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'MAGIC COINS' AND 'MAGIC SQUARES': THE DISCOVERY OF ASTROLOGICAL SIGILS IN THE OLDENBURG LETTERS

by

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Enclosed in a 1673 letter to Henry Oldenburg were two drawings of a series of astrological sigils, coins and amulets from the collection of Strasbourg mathematician Julius Reichelt (1637–1719). As portrayals of particular medieval and early modern sigils are relatively rare, this paper will analyse the role of these medals in medieval and early modern medicine, the logic behind their perceived efficacy, and their significance in early modern astrological and cabalistic practice. I shall also demonstrate their change in status in the late seventeenth century from potent magical healing amulets tied to the mysteries of the heavens to objects kept in a cabinet for curiosos. The evolving perception of the purpose of sigils mirrored changing early modern beliefs in the occult influences of the heavens upon the body and the natural world, as well as the growing interests among virtuosi in collecting, numismatics and antiquities.

Keywords: coins; sigils; astrology; Julius Reichelt; Oldenburg Letters; medicine

On 11 June 1673, Johannes Gezelius the Younger (1647–1718), a young Finnish theologian who would succeed his father as Bishop of Turku, wrote a letter to Henry Oldenburg, secretary of the Royal Society.[1] Gezelius enclosed two sheets of pen-and-ink drawings of coins and astrological sigils (figures 1 and 2). Gezelius had been visiting England as part of his Grand Tour since 1671, and in this epistle was serving as an intermediary for Julius Reichelt (1637–1719), who became a professor of mathematics at the University of Strasbourg in 1667 and was best known for his works on cartography.[2] Reichelt was also a keen collector of medals, coins, sigils and amulets, and was composing a book about their symbolism—*Exercitatio de amuletis, aeneis figures illustrate*—which was published three years later, in 1676.[3] Reichert's work featured a rich variety of woodcuts portraying sigils and their cabalistic devices, including illustrations of the very sigils and coins enclosed in his epistle to Oldenburg.[4] Reichelt subsequently asked Oldenburg whether the Royal Society had any sigils different from the drawings he enclosed in the letter, and asked particularly for information about the 'magic coins' in the lowest row. He also offered to communicate anything of scientific interest occurring in the Germanies.

Reichelt's penchant for collecting was not unusual, because many early modern virtuosi were fashionably interested in numismatics. Elias Ashmole (1617–92) collected more than 9000 coins, and, as Michael Hunter noted, 'coins and medals were the most characteristic of

Figure 1. Sigil figures enclosed in Reichelt's Letter to Oldenburg. (Copyright © The Royal Society.)

all the items that cognoscenti coveted for their cabinets, combining the thrill of rarity and lure of collectability with a genuine utility and capacity for instruction—or so virtuoso handbooks of the time averred'.[5] A fine collection of coins, medals or sigils was a sign of superior social standing. More pragmatically, as virtuoso Henry Peacham (1546–1634) noted, although coins were not cheap, they were cheaper and more portable for collecting than
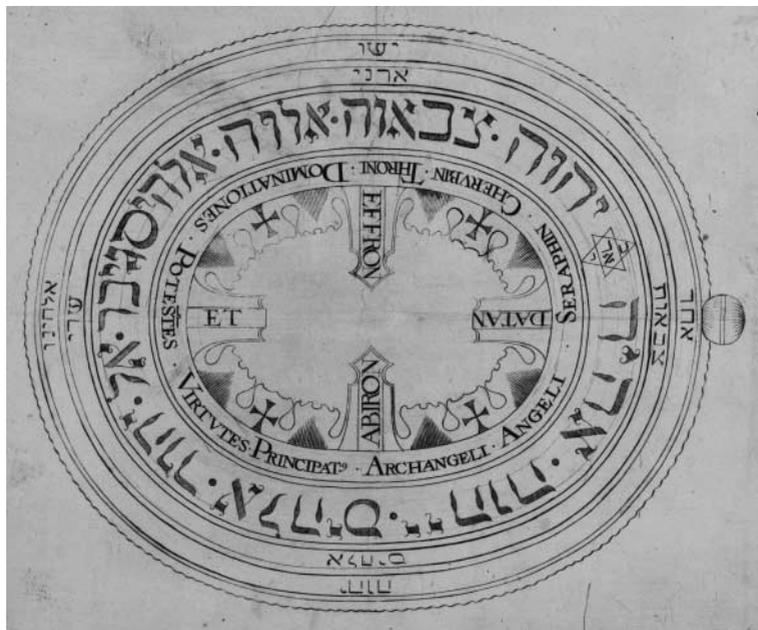
Figure 2. Drawing of large cabalistic sigil enclosed in Reichelt's Letter to Oldenburg.
(Copyright © The Royal Society.)

statues or inscriptions.[6] They therefore would be within the reach of someone, like Reichelt, from the middling sorts or professions, and it was quite common for collectors such as him to exchange descriptions and drawings of their specimens in books, manuscripts and letters as communications of knowledge and social status. For example, Ralph Thoresby (1658–1724), a Leeds antiquarian and businessman, corresponded regularly with fellow virtuosi and Royal Society members such as Martin Lister (1639–1712) about his extensive collection of coins and antiquities in his curiosity cabinet.[7] It would therefore not be unusual for Reichelt to write to the Royal Society in hopes of making connections with like-minded numismatic connoisseurs.[8]

The drawings enclosed with Gerzelius's letter indicated that Reichelt (as did Ashmole) showed a particular preference for collecting sigils that had numerical squares from cabala. Some of the medals also had astrological or astronomical signs so as to obtain particular effects by some celestial virtue.[9] Ashmole believed in their efficacy as part of his 'deeply magical view of the world', and Robert Boyle (1627–91) speculated that it might be possible to find out how to make efficacious sigils of 'the exotic Effluviums of … the upper [region] of the atmosphere'.[10] Certainly, he 'would not discourage any curious or industrious Man from attempting to satisfie himself by Experiments' to test these charms.[11] This was 'because even a seemingly slight discovery in a thing of this nature may be of no small use in the investigation … of the Correspondency, which, by the intervention of the Air, the superficial part of the Terrestrial Globe may have … with the Celestial [Regions] of the Universe'.[12]

Other natural philosophers, such as Reichelt, took a completely different approach to their collection and study, demonstrating a complete antipathy to their use. His attitude was not unique. The astrologer John Gadbury in his 1660 *Natura prodigorum* included an appendix

about the 'imposturism' of some who proclaimed the doctrine of sigils and talismans.[13] Gadbury's main problem with sigil-making was that he felt astronomical observations to be not accurate enough to make them efficacious, particularly as their powers were governed by the doctrine of ascendants, or the rise of a planet in the 'first house' of the zodiac.[14] Because it was impossible to time the rising of planets precisely, one could not cast astrological metals so they would receive maximum planetary influences. Reichelt, because he had been 'a very successful pupil of the great Hevelius', and constructed the first astronomical observatory in Strasburg in 1673, shared similar views.[15] He collected sigils because of his expertise and interests in astronomy, mathematics and sheer antiquarianism, but after an extensive personal study of astrology and the cabala, he denied that sigils had any relation of sympathy with the heavens. In his *Exercitatio*, he criticized astrology in detail, citing the works of Marsilio Ficino (1433–99) and Peter of Abano (*ca.* 1250–1316), and concluded that there was 'no natural cause in such sigils, and that they were therefore superstitious snares of the devil'.[16] For Reichelt, sigils and amulets were largely fashionable curiosities, as well as tools for understanding what he considered the credulous practices of astrological physicians and magi. Because portrayals of particular medieval and early modern sigils are relatively rare, this paper will analyse Reichert's drawings of them in a more historically sensitive spirit. Specifically, we will analyse the role of these healing and protective medals in medieval and early modern medicine, the logic behind their perceived efficacy, and as their significance in early modern astrological and cabalistic practice.

