medical choice of appropriate potions—this treatise helps us better understand how Renaissance thinkers, and the communities for which they wrote, conceptualized the complex relationships between stones, the images engraved on them, and the planets and other astral bodies. The wearing of rings with stones, whether engraved or not, served a number of purposes. The rings could be used for adornment as well as for healing and protection from all sorts of misadventures, from poison to illnesses to curses.

It is safe to say, then, that *The Mirror of Stones*, as a classic example of the genre of lapidaries, is concerned with medical and astral magic.[14] As Signorini and Azzolini have suggested, experienced physicians commonly made use of magical amulets and talismans.[15] While the physician-astrologer, as Azzolini argues, might at first appear to be a minor professional figure, he can actually facilitate our understanding of practices of natural magic and astrology at Italian courts.

The Genre of *Lapidaria*

The lapidary genre has remained relatively constant since antiquity, with most examples discussing the natural, manifest, and occult virtues of each stone as well as their applications. However, the works' form and content could vary. Stones listed included gemstones, minerals, fossilized materials, animal products, and stones of mythical origins. The descriptions and properties of those stones reputed to have both manifest and occult aspects often verged on the

fantastical. The doctrine of signatures—the idea that God had marked certain properties in them—suggested some of the stones' uses.[16] Stones with vivid red colors (e.g., hematite or red coral), for example, were believed to be suitable for the stanching of blood. Occult properties instead required learned knowledge, though such properties, on occasion, could be easily recognized. The classic example was the power of certain minerals to attract others, known today as the phenomenon of magnetism.

It is possible to distinguish three types of lapidaries.[17] The first type is mineralogical or scientific, that is, lapidaries that generally eschew references to magic, such as the works of Theophrastus (ca. 371–ca. 287 BCE), Pliny (23/24–79 CE), and Dioscorides (ca. 40–90 CE). The second type of lapidary is magical or astrological. Such lapidaries emphasize magic, from charms to talismans to incantations, and include Damigeron's (second-century BCE) *De virtutibus lapidem* (The virtues of stones) and the *Kyranides* (or *Cyranides*, a collection of magico-medical texts compiled sometime in the fourth century CE). The third type of lapidary may be called Christian symbolic or allegorical. In these works, stones are associated with religious symbolism of both Christian and Jewish origins, such as the *De duodecim gemmis* (On the twelve gems) by Saint Epiphanius (ca. 315–420 CE), bishop of Constantia in Cyprus.[18]

Although all medieval and early modern lapidaries were influenced by Greek sources, direct connections between antiquity and the Renaissance are clear only in the first type, the scientific or mineralogical lapidary. Astrological lapidaries were reintroduced to the West through Arab sources. The Christian symbolic lapidaries reveal only distant echoes of their Greek origins. Sometimes the differences among the three types are rather slight, as was the case in antiquity. This is true as well for Leonardi's *Mirror of Stones*. Encompassing both mineralogical and magical aspects, the text securely straddles the first and second categories. It discusses the mineralogical formation of a stone, its magical and occult properties, and the astrological and magical images that could be engraved on it to better capture all manner of heavenly influences.

Magical Elements in Lapidaries

Even though many ancient references to the medical properties of stones are considered to be scientific (e.g., the works of Hippocrates, Theophrastus, Dioscorides, Galen, and Pliny), there still were allusions to magic. For example, we read of the importance of rituals when it comes to the handling of certain plants only with the left hand. In the case of Dioscorides's *De materia medica*, some stones are said to be useful not only in the making of potions to be ingested but

also as medical amulets to be worn on the body. Moreover, an analysis of Pliny's sources, though difficult to reconstruct because of their fragmentary nature, reveals both magical and scientific antecedents.[19] One such source, that of Xenocrates (396–314 BCE)—also known to Arab authors, whose citations correspond with those of Pliny[20]—is believed to be behind Pliny's idea that diamonds may be dissolved in the blood of a goat.[21] According to some of these Arab authors, Xenocrates also described the therapeutic use of "eagle stones" for pregnant women, something repeated virtually in almost all lapidaries of the medieval and early modern period. Xenocrates is also credited with numerous other beliefs: that Egyptian galactic whitens cloth; that hematite halts the flux of blood, eases urine retention, and protects against snake venom; that the Indian red crystal possessed its own light; that the emerald was useful against poisons, leprosy, women's illnesses, snakebites, and illnesses of the eye; and that hyacinth placed in the mouth could detect poison in wine.

Pliny also mentioned a certain Babylonian named Zachalis, believed to be a Chaldean, who attributed to stones the virtue of influencing human destiny.[22] Pliny might have also been aware of the work of the third-century BCE Neopythagorean Bolus of Mendes on universal sympathies. The latter was thought to have popularized theories of natural virtues of stones in relationship with the cosmos and thus possibly influenced Pliny's conception of sympathetic correspondences.

Such scientific lapidaries were known and cited throughout the medieval and early modern period. However, it is those Hellenistic lapidaries that emphasized magic—from charms and talismans, to incantations, and conjurations—that captured the imagination of medieval and Renaissance readers. Within this context astrological lapidaries, which were even more syncretic in nature, reveal multiple influences. A stone's power could just as easily be attributed to its ratio of the four elements as to its planetary influences. The engraving of specific images on stones, such as specific zodiacal signs or symbols, could either further enhance an item's powers or bestow new capabilities. We see this, for example, in astromedical treatises such as the *Sacred Book of Hermes to Asclepius* (first to fourth century CE).[23]

Although at first glance the range of marvelous properties in such treatises might appear varied, David Pingree subdivides magical astrological lapidaries into three categories. First are those texts that discuss the magical power inherent to the stone itself (e.g., those of Pliny, Isidore of Seville, Damigeron Evax, and Marbode—all sources that Leonardi used). Second are those texts that considered stones and engraved images as equally important to the functioning of the stone through ritual activation (e.g., texts such as the one attributed to Thetel, Tethel, or Techel, which Leonardi also referenced). Third, and finally, are

those texts in which engraved stones derived their power directly from planets, stars, and constellations (e.g., the composite text scholars refer to as the "Techel/Azareus Complex").[24] Such subdivision is certainly more reflective of our contemporary scholarly needs than any historical taxonomy, and many texts resist such tidy distinction. Indeed, as we shall see, Leonardi was interested in the occult magical powers of stones in addition to those produced by graven images inscribed on them.

Leonardi was certainly aware of the idea that images on stones could confer new, non-intrinsic properties. This proved to be a problem. If the marvelous properties of stones were not simply the result of their natural elements, but could also be imposed by images on them, one risked entering the problematic realm of ceremonial or "addressative" magic—that is, magic in which spoken words were used to activate images.[25] Hence it became necessary to distinguish between licit and illicit images. If stones without graven images or symbols could generally be considered natural (today referred to as amulets), engraved stones (today referred to as talismans) presented a much more problematic category.

Lecouteux is therefore correct in proposing that in trying to distinguish amulets from talismans, what we really must pay attention to are medieval and early modern notions of the licit and illicit use of these objects. By stating that "amulets are licit; talismans are superstitious and illicit," he reminds us that premodern writers were engaged in establishing whether the use of any amulets or talismans was appropriate for a good Christian.[26]

Not every scholar, though, agrees with Lecouteux's proposed distinctions. Though late nineteenth-century and early twentieth-century scholarship often used these terms interchangeably, it is now customary to distinguish between them and to further distinguish between licit and illicit talismanic images.[27] In the 1980s, David Pingree argued that talismans and amulets could be differentiated according to material—amulets in stone and talismans in metals—and by the type of ritual that activated the image. Thus an amulet could be said to be "a stone of inherent supernatural powers that may be engraved and/or consecrated, and that is either used as a seal or worn as a phylactery."[28] In contrast, a talisman was "an image either made of metal (though sometimes of wax, or even mud, is used) in the round or engraved on a metal plate, over which image a ceremony or incantations and suffumigations is performed in order to induce a spirt to enter the talisman and to endow it with power."[29] Brian Copenhaver, however, has suggested the difference between the two was whether an image was engraved on any material.[30] According to him, amulets were stones or any object hung from the neck or worn on the body, without sign or image, but believed to have wondrous powers; a talisman was engraved with artificial marks, either image or word.

Nicolas Weill-Parot goes even further and argues for the distinction between licit and illicit talismanic images on the basis of the distinction made by the unknown medieval author of the *Speculum astronomiae* (*The Mirror of Astronomy*, ca. 1260), whom he calls Magister Speculi.[31] Licit astrological talismans, on this reading, would not only bear images of the specific astrological configuration but derive their powers solely from the stars, not from demons.[32] Furthermore, the astrological aspects of such licit talismans "does not reside in the shape of these images . . . but in the conditions under which they are made, i.e. under the appropriate constellations."[33] Such talismans may be referred to simply as *imagines*. Illicit talismans, instead, could be of two types: the first, images requiring suffumigations (e.g., the use of incense) and invocations for their activation; and the second, images requiring "the inscription of characters and the oral exorcism by means of certain names."[34] This second type of talisman usually bore inscriptions with various characters (Hebrew, Greek, Arab, Latin), which—according to al-Kindī's (ca. 800–870s) *De radiis*—were meant to influence and control men, animals, and the natural elements.

To complicate matters, though, by the beginning of the fifteenth century a number of Italian authors, including Antonio da Montolmo (ca. late 1300s to early 1400s) and Giorgio Anselmi (1385–1450), began using the concept of licit talismans, or astrological images, as a shielding word that concealed addressative magic practices or any ritual activity involved in their construction.[35] The misappropriation of the label "astrological images" thus renders ambiguous contemporary classifications of licit and illicit talismanic images. If ambiguity were a characteristic of Renaissance magic, as already pointed out by Zambelli, Leonardi certainly exploited it, particularly in book 3, where he lists all sorts of talismans or "astrological images" that implied aspects of addressative magic.[36]

However ambiguous the matter became by the fifteenth century, Weill-Parot points out a fundamental element used by medieval and early modern writers in their assessment of a licit versus illicit use of an object—that is, its ritual preparation, including invocations of a demonic power. In this sense, an amulet was mostly a protective object involving no invocations, but an illicit talisman manipulated the universe's energies through rituals and invocations.

