NOTES AND DOCUMENTS

The "Ingendred" Stone: The Ripley Scrolls and the Generative Science of Alchemy

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ABSTRACT Acquired at auction in 1958 from the library of C. W. Dyson Perrins, the Huntington Library's Ripley scroll (HM 30313) is one of the most ornate and esoteric illuminated manuscripts of early modern England. Much remains unknown about the iconology and historical context of the Ripley scrolls, of which approximately twenty remain worldwide. The self-consciously archaic scroll at the Huntington draws on a range of contemporary sources, including emblem books, heraldic imagery, and illuminated alchemical manuscripts from the fifteenth century, such as the *Rosarium philosophorum* and the *Aurora consurgens*. Aaron Kitch situates the Ripley scrolls in the context of English alchemy in the sixteenth century, especially the tradition of emblematic alchemy and John Dee's efforts to establish George Ripley as England's chief alchemical authority. He analyzes the pattern of imagery on the scrolls in relation to the ancient and early modern philosophy of generation, which focused on questions about sexual reproduction and the emergence of new matter in nature. **KEYWORDS:** George Ripley; John Dee; Paracelsus; illuminated manuscripts; early modern alchemy; generation; *Aurora consurgens*

HM 30313, A TEN-FOOT ALLEGORICAL SCROLL or *rotulum hieroglyphicum* depicting alchemical transmutation, is a masterpiece of illumination in the Huntington's collection, one of the best examples of "Ripley" scrolls known to scholars (fig. 1).[1]

1. HM 30313 was purchased by C. W. Dyson Perrins (1864–1958) before being acquired by the Huntington from his estate via Sotheby's on December 9, 1958, lot 42. The full catalogue entry for HM 30313 can be found at http://sunsite3.berkeley.edu/hehweb/HM30313.html. High-resolution images can be found at http://dpg.lib.berkeley.edu/webdb/dsheh/heh_brf?CallNumber=HM+30313. See the appendix for a full transcription and translation of the scroll (pp. 118–25). The only other transcription and translation of the manuscript known to me is Cuthbert Bede, *Notes and Queries: Medium of Inter-Communication for Literary Men, Artists, Antiquaries, Genealogists, etc.,* 2nd ser. vol. 2 (1856): 481–83, 501–2.

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FIGURE 1. Ripley scroll. Huntington Library, HM 30313 (details).


HERE IS Y LAST OF Y WHIT STONE & Y BEGINING OF Y RED STONE
EARTH
WATER
WATER
WATER


THE BYRDE OF
IS MY NAME EATHG MY WHGS TO MAK
TAME
HERMES
ME


THE BYRDE OF
IS MY NAME EATING MY WINGS TO MAK
TAME

The scrolls themselves mark a high point in the alchemical emblem tradition that flourished in early modern Europe, a tradition that includes the *Rosarium philosophorum* (Rosary of the philosophers) and the *Aurora consurgens* (Rising dawn). We now see these texts as works of practical as well as theoretical alchemy, in keeping with a recent resurgence of interest in alchemy as part of the history of science.

Studies of the corpus of Ripley scrolls have focused on their problematic relation to George Ripley—the English alchemist for whom they are named—their florid iconography, and their intended function.[2] Anke Timmermann has recently suggested that the scrolls incorporated a vernacular tradition of alchemical verse, including the widespread "Verses on the Elixir" that circulated in England during the fifteenth and sixteenth centuries. She dates the Huntington scroll somewhere between 1550 and 1575, somewhat earlier than the Huntington catalogue suggests and much later than the scrolls' first emergence in the late fifteenth century.[3] Yet several questions remain unanswered, including the relation of the scrolls to English alchemists of the period, the conditions in which they were produced, and the logic of their complex patterns of imagery. Even the medium is an unresolved conundrum. Were the scrolls intended for display, or for concealment? Many alchemists in the period used obtuse language and allegorical images to conceal their laboratory secrets from pretenders. Roger Bacon, in *The Mirror of Alchimy* (ca. 1274; printed 1597), wrote that alchemy should be intentionally obscure in order to keep "the secrets of wisdom from the common people."[4] Other alchemists worried that they might be getting wrong or misleading information, insisting that adepts locate a person whom Thomas Norton called an "able and approved man" to give the divine gift of "*Science.*"[5] This emphasis on secrecy helped alchemy to develop its reputation as a mystical and occult practice, a reputation that scholars such as Frances Yates helped to cultivate even as more recent historians of science have sought to redefine alchemy as a science of matter that influenced the Scientific Revolution.[6] But the Ripley scrolls simultaneously conceal and reveal their

2. Stanton Linden identifies close thematic links between George Ripley's *Compound of Alchymy* and the Ripley scrolls, going so far as to suggest that the original scrolls were composed with a copy of the *Compound* on hand. See Linden, "The Ripley Scrolls and *The Compound of Alchymy*," in *Emblems and Alchemy*, ed. Alison Adams and Stanton J. Linden, Glasgow Emblem Studies 3 (Glasgow, 1998), 94. Betty Jo Dobbs reads the scrolls in light of Isaac Newton's search for a primordial agent of fertility, or "vegetable spirit," showing how the scrolls mix Christian and pre-Christian imagery, such as that of fertility cults, and how they illustrate the alchemical "exaltation of matter." However, she does not consider the alchemical imagery of the scrolls in any detail, and though she elsewhere explores the technical alchemical process that is displayed in the scrolls, she refrains from reading the scrolls in light of that imagery. See Dobbs, *Alchemical Death and Resurrection: The Significance of Alchemy in the Age of Newton* (Washington, D.C., 1990), 16.

3. See Anke Timmermann, *Verse and Transmutation: A Corpus of Middle English Alchemical Poetry* (Leiden, 2013), 113–42. For the stemma of the Ripley scrolls, see p. 130.

4. Roger Bacon, *The Mirror of Alchimy* (1597), 76.

5. Thomas Norton, *The Ordinall of Alchimy* (1477), in *Theatrum chemicum Britannicum*, ed. Elias Ashmole (1652), 14.

6. See, for example, Frances Yates, *Giordano Bruno and the Hermetic Tradition* (London, 1977), and *The Rosicrucian Enlightenment,* 2nd ed. (London, 2001), 248. For critiques of this view, see Mary B.

secrets, offering viewers not just a case study in obfuscation but also a document of the diverse aims and methods of alchemy as it was practiced in early modern Europe.

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Scholars working in the Rothenberg Reading Room at the Huntington Library are sometimes unaware that they are working only yards away from the only Ripley scroll in the world on permanent display.[7] Only those who exit the reading room and travel down the hall to the manuscript card catalog have the opportunity to find a dimly lit staircase leading to staff offices, where a vellum scroll about ten feet in length and fifteen inches in width (304 × 39 cm) hangs on the wall. Of the twenty extant Ripley scrolls, four of which reside in the United States, there are many variations of size, quality, and format. Closer examination of the Huntington scroll reveals an extensive assemblage of human and mythical figures, including a green toad vomiting blood, a green dragon, and a series of fountains in which naked humans assemble. Interspersed among the illustrated panels are many dozens of lines of text, including verses in English and Latin labels. The Huntington scroll follows the most common pattern of iconography, but it contains more text than any other version, making it an ideal case study.[8]

The large figure at the top of the scroll has been identified as Hermes Trismegistus, the mythical father of alchemy who lived in the second century of the common era but whom early modern authors assumed to be a contemporary of Moses.[9] The text above the figure of Hermes reads, "Est lapis occultus secreto fonte sepultus / fermentum variat lapidem qui cuncta colorat" (Here is the occult stone, buried in the secret

Hesse, "Hermeticism and Historiography: An Apology for the Internal History of Science," in *Historical and Philosophical Perspectives of Science*, ed. R. H. Stuewer (Minneapolis, 1970), 134–60; and Charles Trinkaus, *In Our Image and Likeness: Humanity and Divinity in Italian Humanist Thought*, 2 vols. (Notre Dame, Ind., 1995). Important revisionist scholarship on alchemy by historians of science includes William Newman and Lawrence Principe, *Alchemy Tried in the Fire: Starkey, Boyle, and the Fate of Helmontian Chymistry* (Chicago, 2005); Bruce Moran, *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution* (Cambridge, 2005); Deborah Harkness, *The Jewel House: Elizabethan London and the Scientific Revolution* (New Haven, Conn., 2007); and Lawrence Principe, *The Secrets of Alchemy* (Chicago, 2013).

7. Four of the Ripley scrolls in the British Library are framed (MS 5025[1–4]), but they are rarely displayed. Interestingly, these are the smallest of the seven scrolls in the BL, ranging in length from 125 cm to 167 cm.

8. M. E. Warlick divides the Ripley scrolls into "standard," "alternative," and "unique" sequences, based on their visual details, in "Fluctuating Identities: Gender Reversals in Alchemical Imagery," in *Art and Alchemy*, ed. Jacob Wamberg (Copenhagen, 2006), 124–25. All but five of the twenty scrolls fit the "standard" sequence, and only one is "unique," which means it is fragmentary but also that it contains at least some iconographic innovation. The Huntington scroll contains more verses than any other scroll in existence, which may mean that it is the origin of other, longer scrolls or that it is a compilation of shorter ones. In any case, there are no significant details in other scrolls, apart from the minor variations in fragmentary scrolls in the British Library, that are not contained in the Huntington scroll, which makes it an appropriate example for analysis.