THE CONTEXT OF SIGILS

According to Weill-Parot, the concept of having astrological images on sigils is exclusive to the Christian Latin West.[17] In the *Speculum astronomie*, a work thought to have been written in the mid-thirteenth century by Albertus Magnus, the philosopher proposed the creation of a type of talisman whose power rested completely in natural causes, excluding illicit forms of necromantic magic. This 'natural magic' included the use of sigils with astrological images that would contain the astral power of the planets. The writings of Pico della Mirandola (1463–94) and Marsilio Ficino's recovery of Hermetic and neo-Platonic texts in fifteenth-century Florence also contributed to the popularity of the use of astrological talismans. These talismans included elements of cabala as Ficino's circle became interested in Jewish mysticism, and the Christian humanist Johann Reuchlin's conversations with Pico led to his publication of the *De arte cabalistica* in 1517, which was one of the first Latin books on the Jewish cabala written by a Christian.[18] Reuchlin was interested in cabala out of a desire to reinvigorate Christian theology, but other writers wished to explore the magical and esoteric applications of cabala. Heinrich Cornelius Agrippa (1486–1535), in his *Philosophia occulta siva magia* (1531), subsequently provided instructions for the use of Hebrew symbols and numerology in magical sigils.

Early modern literature on the medical and protective efficacy of sigils was indeed quite prevalent, especially in Germany and to a lesser degree in England. Johannes Trithemius (1462–1516), Abbot of Sponheim and Würzberg, cryptographer and magician, wrote a sixteenth-century work on sigils that was republished throughout the seventeenth century.[19] Israel Hiebner's *Mysterium sigillorum* was published in Saxony in 1650 with eight subsequent editions, and the Jena physician Jacob Wolff's later *Curiosus sigilorum scrutator* (Frankfurt, 1692) was a magnum opus of 400 pages with a catalogue of diseases he felt were curable by the use of sigils and herbal bags worn around the neck.[20] In England, one of the most comprehensive works was a 1671 treatise of astrological medicine by the

late-seventeenth-century physician Joseph Blagrave.[21] Reichelt, in his *Exercitatio*, provided a sceptical description of all the medical cures that were said to be effected by astrological sigils and other herbal amulets, gleaned from treatises by antiquaries and physicians such as Thomas Bartholine (1616–80) and Johann Schröder (1600–64).[22]

In curing disease, most of these devices were thought to work by the principles of signatures, antipathy or sympathy.[23] The doctrine of signatures was an extraGalenic principle popularized by Paracelsus and promoted by Bartholomaeus Carricher, the 'Kräuterdoktor' resident at the Imperial court of Maximillian II at the beginning of the seventeenth century.[24] Subsequent English publications such as Nicolas Culpeper's *English physitian enlarged* (1653) further linked sigils and herbal cures with astrology.[25]

Paracelsian herbal remedies, through the system of astral parallels, went by the principle that each organ, herb and metal is bound with its own planet, and maladies could be cured sympathetically by employing plants or metals belonging to the planets causing the disease. In the case of plants, each plant had a signature of its medical application, usually resembling the part of the body or the ailment that it could cure—for instance, lentils and rapeseed were thought sympathetically to cure the smallpox, a lunar disease, because the seeds were similar to the spots of the Moon (and pox pustules). The appropriate herbs were bundled and worn about the neck to effect the cure.

Alternatively, some cures for a disease caused by a particular morbificant planet could be healed antipathetically by a herb of the opposing planet. For example, lunar diseases were considered to produce an abundance of cold and moist humours, as the Moon controlled the waters in the tides. Diseases that produced phlegm and caused sneezing, or those that produced fluid-filled tumours, such as scrofula, were thus considered governed by the Moon. These lunar diseases could be cured by means of solar herbs or tinctures, which were hot and drying as sunbeams. In a similar vein, one seventeenth-century English empiric, Lionel Lockyer, widely publicized a secret preparation 'called Pilulae Radiis Solis Extractae' purported to be a medicine of a 'solar nature, dispelling of those causes in our Bodies, which continued, would not only darken the Lustre, but extinguish the Light of Our Microcosmical Sun'.[26]

The same principles of sympathy and antipathy governed the preparation of astrological sigils made of metal. The Sun was astrologically and alchemically associated with gold, so a gold sigil would be struck with a picture of the Sun (usually when it was at its strongest influence, during the vernal equinox) or an astrological sign ruled by the Sun, such as Leo.[27] The solar sigil was believed, by means of antipathy, to protect against lunar diseases. The wearer was protected from the malignant influence of the heavens; as Hiebner explained in the *Mysterium Sigillorum*, the 'antipathetick noxious Influence goes into the Metal, then Man, and Man is preserved from the threatening Illness; but when the Illness is already in the body, [the metal] extracts it by degrees'.[28]

<div align="center">REICHELT'S SIGILS AND ASTROLOGY</div>

Several of Reichelt's sigils portrayed in Gerzelius's letter were designed to work by sympathetic principles. Reichelt realized that sigils 1–4 and 6–8 (in figure 1) were sigils of the Sun in his astrological house of Leo, and an example of sigil three survives in the coin cabinet of the Vienna Kunsthistorisches Museum (figure 3). Their design seemed to have been influenced by instructions given in the pseudo-Arnaldus medical treatise *De sigillis*, attributed to Arnaldus de Villanova (*ca.* 1240–1311), who was a Catalan professor of

Figure 3. *Sigillum leonis*. (*a*) On the obverse of the coin we see the Sun in Leo. (*b*) On the reverse we see the Verchiel angelic symbol, followed by the sign for Regulus, and the cabala symbol for Leo. Coin Cabinet, Kunsthistorisches Museum, Vienna. (Copyright © Kunsthistorisches Museum, Vienna; reproduced with permission.)

medicine in Montpellier.[29] Villanova's work demonstrated how to prepare seals for each of the signs of the zodiac, and the Leo seal or *sigillum leonis* offered particular protection against kidney ailments and fevers. The kidneys were governed by Leo on figures of medieval zodiacal men guiding phlebotomy, and severe fevers were associated with the heat of the Sun. Apparently, in 1301, Pope Boniface VIII (1294–1303) noted that he used a gold *sigillum leonis*, held in place on the body by a girdle or truss, to be treated for kidney stones.[30]