The demonic potential of illicit talismans was recognized early in the history of the Christian church. The first Christian condemnations of astrology and magic, and thus of engraved images with characters, were issued in 363–64 CE during the regional synod in Laodicea (Phrygia Pacatiana in modern Turkey) and followed by Augustine of Hippo's (354–430 CE) own condemnation.[37] Augustine sanctioned the use of stones of wondrous properties as long as they bore no marks, images, or signs of any kind, since the presence of occult properties in material things could only be the result of God's will. Thanks to such

early condemnations, by the eleventh century a great many of the lapidaries in circulation studiously avoided any mention of astrological images or ceremonial magic. Bishop Marbode of Renne's *De lapidibus* (ca. 1090) is perhaps the best known of such texts.

Marbode's text drew heavily from the acceptable preexisting lapidary tradition. This included texts such as Damigeron/Evax's *De lapidibus* (second century BCE), a fictive epistle directed to the emperor Tiberius by a certain Evax, king of Arabia. Although Damigeron traced his knowledge back to the ancient Egyptians, the contents of the epistle were acceptable to medieval writers like Marbode because the ultimate source of a stone's property could easily be attributed to God. The text was translated from the Greek into Latin in the fifth century and became widely popular both in the medieval and the early modern period. The incipit is quoted in countless manuals.[38] Even those authors who did not consult Damigeron directly still could quote him through Marbode.

Marbode's notion of the planets' influence as "natural" was further articulated by William of Auvergne (bishop of Paris, 1228–49). He reiterated that using engraved talismans was demonic and illicit, whereas no evil could come to those who believed that the inherent properties of a stone were influenced by the planets. The planets were natural bodies and as such under direct divine control; no evil spirit could reside within them.[39] Not every writer subscribed to such a benign notion of the universe, however. The problem of images engraved or drawn on any material endowed with occult properties continued to occupy writers and thinkers of the thirteenth and fourteenth century. For Albertus Magnus (ca. 1200–1280 CE) it was possible to accept the use of talismans (licit astrological images, or *imagines astronomicae*), as described in works such as Thābit ibn Qurra's *De imaginibus*, because these texts reflected William of Auvergne's notion of benevolent cosmological influences.[40]

However, the notion of *imagines astronomicae*, according to Weill-Parot, was probably not of Albertus's own making but introduced by the previously cited anonymous author of the *Speculum astronomiae* (ca. 1260).[41] As mentioned above, the latter envisioned licit talismans that derived their power from the planets and stars rather than spirits. Thus licit engraved images or astrological images could be considered acceptable, as long as no invocations had been used—that is, there was no addressative ritual magic involved. Albertus, in accepting this notion, discussed images to be engraved on stones at a propitious time, such as when specific constellations governing the wished-for celestial influence were in the most favorable position. Such licit astrological images could be considered a component of natural magic, for the image received its properties from the celestial element, which was created by God. If the Magister Speculi introduced the notion of licit talismanic images, it was the popularity

of Albertus's treatise that ensured its widespread reception. Four hundred years after its conception, Albertus Magnus's *De mineralibus* (*Book of Minerals*) was the fundamental text that Leonardi relied on to craft his own treatise.

In juxtaposition, Thomas Aquinas (1225–1274) in his *Summa theologica* argued that planetary influences were not always so benign, since he believed the planets could be inhabited by evil spirits.[42] The practice of wearing talismans was singled out as especially problematic.[43] Subsequent writers continued to struggle with the question of whether the planets and stars could indeed fall under demonological influences. If William of Auvergne presented what Page calls an orthodox cosmological model, others envisioned powerful planetary demons that could influence all sorts of human activities.[44]

This aversion to the use of astrological talismans mirrors the difficulty of defining and describing magic. Medieval and Renaissance critics of magic often tried to group alchemy and astrology with other black magic practices, such as necromancy or the summoning of dead spirits.[45] When they did not go that far, they tried to keep alchemy and astrology as distinct forms of natural magic. Definitions of magic, natural magic, and necromantic magic—including all their subcategories—varied from century to century, from geographical location to location, and were deeply shaped by political and social forces.[46]

This problem persists today. There is, in fact, little scholarly consensus on the definition of magic and the phenomena it is meant to encompass (from amulets to conjuration, from exorcism to incantation, from sorcery to potions). Anthropologists, social historians, and intellectual historians often pursue differing categories of semantic analysis and thus often reach disparate conclusions. Such critics have long looked at notions of magic in opposition to those of science or religion and have addressed epistemological issues within the framework of magic's rationality. It is for this reason that we are using the term *magic* as understood in reference to those properties—*proprietas*, *vis*, *virtus*, or *natura*—that operate in the world or that affect the world through the use of astrological images or talismans.

Historically, we witness some of these problems of definition in Marsilio Ficino's *De vita libri tres* (1480), a treatise that envisioned magic as a practice grounded in Neoplatonism and Hermeticism and went on to influence ideas of ritual magic in fifteenth-century Italy.[47] Because Ficino saw himself as both a magus and a philosopher, it is difficult to assess whether his notion of astrological images and natural magic were purely intellectual or whether he engaged in the practice of magic rituals.[48] Yet it seems clear that Ficino is yet another representative of the Italian tradition of physician-astrologers who authored texts advocating the use of astrological images in the context of medical practice.[49]

Throughout the medieval period, we witness numerous magical texts pseudo-epigraphically attributed to ancient authorities such as the biblical King Solomon or the legendary Hellenistic author Hermes Trismegistus, thereby giving texts a revelatory source.[50] It is only in late fourteenth-century Italy that we begin to witness authors using their real names, such as Antonio da Montolmo[51] (ca. late 1300s–early 1400s) and Cecco d'Ascoli (1257–1327).[52] However, such claims of authorship continued to remain fraught with peril well into the seventeenth century. Cecco d'Ascoli, for example, was ultimately executed for his beliefs, and even the great Marsilio Ficino—writing some 250 year later—was forced to repudiate his *De vita*.[53]

For these reasons, Leonardi styles himself as a mere collector of hallowed knowledge, as opposed to one of its creators. He frequently uses the word *magic* but never defines it. He uses even more frequently the formulaic expression "if you find an image of . . ." to avoid charges of active talismanic manufacture.

Most talismanic images that Leonardi describes—he calls them *imagines* or seals, as other earlier and contemporary writers do—were meant to be worn as rings, not hung from the neck. Rings, then, not only were markers of one's social class but also functioned as the conduit between wearer and heavenly forces.[54] They evoked an aesthetic response while simultaneously signaling a range of other possibilities that included social status, political allegiance, and belief in magic.[55] Similarly, the lapidary text makes sense when situated against a broader historical social and intellectual context. In fifteenth- and sixteenth-century Italy lapidaries were usually produced in a courtly setting, by a physician or philosopher who meant to address a learned reader for whom notions of magic were not disconnected from everyday life experiences, but instead were instead imbedded in a daily practice of medical welfare.

Camillo Leonardi

Although little is known about the Renaissance physician and astrologer Camillo Leonardi, author of the *Speculum Lapidum*—including the dates of his birth and death—it is still possible to outline a biographical sketch from a few secure elements and a number of tangential ones.[56] As his commemorative tombstone reads, he was from Pesaro and lived there for the majority of his life (figs. 1 and 2). The city at the time was an important cultural center on the Adriatic coast of the Marche region. As per his wishes, he was interred with his wife and his brothers in the former church of San Francesco d'Assisi, now known as the Santuario di Santa Maria delle Grazie.[57] Although the marker does not mention his date of birth or death, he was probably born in or near Pesaro in the second half of the fifteenth century and died sometime around 1532.[58]

Fig. 1 Camillo Leonardi's commemorative tombstone, Santuario di Santa Maria delle Grazie, Pesaro. Photo: author.

Fig. 2 Detail of Camillo Leonardi's commemorative tombstone, Santuario di Santa Maria delle Grazie, Pesaro. Photo: author.

As far as his immediate family is concerned, Camillo Leonardi—whose first name also appears as Camillus, and his last name as Lunardi, Leonardus, and de Leonardis—was the son of Stefano Leonardi and a certain Cicella.[59] We also know that he had a daughter by the name of Basilia (or Basilea) who married another physician from Pesaro, Francesco Arduini. An eighteenth-century transcription of original documents states that he was granted a medical degree in Padua on September 7, 1471.[60] Given the date of the degree and the rough time frame of his death, he must have been born sometime around 1450 and thus died in his mid- to late eighties. According to his own account, he studied in Padua with Gaetano da Thiene (1387–1465), a physician and professor of natural philosophy.[61] In book 1, chapter 5, Leonardi refers to him as his teacher ("praeceptore meo"), as well as an eminent philosopher and absolute authority of our times ("summo philosopho ac nostris temporibus monarcha").[62] Considering that Gaetano da Thiene died in 1465 and that Leonardi did not receive his degree until 1471, he must have met his teacher very early on in his university studies. Even if Leonardi frequented the lessons of Gaetano da Thiene only for a brief time, it is not surprising that he cited him as his *praeceptor*, as the latter's fame alone would have been sufficient for Leonardi to claim to have been his pupil. Upon completion of his studies, he returned to Pesaro, where he became one of the official court physicians, first to Costanzo Sforza and his son Giovanni, and then to their successor, Cesare Borgia, duke of Valentinois, who conquered Pesaro in 1500. Cesare, who was the illegitimate son of the Spanish cardinal Rodrigo Borgia, later Pope Alexander VI, lost the duchy a mere three years later upon his father's death, at which point Giovanni Sforza returned to power. Leonardi managed to keep his role as court physician, and upon Giovanni's death in 1519 he continued as court physician to the new lord, Francesco Maria I delle Rovere.