9. Isaac Casaubon published *De rebus sacris et ecclesiasticis exercitationes XVI* in 1614, which argued on philological evidence that Hermes lived and wrote in the first century of the common era.

fountain / It transmutes the fermented stone, which tinctures everything). Such a statement links the scroll to the occult tradition of alchemy as the secret art of natural magic, but just below this script, on the handles of the glass flask that Hermes places into a large alchemical furnace, or athanor, one finds the following text: "Ye Must Make Water of Ye Earth & Earth of Ye Ayre & Ayre of Ye Fier & Fyer of Ye Earth." This nod to the Aristotelian four-element theory of matter is part of an effort to construct an imaginary unity of alchemical science. Medieval and early modern alchemists in the European tradition may have paid lip service to Aristotelian physics, but they embraced a more empirically demonstrable theory that all matter was composed of two or three "elements"—sulphur and mercury, or occasionally the triumvirate of sulphur, mercury, and salt.

In addition to developing a complex iconography, the scroll contains over 6,000 words of text, much of it in verse form (see appendix). Some of these verses may derive from a corpus of Middle English alchemical poetry, as Timmermann suggests, yet the Ripley scrolls vary in terms of their combination of words and images.[10] The scroll format may suggest the original intent of a unified viewing, yet the curling and wear on many remaining copies suggest that they were viewed section by section, rather than as a complete whole. This reading method may help to justify the theme-and-variation structure of the scrolls, even though each variation offers subtle but significant changes from what has come before.

The Ripley scrolls earn their name by association with George Ripley (ca. 1415–ca. 1490), a practicing alchemist and canon regular of Bridlington Priory in Yorkshire. During his lifetime, Ripley was neither well known nor prolific as an author of alchemical texts. He died around 1490, many years before most of the scrolls were likely produced. In the century after his death, however, he became celebrated as a master of alchemy by English and Continental authors who sometimes attached his name to their manuscripts to boost their authority, making him (posthumously) the most prolific author of scientific and medical texts in late medieval England. This proliferation occurred despite the fact that there is only one work in his entire corpus—the *Compound of Alchymy*—that can be attributed to him with certainty.[11] Printed in 1591 by Ralph Rabbards, this text became the first work of alchemy printed on English soil. But the Ripley whose name adorns the title page and who is celebrated in the scrolls is much different from the man who lived and died in the previous century.

Ripley's largely posthumous canonization as an alchemical master parallels that of Raymond Lull, the Spanish astronomer and tutor of James II who was skeptical of alchemy during his own lifetime but whose name became associated with dozens of significant works after his death.[12] Unlike Lull, however, Ripley was a practicing alchemist who mixed practical advice about the methods of alchemical transmutation

10. Timmermann, *Verse and Transmutation*, 126.

11. See Jennifer M. Rampling, "Establishing the Canon: George Ripley and His Alchemical Sources," *Ambix* 55 (2008): 126–27.

12. See Michela Pereira, *The Alchemical Corpus Attributed to Raymond Lull* (London, 1989).

with spiritual and Neoplatonic allegory. The *Compound of Alchymy* includes several hundred stanzas of rhymed iambic pentameter and describes alchemy as a science of "honestie" that is given to mankind by God, imitating the process of divine creation of matter from chaos.[13] The poem embraces the theory that mercury and sulphur are the ur-elements (or "principles") of all matter and describes twelve "gates" or stages of alchemical transmutation that any alchemist must pursue in order to create the philosopher's stone.

The earliest association of the emblematic scroll with the name of Ripley was in 1652, when the English polymath Elias Ashmole attributed verses found on some of the scrolls to Ripley and printed them in his influential anthology of alchemical writings, *Theatrum chemicum Britannicum*.[14] Much of the imagery in most of the Ripley scrolls draws on conventional alchemical icons, as described in medieval and early modern encyclopedias of alchemical imagery such as the collection posthumously attributed to Nicholas Flammel and published in England under the title *Nicholas Flammel, His Exposition of the Hieroglyphicall Figures* (1624). A letter from Sir Thomas Browne to Elias Ashmole in 1658 alludes to "Ripleys Emblematicall or Hieroglyphicall Scrowle in Parchment, about 7 yards long with many verses," which Browne locates in John Dee's library.[15] Even though we do not know the precise scroll to which Browne refers the letter certainly links Dee to the scrolls during an era when most of them were produced.

The Huntington Library catalogue dates MS 30313 to around 1580, which places it fairly close in age to the Ripley scroll at the Beinecke Library at Yale, which has been dated to 1570.[16] Scholars have dated the production of the Ripley scrolls as far back as 1470, with the final textual witnesses produced in the early eighteenth century. But most scrolls were apparently created in the middle and late decades of the sixteenth century. Three of the scrolls—two in the Wellcome Institute of London (MS 692 and MS 693) and one in the British Library (MS Add. 5025[2])—are inscribed with the date 1588, and they contain the additional sentence "This long Rolle was drawne in collours for me in Lübeck in Germany. 1588."[17] Ashmole noted in his private copy of *Theatrum*

13. George Ripley, *The Compound of Alchymy* (1591), sig. B1v.

14. Ashmole printed the verses of the scroll from the bottom up, but evidence from the scrolls suggests that they were viewed from the top down. See Stanton Linden, "Reading the Ripley Scrolls: Iconographic Patterns in Renaissance Alchemy," in *European Iconography East and West: Selected Papers of the Szeged International Conference, June 9–12, 1993,* ed. György E. Szönyi (Leiden, 1996), 240.

15. See *The Works of Sir Thomas Browne*, ed. Geoffrey Keynes, 4 vols. (London, 1964), 4:293. Linden discusses this letter in "Reading the Ripley Scrolls," 242.

16. For the Yale scroll, see *Alchemy and the Occult: A Catalogue of Books and Manuscripts from the Collection of Paul and Mary Mellon Given to Yale University Library*, vol. 3, ed. Laurence C. Witten II and Richard Pachella (New Haven, Conn., 1977), 271.

17. See Walter Davis, "Alchemical Images in the Ripley Scroll" (unpublished notes in information file for HM 30313), 2. For attribution to Dee, see S. A. J. Moorat, *Catalogue of Western Manuscripts on Medicine and Science in the Wellcome Historical Medical Library*, 2 vols. in 3 (London, 1962–73), 1:513. R. Ian McCallum suggests that one or more of the inscriptions may be copied from an original or imitated; McCallum, "Alchemical Scrolls Associated with George Ripley," in *Mystical Metal of Gold: Essays on Alchemy and Renaissance Culture*, ed. Stanton J. Linden (New York, 2007), 167.

chemicum that "Thomas Mundaye wrought this Scrowle May 10th Anno. 1598."[18] One of the scrolls in the British Library attributes some verses to "James Standysh," but the attribution is difficult to make, given that verses included on the scrolls circulated in manuscript for centuries.[19] Instead of identifying a single author of the verses, we may more precisely imagine the scrolls as the result of collective and pseudonymous composition.[20]

The association of Lübeck with some of the scrolls may also involve Dee, since he traveled through Lübeck in the 1580s (on his way to Cracow at the invitation of the Polish prince Albrecht Łaski in November 1583), following a period of uncertainty and financial distress that included an investigation of Dee's magical activities by Francis Walsingham, Elizabeth's spymaster. Dee and his assistant Edward Kelley were invited by the great patron of alchemy in Prague, Rudolf II, to join his stable of alchemists, but they were forced into retreat by Vatican spies who were wary of the two Protestants from England. Dee may have asked the famed manuscript illuminators of Lübeck to create one or more Ripley scrolls for him to use as a calling card as he toured Europe in search of a new patron. Dee's name also appears in Ralph Rabbards's introductory epistle to the 1591 edition of Ripley's *Compound of Alchymy*, for which Dee also prepared a dedicatory poem. Rabbards dedicated the edition to Elizabeth, who employed him and the German chemist Burchard Kranich as court alchemists, even as she publicly condemned the practice of alchemy in England. Perhaps Dee and others saw in the sympathy of their sovereign for alchemy a parallel to Edward IV, who had lifted prohibitions on the creation of gold and to whom Ripley had (supposedly) addressed a famous epistle. Ripley's status as a divine may also have appealed to Dee, who faced accusations throughout his life that his magical enterprises were demonic in nature. Like the Ripley scroll itself, the dedicatory epistle linking Dee to Ripley would have helped Dee to defend himself against such charges.

Like the Calvinist prophet Thomas Tymme, who translated Dee's *Monas hieroglyphica* into English, Dee believed that alchemy offered a kind of spiritual redemption for a fallen world.[21] Much of Dee's activity, in fact, can be understood as part of his desire for increased communication with God, including his interest in prophecy, which he hoped might foster what Deborah Harkness calls a "better, purer, and restored world where humanity, divinity, and nature would live in harmony and communication."[22] Unlike Ripley, however, Dee's alchemy blended numerology as a Neoplatonic science with Old Testament prophecy and scrying, or communicating with

18. Davis, "Alchemical Images in the Ripley Scroll," 2.

19. BL, Add. MS 32621.

20. See, for example, Timmerman, *Verse and Transmutation*, chap. 3.

21. See Bruce Janacek, "Thomas Tymme and Natural Philosophy: Prophecy, Alchemical Theology, and the Book of Nature," *Sixteenth Century Journal* 30, no. 4 (1999): 993–94.