The obverse of sigils 2, 4 and 6 (in figure 1) also displays the sign of the 'heart of the lion' *cor leonis*, which is Regulus, the brightest star in the constellation of Leo, as well one of the brightest stars in the night sky. The astrological symbol א was thought to have portrayed the animal's mane, but it also might be the animal's tail, and the dot or star within its curves was Regulus at its heart. The cabalistic symbol for Regulus was ב, which is engraved on the obverse of sigils 1, 2 and 7. The symbol for the *cor leonis* was apparently cultural currency among artists in the early modern period. Nowotny has noted that the heart of Regulus was used by Albrecht Dürer in his portrait of patrician Johann Kleeberger. This was because 'Kleeberger was born in this significant conjunction of the Sun and Regulus (Sol in Corde Leonis)', on 15 August when the Sun sets and rises very near to Regulus[31] (figures 4 and 5).[32]

The sigils' astral power could be further enhanced by incorporating scriptural quotations and the names of Biblical prophets.[33] Inscribed on sigils 1, 2, 4 and 6 is the common apotropaic formula *Vincit Leo de tribu Iuda, radix David* from Revelation 5: 5, a reference to the biblical David and to astrological Leo. As Skerner noted in his study of religious benedictions and textual medieval sigils:

> a longer version of this formula … offers 'the cross of the Lord' as a powerful shield turning demons to flight (*Ecce crucum demoni, fugite partes adversae, vincit Leo de tribu juda, radix David, alleluia* or Behold the Cross of the Lord! Flee demonic foes! The Lion of the tribe of Judah, the root of David has conquered. Alleluia).[34]

Similarly, some of Reichert's sigils were inscribed with words from the Gospel of John: *Verbum caro factum est*, causing demons to flee before the power of 'the Word made Flesh'.[35]

Figure 4. Albrecht Dürer's portrait of patrician Johann Kleeberger (1526). The Regulus symbol is in the upper left. (Copyright © Kunsthistorisches Museum, Vienna; reproduced with permission.) (Online version in colour.)

Figure 5. Close-up of the Regulus symbol in the Kleeberger portrait (figure 4). (Copyright © Kunsthistorisches Museum, Vienna; reproduced with permission.) (Online version in colour.)

REICHERT'S SIGILS AND CABALA

Inscribing the names of angels on sigils was also thought to be efficacious, a tradition begun in the thirteenth century by the increasing influence of Jewish cabalistic texts such as the *Sefer*

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Yezirah and the *Sefer Razi'el*. These works were used by Jewish astrologers who served as courtiers in medieval Spain, and were later incorporated in Pico della Mirandola's cabalistic theses in 1486. The texts claimed that the 'secret names of the God and the angels provided the means by which the powers were called down into the sublunar levels of the cosmos', and hence used an intricate and often bewildering angelology in ritualistic magic.[36] The *Sefer Razi'el* at its beginning gives directions for invoking the angels 'that change according to the month, day and hour, and for using them for a peculiar purpose, such as prophecy' or protection.[37] Because astrological influences were also thought to be time-dependent, it is not difficult to see how the two magical traditions of astrology and cabala merged in the casting of sigils. In sigils 1 and 7, 'Verchiel' is inscribed. Verchiel was invoked as the angel of the month of July, ruler of the sign of Leo. Verchiel (here called Zerachiel) is also governor of the Sun and grants powers of the intellect, language, learning and mathematics, which may have been part of the appeal of these sigils to a mathematician such as Reichelt, who studied cabala extensively.[38] Certainly, early modern virtuosi were interested in curiosities featuring Hebrew writing. A Jewish phylactery appeared in Nehemiah Grew's 1685 catalogue of the Royal Society Repository, from whence Grew claimed 'the use of Charms amongst Christians was first learned', and Ralph Thoresby had a Jewish shekel, half shekel and selah in his collection, along with four 'very rare and fine talismans'.[39]

Several of Reichelt's sigils also bear geometrical characters of triangles, circles and lines, which he realized represented the 'intelligences and demons' of the planets based on numerical associations made with the heavenly bodies derived from the rules of cabala. There is also a magic square or grid of numbers engraved on sigil 10 (in figure 1) devoted to the planet Mercury. The use of these magic squares and geometrical planetary characters on Reichelt's sigils seems to be based on Book II of Agrippa of Nettesheim's *Philosophia occulta siva magia* (see figure 6). For Agrippa (as for other early modern philosophers), mathematics and magic were intimately connected.[40] From his doctrine that the elements of the body were mingled in geometrical proportions, and that the soul's elements combined numerically, Agrippa determined that the derived geometrical and numerical figures had peculiar corporeal and spiritual powers.[41] Agrippa continued:

> It is affirmed by Magicians, that there are certain tables of numbers distributed to the seven planets, which they call the sacred tables of the planets, endowed with many, and very great virtues of the Heavens, in as much as they represent that divine Order of Celestial numbers, impressed upon Celestials by the Ideas of the divine mind. … For materiall numbers, and figures can do nothing in the mysteries of hid things, but representatively by formall numbers, and figures, as they are governed, and informed by intelligencies, and divine numerations, which unite the extreams of the matter, and spirit to the will of the elevated soul, receiving … by the Celestial power of the operator, a power from God.[42]

Agrippa subsequently noted that planetary sigils were traditionally impressed on their obverse with a cabalistic magic number square or KAME'A specific to each planet. Magic squares first appeared in Arabic sources in AD 900 and were figures in a square grid that would add to the same number in four directions. The number was the total of the numerological values of the consonants in a particular Hebrew name, because each Hebrew consonant was assigned a numerical value in cabala.[43] As Calder has noted, 'magic squares which had no apparent counterparts in observed nature were assumed to stand in a relation to entities and truths existing in a higher realm than the sensible'.[44] For Agrippa, the numbers themselves in the squares acted directly on the soul, as the elements of the soul were mingled in arithmetic proportion.
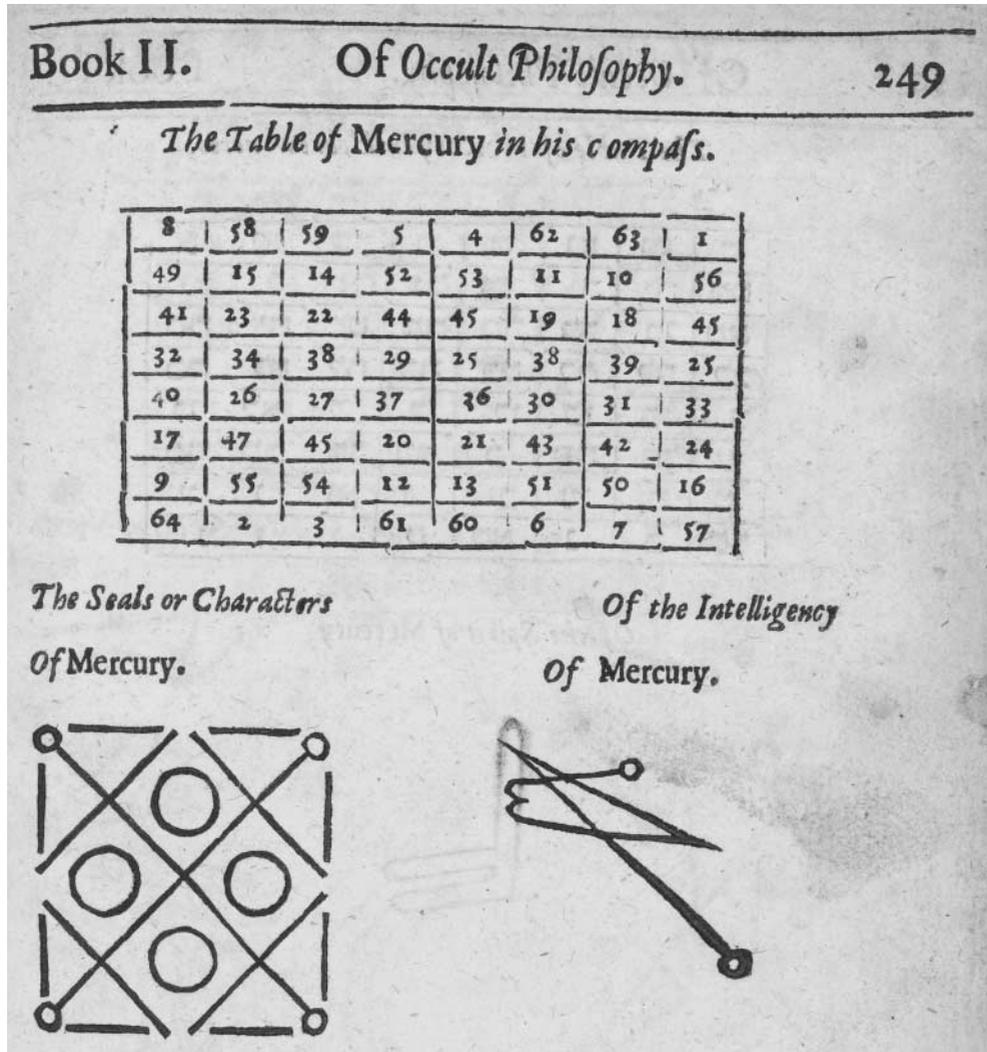
Figure 6. Magic square for a Mercury Sigil from Agrippa[42], p. 249. (Copyright © Wellcome Library, London; reproduced with permission.)