Leonardi started writing the *Speculum Lapidum* under Sforza rule and originally intended it for Giovanni, but then adapted it and dedicated it to Cesare Borgia, under whose rule it was published.[63] In book 1, chapter 5, Leonardi describes the type of marble found in Cesare's study—most likely the same space Giovanni had used—stating that a similar kind could also be seen in the church of San Marco and throughout Rome. Beyond the author's suggestion of his proximity to the ruler, the reference is interesting because it might also indicate that Leonardi had traveled to or sojourned in Venice and Rome. Venice would have been a day's journey from Padua, and it is likely that Leonardi would have undertaken just such a journey during his student years. It is not necessary, though, to imagine Leonardi traveling through Italy to expand his interests and intellectual preparation, for his writings confirm that he actively participated in the rich and varied intellectual life of the Pesaro

court, both under the Sforza and the Borgia princes. The city had been a vibrant center of scholarly life since the early fifteenth century thanks to the numerous humanists the Sforza had invited to court. It is there that Leonardi met the Tuscan humanist and military captain Lorenzo Bonincontri, a key figure in understanding Leonardi's preparation and knowledge on the subject of lapidary medicine, medicinal amulets, talismans, and astral magic. While de Bellis had already noted the importance of Bonincontri on Leonardi, it is worth closely examining the connection, for it is through the former's intellectual background and output, which are better known to us, that we may gain insight into Leonardi's own intellectual interests.[64]

Leonardi and Bonincontri

The Italian astrologer and physician Lorenzo Bonincontri (1410–1491?) lived in Pesaro from 1479 to 1483 at the express invitation of the city's ruler, Costanzo Sforza. Exiled from Florence in 1432 because of his involvement with San Miniato's revolt against the Florentines, Bonincontri eventually settled in Naples around 1450 and remained there until 1475. At the Aragonese court, a veritable crucible of humanists, philosophers, and scholars interested in astrology, Bonincontri became deeply involved in the discipline. This was not an unusual interest for Italian humanists of the first decade of the fifteenth century, especially given Poggio Bracciolini's (1380–1459) rediscovery of Manilius's *Astronomicon* in 1416–17.[65] Copies of the manuscript soon circulated throughout Italy, one of which was owned by none other than Giovanni Pontano (ca. 1426–1503), one of the most interesting humanists active at the Neapolitan court.[66] Pontano's own interest in astrology led him to translate into Latin Ptolemy's second-century CE *Tetrabiblos* (Four books), a work that would become one of the most popular and consulted works of classical astrology after it was printed in 1535. Given Bonincontri's and Pontano's close friendship—Pontano called Bonincontri *familiares meus* (my relative, in the sense of family, a close family member)—we can assume the Neapolitan humanist spurred Bonincontri's interest in astrology. We know, for example, that Pontano loaned him his copy of the *Astronomicon*, which the latter then copied in his own hand. Bonincontri's interest in the astrological sciences seems to have been further driven by the fact that his wife and two of his three children perished during a virulent outbreak of the plague in 1458, which he blamed on the negative influence of two comets. Knowledge of such subjects would enable him to predict—and possibly prevent—such tragedies. In these years, Bonincontri began to write the *De rebus coelestibus* as well as a commentary on Manilius's *Astronomicon*, the *De rebus naturalibus et*

divinis.[67] He worked on this commentary alongside Tolomeo Gallina (active in the fifteenth century), a well-known astrologer from Catania who was the author of a *De rebus astrologicis* and had also been one of Giovanni Pontano's astrology teachers. Once he was allowed to return to Florence in 1475, Bonincontri became a close friend of Ficino, who called him *familiares*, just as Pontano had done in Naples, and referred to him with a clever play on words as *poeta astronomicus, astronomusque poeticus* (a poet astronomer and an astronomer poet).[68] By 1484, Bonincontri was active in Rome, had been admitted to the Accademia Pomponiana, and held the astrological professorship in the Studium Urbis at the express invitation of Pope Sixtus IV.

Bonincontri maintained numerous contacts with important figures of the time. In addition to Pontano and Marsilio Ficino, these included Cardinal Raffaele Riario, Cardinal Ascanio Sforza, and Pope Sixtus IV. Between 1478 and 1483–84 he brought all the knowledge accumulated in Naples and Florence, along with his important humanist connections, to the city of Pesaro, where he served as the official court astrologer, first to Costanzo Sforza and then to his son Giovanni.

The Sforzas' passion for and belief in astrology is well documented and certainly not unusual for the period.[69] An inventory of Giovanni's library taken on October 20, 1500, nine days after Cesare's conquest of the city and Giovanni's escape from it, shows that the collection was replete with works of literature, philosophy, theology (especially the works of Aquinas), astrology, medicine, and cosmography.[70] Among the titles inventoried, the library featured a number of tomes on astrology that Leonardi must have certainly consulted. Even a partial inventory is helpful to render the idea of the ruler's interest: *Algorismus* by Abraham Ries (a sixteenth-century German mathematician); a *Kalendarius et numerus aureus*; *Liber de astrologia* by the brothers Gregorio and Leonardo Dati; *Liber astrorum et judicii*, also known as the *Liber novem judicum in Judicijs astrorum* by Masha'allah ibn Atharī; *Astronomy* by Iulius Formius Mastinus (Giulio Formio Mastino?); *De imaginibus* (*Fabulae* or *De deorum imaginibus*) by Gaius Julius Hyginus (ca. 64 BCE–17 CE), who was also the author of a *Poeticon astronomicon*; *Astronomica* by Marco Manilio (first century CE); *Introductio astrologiae* by Lorenzo Bonincontri; *Vitae Aristotelis et de secretis secretorum*, possibly authored by Ramon Llull.[71] The Sforzas' passion for the subject is further confirmed by the fact that Bonincontri even dedicated one of his works, the *Integer tractatus de revolutionibus nativitatum*, to Giovanni Sforza.

It is perfectly feasible then to assume that while in Pesaro, Giovanni Sforza brought Bonincontri and Leonardi together, for they shared a common interest in all things astrological. It is easy to imagine that Bonincontri shared with Leonardi his own experience and knowledge of Manilius's *Astronomicon*. It is

further easy to imagine that he discussed with the Pesaro physician the ideas of Pontano, Gallina, and Marsilio Ficino on astrology and Neoplatonism. Bonincontri, like Leonardi, was interested in the healing properties of astrological images and the application of such images according to the specific needs of an individual birth chart. This is confirmed by a note in Pontano's commentary to the Pseudo-Ptolemy's *Centiloquium*.[72] He mentions that his friend Laurentius Miniatus—Lorenzo Bonincontri, who was from San Miniato al Monte—had healed another companion by the use of astrological images.[73] Such suppositions about Leonardi and Bonincontri's mutual interests and interactions are solidly corroborated by their close collaboration on a series of coauthored astronomical tables, *Tabulae astronomicae*, published in 1480.[74] Though the work is the only definitive proof of the two men's friendship and intellectual exchange, it is a significant one, given that such a project would inevitably entail prolonged contact, discussion, and exchange of ideas. Leonardi's interest did not end with his friend's departure; in fact, he continued publishing and producing a number of works on astrology.

In 1496, Leonardi edited the third edition of a planetarium treatise by Willem Gilliszoon (a.k.a. Guilelmo Aegidio or Guillermus Egidius) titled *Liber desideratus canonum equatorii coelestium motuum absque calculo*, published in Pesaro by Soncino and in Venice by Giorgio Arrivabene.[75] The work further underscores the physician's interest in astral medicine for it "included horoscopes and astrological rules for bleeding and administering drugs."[76] This is a subject that Leonardi returned to in 1508 with the publication of *Theory of the Planets* (*Tehorice* [*sic*] *planetarum*)[77] and then again in 1524 with the publication of *Lunar Calendar* (*Lunario al modo de Italia calculato* [*sic*]).[78] The 1525 edition of the latter was written in collaboration with Paul of Middelburg (1446–1534), who was in those years the bishop of Fossombrone. It is almost certainly due to his friendship with Paul of Middelburg that Leonardi became interested in the reform of the calendar, a subject on which Paul had written extensively.[79] The association with Paul further substantiates that Leonardi's background and knowledge were equal to those figures better known to us today, and that these same individuals esteemed him as their intellectual equal.

Indeed, Leonardi's skills as physician and diplomat must have been such that he was highly regarded by both rulers who employed him, the mutual enemies Giovanni Sforza and Cesare Borgia. His intellectual activity continued unabated under both, despite the political turmoil that Pesaro experienced in those years. As mentioned above, Leonardi's *Mirror of Stones* was published in 1502 and dedicated to Cesare, who one year later would lose the city back to Giovanni Sforza, whose vicariate of Pesaro was confirmed by Pope Julius II in 1504. Six years after the publication of *The Mirror of Stones* and four after Giovanni's

repossession of the city was confirmed, Leonardi appears not to have had any difficulty publishing the *Theory of the Planets* under the aegis of his former ruler. His allegiance to Cesare in the intervening years of Giovanni's absence had therefore not harmed his reputation or standing. It is certainly true that upon the Sforza's return Leonardi decamped to Ancona for a period, most likely to ensure he would not incur Giovanni's wrath, but he must have been a truly apt diplomat, as Giovanni Sforza not only readmitted him at court but trusted him enough to have him witness his own testament on July 27, 1510, the day he died.[80] Leonardi continued to be involved in Pesaro's affairs even during the rule of Francesco Maria I della Rovere, who succeeded Giovanni. Julius II bestowed on his nephew Francesco the city of Pesaro on February 20, 1513. A few months later, the city swore him fealty through the representation of three *procuratori*, all physicians: Aurelio Superchi,[81] Girolamo Maroni, and our Camillo Leonardi.[82] In fact, the author indefatigably continued his own intellectual activities right up to his death in 1532, the year in which he reedited the *Lunario al modo de Italia calculato* [*sic*], originally published in 1525.