22. Deborah Harkness, "The Nexus of Angelology, Eschatology, and Natural Philosophy in John Dee's Angel Conversations and Library," in *John Dee: Interdisciplinary Studies in English Renaissance Thought*, ed. Stephen Clucas (Dordrecht, 2006), 278.

angels. Dee was also interested in cabalistic theories of the alphabet and in hieroglyphic writing.[23]

In fact, Dee's interest in Ripley and his understanding of the nature of images may help account for the increase in the number of Ripley scrolls produced in the latter part of the sixteenth century. One of the key texts that Dee studied in his own alchemical education was the *Voarchadumia* of Joannes Pantheus, which he acquired in 1559 and annotated heavily. For Pantheus, alchemical transmutation was a science of signification established by God. The study of letters and their potential combinations was for Pantheus a process analogous to God's creation of the universe, meaning that the alchemist is in a sense attempting to reenact the creation described in the book of Genesis.[24] Dee also read the work of Johannes Trithemius, who viewed magic as the divinely sanctioned study of number, order, and measure as the principles of harmony in the universe, drawing ideas from both authors in constructing his own hieroglyph, the *monas*, which he outlined in his *Propaedeumata aphoristica* (1558) and developed more fully in his *Monas hieroglyphica* (1564) (fig. 2). The monas joins the traditional astrological symbols of the sun and moon with a cross and the sign of Aries. The upper region of the monas symbolizes the heavens, while the cross represents the sublunar elements; the circle with the point in the middle represents the sun as it orbits the earth, while the semicircle that crosses through the top of the sun figures the moon. The two semicircles below the cross denote the astrological sign of Aries, a symbol of fire, while the cross in the middle represents the four elements.[25]

Dee refers to the monas as a form of "inferior astronomy," a shorthand for alchemy that situates the emblem in relation to alchemical experimentation. Like the hieroglyph, the emblem contains divine secrets that might be revealed to viewers with the right powers of perception.[26] Dee's monas offers an example of symbolic condensation that is also operative in the more narrative symbolism of the scrolls. The emblem, in other words, has the power to encode the material stages of transmutation as outlined by alchemists. It is here, however, where the scrolls depart from Ripley's alchemy. Following Continental alchemists Raymond Lull and Guido de Montanor, Ripley had articulated twelve stages or "gates" of transmutation: 1) Calcination, which converts a base metal to powder with the aid of heat; 2) Solution, which converts a solid into a liquid; 3) Separation, which extracts oil or water from stone in order to isolate the "subtle" from the "gross"; 4) Conjunction, which describes the joining of sulphur and mercury, soul and body, man and woman, sun and moon, and matter and form; 5) Putrefaction, which Ripley describes as the conversion of metal into a powder

23. See György E. Szönyi, "Paracelsus, Scrying, and the *Lingua Adamica*," in *John Dee*, ed. Clucas, 209.

24. See Nicholas H. Clulee, *John Dee's Natural Philosophy: Between Science and Religion* (London, 1988), 101.

25. The cross is used in a similar way to represent the four elements of Empedocles in the *Pretiosa margarita novella* (Venice, 1546) of Petrus Bonus, who added icons at each of the four tips of the cross to illustrate the principles of the four elements.

26. See Frances Yates, "The Emblematic Conceit in Giordano Bruno's *De Gli Eroici Furori* and in the Elizabethan Sonnet Sequences," in *Lull & Bruno: Collected Essays, Volume 1* (London, 1982), 186, 191.

during the first stage of transmutation; 6) Congelation, or the translation of liquid to solid as part of the cycle in which the stone is dissolved and then congealed; 7) Cibation, or the nourishing of the stone with milk and food; 8) Sublimation, meaning distillation through which body is rendered spirit; 9) Fermentation, or the union of purified body with soul; 10) Exaltation, or the vaporization of the stone; 11) Multiplication, or the repeated dissolving and coagulation of the red stone in mercurial water; and 12) Projection, in which the completed tincture is thrown over base metal to turn it into gold.[27]

Several decades after Ripley's death, the iconoclastic Swiss medical alchemist Paracelsus (born Philippus Aureolus Theophrastus Bombastus von Hohenheim) developed a more streamlined and widely adapted process of transmutation in seven stages: 1) Calcination, which converts substance into ashes using fire; 2) Sublimation, which separates spirit or *spiritus* from corporeal matter; 3) Solution, which explains dissolution using cold or heat; 4) Putrefaction, which induces decay from which to recover life; 5) Distillation, which extracts liquids and oils from a substance; 6) Coagulation, which uses heat to solidify a substance; and 7) Tincture, which casts the fixed and incombustible color over a substance in order to perfect it. Some basic assumptions about matter apply here, as in other, competing descriptions of transmutation: all matter has the potential to be converted into gold, putrefaction or decay generates new life, and all matter contains a soul (*spiritus* for man, *anima* for woman) that can be extracted.

HM 30313 suggests a seven-stage process of transmutation in its first panel through the seven seals of the book in the middle of a pelican flask and the seven roundels (plus an initial "staging" roundel marked "prima materia") that are connected to the book by gold and silver chains. The initial panel concerns the creation of a white stone, which is characterized by the extraction of spirit from matter using heat. The second panel, connected to the first by the inverted figure of the snake-woman, or Melusina, represents the union of spirit and matter in a series of chemical baths. The initial panels thus show alchemy as a functional, mechanical science practiced by humans, while the next two panels address the cosmological and Christian contexts of the philosopher's stone using nonhuman creatures. A final panel offers a textual invocation of the historical sources of alchemy surrounded by the figures of a scribe (perhaps Ripley himself) and Hermes in a section that celebrates the intellectual genealogy of seven-stage transmutation.

In the first panel, Hermes embraces the pelican flask, which he sets into an alchemical furnace, or athanor. Inside the flask is a smaller figure of Hermes handing a book to Ripley, dressed in a monk's habit, with chains leading to the eight roundels that depict the creation of the white stone. The cycle of roundels begins at the top right, with the one connected to the center circle with a spoke labeled "prima materia." Here

27. On de Montanor's influence on Ripley, see Rampling, "Establishing the Canon," 189–208.

FIGURE 2. John Dee, *Monas hieroglyphica* (1564), title page. Huntington Library, 41941.

we see the union of sulphur and mercury through several stages, including Cibation, Calcination, Exaltation, Sublimation, and Congelation. A male and female couple fuse together inside an alembic, producing first a phoenix conventionally associated with the red, or *rubedo*, phase of transmutation, and then a child surrounded by a golden aura in the phase marked "blacke."[28] The female figure dies and is then reborn from the loins of the man as a solitary soul that ultimately finds its body by the final scene. The entire process represents the separation, putrefaction, and distillation of matter in order to extract its essence, alluded to in the series of Latin inscriptions. For instance, the fifth roundel is circumscribed by the text "Exalto Sepera subtilia Me ut Posim Reducere. Ad Simplex" (Raise me above the subtle elements so that I may be reduced to the simple).[29]

The pelican flask itself earns its name from the mythical bird that pecks at its own breast to nourish its young. The Ripley scroll illuminator situates the pelican flask in relation to the chest of Hermes in a way that invokes this symbol, since the blood that comes from the mouth of the toad also appears to descend from his chest. Such a visual pun highlights the link between the living, breathing body of Hermes and the alchemical experiment that unfolds within the flask. Elizabeth, for example, often wore a brooch representing the emblem. The emblem also connoted Christ for many viewers because of the association with blood and sacrifice for others. We know that the emblem was popular with alchemists. John Allin, an alchemist and onetime roommate of George Starkey, used a pelican-in-her-piety seal on his printed works, while William Cooper, the publisher of Ashmole's *Theatrum chemicum,* sold his books under the sign of the bird.[30]

Taken together, the text and images of the first panel demonstrate the power of alchemy to employ biological principles of generation and maturation to manipulate and control the construction of matter. The pelican flask (fig. 3) operates as a virtual womb for the creation of new matter, a conventional alchemical idea by which the adept imitates and accelerates the natural processes by which metals gestate under the surface of the earth. The Latin words surrounding the third roundel, for instance—*"Acalido & humido primo ex illis pasce quoniam debilis sum"*—can be understood in terms of gestation and nourishment: "I have passed first through heat and humidity, from which I have become weak." The enigmatic figure emerging from the base of the athanor in the first panel also suggests generation—namely, the process of birth. But the panel employs different iconography for the creation of the "red stone," which the verses on the scroll define as a marriage between the "red Gum" of the sun and the "white gum" of the moon, aided by the chemical virtues of "Philosophers sulphur" or "Kebright" together with the "water of life," or Acetome, that "causeth our generation / Betwixt the Man and the woman."

28. For more on the use of birds in alchemical imagery, see Lyndy Abraham, *A Dictionary of Alchemical Imagery* (Cambridge, 1998), 23–24.

29. See Davis, "Alchemical Images in the Ripley Scroll," 7.

30. On Cooper, see Paul Monod, *Solomon's Secret Arts: The Occult in the Age of Enlightenment* (New Haven, Conn., 2013), 47. I am grateful to Donna Bilak for the reference to Allin.