Agrippa arranged the magic square of the seven planets known in the early modern period (Saturn, Jupiter, Mars, the Sun, Venus, Mercury and the Moon) in the order of their orbital velocity. The smallest number of units used to form one side of a magic square was three assigned to the slowest planet, Saturn, progressing up to seven for the rapid orbit of the Moon. As Nowotny stated, 'Three kinds of magic square can be distinguished according to the number of units in a side: those containing an uneven number; those with an even number whose halves are uneven; and those containing an even number whose halves were even.'[45]

Agrippa derived the uneven magic square of the numeral three for Saturn from the natural square (a square of sequential numbers numbered from left to right) and turned it 45° to the right, inserting numbers thus left on the opposite sides (figure 7). For other planets with even

4	9	2
3	5	7
8	1	6

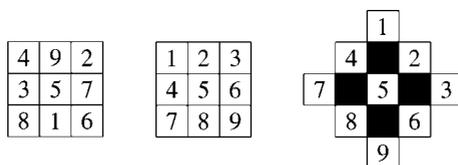| 1	2	3
4	5	6
7	8	9

Figure 7. Construction of the magic square of Saturn by Agrippa's method. Agrippa derived the uneven magic square of the numeral three for Saturn from the natural square (a square of sequential numbers numbered from left to right) and turned it 45° to the right, inserting numbers thus left on the opposite sides.

4	14	15	1
9	7	6	12
5	11	10	8
16	2	3	13

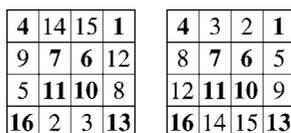| 4	3	2	1
8	7	6	5
12	11	10	9
16	14	15	13

Figure 8. Construction of the magic square of Jupiter by the method of Agrippa. The magic square of Jupiter is formed by leaving in position one-half of the numerals of the natural square and turning the other half by 180°.

Table 1. *Hebrew alphabet and alphanumeric values in cabala.*

number	letter	name	value
1	א	aleph	1
2	ב	beth	2
3	ג	gimel	3
4	ד	daleth	4
5	ה	he	5
6	ו	vav	6
7	ז	zain	7
8	ח	cheth	8
9	ט	teth	9
10	י	yod	10
11	כ	kaph	20
12	ל	lamed	30
13	ם	mem	40
14	נ	nun	50
15	ס	samech	60
16	ע	ayin	70
17	פ	peh	80
18	צ	tzaddi	90
19	ק	qoph	100
20	ר	resh	200
21	ש	shin	300
22	ת	tau	400

squares, such as for Jupiter (square of the number 4) or Mercury (square of the number 8), the natural square was numbered right to left. The magic square was formed by 'leaving in positions one half of the numerals of the natural square and turning the other half by 180 degrees' (figure 8). In Reichelt's collection, sigil 10, which is devoted to the planet Mercury, has a magic square for that planet engraved on its obverse according to Agrippa's method.

The geometric figures seen on several of the Leo medals represented Nachiel, the angel of Leo's governing planet, the Sun. In Hebrew, Nachiel is represented as ג. According to the rules of cabala, divine language is alphanumeric; the Hebrew letters can be identified with numbers
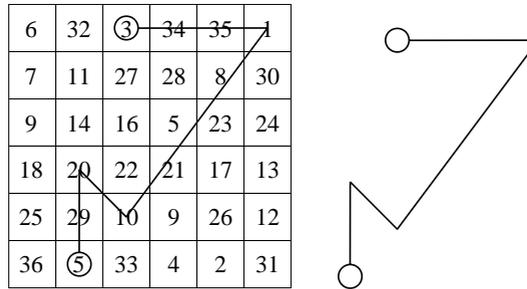
6	32	③	34	35	1
7	11	27	28	8	30
9	14	16	5	23	24
18	20	22	21	17	13
25	29	10	9	26	12
36	⑤	33	4	2	31

Figure 9. The magic square of the Sun, its planetary angel Nachiel, and figure of the angel. Nachiel = ‏נ‏. Tracing the numbers of Nachiel, namely 30 (3)+1+10+20+50 (5), from the upper row to the lower gives the visual figure.

1 to 22, each number identified with a divine attribute (table 1). Spelling out NACHIEL's name thus gives a numerical sequence: $30+1+10+20+50=111$. The geometric figure for the intelligence of the Sun is formed by joining the numerical values of the letters forming the name of the angel NACHIEL on the Sun's magic square, the tens and hundreds often expressed by ones if the number is not extant in the square. So, in the case of our magic square for number 6, table of the Sun, beginning with the first row, we connect $3+1+10+20+5$, which gives us our figure that we see engraved in sigils 1 and 2 in Reichelt's collection (figure 9).