The Mirror of Stones

The Title: Meaning and Specular References

Leonardi's sensitivity as an author is borne out by his insistence on framing the text within the broader movement of humanism, but in such a manner that it invokes the medieval encyclopedic tradition of the speculum as a mirror of nature. Thus his choice of title reflects the idea that a book may be both a tool and an object of contemplation meant to reveal the secrets of nature.[83] As Leonardi states in his prefatory epistle, "We titled this book *The Mirror of Stones*, so that the nature and strength of stones, the engraved images, and the knowledge of many other things may be seen in it as in an actual mirror."[84] He was aware that speculum would evoke the hallowed writers of the medieval past, from Augustine onward.[85] Leonardi, in fact, states that his own work derived from a serious consultation of the opinions and writings of ancient and medieval authors.

If, as I suggested above, the book was first conceived under the Sforza rule, its title would also have had especial resonance for that ruler. As first advanced by de Bellis, Leonardi's choice might have been inspired by the way mirrors had been used to stand in for or evoke the appearance of stars during the elaborate celebration of the marriage of Costanzo Sforza to Camilla of Aragon in May 1475.[86]

Fresh from having obtained his medical degree in Padua in 1471, the young physician would have been deeply impressed by both the magnificence of the

spectacle and the profoundly symbolic program deployed to acclaim the couple. Given the subjects of his writings throughout his life, he may very well have participated in the creation of the wedding's rich astrological scheme. During the days-long festivities, the marriage was symbolized by innumerable components, with those of an astrological nature foremost among them. On May 28, the day the elaborate banquet began, the feast was organized by a series of floats representing gods and goddesses, which enabled participants to partake allegorically in the retinue of either the sun or the moon.[87] It was all held in the court's great hall, which had been transformed for the occasion into a heavenly vault featuring all the zodiacal signs, planets, and stars. Each of these was represented by a mirror, 2,500 in all, both large and small: "They were attached with their associated stars according to the writings of astrologers, and these stars were all made of mirrors surrounded by silver rays. Around each sign outside the zodiac were depicted the principal and the best-known images of each, such as the Pleiades, Hydra, Perseus, the Crown and others with their symbols, also made from stars of large or small mirrors, according to size. . . . There were five planets made from larger mirrors with many rays, chiefly gold and silver." And "the rest of the sky in the hall, throughout the length and breadth of the room, was covered by large and small stars of different sizes with gold and silver, made from 2,500 mirrors, twinkling with gold and silver, which made it really look like the night sky, although somewhat clearer."[88] The mirrors created the rich background against which the floats of pagan gods and goddesses appeared. Each element, whether in the background or the foreground, was designed to symbolize the union. Mirrors were chosen not only because they stood for the stars, but because they were envisioned as communication tools between humans and the cosmos. Symbolizing the stars, planets, and zodiacal constellations, the mirrors also received and reflected the influence of these same stars. This enabled the newly married couple to receive the universe's benevolent energies.

The ceremony's description, as well as its illustrations, cannot but call to mind the magnificent frescoes of the Hall of the Months (late 1460s to early 1470s) in the Este family's Schifanoia palace in Ferrara, a court with which Costanzo had close contacts.[89] Such a parallel further confirms the role that astrology held in the worldview of the elite class of the early modern period. Mirrors could also evoke astrological signs and their cognates. *Speculum Lapidum*, as a title for a work devoted to astrology and its influences, would have been immediately recognizable to readers, especially to a Sforza, who had physically been immersed in a universe made of mirrors. Given the use and popularity of mirrors in Renaissance courtly culture, the title did not have to

be changed once Cesare assumed the reins of power and became the official dedicatee of the work.

Mirrors also featured prominently in rituals and tales of magic. They were considered to be such powerful tools used for summoning the spirits that it was not unusual for people to cover them up with cloth or wood when not using them. Would learned readers have made the conceptual leap between the title of Leonardi's work and the common use of mirrors in magic? Might they have recognized literary references from further afield? Leonardi might have thus intended the book not only to explore magical occult virtues but also to resemble the magical revelatory powers of mirrors as used in magical rituals. The text would reveal to Cesare Borgia all there was to be known about the properties of stones, gems, and jewels and thus put him in touch with those universal energies that could be protective or offensive against others.

Dedication to Cesare Borgia

In dedicating the *Speculum* to Cesare Borgia, Leonardi sought to ensure his position at the newly established court. The introductory epistle, for example, glorifies the prince for his great virtue and intellect while alluding to the conquest of Pesaro and the prince's long-standing campaign to conquer the whole of the Romagna and Marche region ("several and grave troubles because of the wars").[90]

One wonders with how much anxiety Leonardi was approaching the Borgia prince, given the rather difficult circumstances that led to the ousting of the Sforzas and how close he had been to them. Giovanni Sforza had taken Lucrezia Borgia, Cesare's sister, as his second wife on June 12, 1493, via proxy since the bride was a mere twelve years old at the time, thus the wedding contract specified that the marriage would not be consummated for another year.[91] The marriage, though, did not prove to be the successful political alliance Giovanni envisioned, and in 1497 he made the unwise decision to resist the Borgia pope's politically motivated request for a marriage annulment on the fictitious grounds of his impotence. The marriage was annulled despite his protestations, which in 1500 earned him, in quick succession, an excommunication, a series of assassination attempts against him, and finally expulsion from the city of Pesaro at the hands of Cesare, Lucrezia's brother.

Dedicating the work to Cesare was certainly a politically motivated move on the part of a court physician intent on ingratiating himself with his new master. It was perhaps made easier, however, given the leader's love for expensive gems and jewels. The anonymous chronicler who described the duke's entry into Chinon in France's Loire Valley[92] has left us a delightful written portrayal noting

Cesare's love of gems and preference for wearing them on his person, from his bonnet to his boots.[93]

While we have no information regarding Cesare's actual collection of jewels, he most certainly was not alone in his love for these precious materials, as most Renaissance princes avidly collected gems, stones, as well as ancient and contemporaneous jewels. By way of comparison, we might look at the collection inventories of Lorenzo de' Medici and Isabella d'Este, marchioness of Mantua.

Lorenzo de' Medici's inventories list a rich collection of precious stones and engraved gems, with more than a third of Lorenzo's collectibles being gems, jewels, cameos, and engraved stones.[94] In contrast, paintings, sculptures and small objets d'art constituted only a twentieth of the total inventory.[95] This suggests how important gems and jewels were for collectors at this time. The inventory shows a particular penchant for cameos (forty-seven in his studio alone), unset gems (five, four of which were engraved), and loose pearls (thirteen in number). The majority of stones and gems, though, were set in rings—forty rings with engraved or plain gems and an additional thirteen rings in Pietro's study—which is of particular interest because Leonardi's discussion of magical gems in book 3 of *The Mirror of Stones* almost always envisions such stones as set in rings of various materials (e.g., silver, gold, copper).

The inventories also list a ring with an engraved shell, seven enameled rings, a mounted engraved shell, two mother of pearl shells with their pearl still inside, four strings of corals, and twenty strings of paternosters made of semiprecious stones (chalcedony, jasper, crystal, and amber). That this collection might have also have been appreciated for the occult and magical virtues of each singular stone will be discussed below, but it is certain that the notion is not to be excluded considering that in the same *studiolo* were also recorded objects whose occult virtue was indeed believed to be magical: a unicorn horn (along with twenty-five paternosters also carved in unicorn horn) to which tradition ascribed numerous healing virtues, as well as an ostrich egg and a mirrored ball with a silken cord in the bedroom, and three fish teeth with gold ferrules.[96] Lorenzo, like other elite collectors of the time, made sure to pursue objects not only because of their intrinsic pecuniary value or luxury status, but also because of their occult virtues. Cesare Borgia may well have done the same.

Lorenzo's collection was not even the largest or the most important of the second half of the fifteenth century. That honor goes to Cardinal Pietro Barbo (1417–1471), the future Pope Paul II (1464–71), whose 1457 inventory listed a remarkable 243 cameos and 578 intaglios.[97] Indeed, many of Lorenzo's objects were originally part of the Barbo many, as were some of the objects that eventually entered the collection of Cardinal Francesco Gonzaga (1444–1483).

Men were not the only collectors; Isabella of Mantua was just as passionate of a collector of precious and semiprecious stones, many of which she also wore on her person. A 1542 inventory of the marchioness's possessions shows the size of her collection, which included at least thirty intaglios. The prominence of her holdings was recognized by her contemporaries. Cardinal Pietro Bembo, for example, writing to Cardinal Cesi on June 27, 1537, expressed his joy at having had the opportunity to see and hold many of the duchess's rare treasures.[98] She was an indefatigable collector who paid closed attention to the various materials and fashioning of an object, especially of those she intended to wear such as rings.[99] Leonardi's whole third book, as mentioned above, focuses on magical and astrological images to be worn as rings and pendants, precisely because elite-class individuals like Giovanni Sforza, Isabella d'Este, Cesare Borgia, and Lorenzo de' Medici, wore gems and jewels for their hidden virtues and used lithotherapy to treat their maladies.

Gems had long been used, with debatable degrees of success, to treat physical and mental illnesses. Records show that medicinal potions made of ground gems were routinely administered to Lorenzo de Medici and Pope Leo X. In the weeks prior to his death on September 25, 1534, Clement VII is said to have ingested forty thousand ducats' worth of stones.[100] Michaele Paschali, a sixteenth-century Spanish physician, claimed to have used emeralds to cure Juan de Mendoza, third marquis of Montesclaros (1571–1628), from dysentery: one emerald was suspended over his abdomen, while the other was held in his mouth.[101] Wolfgang Gabelchover of Calw, Württemberg, author of the *Curationum et observationum medicinalium centuriae* (1611–27), made similar claims as to the healing virtues of emeralds.