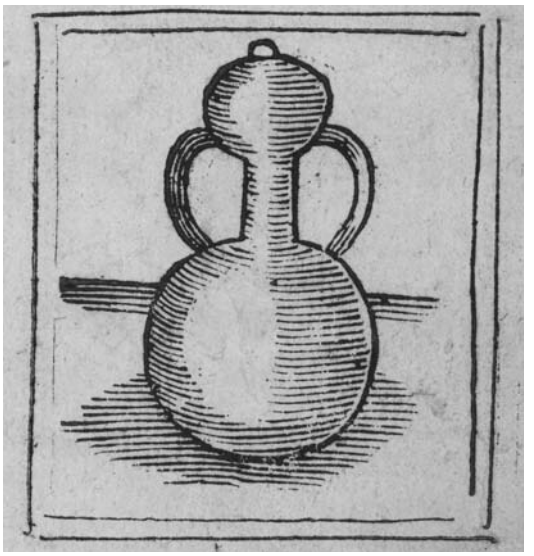

FIGURE 3. Pelican flask. "The matter must be put in at the top which afterwards Must be closed up." From John French, *The Art of Distillation* (1651), title page (detail).

The Melusina descends the tree toward the first of two baths, in which stand the Edenic couple of Sulphur (symbolized by the sun) and Mercury (by the moon). Between the couple and the serpent-woman is the child bathed in an aura of gold, who represents the white stone that was produced in the first panel. He will now serve as the central object of metamorphosis into the red stone, achieved by way of chemical baths and represented emblematically by a green dragon eating the red toad that appears at the top of the pelican flask in the first panel. The scroll emphasizes the union of spirit and matter, as noted by the words *spiritus*, *corpus*, and *animus* on the vines forming the caduceus of Mercury, a traditional emblem of alchemy. The language of the four elements from the first panel appears in the scripts *terra* (Earth) and *fyer*, inscribed on a central pillar, to which clings a bearded man with flowing white hair.

Whereas the first panel shows alchemical transmutation in terms of a material, spiritual, and metaphysical series of experiments conducted with fire, the second panel emphasizes the liquid bath as a vehicle for chemical purification. Several of the figures surrounding the seven-sided bath wear the habit of monks, and the man in the upper-right corner resembles the figure of Ripley in the first panel. The female alchemist on the left may be Maria Prophetissa, the sister of Moses and, like Hermes, a mythical alchemist. (The final verse of the scroll names Maria as an important source of alchemical knowledge.) A more mature version of the *anima* figure appears to the left of the pillar in the lower bath, which has a red tint rather than a green one, as appropriate for the red stone process. The accompanying text describes the downward-facing Melusina as a "Serpent of Life" who causes "generation" between man and

woman. The chemical union of Sulphur and Mercury, sun and moon, is thus given the symbolic form of a marriage, which is a conventional alchemical trope. Accompanying verses adopt the convention to the pictorial setting of the scroll:

> After the Marrige is begun
> And all the while they be a wedding
> Give them to their drinking
> Acetam that is good & fine
> Better to nim then any wine
> Now when this Marriage is done
> Philosophers call this a stone
> The which hath great Nature
> To bring a stone y^{t} is so pure

"Acetam" is Acetome, which modern chemists spell acetone; it was made by reacting a metal such as lead with a chemical agent such as vinegar in order to create a volatile "spirit."[31] The nourishing of the stone is a mode of Cibation, as we have seen, which is then set in a warm "matrix" (literally, "womb") in order to foster chemical reactions that create a more stable substance or "stone."

Beneath the second bath or fountain is a green dragon with a striped toad in its mouth, bursting with blood. This is the same toad that is found at the top of the pelican flask in the first panel. Betty Jo Teeter Dobbs reads the toad as a fertility symbol, drawing on Christian and pagan sources, but the toad is more likely one of the only concrete links between the Ripley scrolls and George Ripley, whose *Compound of Alchymy* begins with a vision of a toad that dies after consuming its own venom and is brought back to life through the application of artificially produced heat.[32] Significantly, moreover, early modern natural philosophers such as Giambattista della Porta saw toads as examples of nature's capacity for spontaneous generation, specifically the result of mixing dirt with menstrual blood.[33] The green dragon is a traditional emblem of the union of mercury and sulphur before the *Conjunctio* phase, but here becomes an image of the stone itself on its progression, with an emphasis on the binding of the dragon as an emblem of the taming of nature through alchemical transmutation.[34] The text employs Christian language to describe the dragon as the stone that experiences "redemption" as it passes through the *Nigredo*, or blackening, stage associated with Calcination, and then turns white as he is washed in a chemical bath, a process

31. See William Newman, *Atoms and Alchemy: Chemistry and the Experimental Origins of the Scientific Revolution* (Chicago, 2006), 133.

32. Dobbs, *Alchemical Death and Resurrection*, 20–21.

33. See Giambattista della Porta, *Natural Magick* (London, 1658), ed. Derek J. Price (New York, 1957), 30, as discussed by Paula Findlen, "Jokes of Nature and Jokes of Knowledge: The Playfulness of Scientific Discourse in Early Modern Europe," *Renaissance Quarterly* 43 (1990): 311.

34. Some texts represent the union of sulphur and mercury as a violently sexual conjunction of two dragons who afterward become the two "harmonious serpents" that entwine the caduceus of Mercury. See Abraham, *A Dictionary of Alchemical Imagery*, 60.

that leaves him "clear from his sin" as he reaches a "very full finishing / Of the white stone and the red."[35]

The dragon with the toad in its mouth marks the completion of the creation of the philosopher's stone and also signals a transition in the iconography, moving from the human-centered imagery of the first half of the scroll to the beast-centered imagery of the second half, which features lions, the Serpent of Araby, and the Bird of Hermes. Both birds are, like the dragon, tamed and fixed as emblems of the way in which the white and red stone must be finished by another round of dissolving (*Solutio*) and projection (*Multiplicatio*)—the Bird of Hermes is "eating my wings to make me tame," as the script beneath him says, while the Serpent of Araby is "both meeke and milde," having been "chased" by the combined light of the sun and the moon. For Aristotle, the Bird of Hermes symbolized the quintessence or "fifth element" that transcended and harmonized the other four elements.[36] This structure highlights the correspondence between microcosm and macrocosm, between the human body and the cosmos, as imagined by natural philosophers from Cornelius Agrippa to Robert Fludd. In terms of the narrative of alchemical transmutation, the structure also shifts the iconography of the scroll away from the chemical manipulation of matter to the act of projecting or tincting that spreads alchemical virtue to a wider sphere. The taming of the Bird of Hermes and the fixing of the Serpent of Araby both reenact through the juxtaposition of opposites the process of extracting philosophical or purified mercury from the earth and giving it stability by combining it with solid sulphur. W. R. Davis explains this representation in the scroll as an effort "to make the Stone efficacious by dissolving and augmenting it as the Elixir Vitae so that it can tinct or impart its virtues to anything in the world."[37]

The Bird of Hermes resembles the mythological phoenix, which is reborn through fire every five hundred years and commonly associated with the resurrection of Christ. This icon celebrates the power of alchemy to destroy what nature has produced and bring it back to life in a higher form. By this logic, alchemical laboratories are spaces for staging miracles; alchemists who use laboratory substances such as lead oxide, cinnabar, and vapors of mercury thus demonstrate their power over the matter of God's creation. Paracelsus invokes the figure of the Bird of Hermes as a way of describing this immense power of alchemy:

> And here we must take notice of something that is greater and more than this: *viz* that living chick be in a vessel of glass like a gourd, and sealed up,

35. Dobbs identifies fertility myths conjoined with Christian eschatology, suggesting that the large figure at the top of the scroll who is normally identified as Hermes symbolizes "the Second Coming of Christ that will usher in the Millennium in joyful fulfillment of the Reformation" (*Alchemical Death and Resurrection*, 23). Though I share her sense of the way in which the scrolls employ Christian ideas to frame their alchemical content, her interpretation overlooks many important details in the scrolls themselves, especially the relationship between text and image. Moreover, she fails to consider the imagery of the scrolls in relation to their own historical period.

36. Abraham, *A Dictionary of Alchemical Imagery*, 25.

37. See Davis, "Alchemical Images in the Ripley Scroll," 17.

> burnt to powder, ashes in the third degree of Fire, and afterward so closed in, be putrefied with the exactest putrefaction of Horse-dung, into a mucilaginous [that is, sticky] phlegm, then that phlegm may be brought to maturity and become a renewed and new-made chick: to wit, if that phlegm be again enclosed in its former shell or receptacle. This is to revive the dead by regeneration and clarification, which indeed is a great and profound miracle of Nature.[38]

This "new-made chick" illustrates the principle of new life deriving from putrefied matter, a process explained in detail by Aristotle in three treatises on animals and revived by early modern alchemists who drew on examples from nature to describe the spontaneous generation of new creatures from dead matter, including maggots emerging from decaying flesh and bees circulating around animal carcasses.[39]

The central motifs of toads, feathers, and blood drops in the scroll link the varied stages of transmutation. These motifs, as we have seen, also shape the unifying theme of generation in the scrolls. Feathers symbolize the Cibation stage of the opus, in which the base metal is saturated with mercury. Figuratively, the "chick" that resides within the "egg" of the alembic loses its feathers in such a process. In the cycle of eight roundels in the first panel, one finds birds taking flight in the early stages of alchemical transmutation, suggesting the ways in which the material bodies that are combined produce spirits that fly through the air. These feathers then change into drops of blood that fall downward, illustrating the process of *solve et coagula* (Dissolution and Coagulation) as a type of alchemical distillation.[40] The scroll likewise highlights this association between blood and feathers in the third panel, in which the drops of blood from the first panel combine with the feathers of the second panel in the vicinity of the Bird of Hermes, a representation of the product of the developing "chick" in the alchemical "egg" in which the chemical wedding takes place.[41]

Blood was both a symbol of life and an ingredient in alchemical experimentation—some alchemists used it as a solution in which to dissolve primary matter.[42]

38. Paracelsus, *Of The Nature of Things* (1570), in *The Alchemy Reader: From Hermes Trismegistus to Isaac Newton*, ed. Stanton J. Linden (Cambridge, 2003), 152.