The use of Christian cabala is also seen in the large amulet in figure 2, which invokes both biblical and Jewish patristic names and is therefore written in both Latin and Hebrew. Its importance to Reichelt was indicated by his placement of the drawing of it in the frontispiece to the *Exercitatio*. The amulet seems to represent a concentric universe of increasing ranks of divinity from inner to outer. Just as the changeable and corrupt Earth was considered to be at the centre of the cosmos, surrounded by spheres of increasing perfection and beauty, the amulet mirrored this structure. In the innermost circle we see the inscription 'Abiron, Daton, et Effron'. Daton and Abiron were the sons of Eliab, the son of Phallu, of the tribe of Ruben in the Old Testament. They rebelled against the authority of Moses and Aaron, aggrieved as the Rubenite tribe was deprived of the leadership that they saw as their right by birth, being descended from the eldest son of Jacob. The Bible (Numbers 6: 1–34) relates that as punishment for their actions against God's chosen one, Daton and Abiron were swallowed up by the earth and brought to hell. Their inclusion on the sigil may be a reminder of the perfidy of humanity, or a warning about the power of divine wrath and the necessity of obeying divine authority when using inscription and incantation to attain magical power, or even a simple protective curse. In early medieval Cluniac monasteries, a common curse referred to Daton and Abiron—'If anyone raises calumnies, may he incur the wrath of almighty God and be in hell with Daton and Abiron', and Daton and Abiron were frequently invoked with Judas Iscariot in some of the most potent medieval curses.[46]

In the next circle are the different ranks of angels in Latin (Seraphim, Cherubim, Wheels, Thrones, Dominions, Principalities, Powers, Archangels and Angels). The third concentricity (the names in large lettering) in Hebrew can be translated as 'YWWH of Hosts, God (Eloha), God (Elohim) is great, God (El), YHWH, God (Elohim), YHWH, I am'. The three words that are translated as 'God' are three different Hebrew words for deity, and YHWH is the Tetragrammaton, the English transcription of the Hebrew name of God that modern biblical scholars speculate was pronounced as 'Yahweh'.[47] Rabbis forbid the utterance of the Tetragrammaton to avoid the desecration of the sacred name of God, and it was a common

symbol in magic Jewish papyri and amulets.[48] Going one sphere beyond, the Hebrew names can be translated as 'Lord, Shaddai (usually translated as 'Almighty'), God, Hosts (the heavenly hosts of angels)'. So, these circles represent God as conceptualized by the Judaic faith. The Hebrew names in the outermost circle, however, read 'Yeshu (Jesus) our God, YHWH (God) is one', which is a Christian humanist interpretation of Deuteronomy 6: 4, 'Hear O Israel, the Lord is our God, the Lord is one'. This would be the pinnacle of holiness for a Christian humanist such as Reuchlin, who saw cabala as reinvigorating the Christian faith; the mysteries of the Judaic faith and Christianity are united in this sigil with this paean to Jesus and to Yahweh.

REICHELT'S EVIL EYE AMULETS AND IRON AGE COINS

Not all of the objects portrayed in Reichelt's letter were technically sigils with astrological or cabalistic associations. Some, such as the two hand-shaped objects in figure 1, were simple amulets designed to protect the wearer from the Evil Eye or bewitchment.[49] Still made in Spain out of jet or coral in the pilgrimage town of Santiago de Compostela, the amulet represents a gesture of the hand called a 'fighand' or *mano fico*, supposed to resemble a hanging fig. Some anthropologists have claimed that because 'fica' or fig is also a common slang term for the female genitals, the hand gesture in the amulet represents the sexual act with the thumb as the phallus. Alan Dundes has claimed that in cultures that believe in the evil eye, life is seen to depend on liquids, whether the water of life or bodily liquids such as semen, blood, saliva or milk.[50] The Evil Eye is thought to dry up such fluids and is therefore repelled by a symbol of fertility or sexual potency such as the fighand. In his study of amulets, Reichelt noted that babies and children are often given these amulets to wear because they are thought particularly susceptible to the power of the Evil Eye. Both weaker and also more attractive, youngsters are believed more likely to draw upon themselves envious and maleficent glances. Indeed, as Hildburgh has noted, seventeenth-century portraits of children from the noble classes portrayed them wearing such amulets:

> the portrait of the baby Infanta of Spain, Doña Ana de Austria, painted by Juan Pantoja de la Cruz about the beginning of the seventeenth century, shows her wearing, for her protection, a quite considerable array of objects, some of them—crosses and little reliquaries— religious in inspiration, others—including a jet fig-hand mounted in enameled gold.[51]

It is not known exactly when fighands first appeared, but Hildburgh speculated that, in Spain, it was before the conquest by the Moors in the seventh century AD.

The last talismans I shall analyse in Reichelt's collection—the bottom row of coins for which he asked the Royal Society's assistance in identifying in figure 1—pre-date even the fighand symbol. There is no Royal Society record that Reichelt was ever given a satisfactory reply to his query; this may simply have been because the reply was lost, or Oldenburg did not have the expertise to give an answer. Oldenburg may well also have been ambivalent about discussing magic and its efficacy. A canon of Sarlat who tried to interest Oldenburg in his ideas on magic and alchemy in the same period was rather primly informed by the Royal Society's secretary to limit himself to 'the natural history of Périgord'.[52] At any rate, Reichelt himself remained puzzled at their origins of the coins with the odd symbols, assuming only that they were 'magic coins' of some type. The confusion of these early modern antiquarians is not surprising. As Rosemary Sweet has demonstrated, early eighteenth-century antiquarians had little sense of prehistory, archaeology was in its infancy, and the firm foundations of

numismatics were only beginning to be laid, correct classification usually being restricted to ancient Greek and Roman coins.[53] The drawings in fact are of 12-carat gold Iron Age coins (1000–750 BC) from Germany, weighing probably between 5.5 and 7.5 g. Number 13 is of a stater (the term is borrowed from ancient Greek coins of a similar size) from Hessen and Rheinland; numbers 14 and 15 are of staters from Southern Germany (Bavaria).[54] Ralph Thoresby considered it notable that he had one Nordic coin with rune symbols in his collection, believing it to be the only one 'known to be in any Museum in Europe', so Iron Age coins with their inscrutable symbols would have presented an exotic puzzle indeed.[55] Because many of the Iron Age coins had horse motifs, early eighteenth-century connoisseurs believed them to be Phoenician, an assertion not disproved until William Borlase's numismatic work on the Carn Brea Hoard discovered in Cornwall in the 1740s.[56] Even in the mid-eighteenth and nineteenth centuries, the perception of the motifs on Iron Age coins as druidical or mystical symbols was fairly universal across western Europe.[57] The crescents on the coins such as Reichelt's, for instance, were thought to portray the Druid's lunar calendar, or the 'golden hook with which their Priests with so much solemnity cut the divine mistletoe'.[58]

   Although today we can determine the time periods of these coins, comprehending their symbolism is still problematic.[59] Dr John Sills, an expert on Iron Age and Celtic coins, has speculated that the curves capped with circular balls on the obverse of Reichelt's coins may represent torcs, or the collars or bracelets of a twisted narrow metal strip worn by ancient Gauls and Britons.[60] The quite literal representation of its portrayal on the coins and the fact that the torc may be regarded as the most characteristic relic of primitive Celtic and Teutonic art makes such an identification likely.[61]