Gems did not have to be ingested: Leonardi assured Cesare that protection against illnesses could also be achieved by the wearing of amulets or talismanic rings engraved with specific mythological or astrological images. Talismans, particularly those with images reputed as highly effective, were widely employed. Catherine de' Medici, for example, made assiduous use of talismanic magic. She employed the renowned magus and apothecary Nostradamus and the infamous Ruggieri, probably more appreciated for his knowledge of poisons than astrology (though the two were not unrelated). Numerous sources attest to her ownership of a variety of talismans, including one engraved with images of Jupiter, the eagle of Ganymede, Anubis, and Venus,[102] and another "rumored [to be] made of human blood, the blood of a goat, and the metals that corresponded with her birth chart."[103] Talismans and gems were also believed to induce death, as Benvenuto Cellini recalled in his colorful autobiography when he recounted an episode that occurred during his Roman imprisonment. Accused of stealing some gems from the papal tiara, the Florentine artist feared having been poisoned by finely ground diamond powder administered to him by a soldier sent

by Pierluigi Farnese, son of Pope Paul III.[104] The belief that diamond dust could be a deadly poison was well recorded in both *lapidaria* and stories that circulated about the manner of death of various rulers: Holy Roman Emperor Frederick II was said to have died after ingesting diamond dust; the Ottoman sultan Bajazet II was said to have been assassinated in 1512 by his son Selim, who fed him diamond dust mixed in with his food; and in 1613 the countess of Essex was accused of poisoning Sir Thomas Overbury with diamond dust and mercury.[105]

Given this larger cultural context of belief in the healing and magical properties of precious and semiprecious stones, it is safe to assume that Leonardi believed his master would be interested in his *Mirror of Stones*. Considering that his position at court would have given him early access to Pesaro's new lord, it is also likely that he was able to confirm Cesare's interest early on in their acquaintance. Furthermore, as mentioned above, in book 1 Leonardi references the lord's study and describes its entryway as decorated with stone plaques showing all sorts of scenes and objects—in all likelihood agate or moss agate plaques.[106] As court physician, he would have had ample opportunity to meet his employer in person and spend time in his *studiolo*. Indeed, he would have seen that same room much earlier, when attending to the needs of the Sforza family. Thus he would have also seen how it was being reused by Cesare. It is also likely that Leonardi had permission to use the library for his own research. The mention of the *studiolo* allowed him to remind Cesare of their close acquaintance and might have been a calculated gesture of ingratiation. Similarly, the mention of Cesare's Caprarola estate in book 1, chapter 4, suggests the author's familiarity with the ruler's land holdings. Given the specific mention of the calcareous spring found on the ruler's land, Cesare and Leonardi must have had ample opportunity to engage in conversation that ranged over a wide variety of topics. Leonardi was paying attention and wanted Cesare to be aware—after all, he knew that the subject of his writings would be directly relevant to the Borgia prince. Ingratiation is part of the author's strategy. Leonardi presents himself as similar to the prince: just as Cesare is described as fully absorbed by the numerous problems of running his newly conquered state, the author shows himself as spending most of his days absorbed in the countless cares of a physician. What little spare time Leonardi may have had, he claims to have spent on humanistic studies meant to further the human condition.[107]

The Text

Of all Leonardi's published works, the ambitious *Mirror of Stones* would be the one that met with the most fortune both at home and abroad. His attempt to

write the most comprehensive compendium on the intersection of lithotherapy and astrological magic found an appreciative audience.[108] *The Mirror of Stones* was republished a number of times prior to the Enlightenment period, when such topics fell out of favor. The text saw Latin editions appear in 1510, 1516, 1533, 1610, 1611, 1617, and a 1716–17 edition, a French and a German edition, as well as a partial English edition published in 1750.[109] The English translation lacks book 3, presumably because by this time traditional astrological magic was no longer of much interest to a general reading public. The most influential unacknowledged appropriation and "translation" was the one executed into Italian by the Venetian polymath Lodovico Dolce, who published it under his own name as the *Libri tre di m. Lodovico Dolce nei quali si tratta delle diverse sorti delle gemme che produce la natura e della qualità, grandezza, bellezza e virtù loro*.[110]

Leonardi's *lapidarium* embraces the style of the aforementioned medieval authors Marbode and Albertus Magnus, so stones are discussed in terms of their origins, formation, and occult properties. Yet, as will be discussed below, he also discusses astrological images engraved on stones, following the work of Techel/Thetel/Tethel/Chael.[111]

While it is not possible to know how long it took Leonardi to compose *The Mirror of Stones*, it would not be implausible to surmise that he was already at work on it during the Sforza years, when Bonincontri was at court. It is therefore likely that he originally planned to dedicate it to Giovanni, but the intervening reign of Cesare must have changed his plans. The great number of sources consulted or mentioned in the work, to be discussed below, suggests that Leonardi had long been at work on the manual.

He envisioned an all-encompassing treatment of the healing properties of precious and semiprecious stones, the images that could be engraved on them, the manner in which such stones were generated, and the effect that this had on their healing properties. The work is subdivided into three books. The first discusses the known theories of generation and formation of precious and semiprecious stones. The second lists 250 such stones along with their occult (i.e., hidden) virtues. The third lists ninety images that could be found engraved on gems, their magical and occult virtues, and the way the occult virtues of a specific stone could interact with that of the image engraved on it.

The work does not add much in the way of new knowledge on the subject, but instead assembles in three volumes all available material regarding healing stones that could be found in a number of ancient and medieval sources.[112] The relative lack of innovation and the author's need to reiterate all he came across in his sources occasionally led him to repeat information, and in some cases he

seems not to have recognized the errors of earlier authors. Such mistakes drew fierce criticism from the celebrated physician Antonio Musa Brasavola (1500–1555) in his *Examen omnium simplicium medicantorum*, in which he bluntly stated that Leonardi had treated the subject in a most inept manner.[113] Brasavola, for example, accused Leonardi of not having realized that cyaneum and coeruleum were the same stone even though he had used the same words to describe them.[114] In his defense, Leonardi did not actually use the same words in these entries, though he used identical terms to describe the stones' colors.[115] Like his contemporaries and the earlier sources he used, he had a tendency to describe the same stone under different names without noticing the redundancy. This error stems from the way the stones were classified: first and foremost by color. Stones could appear similar in color but their properties could be different, hence authors had a difficult time establishing when a source they were consulting was describing a stone that had been mentioned previously. Even today, in reading medieval *lapidaria*, it is difficult for us to establish which stones' names are being used to refer to the same mineral (this problem that is particularly acute in the case of lapis lazuli).

Structure and Content

Leonardi organized his text so that his ideal reader, his patron, could easily find whatever information might be most pertinent to his interests. The volume's three sections progress from a general discussion of the generation of stones to detailed descriptions of specific astrological, thaumaturgical, and magical images that could be found engraved in rings. After the necessary dedicatory epistle and proemium, Leonardi presents a list of chapters within each book, including an alphabetical list of all the stones in book 2.

The epistle and proemium are preceded by an epigram by a colleague and friend of Leonardi, the physician Valerio Superchio (ca. 1460–1540), renowned for his rhetorical and poetic skills. The latter praises Leonardi for his marvelous work in the hope that Cesare will recognize its immense value.[116] The epigram serves as a foil to Leonardi's own epistle, in which he humbly presents "this small book of ours" in the hope that it may be an addition to Cesare's "excellent" library, even though "this will be of small use for your many duties." The epistle could not but use self-effacing language: it was customary for early modern authors to present their work to a patron in the humblest possible light. Yet a more conceited note seems to emerge when the author explains his reasoning for the title: that the work would function as a mirror in which to discern all that is possible to know about the nature and virtues of stones and their engraved images.[117]

Summary

Book 1

Book 1 is divided into nine chapters. While the first eight are concerned with the physical nature of gemstones, the ninth chapter focuses on how to distinguish counterfeits from genuine samples. In those first eight chapters, Leonardi closely follows Aristotelian concepts with direct and indirect quotations from *De caelo*, *De meteora*, *De generatione animalium*, *De anima*, and *De sensu*, often as mediated through medieval commentators such Albertus Magnus, Avicenna (980–1038), and Averroes (1126–1198). Mention is made, for example, of Avicenna's *Canon of Medicine* and *Congelatione et conglutinatione lapidum* (*On the Congelation and Conglutination of Stones*), and of Peter of Abano's (1257–1316) *Conciliator differentiarum philosophorum [et] praeciupe medicorum* (*Reconciler of the Differences Between Philosophers and Physicians*). The latter work, first published in 1472 in Mantua and then Venice in 1476, tried to reconcile Aristotelian philosophy with the medical systems of Avicenna and Averroes. Gaetano of Thiene (1387–1465) is also important to the author's analysis, for if he were indeed Leonardi's teacher at Padua, as he maintains, he would have been the one responsible for introducing Leonardi to the key texts of and commentators on Aristotle. It is Albertus Magnus's thirteenth-century *De mineralibus*, though, that appears to be Leonardi's principal source, providing our author with a model in both organization and substance that he closely follows throughout the book. Albertus himself had followed the aforementioned Marbode and Thomas de Cantimpré (1201–1272), which Leonardi must have realized, since he also consulted those sources.

The general content of materials presented in chapters 1–8 is therefore similar to Albertus's own, although the order in which the arguments are presented is often different. The last chapter is an exception, as Albertus did not discuss issues of gem counterfeiting in his *De mineralibus*.