39. The three Aristotle works in question are *The History of Animals, The Generation of Animals*, and *The Parts of Animals*. For a brief history of spontaneous generation, see William Newman, *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (Chicago, 2004), 166.

40. The oldest allusion to this key alchemical process is a Greek manuscript attributed to Maria Prophetissa, who may be pictured in the scrolls to the left of the lower fountain, pouring her alembic into the chemical bath.

41. As Dobbs remarks, "For the alchemical flask to be shaped like an egg affiliates its contents with the cosmic beginnings of life" (*Alchemical Death and Resurrection*, 22).

42. Roger Bacon, in his commentary on the pseudo-Aristotelian *Secretum secretorum*, and John of Rupescissa, in his *De quinta essentia*, for example, praise the use of human blood as a foundation for alchemical transmutation or as the starting ingredient of a medical elixir. See Leah DeVun, "The Jesus

Others imagined blood as a symbol for the philosopher's stone itself or for the medically oriented *elixir vitae* that might perfect the human body, bringing it immortality, in an analogy to the perfection of gold as the most stable form of matter. Blood was also a synonym for mercury that is both a solvent and a coagulator, an icon of the prime matter with which alchemists begin the work of transmutation and an emblem of the red, or *rubedo*, stage of transmutation. In the scroll, blood connotes the sacrifice of prime matter or the death of the stone in the early ages of transmutation, while also suggesting the triumphant achievement of the final part of the red stage.[43]

The Serpent of Araby appropriates the redemptive and purifying power of the blood of Christ in a way that casts the work of alchemy as a godly pursuit.[44] The alchemist must divide nature into three parts—the black, white, and red stages of alchemical transmutation—and then knit them back together in a way that echoes the unity of the holy Trinity. The arcing drops of blood that pervade the scroll are here identified as ambassadors of "grace" that attest to the fecundity of the stone and align the process of alchemical transmutation with the Trinity. This panel likewise links blood and the work of generation. In the accompanying text, the Serpent of Araby reveals his genealogy: his father is "Omogeni," while his mother is listed as "Magnesia"—"Omogeni" is a variant spelling of "homogeny" and an allusion to the "omni," or total, "geni," or generation, of blood. A passage from Ripley's *Compound of Alchymy* explains the association:

> But this blood called our secret menstrual,
> Wherewith our sperm is nourished temperately,
> When it is turned into the feces corporall,
> And so become white perfectly and very dry,
> Congealed and fixed into his own body.
>
> (sig. H1v)

In this passage, Ripley describes the process of imbibition, by which a mercurial solvent or "menstrual" dissolves a base metal into its fundamental parts, or *prima materia*. In the process, the glue or "sperm" that holds the matter together is released and nourished by the menstrum, an agent of the dissolution of metals that is commonly symbolized by a serpent or dragon. The feces mentioned in the text signal the end of the first stage of *nigredo* and the beginning of the Albification, in which the unfixed building blocks of matter are reknit, to use the language of the scrolls, into a solid form. The sperm is a principle of generation itself, as alchemists joined many premodern

Hermaphrodite: Science and Sex Difference in Premodern Europe," *Journal of the History of Ideas* 69, no. 2 (April 2008): 193–218.

43. See Abraham, *A Dictionary of Alchemical Imagery*, 28–29.

44. Such Christian connotations help to give alchemy a degree of credibility and authority, even as Pope John XXII outlawed alchemy in 1317, citing evidence that alchemists introduced too much counterfeit money into currency markets. Alchemical representation cannot appropriate the positive associations of blood with Christ without also signifying the negative implications of blood with death and destruction, or the ambivalence of the visible Church in relation to the practice of alchemy itself.

scientists in believing that human sperm could produce new life forms spontaneously, without the contribution of an egg or other substance.[45] For Aristotle as for many early modern philosophers, matter contained seeds by which to reproduce itself. Sometimes these *semina* could have figurative meanings, as in "seminal" ideas or concepts. At other times, however, the seeds were the material embodiments of the spirit.[46] As the English alchemist Robert Fludd explains in *Mosaicall Philosophy* (1638), for example, all life stems from water, which contains the seeds of bones, flesh, blood, and sinews of all natural objects, whether humans or rocks.[47]

The drops of blood that are dispersed through the pelican flask and through the cosmos of the third panel around the Bird of Hermes become channeled and "fixed" through the body and excretion of the serpent. We see a clear analogy between the spreading of virtue or grace of alchemy and the creation of the scroll itself, which uses patterns of color and imagery to make alchemical processes tangible to the viewer. The grey-blue, red, and black spheres chained together at the center of the sun above the Serpent of Araby are labeled "the White Stone," "the red stone," and "the Elixir Vitae," respectively, in the Huntington Ripley scroll. This unity—the text below the serpent refers to a "trinitie"—represents the completion of the work of alchemical transmutation that can now be circulated around the world in order to spread "grace" over the world, represented by the streams of blood that emerge from the bottom of the serpent and rain down on the three globes suspended in the sea of the winged planet. This alchemical parody of Christ's salvation locates the holy Trinity in nature: "And All is But on[e] Nature / Thou must parte him A three / and them knit as the trinitie / And make them All three but one / Loe here is the philosophers Stone."

The final verse of the scroll, suspended between a scribe on the left and the bearded, robed figure of Hermes with a scepter on the right, invokes the holy Trinity once more in order to solicit the grace of God as the spirit of "troth of this parable" and by way of introducing the canonical sources of alchemical knowledge on which "this warke" of the scroll was founded. The list includes Aristotle, Geber, Hermes, Albertus Magnus, Roger Bacon, and Raymond Lull. It also lists the "Book of turba philosophorum," a text originally written in Arabic that adapted Greek philosophy for Islamic science, naming Allah, for instance, as the creator figure but employing figures such as Anaximander, Anaximenes, and Empedocles in dialogue over questions that derive from Aristotelian matter theory. Such a somber genealogy finds an ironic riposte in the Latin phrase at the very bottom of the scroll: "Si queras in merdis secreta philosophorum expensum perdis opera tempus que laborem" (If you seek the secrets of philosophy in dung, you will lose the expense, the effort, as well as time and labor). But the hand of this inscription may well belong to a later scribe or owner.

45. See Newman, *Promethean Ambitions*, 221–35; and Lawrence Principe, *The Secrets of Alchemy* (Chicago, 2013), 131–33.

46. Such seeds, or "semina," are not necessarily references to what we would call biological processes in the inorganic stone, but rather denote the organizing principles of the transformation of matter. See ibid., 126.

47. Robert Fludd, *Mosaicall Philosophy: Grounded upon the Essential Truth or Eternal Sapience* (London, 1659), 78.

In citing the *Turba philosophorum*, the scroll cites its own iconographical precursor. Alongside the efforts of Western alchemists to codify the stages of transmutation following the translation of Arabic sources into Latin beginning in the twelfth century, there emerged a tradition of manuscript illustration that employed icons modeled on the hieroglyphs associated with the Hermetic origins of alchemy. Woodcuts that accompanied printed editions of the *Turba*, for instance, include images of the sun and lion that are similar to those that appear in the Ripley scrolls. The scrolls also name "Arnold" as a philosophical source, referring to Arnaldus de Villa Nova, a Spanish doctor at the court of Aragon who may have written some prose descriptions of alchemical processes that became the basis for alchemical poems that eventually found their way into the Ripley scrolls.[48] Though scholars disagree about how many of the fifty-seven works that have been attributed to him are authentic, sixteenth-century alchemists associated him with both the *Rosarium philosophorum* and the *Aurora consurgens*, both of which include mosaic quotes from the history of alchemy. Both alchemical allegories also produce a synthetic vision of the operative art as a combination of Aristotelian matter theory, Neoplatonic philosophy, and Christianized spirituality. (The final woodcut in the *Rosarium* depicts the achievement of the *lapis philosophorum* as a resurrected Christ escaping the grave.) Manuscript copies of the *Aurora consurgens*, some of which have been attributed to Thomas Aquinas, highlight the "rising dawn" of a "golden hour" (*aurea hora*) of science through the mystical voice of a female deity called the "wisdom of the south" (*sapientia austri*).[49] Incorporating biblical imagery, the *Aurora* stages the chemical wedding of sulphur and mercury as mystical union of the lover and the beloved following a movement through black, red, and white stages that follow the image patterns of transmutation outlined in Paracelsus and others.

A much celebrated copy of the *Aurora consurgens* now held in the Ferguson collection at the University of Glasgow includes images of a nude man and woman embracing in the act of love, as well as an image of two children nude in a glass alembic over fire (figs. 4 and 5).[50] The series also includes a watercolor of a green dragon labeled *corpus* being tamed or subdued by figures labeled *anima* and *spiritus* (fig. 6) and an image of a naked woman representing the moon, or mercury, and emanating a blue aura (fig. 7). The *Rosarium philosophorum* also contains possible source images, especially in the series of twenty woodcuts that were made for its first print edition in Frankfurt in 1550. The title page shows scripts denoting conversation by the debating philosophers that resemble the initial script of the Ripley scroll (fig. 8). It joins the *Aurora* in depicting the Conjunctio, or "chemical wedding," between sulphur and mercury as an act of sexual intercourse that leads to the creation of a two-headed alchemical hermaphrodite (fig. 9). In the *Aurora*, such symbolic intercourse occurs in a natural

48. See Timmermann, *Verse and Transmutation*, 45, 75, 98–99.

49. *Aurora Consurgens: A Document Attributed to Thomas Aquinas on the Problem of Opposites in Alchemy*, ed. Marie-Louise von Franz, trans. R. F. C. Hull and A. S. B. Glover (New York, 1966), 50–51.