5. CONCLUSION

Three years after his letter to Oldenburg, Reichelt went on to publish his *Excercitatio* to great success, and his work was later often appended to Jacob Wolff's magnum opus, the *Curiosus sigilorum scrutator*.[62] Though interest in sigils persisted among virtuosi in the late seventeenth and early eighteenth century, Reichelt's attitude toward their lack of efficacy and association with superstitious practice eventually became the predominant one among natural philosophers. Rather than magical talismans, sigils became relegated to the realm of queer and interesting curiosities. Readers of question-and-answer coffeehouse newspapers designed to appeal to polite society such as the *Athenian Mercury* (1691–97) and the *British Apollo* (1708–11) continued to submit questions about astrological medals as a result of their status as curious objects. One reader of the *Mercury* in 1691 asked, 'Whether the force and virtues of the Old Egyptian Talismans and their other Magical Operations were true and real', and another reader of the *Apollo* queried whether moonbeams could be trapped in physical objects.[63] The editors' responses show that they sneered at the making of such charms, the *Mercury*'s editors denying that sigils that the maker or user 'believed wou'd receive and keep the Critical Influences of the their [the planet's] design'd aspects' had effects on medicine or anything else.[64] In 1693, even the fairly radical mystic writer William Freke (1662–1744) showed his disappointment in their supposed powers. He claimed 'thus Telesmes, or Talismans also are a spawn of Astrology … of just as much force as Powder of Post …; for my part I once made a Telesme of Venus my self in Silver, but found no more effect in the Mettal than before'.[65] From potent magical healing amulet tied to the mysteries of the heavens, to an object kept in a curioso's cabinet, the use and purpose of sigils such as

Reichert's mirrored changing early modern beliefs in the occult influences of the heavens on the body and the natural world. Empirical verification of their powers or lack thereof may have subsumed their magic power, but not their inherent fascination.

NOTES

1   Johannes Gerzelius Jr to Henry Oldenburg. 11 June 1673, Royal Society MS G, no. 37. This letter has been translated in *The correspondence of Henry Oldenburg* (ed. and transl. A. Rupert Hall and Marie Boas Hall), vol. 10, no. 2248 (Mansell, London, 1975). Gezelius the Elder (1615–90) is considered the father of Finnish popular education, organizing ambulatory schools to teach literacy to the general population. He also founded the country's first printing press and became vice-Chancellor of the University of Turku. His son continued his initiatives in education. See 'Johannes Gezelius the Elder' and 'Johannes Gezelius the Younger' in *100 faces from Finland. A biographical kaleidoscope* (Suomalaisen Kirjallisuuden Seura, Helsinki, 2000); Toivo Harjunpaa, 'Liturgical developments in Sweden and Finland in the era of Lutheran orthodoxy (1593–1700)', *Church Hist.* **37**, 14–35 (1968); Donald Smith, 'School life in Mediæval Finland: mainly in the town of Viborg, illustrated by royal letters and local records', *Trans. R. Hist. Soc.* **13**, 83–116 (1930).

2   Peter H. Meurer, 'Die Deutschland-Karte des Strassburger Mathematikers Julius Reichelt (etwa 1680) [The Map of Germany of the Strasbourg mathematician Julius Reichelt (around 1680)]', *Speculum Orbis* **2**, 96–102 (1986). Reichelt's map was first published as *S. Imperium Romano-Germicum oder Deutschland …* engr. by A. Hobeboom (N. Visscher, Amsterdam, 1680); Reichelt was also an anonymous author of town views in *Circuli Suevici Succinta Descriptio* (W. Michahelles & J. Adolph, Nürnberg, 1703).

3   Julius Reichelt, *Julii Reichelti exercitatio, de amvletis, aeneis figuris illustrate* (Argentorati, Apud Joh. Frid. Spoor, and Reinhard, Wechtler, 1676).

4   The drawing of the amulets in figure 1 was reproduced exactly in Reichelt's *Exercitatio*, and the larger cabalistic amulet in figure 2 served as a frontispiece. Sigils were small pieces of metal or semi-precious gems, engraved with astrological symbols and a picture of the planet on one side and often a 'magic square' of gridded numbers on the back or geometrical figures reflecting the cabalistic belief that there was a number assigned to each planet. They were designed to be worn about the neck and were engraved when a planet was in a particular astrological configuration, so as to capture that planet's power. Sigils could be engraved metal, but they could also be small pouches of herbal preparations and parts of animals or mineral powder designed to fend off disease or bring luck.

5   Michael Hunter, *Science and the shape of orthodoxy: intellectual change in late seventeenth-century Britain* (Boydell & Brewer, Woodbridge, 1995), p. 37.

6   Ken Arnold, *Cabinets for the curious* (Ashgate, Aldershot, 2006), pp. 67–68.

7   As a representative example, see Ralph Thoresby, 'A Letter from Mr. Ralph Thoresby, to Dr. Martin Lister, Coll. Med. Lond. & S. R. S. Giving an Account of a Roman Pottery, Near Leeds in Yorkshire', *Phil. Trans. R. Soc*. **19**, 319–320 (1695–97); Ralph Thoresby, 'Part of a Letter from Mr. Ralph Thoresby, FRS to Dr. Martin Lister, Fellow of the Colledge of Physicians and R. S. Concerning a Roman Shield', *Phil. Trans. R. Soc*. **20**, 205–208 (1698). MS Lister 3–5 in the Bodleian Library, Oxford, also indicates that the two antiquarians exchanged shells for their respective collections.

8   Thoresby's museum is described in Ralph Thoresby, *Museum Thoresbyanum, or A Catalogue of his Museum, with the Curiosities Natural and Artificial, and the Antiquities; particularly the Roman, British, Saxon, Danish, Norman and Scotch coins, with Modern Medals* (1715) and also in Ralph Thoresby, *Ducatus Leodiensis: or, the topography of the ancient and populous town and parish of Leedes, …* (London, 1715).

9   For Ashmole's penchant for astrological sigils, see Hunter, *op. cit*. (note 5), pp. 27–29.

10   Robert Boyle, 'Of Celestial and Aerial Magnets', in *Tracts containing I. Suspicions about Some Hidden Qualities of the Air; with an Appendix touching Celestial Magnets, and some other Particulars…* (W. G., London, 1674), p. 53. This work may also be found in vol. 8 of *The works of Robert Boyle* (ed. Michael Hunter and Edward B. Davis) (Pickering & Chatto, London, 1999–2000).

11   Boyle, *op. cit*. (note 10), p. 53.

12   Boyle, *op. cit*. (note 10), p. 53.

13   John Gadbury, *Natura prodigiorum … with an Appendix Touching the Imposturism of the Commonly-received Doctrine of Prophecies, Spirits, Images, Sigils, Lamens, the Christal, &c* (J. C., London, 1660).

14   Gadbury, *op. cit*. (note 13), p. 185.

15   Johannes Gerzelius Jr to Henry Oldenburg. 11 June 1673, Royal Society MS G, no. 37.

16   Lynn Thorndike, 'Illicit magic', in *History of magic and experimental science*, part IV, pp. 569–570 (Kessinger Publishing, New York, 1958). As Matthew Klemm has indicated, Peter of Abano considered the question of whether an incantation pronounced by a physician could restore health, and determined to find out the source of its efficacy by means of empirical observation. On Peter of Abano, see: Eugenia Paschetto, *Pietro d'Abano: Medico e filosofo* (Nuovedizioni Enrico Vallecchi, Firenze, 1984); Matthew Klemm 'Incantations in the medical philosopy of Petrus de Albano (1250–1316)', http://www.aseweb.org/Papers/Klemm.htm#_edn1 (accessed 15 November 2007); Nancy Siraisi, *Arts and sciences in Padua: The studium of Padua before 1350* (Pontifical Institute of Mediaeval Studies, Toronto, 1973); and Lynn Thorndike, *A history of magic and experimental science* (Macmillan, New York, 1923), vol. 2, pp. 874–947.