Chapter 4 is of particular note since it is there that Leonardi introduces the notion that the geographical origin of stones is paramount in assessing their absorption of cosmological energy and hence their healing and magical properties. Leonardi uses the esoteric writings of Hermes to establish that a gem's properties are dictated by the climate under which the gem arose, because "the straightforwardness, or rather the obliquity of the rays of the stars,"[118] infuse matter differently in different places. This explains why in book 2 he painstakingly sets out whenever possible the geographical origins of a specific gem and then assigns it a value judgment. If oriental diamonds are considered superior to occidental ones, it cannot then be said to be a mere case of exoticizing—that

is, the farther away the locale the more powerful the gem—but rather one of the greater potency of that locale with respect to the four elements and the cosmos.[119]

Chapter 9 stands out as a possible original contribution. As mentioned above, Albertus never discussed the subject of counterfeit gemstones.[120] This distinction might have been particularly important to Leonardi since, as a physician, the genuine quality of his materials would have been an overriding concern. He recommends four principal methods to establish whether a stone is genuine: (1) resistance to the mark of a chisel, (2) appearance, (3) weight, and (4) imperviousness to fire.[121]

Leonardi considers the test by fire to be the best since no authentic stone would melt or disintegrate in its flames. But it is vision—judging a stone's appearance—that is most significantly rich in implications. The sight of a real gem is said to elicit pleasure in the viewer—a theory repeated in many sources of the time—and such pleasure may then be a guiding principle in assessing whether a gem's resplendent qualities are revelatory of its occult properties.

As he mentions in chapter 1, the word "gem" is derived from the "Greek *gemmo*, which in Latin signifies *resplendo*." The incorrect or fictitious etymology—namely, that *gemmo* (gem) derives from the Latin word *gemma* (bud), for there is no such Greek word—points to an important association of meaning between a precious stone and its visual quality of glittering brilliance. The fictitious etymology is important to Leonardi's conceptual notion of gems, since a real gem may be distinguished from a counterfeit by virtue of the fact that the former delights the eye. The Latin *resplendo*—to brightly shine back or to shine forth, to glitter—was probably used because of its active implications: the gem radiated light. Because of this, true gems were able to radiate light, thereby affecting an individual's faculty of vision through their *vis naturalis*, which elicited pleasure and in turn provoked a reaction of recognition. The recognition of a true gem was also the recognition of its *vis naturalis* and therefore its properties in matters of apotropaic protection, fortune, magic, and healing.[122]

Book 2

Book 2 comprises six short introductory chapters, followed by two alphabetical lists. Chapter 1 outlines the contents of book 2. Chapters 2, 3, and 4 are little more than a heavily edited version of Albertus Magnus's *De mineralibus* book 2, tractate 1, but with mention of other sources thrown in for good measure (e.g., King Solomon, Aristotle, Isidorus of Seville, Bishop Marbode). His goal seems to have been to impress the reader with the sheer number of authorities he had

consulted, as well as to establish the long "scholarly" tradition supporting the existence of occult properties in stones.

In chapter 2, King Solomon's authority becomes the chronological point of departure to establish lithic properties. Leonardi then appeals to a Pythagorean understanding of the faculty of imagination; he also calls on the authority of Virgil, whom he quotes directly, to assert that sight and imagination, or the fascinator's soul, play a role in receiving a stone's benefits: "The soul of a man, or of any animal, can enter into another man, or animal, through sight, and hinder the actions of that animal." Returning to the issue of the primacy of sight, with which he had concluded book 2, Leonardi informs his readers of the role of the eye in magic or bewitching: "Virgil is of this opinion when he says in the *Bucolics*: *I do not know which eye fascinates and corrupts / my tender lambs*."[123]

He next informs the reader that he witnessed such a fascination: "I myself have seen in Italy that when an [unseen] wolf gazes at a man, the latter's voice becomes hoarse, nor can he scream, even though earlier he had not experienced such a problem."[124] The example he gives is particularly fascinating—pun intended—for he states that he "saw" (i.e., with his own eyes) a wolf that "fascinated" a man who then lost his voice. The wolf's sight, and his having seen the man prior to the man seeing him, ensured that the brute soul of the animal exerted its power and deprived the unwitting man of his voice, and thus presumably of his ability to call for help. It is to be also presumed that since Leonardi witnessed the whole episode himself, he had seen the wolf first. In this wonderful game of sight, where Leonardi is the supreme eye that beholds the scene and witnesses the exchange between the wolf and a second man, he is the powerful seer whose foresight protects him from magical fascination and leads him to knowledge. He is not deprived of his voice or words, for his vigilance and sight have allowed him full control of his faculties. The second man's lack of attention and therefore his "blindness" let the beast have the advantage.

Leonardi calls on the authority of Niccolò dei Conti (ca. fourteenth century), whom he refers to as "sir Nicholas de Comitibus Patavinus, the greatest astronomer of our times," to confirm the capacity animals have for weather prediction. From this, he argues that great properties may be found in things that appear at first to be inferior to humans. He is making the case for the existence of powers or properties (*vis*) within stones that assert their influence on individuals.

After using chapter 3 and 4 to securely establish through "scientific" reasoning what he asserts was already apparent to the reader's very own eyes—"Can we not see that the magnet attracts iron? And that sapphires cure anthrax illnesses?"[125]—chapter 5 lists all the sources he consulted.

Chapter 6 lays out brief instructions on how to use the two alphabetical lists that follow. The first list is organized by color and the second consists of 250

entries dedicated to specific stones. Since gems could only be recognized and evaluated by sight, Leonardi tells the reader that the first list serves as a key to identify the various stones. He warns his reader that since some stones may have similar colors, each entry should be read carefully.

Leonardi's attention to color and his careful distinction of tints, tones, and shades is therefore not surprising. To cite but one example, he uses two terms for red—*russus* and *Rubeus*—that he further subdivides as *russus lucidus transparens* (bright transparent red), *russus pulverentulus* (dusty red), *russus citrinus* (citrine red), *rubeus obscurus* (dark red), *rubeus rutilans* (fiery red), *rubeus lucidus* (shiny red), *rubeus aqueus* (watery red), and *rubeus corallo simili* (similar to coral red).

Translating and assessing the color nomenclature he uses is not as simple as it might first appear: cultural traditions and mental associations influence conceptions of color. To further complicate matters, terminology of the premodern period often significantly varies from modern designations for the same color.[126] In modern English, for example, *crimson* refers to a bluish red and *scarlet* to a tomato red, but in Renaissance Venetian this color was actually defined by the dye being used: *scarlatto* (scarlet) was a bright red grain dye for wool, whereas *cremisino* (crimson) referred to a silk dyed with red kermes.[127] It would seem that Leonardi's color classification and description was at least in part based on his awareness of the writing of Leonardo da Vinci and Marsilio Ficino on color. As mentioned above, Leonardi's close attention to all tints, tones, and shades is necessary, for only after the color had been carefully identified in the first list could the reader then learn the stone's proper "scientific" name and consult its corresponding entry in the second list, which would catalog and describe in detail its innate occult properties.

The second list begins with Adamas (diamond) and ends with Zoronysios (an unknown stone supposedly found in the Indus River). For Leonardi, even shades of a single color could be connected to different healing and magical virtues, not to mention monetary value. Color and healing or protective properties were often associated according to the principle of sympathetic magic. Red stones such as hematite, carbuncles, and rubies, for example, are listed as having the power to treat blood hemorrhages.[128] Red was traditionally associated with an increase of passion, yet some red stones, like carbuncles, were also believed to halt lust.

Carbuncles are exceptionally endowed—as few stones were thought to be—with a male and female gender. Similarly gendered is the stone referred to as sardius/a (most like carnelians, though in some cases this label could be used to indicate a sard or red sardonyx). The notion that stones could be gendered and reproduce—an idea sometimes also applied to the eagle stone—reinforced

the perception that they were animated by a living force—or, in other words, the celestial influence of heavenly bodies.

Color, though, was not the only aspect a physician would consider in choosing a suitable gem. The image engraved on a stone could be more crucial than its color. A physician had to take into account images, whether astrological or not, as well as the wearer's astrological chart and the celestial influences on the particular situation or illness to be addressed. According to Ptolemy's *Tetrabiblos*, humors were directly influenced by planetary energies. Thus healing itself was ruled by these energies, which could be deployed using astrological talismans, the subject of book 3.

Book 3

In these fourteen chapters Leonardi furthers his discussion of the occult properties of stones by delving into the variety of possible images that could be engraved on them. While he continues following aspects of Albertus Magnus's *De mineralibus*, he also embarks on an endeavor larger in scope. It is also in this section that Leonardi offers us his original and knowledgeable discussion of contemporary artists familiar with the art of engraving.

Albertus Magnus had begun section 2.3 of his *De mineralibus* with a discussion of talismanic images (*imagines* or sigils) by stating that the "necromancy of images and sigils" was a good doctrine and that even his religious order wished to know more. Readers would therefore have been reassured that they were not embarking on a quest for knowledge that contravened Christian tenets. However, Albertus also stated that few could truly understand what ancient wise men had written on the matter.

Leonardi begins chapter 1 by directly responding to Albertus's words. Though he concedes that few people are well versed in the subtleties of astrology, magic, and necromancy, he also states that he would not "let Albertus's words frighten me."[129] Thomas Aquinas provided him with the perfect antidote in an Aristotelian paraphrase that stated "it is better to know a little of a noble subject than of an inferior matter."[130] For good measure, in case Aquinas's authority were not sufficient to convince his readers, Leonardi made sure to also quote Aristotle's original words: "It is better to know something than to be ignorant of all things."[131] Thus armed, Leonardi embarked on his encyclopedic project of listing those talismanic images recorded by the ancient sources he consulted.

In chapter 2, the author presents the reader with an artistic genealogy of ancient sculptors and engravers from antiquity to his own time. The originality of this chapter cannot be underestimated. It is here that Leonardi states that an individual's desire to receive the stars' benefic influences, and not the desire to

ornament oneself with luxury baubles, has kept alive the art of gem engraving. While he appears to imply that even in the fifteenth and early sixteenth century the art of gem engraving is mostly concerned with astrological talismans, he certainly never states this clearly. He does take pains, however, to clarify that any talismanic image listed in book 3 is meant to be a licit image, created without the use of addressative magic, whose power derived solely from the stars. To support his claims he cites Thābit ibn Qurra (826–901), the very same source that both the anonymous author of the *Speculum astronomiae* (ca. 1260) and Albertus Magnus had used in establishing the idea that certain talismanic images could be considered licit.