50. Timmermann alludes to "similar scenes" in both the Ripley scrolls and the *Aurora consurgens*, but does not provide detailed analysis or evidence of these scenes (*Verse and Transmutation*, 117).

FIGURE 4. "Chemical wedding" of Sol and Luna. Illustration from *Aurora consurgens* (?). MS Ferguson 6, Glasgow University Library (unpaginated). By permission of University of Glasgow Library, Special Collections.

setting or in a bedroom, whereas the *Rosarium* depicts the union on top of a monument that becomes a chemical bath following a rainstorm.

The two-headed hermaphrodite, or *rebus*, was by the sixteenth century a familiar image in alchemical texts describing the achievement of *prima materia* through the combination of sulphur and mercury—the male and female head signifying the nongendered state of undivided raw matter that was a foundation for material generation. The printed woodcuts of the *Rosarium* postdate the hand-painted illuminations of the *Aurora*, but the wide distribution of the Frankfurt edition of 1650 ensured broader influence. The text includes an image of Sol or sulphur and Luna or mercury standing

FIGURE 5. Illustration from *Aurora consurgens* (?). MS Ferguson 6, Glasgow University Library (unpaginated). By permission of University of Glasgow Library, Special Collections.

FIGURE 6. Illustration from *Aurora consurgens* (?). MS Ferguson 6, Glasgow University Library (unpaginated). By permission of University of Glasgow Library, Special Collections.

FIGURE 7. Illustration from *Aurora consurgens* (?). MS Ferguson 6, Glasgow University Library (unpaginated). By permission of University of Glasgow Library, Special Collections.

over icons of the sun and moon, which finds an obvious parallel in the Ripley scrolls, as does the sexual union of the chemical wedding as depicted in the roundels that circulate in the pelican flask in the first panel. But the scroll isolates the figures of Sol and Luna in the chemical bath, making their connection less immediate by virtue of the green vine that circles around the tree of life in the shape of a caduceus, the emblematic icon of mercury. The sexual imagery represented in the creation of the white stone in the first panel is less explicit than that found in either the *Aurora* or the *Rosarium*.

Yet the Ripley scrolls do not employ an alchemical hermaphrodite to represent the union of sulphur and mercury. Absent too from the Ripley scrolls is the explicitly Christian imagery of the Cross and the figure of Christ that appear in the cycle of images accompanying the printed edition of the *Rosarium*. In both cases the motivation seems to be the same: the Ripley scrolls seek a new iconography that favors birth imagery over sexual imagery and develop a pattern of motifs that are biological rather

FIGURE 8. Title page woodcut, *Rosarium philosophorum* (Frankfurt, 1550).

than supernatural. Of course, the dragon, the Bird of Hermes, and the Serpent of Araby are all supernatural emblems, and at least two are conventional alchemical icons. But the visual language of blood and feathers, combined with the "birthing" of the spirit man or *anima* from the athanor in the second panel, naturalize these supernatural figures, connecting them to the animal kingdom of earth and making them function as intermediaries of alchemical concepts.

❀

The emphasis on "generation" in the scrolls draws on both pagan and Christian mythographic traditions. The scrolls alter conventional alchemical iconography in order to highlight a Paracelsian mode of alchemy that would have been attractive to a figure such as John Dee. Their emphasis on alchemy as a science of "generation" appears in alchemy from its earliest records. In the second section of Hermes' *Asclepius*, for example, we find a description of the generative potential of all matter:

> Now all things which possess the faculty of generating are generative;
> and it is possible for something else to be generated from them, even if

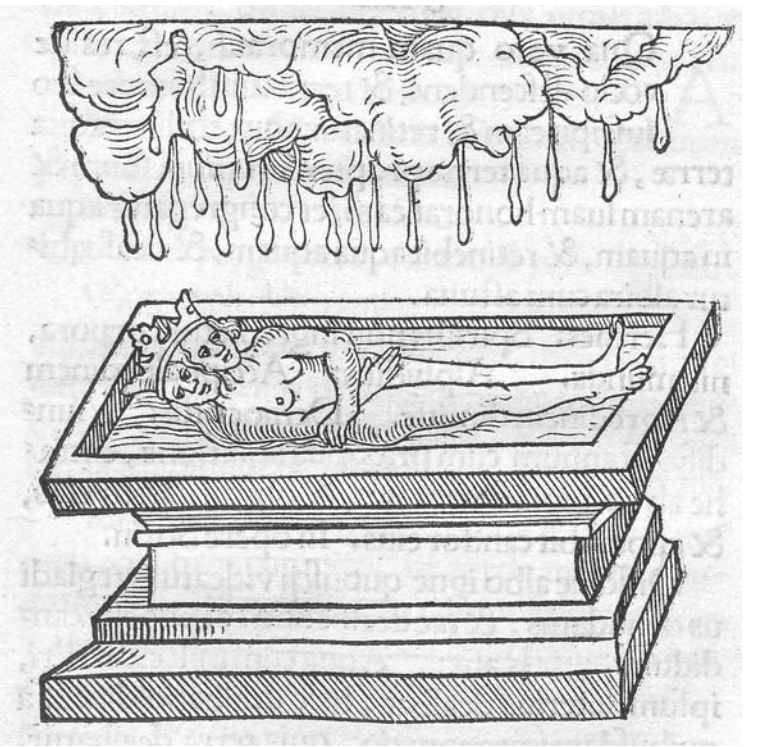

FIGURE 9. Woodcut showing alchemical rebus or hermaphrodite after Conjunctio, *Rosarium philosophorum* (Frankfurt, 1550).

> they are self-generated. For there is no doubt that from things self-generated can easily be generated . . . from which all things come into being. . . . Matter, though, is manifestly ungenerated, yet has in itself from the first the power of generating; for an original fecundity is inherent in the properties of matter, which possesses in itself the power of conceiving things and giving birth to them. Matter then is generative by itself, without the help of anything else. It undoubtedly contains within itself the power of generating all things.[51]

Matter in its original form is created by God; therefore it is not "generated," but God as creator imbues it with an "original fecundity" that gives it the power to generate "all things." Mankind has the power to harness such generative potential through alchemical technology and practice, a power that echoes God's original act of creation. The

51. Hermes Trismegistus, *Asclepius*, in *Hermetica: The Ancient Greek and Latin Writings Which Contain Religious or Philosophic Teachings Ascribed to Hermes Trismegistus*, ed. Walter Scott, 4 vols. (London, 1924–36), 1:311–12.

Latin word that Hermes uses for "matter" is "materia," which was probably linked to the *prima materia* of Aristotle.[52] Though early modern alchemists believed that Hermes was a contemporary of Moses, the texts now associated with his name were probably written between 100 and 300 CE, when Egypt was an administrative province of the Roman Empire.[53] It is likely, therefore, that this emphasis on generation derives at least in part from Aristotle together with his sources in Empedocles, Leucippus, and Democritus.

The association of alchemy with the science of generation intensified in the medieval period, with the influx of Latinized texts of Islamic alchemy around the twelfth century. Alchemists beginning with Geber regarded liquid mercury as the liquid raw material of gold that gestated in the womb of the earth and, drawing on the power of the sun, evolved through the lesser metals of lead, iron, copper, mercury, bronze, and silver before joining sulphur to create gold, the most stable and perfect element. Likewise, in the *Book of Minerals*, Albertus Magnus rejects a dominant theory of a "mineralizing power" held by Democritus and others in favor of his own alchemical theory that minerals grow from seeds in the earth:

> Let us say, then, that just as in an animal's seed, which is a residue from its food, there comes from the seminal vessels a force capable of forming an animal, which [actually] forms and produces an animal, and is in the seed in the same way that an artisan is in the artifact that he makes by his art; so in material suitable for stones there is a power that forms and produces stones, and develops the form of this stone or that. . . . In exactly the same way it happens that, when dry material that has been acted upon by unctuous moisture, or moist material that has been acted upon by earthy dryness, is made suitable for stones, there is produced in this, too, by the power of the stars and the place, as will be shown below, a power capable of forming stone—just like the productive power in the seed from the testicles, when it has been drawn into the seminal vessels; and each separate material [has] its own peculiar power, according to its own specific form.[54]

Albertus follows Hermes in his description of the generative potential of matter on the analogy of human reproduction. Paracelsus goes even further in his alchemical theory to define alchemical transmutation as a form of sexual congress that speeds up the natural process by which nature generates stones and metals underground. Asserting that

52. Unlike the works of the *Corpus Hermetica*, which were originally written in Greek, the *Asclepius* was written in Latin.

53. See Brian Copenhaver, introduction to *Hermetica: The Greek "Corpus Hermeticum" and the Latin "Asclepius" in a New English Translation, with Notes and Introduction*, ed. Copenhaver (Cambridge, 1992), xliv.