17   Nicholas Weill-Parot, *Les 'images astrologiques' au Moyen Âge et à la Renaissance: spéculations intellectuelles et pratiques magiques (XIIe-XVe siècle)* (Sciences, Techniques et Civilisations du Moyen Âge à l'Aube des Lumières, 6) (Honoré Champion, Paris, 2002).

18   Johann Reuchlin, *De arte cabalistica; on the art of the Kabbalah* (University of Nebraska Press, Lincoln, NE, 1983).

19   Johannes Trithemius, *Veterum sophorum sigilla et imagines magicae, siue, Sculpturae lapidum et gemmarum secundum nomen Dei tetragrammaton: cum signatura planetarum & iuxta certos coeli tractus …* (1612). This tract was reprinted as part of the *Trunum magicum, siue, Secretorum magicorum opus* in Frankfurt by Conradi Eifirdi in 1630 and 1673, and these works were edited by Caesare Longino. This work also exists in a seventeenth-century manuscript that is identified as Tritheim (Johann), Abbot of Spanheim, *Veterum Sophorum sigilla et imagines magicæ*, Sloane. 3663 in the British Library.

20   Israel Hiebner von Schneeberg, *Mysterium sigillorum, herbarum & lapidum; oder, Vollkommene Cur und Heilung aller Kranckheiten Schäden und Liebes- auch Gemüths-Beschwerungen durch underschiedliche Mittel ohne Einnehmung der Artzney; Mysterium sigillorum, herbarum &*

lapidum. Containing a compleat cure of all sicknesses and diseases of mind and body, by means of influences of the seven planets. Adorned with copper plates & figures, shewing the foundation of this astronomical and coelestial science (transl. B. Clayton (Johann Birckner, Erfurt, 1651; Leipzig, 1653; Erfurt, 1696; Erfurt, 1731; Frankfurt, 1735; Leipzig, 1735; Frankfurt and Leipzig, 1737; W. Downing, London, 1698). For a discussion of Wolff, see Martha Baldwin, 'Toads and plague: sigil therapy in seventeenth-century medicine', *Bull. Hist. Med.* **67**, 227–247 (1993), at p. 227.

21   Joseph Blagrave, *Blagrave's Astrological Practice of Physick …* (S. G. and B. G., London, 1671).

22   On page 50 of his *Exercitatio*, for instance, Reichelt referred to knotted grass amulets said to cure earaches and described the work of Johannes Schroderus. See Michael Ettmuller, *Opera pharmaceutico-chymica. Ejus scilicet I. Schroderus dilucidatus, seu Commentarius in Joh. Schroderi Pharmacopoeiam medico-chymicam …* (Lugduni, 1686), 1.4, p. 77. Johann Schröder was the first to realize that arsenic was an element. Bartholine was cited by Reichelt in a discussion of the efficacy of mercury, and sigils of the planet Mercury in effecting cures on p. 274. Bartholine is credited with discovering the lymphatic system, and Reichelt cites his *Historarium anatomicarum rariorum centuria I–VI* (Copenhagen, 1654–61).

23   The explanation in the following paragraph about how sigils work is largely taken from one of my earlier articles: Anna Marie Roos, 'Luminaries in medicine: Richard Mead, James Gibbs, and the influence of the Sun and the Moon on the human body in early modern England', *Bull. Hist. Med.* **74**, 433–457 (2000), at pp. 448–450.

24   See Bartholomeaus Carrichter, *Kräutterbuch des Edelen und Hochgelehrten Herzen Doctoris Bartholomei Carrichters* (Antony Bertram, Strassburg, 1609). (I thank Adam McLean and Hereward Tilten of the Alchemy Academy Discussion Group for this reference.)

25   Nicholas Culpeper, *The English physitian enlarged: with three hundred, sixty, and nine medicines made of English herbs that were not in any impression until this …* (Peter Cole, London, 1653). In Hiebner, *op. cit.* (note 20), the 'publisher's preface to the reader' recommends looking at the works of Culpeper, and those of the astrological physician Joseph Blagrave, for the 'rules of the gathering and the applying of the herbs', signature A4v. Joseph Blagrave (1610–82) published works in the same tradition as Culpeper, and was responsible for the 'enlarged' edition of Culpeper's *English physitian*.

26   Lionel Lockyear, *An Advertisement Concerning those most Excellent Pills Called Pilulae Radiis Solis Extractae* (London, 1685), fol. A2r. For a similar discussion of such medicaments, see also [P. J. L. De Loutherbury], *Sanguis Naturae Or a Manifest Declaration of the Sanguine and Solar Congealed Liquor of Nature* (A. R., London, 1696). The microcosmical Sun was considered to be the heart, as it animated the body with the animal spirits, much as the Sun animated the Earth with its rays. See Roos, *op. cit.* (note 23), p. 465.

27   In ancient Mesopotamia and Egypt, five thousand years ago, the Sun passed through Leo in midsummer solstice. Leo was thus the constellation of high summer and affiliated with the Sun, an association that continued in the medieval and early modern era.

28   Hiebner, *op. cit.* (note 20), p. 160.

29   Don. C. Skerner, *Binding words: textual sigils in the middle ages* (Pennsylvania State Press, State College, 2006), p. 132. *De sigillis* in turn was probably based on the *Picatrix*, an eleventh-century Arabic work that was translated into Spanish in the thirteenth century. See Henry Kahane, Renee Kahane and Angelina Pietrangeli, 'Picatrix and the talismans', *Romance Philol.* **19**, 574–593 (1966).

30   Marc Haven [E. Lalande], *La vie et les oeuvres de Maitre Arnaud de Villeneuve* (Paris, 1896; reprinted by Slatkine Reprints, Geneva, 1972), pp. 63–64; Joseph Ziegler, *Medicine and religion, c. 1300: the case of Arnae de Vilanova* (Clarendon Press, Oxford, 1998), pp. 245–250, noted in Skerner, *Binding words*, p. 132.

31   Karl Anton Nowotny, 'The construction of certain seals and characters in the work of Agrippa of Nettesheim', *J. Warburg Courtauld Insts* **12**, 46–57 (1949), at p. 56.

32   Nowotny, *op. cit*. (note 31), p. 56.

33   Skerner, *op. cit*. (note 29), p. 132.

34   Skerner, *op. cit*. (note 29), p. 132.

35   *Verbum caro factum est, et habitavit in nobis et vidimus gloriam, eius gloriam quasi unigeniti a Patre, plenum gratiae et veritatis* [And the Word became flesh, and made His dwelling among us; and we have seen His glory, glory as of the only begotten of the Father, full of grace and truth].

36   Deborah E. Harkness, *John Dee's conversations with angels: cabala, alchemy, and the end of nature* (Cambridge University Press, 1999), p. 174.

37   Ludwig Blau, 'Angelology: cabalistic view', http://jewishencyclopedia.com/ (accessed 1 December 2007).

38   Papus, *Traité élémentaire de science occulte* [*Fundamentals of occult science*] (Carré, Paris, 1888).

39   Nehemiah Grew, *Musaeum Regalis Societas, or a Catalogue and Description of the Rarities Belonging to the Royal Society and Preserved at Gresham Colledge* (Tho. Malthus, London, 1685), p. 377; Whiston Bristow, *Musæum Thoresbyanum. A catalogue of the genuine and valuable collection of that well known antiquarian the late Ralph Thoresby,… All which …* (London, 1764), pp. 4 and 8. See also Thoresby, *Ducatus Leodiensis, op. cit.* (note 8), pp. 275–276.