The first gem engravers Leonardi mentions are as remotely located in time as the textual sources he uses. The power of words, symbols, and images of Hebrew origin is contrasted with those executed by the Romans, whose images Leonardi praises for their realism even though their makers lacked the knowledge of magic, astrology, and necromancy.

From the ancient Romans, he jumps directly to those artists active during his own time, thus linking any recent achievements to those of the hallowed past. Fifteenth-century artists such as Annichini of Ferrara, Tagliacarne in Genoa, Francesco Bologna (also known as "il Francia"), and Leonardo da Vinci are extolled for creating "images of such precision and elegance that it is not possible to add or detract from them."[132] Except for Giovanni Maria from Mantua, who is unknown to us, the other artists' lapidary activities are familiar.

In chapter 2 we are hence reminded that these images are not simply theoretical; there were, in fact, excellent contemporary artists who engraved such images on stones. Yet Leonardi does not make clear whether these contemporary artists had knowledge of magic. The author's familiarity with artists who engraved gems indicates his keen attention to all matters lapidary and his participation to the artistic circles of the Pesaro court at the time, but does not clarify anything in terms of the actual practice of making magical images.

He does further expand his discussion of artistic engraving to include the painterly arts in an effort to place his *lapidarium* within a larger cultural context, one in which there is a perceived continuum between painting and gem engraving, between the ancient and the modern, between the engraved image and astral magic.[133] In the aforementioned 1985 study, Carla de Bellis argues that Leonardi's comparison of contemporary to ancient artists is a way to suggest that all contemporary artists were implicitly seen as repositories of the ancients' occult wisdom.[134] While I am not sure about this sentiment, I think the best we can say is that our author leaves the matter purposely ambiguous, often contradicting himself. Given that none of the images he lists later in book 3 is prefaced by words such as "carve" or "make"—but rather always by "if you find"—Leonardi

appears to be studiously avoiding giving any directions about the making of talismanic images, even if licit.

In his *De vita*, Marsilio Ficino had explicitly stated that contemporary artists did carve talismanic images. This notion, among others, had earned him the severest of censures, and he was forced to abjure the whole work a mere six months after its publication. Leonardi appears to be taking all due precautions to avoid a similar fate. He seems to follow the examples of other early modern *lapidaria*, such as the German *Hortus sanitatis* (1491; fig. 3). In the latter work, for example, the entry for the dyacodos stone is illustrated with a woodcut showing a man searching for raw gems and rings in a landscape, implying that these stones were found rather than fabricated by humans (fig. 4).

Chapter 3 is dedicated to distinguishing between naturally occurring and human-made images. Leonardi envisions three categories: the first comprises images that naturally occur on stones, such as the fernlike patterns on dendritic agates; the second comprises naturally occurring fossils and cameos, though their descriptions indicates that Leonardi is also including human-made cameos; and the third comprises human-made images, which may be carved with or without a specific purpose in mind.[135]

In assessing which images may be considered natural, Leonardi, not for the first time, shows that he read his sources carefully and made decisions on how to use them based on personal experiences. He departs from his trusted model, Albertus Magnus, and follows instead Pliny and Marbode by including picture agates in the first category. He states that he saw with his own eyes an agate in which he could discern the representation of a flat plain with seven trees. Nature—or, better yet, heavenly influences—could be seen as the first engraver of gems and cameos.

Heavenly influences also played a vital role in the artistic creation of gems and cameos included in the third category, which Leonardi further divides into two subcategories: (1) ornamental images and (2) magical and healing images, that is, images carved with a specific intent in mind. Interestingly in the first subcategory he includes almost all Roman or contemporary intaglios, while in the second he includes all those created by the Israelites. His later descriptions of licit magical talismanic images, though, clearly include a number of Roman gems, suggesting that his connoisseurship in matters of ancient intaglios and cameos could be rather nebulous. His guiding principle on this account remained firmly rooted in theoretical and historical considerations, rather than practical knowledge: if his sources mention an image, he mentions it, too.

In chapter 4, he continues his discussion of magical images to securely assert the notion of free will even when graven images exert an influence on people's

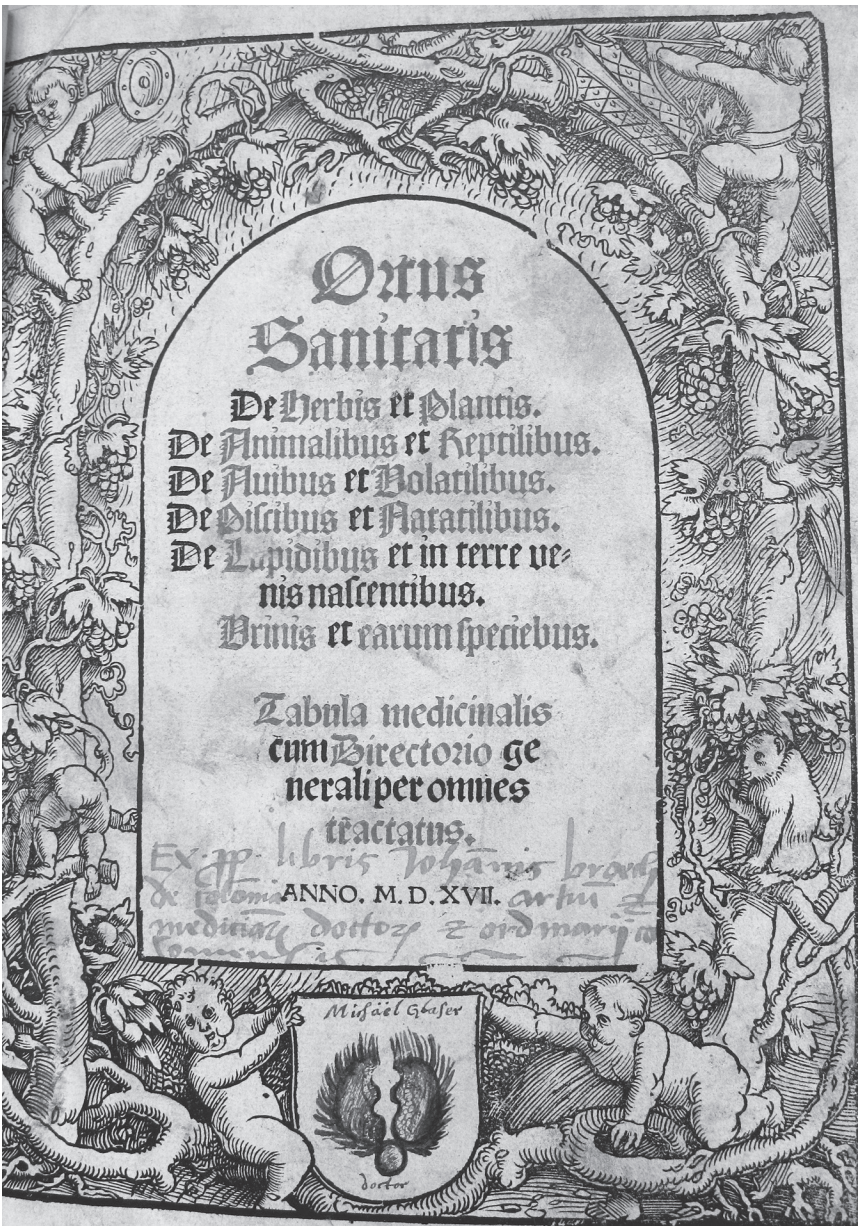

Fig. 3 *Hortus sanitatis*, 1516 edition. San Diego Natural History Museum Research Library. Photo: author.

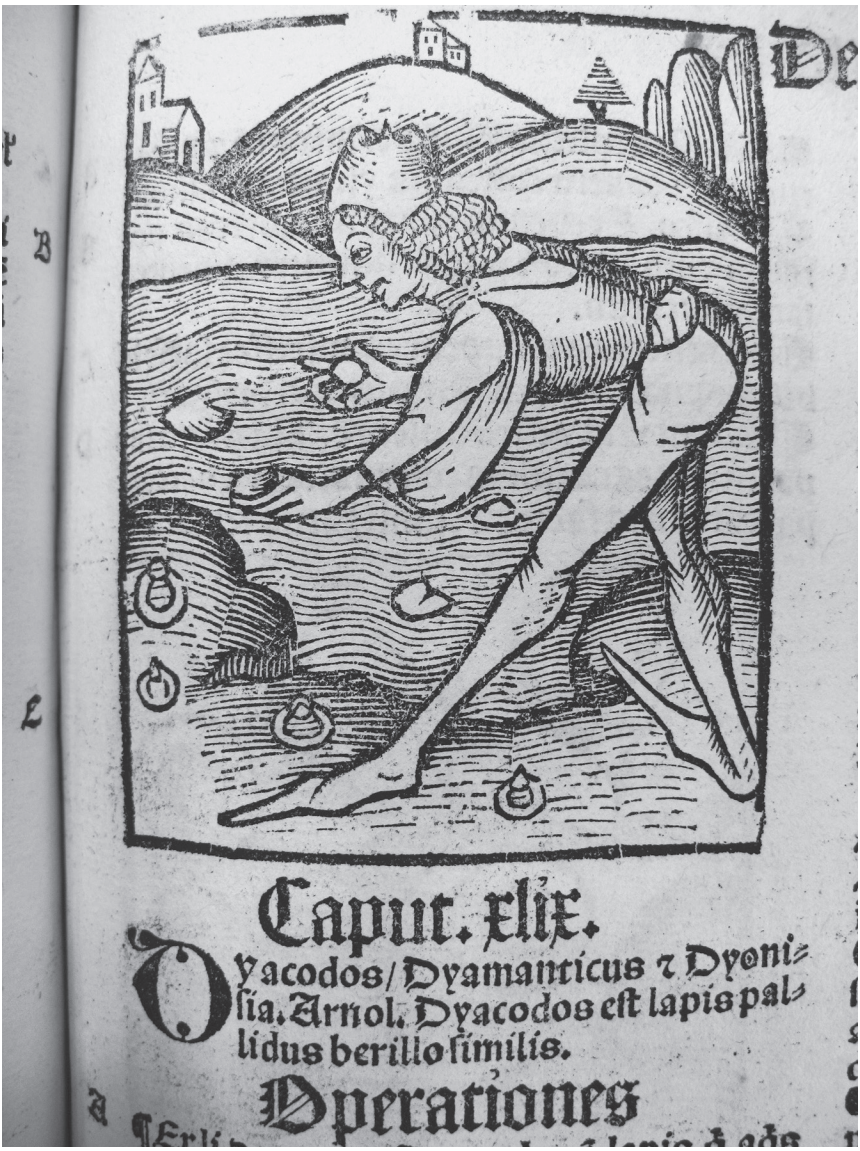

Fig. 4 Entry for the dyacodos stone, *Hortus sanitatis*, 1516 edition. San Diego Natural History Museum Research Library. Photo: author.