54. Albertus Magnus, *Book of Minerals* (ca. 1261–63), trans. Dorothy Wyckoff (Oxford, 1967), 22.

"every like naturally brings forth and generates his like," Paracelsus develops a new argument for the significance of mercury as an essential third term in the union of Sol and Luna:

> And as we know there are two Stones, the white and the red; so there are also two Matters of the Stone, *Sol* and *Luna*, coupled together in their proper Matrimony, either natural or artificial. And as we see a Man and Woman cannot generate nor produce their like, without the mixture of both their Seeds; so in like manner, our Male *Sol* and his Female *Luna* cannot conceive nor bring forth any Generation, without their Seed and Sperm.
>
> From whence our Philosophers have gathered, That there is a third thing necessary, to wit, the Animate seed both of the Male and the Female of the chymists, without which they judged their whole work vain and ridiculous.
>
> The Sperm hereof, is *Mercury*, which by a natural Conjunction of both bodies of *Sol* and *Luna*, receiveth and uniteth their Nature into himself.[55]

By alluding to mercury as a sperm that receives and unites Sol and Luna, Paracelsus departs from the tradition of equating Sol with sulphur and Luna with mercury. Mercury here embodies the principle of generativity itself, becoming the "Sperm" of the world by virtue of its capacity to foster reproduction in the foundational couple of Sol and Luna.

Ripley and others had highlighted the significance of generation to alchemical transmutation, as in the section from the *Compound of Alchymy* that defines water as the "secret of life and every thing" (sig. F4) or when he describes the philosopher's stone as a work of "complete profitable generation" (sig. E). But Paracelsus goes even further to link alchemy with the process of generation by identifying mercury with the power of material reproduction. Both authors can be understood as shaping influences on the Ripley scrolls. In addition to highlighting the theme of generation in their iconography, the scrolls allude to "Magnesia" as the mother of the Serpent of Araby. This "Magnesia" is also known as a distillate of the white stone called the "Sperm of the World" or "white gum." A combination of both male and female elements, such sperm encapsulates the generative potential of matter as defined by Hermes and other authors in the history of alchemy.

HM 30313 perhaps represents this "Sperm of the World" in the squiggly white drops that descend alongside the red drops of blood on the Bird of Hermes in the third panel, as in the elongated drops of blood that descend from the bottom of the Serpent of Araby.[56] It is part of the scroll's pattern of representing alchemy in terms of genera-

55. Paracelsus, *On the Transmutation of Metals*, in John Heydon, *The Wise Man's Crown, or the glory of the Rosie-Cross* (1664), 26–27.

56. The identification of the shape of individual spermata was not made until the seventeenth century, with the assistance of a microscope. I am aware of no evidence about how medieval and early modern authors pictured sperm before this point, but there is anecdotal evidence for similar knowledge.

tion, drawing on alchemical writings of Ripley but responding more generally to the influence of Paracelsian philosophy in England. Though the argument has been challenged by several critics, Allen Debus's claim that Paracelsian alchemy, what he calls "the chemical philosophy," invaded England and France in the sixteenth century, making substantial changes to conventional alchemical theories, remains largely intact.[57] Scholars have recently, moreover, explored the significant influence of Paracelsus on Dee, whose library possessed "an unusually large collection of Paracelsia which he neatly grouped according to size and language."[58] In this sense, then, the two strands of influence that we have been tracing on the scrolls come together. The Ripley scrolls align alchemical transmutation with the story of creation from the book of Genesis, overseen not by God but by the semidivine figure of Hermes and his panoply of man-made alchemical instruments that harness the reproductive power of nature.

In conclusion, we should approach the Ripley scrolls in the broader context of the history of sexuality, not just because the sexualized drawings reimagine the alchemical "wedding" between sulphur and mercury in the Combinatio phase, but also because its representation of generation is informed by and contributes to medieval and early modern debates on human generation. Human sexual reproduction offers the creators of the scrolls a powerful if metaphorical structure for staging the appropriation of the generative capacity of matter. As each scroll moves from the cyclical process of gestation in the first panel to the cosmic representation of the exaltation and tincture of the philosopher's stone in the final panels, this sexual language becomes dehumanized, and the sperm of the world appears to emanate from the divine figure of the sun, a medium for the generative potential of all matter.

Recent interest in the materiality of sexuality in studies of medieval and early modern Europe encourages us to approach the Ripley scrolls in relation to historical questions about the boundaries and definitions of sexuality.[59] For example, we might view the scrolls not just as representations of human sexuality in order to create analogies for processes of material transformation, but also as explorations of the sexuality of matter itself.[60] The scrolls help to situate alchemical sexuality as a principle of

57. See Allen Debus, *The English Paracelsians* (New York, 1966), followed by *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France* (Cambridge, 1991). For a critique of the thesis, in part by challenging the equation of "Paracelsian" with "chemical philosopher," see Stephen Pumfrey, "The Spagyric Art; or, the Impossible Work of Separating Pure from Impure Paracelsianism: A Historiographical Analysis," in *Paracelsus: The Man and His Reputation, His Ideas and Their Transformation*, ed. Ole Peter Grell (Leiden, 1998), 21–52.

58. See Szönyi, "Paracelsus, Scrying, and the *Lingua Adamica*," 211–13. For a description of the Paracelsian texts in Dee's library, see *John Dee's Library Catalogue,* ed. Julian Roberts and Andrew G. Watson (London, 1990), 36, appendix 5.

59. See, for instance, the essays in *Premodern Sexualities,* ed. Louise Fradenburg and Carla Freccero (London, 1996) or, more recently, in *Sex Before Sex: Figuring the Act in Early Modern England*, ed. James M. Bromley and Will Stockton (Minneapolis, 2013). See also Jonathan Goldberg, *The Seeds of Things: Theorizing Sexuality and Materiality in Renaissance Representations* (New York, 2009).

60. Several scholars have explored alchemy as a language of sexuality, primarily in relation to the visual and verbal description of the chemical wedding between sulphur and mercury and the formation of the alchemical hermaphrodite, as depicted by Michael Maier and others. See, for example, Allison K. Kavey, "Mercury Falling: Gender Flexibility and Eroticism in Popular Alchemy," in *The Sciences*

matter itself, one that precedes the construction of humans in the narrative of Genesis and that takes precedence, ultimately, over the triumph of human technology while paradoxically employing such technology. In this sense, we should regard the Ripley *rotulum hiegroglyphicum* as part of a tradition that might also include alchemists such as Robert Fludd, who identifies primary matter as a "mother of the world" that is also "primordial, infinite [and] shapeless." For Fludd, in fact, the natural process of creating matter depends on a kind of sexual desire between matter and form: "Matter doth desire and long after Form, and as eagerly doth draw and allure it, as the female, doth the male."[61] Likewise, the Polish alchemist and ambassador to Rudolf II Michael Sendivogius asserts in his *New Light of Alchemy* that "Nature works in sperm, as God doth in the free will of man."[62] Both authors write in the tradition of Paracelsian alchemy, and both understand the work of alchemy as a form of generation, but both go beyond Paracelsus in identifying sperm as a medium for creation and in locating desire not in human subjects but in the material world.

Historians of science sometimes challenge the association of early modern alchemy with the doctrine of vitalism, in which all matter is invested with spirit or *anima* by God.[63] The Ripley scrolls in fact offer a visual representation of generation as a foundational principle of alchemy without relying on the principle of vitalism. At the same time, they draw on a number of other alchemical traditions, including Aristotelian matter theory, Hermetic cosmology, laboratory experimentation, and Christian iconography. The medium of the scroll produces at the level of visual representation a possible unity of these traditions together with the disciplines (biology, matter theory, divinity, physics, chemistry, zoology, and so on) that became separate fields of knowledge after the Scientific Revolution.[64] In this sense, then, HM 30313 offers modern viewers a poignant vision of science as an organic system of occult "sympathies" that also testifies to what has been lost as well as gained in the birth of modern scientific disciplines.

of Homosexuality in Early Modern Europe, ed. Kenneth Borris and George Rousseau (London, 2008), 221–41; Cynthia Masson, "Queer Copulation and the Pursuit of Divine Conjunction in Two Middle English Alchemical Poems," in *Intersections of Sexuality and the Divine in Medieval Culture*, ed. Susannah Mary Chewning (Aldershot, U.K., 2005), 37–48; and DeVun, "The Jesus Hermaphrodite." For a different view of the sexual language of alchemy, emphasizing the natural use of analogies in scientific writing, see Lawrence Principe, "Revealing Analogies: The Descriptive and Deceptive Roles of Sexuality and Gender in Latin Alchemy," in *Hidden Intercourse: Eros and Sexuality in the History of Western Esotericism*, ed. Wouter J. Hanegraaff and Jeffrey Kripal (Leiden, 2008), 209–29.

61. Fludd, *Mosaicall Philosophy*, 245.

62. Michael Sendivogius, *A New Light of Alchemy* (Prague, 1604; London, 1653), in *The Alchemy Reader*, ed. Linden, 177.

63. For example, Lawrence Principe and William Newman, in "Some Problems with the Historiography of Alchemy," reject the argument that alchemy is vitalist while chemistry is mechanical or corpuscular. See *Secrets of Nature: Astrology and Alchemy in Early Modern Europe*, ed. Anthony Grafton and William Newman (Cambridge, 2001), 385–432 at 414.

64. See, for example, Lawrence Principe, *The Scientific Revolution: A Very Short Introduction* (Oxford, 2011), 28–32.

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appendix overleaf

Appendix: Transcription and Translation of HM 30313

[Latin inscription at top of scroll:] Est lapis occultus secreto fonte sepultus / fermentum variat lapidem qui cuncta colorat.