40   For the connections between mathematics and magic, see John Henry, 'Magic and science in the sixteenth and seventeenth centuries', in *A companion to the history of modern science* (ed. R. C. Olby, G. N. Cantor, J. R. R. Christie and M. J. S. Hodge), pp. 583–596 (Routledge, London, 1990); Katherine Neal, 'The rhetoric of utility: avoiding occult associations for mathematics through profitability and profit', *Hist. Sci.* **37**, 151–178 (1999); Peter Zetterberg, 'The mistaking of "the mathematics" for magic in Tudor and Stuart England', *Sixteenth Cent. J.* **11**, 83–97 (1980). (I thank the anonymous reviewer for suggesting these articles to me.)

41   I. R. F. Calder, 'A note on magic squares in the philosophy of Agrippa of Nettesheim', *J. Warburg Courtauld Insts* **12**, 196–199 (1949), at p. 197.

42   Henry Cornelius Agrippa, *Three Books Of Occult Philosophy* (R. W., London, 1651), book II, p. 239.

43   See Ernest A. Wallis Budge, *Sigils and Superstitions: The Original Texts with Translations and Descriptions of a Long Series of Egyptian, Sumerian, Assyrian, Hebrew, Christian, Gnostic, and Muslim Sigils and Talismans and Magical Figures, with Chapters on the Evil Eye, the Origin of the Sigil, the Pentagon, the Swastika, the Cross (Pagan and Christian), the Properties of Stones, Rings, Divination, Numbers, the Kabbalah, Ancient Astrology, etc*. (Oxford University Press, London, 1930).

44   Calder, *op. cit*. (note 41), p. 197.

45   Nowotny, *op. cit*. (note 31), p. 50. The description of the construction of the squares is largely taken from Nowotny's article.

46   Brittan Bouchard, *Sword, miter, and cloister: nobility and the Church in Burgundy, 980–1198* (Cornell University Press, Ithaca, NY, 1998), p. 212; H. Martin, 'The Judas Iscariot curse', *Am. J. Philol*. **37**, 434–451 (1916), at p. 435.

47   Crawford Howell Toy and Ludwig Blau, 'Tetragrammaton', http://jewishencyclopedia.com/ (accessed 18 February 2008). (I thank the anonymous reviewer for this reference.)

48   *Ibid*.

49   W. L. Hildburgh, 'Images of the human hand as amulets in Spain', *J. Warburg Courtauld Insts* **18** (1–2), 67–89 (1955).

50   Alan Dundes, 'Wet and dry: the Evil Eye', in *The Evil Eye: a folklore casebook* (ed. Alan Dundes), pp. 257–312 (Garland Publishing, New York, 1981). See also Clarence Maloney, *The Evil Eye* (New York: Columbia University Press, 1976).

51   Hildburgh, *op. cit*. (note 50), p. 69.

52   *The correspondence of Henry Oldenburg* (ed. and transl. A. Rupert Hall and Marie Boas Hall), vol. 10, pp. 398–406 and 436 (Mansell, London, 1975). Oldenburg's reluctance to talk about magic was noted by Christopher Hill in his review of the Oldenburg correspondence in *English Hist. Rev*. **91**, 645–646 (1976), at p. 646.

53   Rosemary Sweet, *Antiquaries: the discovery of the past in eighteenth-century Britain* (Continuum International Publishing Group, London, 2004).

54   No. 13 is of Dembski, p. 76, 467 type; no. 14 is probably close to Kellner, Manching, no. 2236; and no. 15 is of Dembski, no. 444 type. Dembski =Günther Dembski, *Muenzen der Kelten* (Kunsthistorisches Museum Wien, Vienna, 1998); Kellner = Hans-Jörg Kellner, *Die Münzfunde von Manching und die keltische Fundmünzen aus Sudbayern* (Franz Steiner, Stuttgart, 1990).

55   Thoresby, *Ducatus Leodiensis*, *op. cit*. (note 8), p. 339. Robert Plot, the keeper of the Ashmolean, actually possessed an Iron Age coin, which he firmly believed portrayed the face of Boudica. See Robert Plot, *The Natural History of Oxford-Shire* (Oxford, 1677), p. 335.

56   W. Borlase, *Observations on the antiquities historical and monumental, of the county of Cornwall. Consisting of several essays on the first inhabitants, …* (Oxford, 1754), p. 247. This was the earliest publication about a British Celtic coin hoard and was very influential.

57   Personal communication with Dr John Sills, 3 December 2007. For other eighteenth-century works on Iron Age coins and symbols, see S. Pegge, *An essay on the coins of Cunobelin* (London, 1766); and J. Whitaker, *The history of Manchester in four books. Book the first, containing the Roman and Roman-British period* (London, 1771–73).

58   Borlase, *op. cit*. (note 57), p. 261.

59   The earliest interpretive guide to the symbolism of Iron Age coins is J. C. Hedler, *Diatribe historica de nummis scyphatis nordmannorum, quos vulgo Regenbogenschuslein appellant* (Berlin, 1730). Also of relevant interest is M. A. Voigt, *Schreiben an einen Freund; von den bey Podmokl einen in der Hochfurst. Furstenbergischen Herrschaft Purglitz gelegenen Dorfe in Bohmen gefundenen Goldmunzen* (Prague, 1771), and Franz Streber's *Über due sogenannten Regenbogenschusselchen* (Munich, 1860–62).

60   Personal communication with Dr John Sills, 29 November 2007.

61   Sir Daniel Wilson, *The archæology and prehistoric annals of Scotland* (London, 1863), vol. II, bk IV, sect. vi, p. 472.

62   Jacob Wolff, *Curiosus sigilorum scrutator. In quo de natura et attributis illorum … ac in specie de zenechtis, vel quæ pesti opponuntur agitur … Cui accessit J. Reichelti exercitatio de sigilis, etc*. (Frankfurt, 1692).

63   *The Athenian Mercury*, 22 December 1691, vol. 5, no. 7, question 1; *The British Apollo*, Monday 9 January to Wednesday 11 January 1710, vol. 3, no. 86, pp. 1–2.

64   Anna Marie Roos, *Luminaries in the natural world: the Sun and the Moon in England, 1400–1720* (Peter Lang Publishing, New York, 2001), p. 240.

65   William Freke, 'Of Astrology', in *Select Essays Tending to the Universal Reformation of Learning* (Tho. Minors, London, 1693), p. 32. According to the *Oxford English dictionary*, a talisman is 'a stone, ring, or other object engraven with figures or characters, to which are attributed the occult powers of the planetary influences and celestial configurations under which it was made; usually worn as an amulet to avert evil from or bring fortune to the wearer; also medicinally used to impart healing virtue; hence, any object held to be endowed with magic virtue; a charm'. So a sigil could be a talisman, but not all talismans were sigils. The *Oxford English dictionary* also notes that in England the term 'talisman' was often conflated with the term 'telism', although telisms are properly 'statues set up, or objects buried under a pillar or the like to preserve the community, house, etc. from danger'.