bodies, their health, their psyches, and their fortunes. Contradicting his earlier protestation of being a mere collector of knowledge, Leonardi clearly says for the first and only time that for images to have power they must be sculpted at a specific time of day under the influence of a particular star. His subsequent list of magical images does not include any element of addressative magic that could guide anyone wishing to create the image described. The assumption is perhaps that all such images were carved at some point in the past according to the appropriate instructions, so the modern wearer could innocently find and use them.

Unlike Albertus Magnus, Leonardi does not believe that stones could lose their properties; rather, he follows a source attributed to the biblical King Solomon and states instead that "if the stone is not broken, and if the image is not wholly abraded, then its virtue is not lost." Similarly, paraphrasing Ptolemy's *Quadripartite*, he states that a "virtue impressed on any thing lasts until that thing endures."[136]

In chapter 5, again unlike Albertus Magnus, he divides astrological images into universal and specific. Images of zodiacal signs are considered universal because their power is not dependent on the material on which they were engraved, though the material could magnify and contribute to the image's power. Images of planets and constellations are considered specific because they either symbolize a stone's properties (without possessing any power of their own) or receive the influence of heavenly bodies. Such images, he asserts, are easy to decode: "In this manner knowing the virtue of the constellation, we may know the virtue of the stone."[137]

In chapter 6, Leonardi calls non-astrological images "magic or necromantic" and asserts that they require specialist knowledge, as is the case for an Abraxas in his possession. Such gems present syncretic iconography and draw elements from a multiplicity of cultural references: Hebrew, Roman, Greek, Egyptian, and Babylonian.[138] They were often inscribed with the word "Abraxas," which is why they are today referred to as Abraxas gems, although a number of examples without any inscription have also survived (including the one Leonardi is referencing). For him, just like for all his predecessors, the key to decoding the function and properties of such images was to be found in the image itself—that is, in the consideration of each of the elements that made up the syncretic figure.[139]

Regardless of the power of such images, in chapter 7 Leonardi reinforces the notion that no image or stone can force individuals to become what they are not. All individuals preserve their free will. Having established the extent of the influence of these sorts of images, Leonardi goes on in chapters 8–13 to describe

various talismans (including images of the twelve zodiacal signs, subdivided in four groups of threes), while in chapter 13 he discusses images of other heavenly bodies such as the constellations.

The last chapter is subdivided into various sections, each listing images that derived from the Hermetic and Jewish mystical sources, in addition to Jewish sources of astrological magic including Hermes, Raziel, Chael, Thetel, and Solomon. Leonardi's extensive use of Jewish sources is logical, considering that he had begun book 3 by stating that the most powerful seals had been first executed by the Israelites in the desert. It is difficult to say whether these were sources Leonardi encountered in the Sforza/Borgia library or he owned them himself. In that period, Pesaro had a thriving Jewish community, which might have provided the city's intellectuals with such textual resources. The community was important enough to have attracted the presence of the Soncino family, who briefly established their press in the Marche region, first at Fano from 1503 to 1506 and then at Pesaro from 1507 to 1520.

Eighteen of Leonardi's entries in chapter 14 bear a strong similarity to book 6 of the *Liber Raziel*.[140] Since the book also dealt with magical rings, and since all of Leonardi's magical stones were also meant to be worn as rings, this source would have been of great interest to our author. Similarly, twenty-three of Leonardi's images derive from the writings of Sahl ibn Bishr al-Israili, also known as Rabban al-Tabri or Haya al-Yahudi, or more simply as Chael or Thetel. The latter two names were probably a corruption of the name Zael or Zehel. It is also possible that Chael/Thetel may be identified with Sahl ibn Bishr or Zahel Benbriz, a Jewish writer of the ninth century. Books of talismanic and astral magic usually included the seals of Chael/Thetel as Leonardi's does, even though they were sometimes instead attributed to King Solomon and vice versa.[141] In *The Mirror of Stones*, for example, those seals attributed to Solomon are elsewhere attributed to Thetel.

Regardless of such confusion, Leonardi would have not questioned the attribution of an astrological lapidary to King Solomon, as it was believed he had owned a ring that gave him power over demons (the so-called seal of Solomon). Thus it would make sense that King Solomon would have also authored a lapidary manual concerned with those magical images that could be engraved on stones.

With regards to the Hermetic tradition, he drew specifically from Hermes Trismegistus's *Liber Hermetis de quindecim stellis quindecim lapidibus quindecim herbis et quindecim imaginibus*, also known as the *Quadripartite*. The figure of Hermes was believed to have been a contemporary of Moses, and the writings circulating under that name were invested with great authority with regard to magic. Given his scholarly ties with Lorenzo Bonincontri, Leonardi

most certainly knew the *Corpus Hermeticum*, Marsilio Ficino's translation of the writings attributed to Hermes. His interest in alchemy might hence be reflected in the inclusion of alchemical symbols for a number of sigils or seals given to Chael.

Leonardi ends his manual by suggesting that more images may still be discovered and that his *lapidarium* is meant to be understood as a work in continuous progress. By concluding with the idea that more stones may be "found," he reminds the reader that both the text and their discovery of talismanic images will continue to grow.

Reception

Although we are not privy to Cesare Borgia's reaction upon receiving Leonardi's opus, the book certainly met with the general favor of a wider public; as mentioned above, it was republished a number of times throughout the sixteenth and the seventeenth centuries. In 1629, however, the work met with censure: Jacques Gaffarel (1601–1681) in his *Curisiotez inouyes* mentions, albeit vaguely, that Leonardi had been considered by some as impious and atheistic.[142] Although there is no evidence of formal proceedings against the author or his work during his lifetime, Gaffarel's accusations may have been a symptom of changing perceptions. By 1674, nearly two hundred years after its publication, *The Mirror of Stones* was included in the Holy See's *Index Librorum Prohibitorum* (List of prohibited books).

It was not until the end of the seventeenth century, however, that Leonardi's text began its descent into oblivion. This was not only because the work was now forbidden, but also because those beliefs that precious and semiprecious stones and gems had any magical or healing properties began to be seriously questioned. The advent of the Enlightenment saw the decline of the magical lapidary, especially when it came to medical practice.

In the late nineteenth and early twentieth century, when scholars began to examine premodern theories and practices of magic, Leonardi appeared as an imitator and was generally neglected. Modern devotion to innovation, including the "great man" theory of history, relegated Leonardi to the status of an unoriginal thinker. Despite such an assessment, we have to acknowledge that premodern notions of creativity were based on who could do what with preestablished themes and motifs.[143] Renaissance authors saw themselves as collecting and digesting the knowledge of the past in the same manner—to paraphrase Seneca's (ca. 4 BCE–65 CE) aphorism in his *Epistulae morales* 84.3—that a bee collected pollen and digested it into honey.[144]

To retain the tenor of this aphorism, Leonardi's work is a perfect example of a text that sought to imitate by transforming models from the past, both distant and near, with the aim of creating an "original" product reflective of a personal identity. Imitation was not an end in itself, but a vehicle for the author to become more creative and, in the process, more oneself. However much Leonardi relied on lapidary texts of the past and their theories of astral magic and talismanic images, he offered a novel discussion of the art of gem engraving and of artists in general. Through his text, we witness the life of a physician active at a humanist court at the height of the Italian Renaissance. Within this milieu, the triangulation of theoretical ideas of magic within artistic practices and medical notions of astral magic played an important role in the daily practice of wearing sumptuous gems and jewels.

Throughout the sixteenth and the seventeenth centuries, lapidaries were commonly sold in both apothecary and jewelry shops (the practice began its decline in the eighteenth century).[145] While we encounter more skeptical texts—for example, Anselmus Boetius de Boodt's *Gemmarum et Lapidum Historia* (1609) and Thomas Nicols's *Lapidary, or the History of Pretious Stones* (1652)—at the beginning of the seventeenth century, it was not until the eighteenth century that talismanic magic ceased to play any role in orthodox medical practices. It is most likely for this reason that the 1750 anonymous English translator of Leonardi's text omitted the whole of book 3.

Even though lapidaries are no longer seen as a valid medical orthodoxy—though interestingly, they have made a comeback in certain New Age circles—Leonardi's *Mirror of Stones* remains a testament to what was, at the time, a valid form of knowledge production. When we situate him within the complex system of sixteenth-century intellectual, cultural, and social history and its rich artistic practices, we witness the intersection of material culture and knowledge of the natural world. In him, we clearly see the role that magic and stones played in everyday Renaissance life.