[Here is the occult stone, buried in the secret fountain / it transmutes the fermented stone, which tinctures everything]

[On handles of pelican flask held by Hermes:] Ye must make water of y^{e} earth & earth of y^{e} ayre & ayre of y^{e} fier & fyer of y^{e} earth.

[Words scattered within flask:] Speritus Anima

[Roundels inside the flask, beginning with upper right and moving clockwise:]

1. Spiritus · Anima · Corpus + Leo Rubens · [Leo] Viridis
[Spirit · Soul · Body + Red Lion · Green [Lion]]

2. The soule forsooth is his sulpher not breninge

3. Acalido & humido + primo ex illis pasce quoniam debilis sum
[I have passed first through heat and humidity, from which I have become weak.]

4. Leniter degestus animatus sum exalta me grassioribus
[Slowly digested, I am animated; exalt me over my grosser parts.]

5. Exalto sepera subtilia me vt posim reducere ad simplex
[Raise me above the subtle elements so that I may be reduced to the simple.]

6. Sitio deficio pota me me albifica
[I thirst; I faint. Drink me. Whiten me.]

7. Vidui sumus & a domo p[r]opria elo[n]gati nos ad sp[irit]u[m] reduc[ere] vt corpus nos amplectatur & nobis fiat amicabille
[We are widows removed from our proper home. Reduce us to the spirit, such that our body embraces us and becomes lovable to us.]

8. Leniter cum igne amicabili fac vt aliqua viatentia nos seperare non possit
[Slowly, with loving fire, make it so that no other voyage can separate us.]

[On rim of athanor into which Hermes places the pelican flask:]
y^{e} blacke sea y^{e} blacke luna y^{e} blacke sea y^{e} blacke soll [sol]

[Title text under top panel:]

Here is y^e^ last of y^e^ whit stone & y^e^ beginning of y^e^ red stone

[First verse section:]
Of the Sunne take the light
The red Gum that is so bright
And of the Moon doe allsoe
The white gum there keepe to[o]
The Philosophers sulphur vive
This I call it without strife
Kybright and Kebright it is called also
And other names many more
Of them drawe a white tincture
And make of them a marriage pure
Between the husband and the wife
Espowsed with the water of life
But of this water thou must beware
Or else thy work will be full bare
He must be made of his own kind
Mark thou now in thy mind
Acetome of philosophers men call this
A water abiding so it is
The Maidens Milke of the dew
That all the work doth renew
The Spirit of life called allso
And other names many moe
The which causeth our generation
Betwixt the Man and the woman
Soe looke that there be noe devision
Be there in the Coniuntion
Of the Moone and of the Sonne
After the Marrige is begun
And all the while they be a wedding
Give him to her drinking
Acetam that is good & fine
Better to him then any wine
Now when this Marriage is done
Philosophers call this a stone
The which hath great Nature
To bring a Stone y^t^ is so pure
Soe he have kindly nourishing

Perfect heate & decoction
But in the Matrix when the^{y} bee put
Looke never the vessel bee unshut
Till they haue ingendred a stone
In all the woorld is not such a one

[Text beneath yellow scroll on either side of tree:]
Terra Stat Unita Lavat Pir Purgat Spiritus Intrat

[Text on alternating leaves in tree and scattered throughout panel:]
Spiritus Anima

[Text on fountain:]
Bibinge
The White Sea
The white Luna
The White Soll
Earth
Water
Terra Stat
Terra fier Stat
Dry
Cold

[Text above Green Lion:]
The Red Lune. The Spirit of Water. Red Sol. The Red Sea.

[Text on column to the left of the Lion and toad:]
The Stinginge Venume

[Text beneath Green Lion:]
Here is the fume Called the Mouth of the Collricke

[Second verse:]
On the grounde there is a hill
Allso a Serpent in a well
His Tayle is Longe with wings wide
Allready to flye by euery syde
Repayre the well fast about
That the Serpent gett not out
For if that he bee there agone
Thou losest the Vertue of the stone

What is the Stone thou must know here
And allsoe the well that is soe cleare
And what is the Dragon with his tayle
Or else thy worke shall little avayle
The well must bren in water cleare
Take good heed for this thy fyer
The fyre with water Brente shalbe
And water with fire wash shall hee
Thine earth on fire shalbe pitt
And water with the eyre shalbe knit
Thus you shall goe to putrifaction
And bringe the Serpent to redemption
first he shalbe black as crow
And Downe in his Dene shall Lye full low
Swolne as a toade y^{t} lyeth on the ground
Blast with bladders sitting soe round
And shalbe Burst and by full playne
And thus with Craft the Serpents slayne
He shall change collers many a one
And turne as whit as whall by bone
With the water hee was in
Wash him cleane from his sinn
And lett him drinke alite and lite
And that shall make him fayre & whit
The which whitnes is euer abydinge
Loe here is the very full finishing
Of the white stone and the red
Here truly is the very deede.

[Text surrounding Red and Green Lions:]
The Red Lyone
The Grene Lyone
Mouth of Colrick
Beware

[Text beneath Red and Green Lions:]
Here is y^{e} last of y^{e} red and y^{e} begining to pvt awaye y^{e} dead y^{e} elexir vita

[Third verse surrounding Sun:]
Llike thy father that phebus soe bright
Who sit soe highe in Maiestie
With his beames that shineth bright

In all charts[?] whereuer he bee
For he is father too All thinges
Maintainer of lyfe too crop and Roote
& causeth nature for too spring
Why therwisse being sote
For he is the salve too everey sore
To bring aboute this precious Worke
Take good heed untoo this lore
I say too lawes & too clarke
& Omogenie is his name
Which God shaped with his own hand
& Magnesia is his dame
Thou shalt verily understand.
Now I shall here begin
For to teach the Redye way
Or else litle shalt thou weene
Take good heed what I saye
Divide Phebus in Manye partes
With his beams that be so bright
& this with nature them conarte[?]
The which is Mother of all lyghte
This phebus hath full many a name
Which is now full hard too know
& but ye take the very same
The philosophers stone ye shall not know
Therefore I counsell ere ye begine
Know thou well what he bee
& that is thicke Make it thyn
For then it shall ryght well like the[e]
Now understand what I meane
& take good heede theretoo
Thy work els shall litell seeme
& turne to the full myckell wooe
As I have saide in this lore
Many a name I wisse he hath
Sum behind & some before
As philosophers there him gave

[Text around legs of the Bird of Hermes:]
Aquila
Spiritus
Anima

[Verses on scroll beneath blue globe:]
In the sea withouten lees
Stoude the Byrd of Hermes
Eating his winges variable
& Maketh him selfe there full stable
When all his Virgis byne a gone
Hee stood still there as a stone
Here is now Both White & Red
& Allsoe the Stone too quicken the Dead
All & some without an fable
Both hard & neche & malliable
Understand now well A Right
& thancke God of this Sight

The Red Sea The Red Soll The Red Elexir Vita

The Byrde of Hermes is my name eating my wings to make me tame

[Fourth verse, beneath Serpent of Araby:]
I shall now tell without leesinge
hou & what is My Generation:
Omogenie is my father
& Magnesia is my mother
And Azocke truly is my syster
& Kebirt for sooth is my brother
The Serpent of Araby is my name
The which is Leader of all this Game
That sumetime was woude & wilde
And now I am both meeke and milde
The sune and Moone with their might
hath chased me that was so Light
My Winges that me Braughte
hether and thether where I thought
And with their Might they downe pull,
And bringeth me whether they wull
The Bloode of my harte I wisse
Now causeth both ioye & blisse
And Desolueth the verie stone
And kniteth him or he hath done
Now maketh hard that was light
causeth him too ben fixte
Of my Bloode and Water I Wisse

Plentie In all the Worlde there is
It Renneth in Euerey place
Who him finde might haue Grace
In the World he Renneth ouer all
And Goeth Rounde As a Ball
But thou Vnderstand well this
of thy worke thou shalt misse
Therfore know ere thou begine
What he is and all his kynn
Many a name he hath full suer
and All is But on[e] Nature
Thou must parte him A three
and them knit as the trinitie
And make them All three but one
Loe here is the philosophers Stone

[Final verse:]
In the name of the Trinitie
Harke here and ye shall see
Myne Author that formeth this warke
Both first Last breye & darke
Some of them I shall you tell
Both in Rime and in Spell
Mallapides Plat and Deion,
And the Booke of turba philosophorum
Both Aristotle Geber and Hermes
Also Lully Morien and Rosaries
Bonelles Raymondus and Albert
Arnold & Percy the Muncke soe blacke
Aros and Rasces and Allso Dessrima
The sister of Moises Mary prophitis
Baken also the Grate Clarke
Firmith I wisse all this worke
All these Accordeth now in one
That here is the philosophers stone
Otherwise it May not Bee
Vnderstood this I Counsell the[e]
And praye thou God of his Grace
That thou maest haue tyme and space
Too haue the troth of this parrable
Thancke thou God that is so stable
For many A man Desireth this

Both pope emperrour and king I wisse
Prieste and Clarke and Allsoe Frier
And not so much but the very begger
Now Jesus must it be thy will
kepe vs from the paine of hell
And as thou madest daies seauen,
Bringe Vs to the Blese of heaven,
All maner Good men in his Degree
Amen amen for Charitie

[Latin inscription at bottom:]
Si queras in merdis secreta philosophorum expensum perdis opera tempus que laborem
[If you seek the secrets of philosophy in dung, you will lose the expense, the effort, as well as time and labor.]