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Allegorical Iconography of Alchemical Furnaces

in 16th and 17th Century Manuscripts

Alchemische Labore. Alchemical Laboratories, Sarah Lang (Hg.), unter Mitarbeit von Michael Fröstl & Patrick Fiska, Graz 2023, S. 285–295, DOI: https://doi.org/10.25364/978390337404115

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Abstract

In many illustrated alchemical manuscripts one may find images of furnaces. Starting from the sixteenth century they are often depicted allegorically as well as vials, alembics, and other laboratory utensils. Furnaces were sometimes symbolized by characters connected with fire: hell mouth, demon, or dragon. In other cases, alchemical ovens were depicted as buildings due to their similar form. A tree was also a symbol of an alchemical oven. These iconographical types connected alchemy with something significant outside of alchemy: be it technology, religion, or mythology. This paper argues that the sources for such allegorical imagery could lie in manuals on military technology as *Bellifortis* or *De re militari*.

Keywords: Alchemy, iconography of alchemy, furnace, hell mouth, Bellifortis

Zusammenfassung

In vielen illustrierten alchemischen Manuskripten finden sich Bilder von Öfen. Ab dem 16. Jahrhundert werden sie – wie auch Phiolen, Destillierkolben und andere Laborutensilien – häufig allegorisch dargestellt. Öfen wurden mitunter durch Figuren symbolisiert, die mit Feuer verbunden wurden: Höllenschlund, Dämon oder Drache. In anderen Fällen wurden alchemische Öfen aufgrund ihrer ähnlichen Form als Gebäude dargestellt. Auch der Baum war ein Symbol für den alchemischen Ofen. Doch all diesen Typen allegorischer Ofendarstellungen gemein ist, dass sie Alchemie auf der Bildebene mit anderen lebensweltlich oder kulturell bedeutenden Phänomenen wie Technologie, Religion oder Mythologie verbanden. Dieser Beitrag argumentiert, dass diese allegorischen Bilder wohl durch Handbücher der Militärtechnologie wie *Bellifortis* oder *De re militari* inspiriert wurden.

Schlagwörter: Alchemie, Ikonographie der Alchemie, Ofen, Höllenschlund, Bellifortis

A wide Mouth, no Ears or Eyes,
No scorching Flames I feel;
I swallow more than may suffice
Full forty at a Meal.

An old English riddle

Many illustrated European alchemical treatises contain images of furnaces. Starting from the sixteenth century they are often depicted allegorically. The ovens grow to unreasonable sizes, turn into Gothic churches, trees or even dragons. These allegorical motifs had gotten into the alchemical context where they were endowed with both mnemonic and aesthetic meaning. Yet the topic of allegorical representations of alchemical furnace is understudied. This paper aims to fill that gap and systemize the main motifs to be found in the alchemical iconography of furnaces.

We know what real alchemical furnaces looked like because some have survived and are now on display in museums.[1] We also have thousands of miniatures showing quite realistic ovens, used for the purpose of *chrysopoeia* or making iatrochemical medicines. But in the sixteenth and seventeenth centuries several images of *athanors* received a more decorative look or even fantasy shape.[2] These images are rare even for the alchemical iconography of the period, and a reader should consider them as exceptions from the rule, but not an iconographical rule itself.

Alchemical Ovens as Hell Mouths

First, the images of alchemical ovens as hell mouths might attract a researcher's attention. This unusual motif could be derived from Christian art. Meyer Shapiro in his article "Cain's Jaw-Bone that Did the First Murder"[3] implies how heathen motifs of open-mouthed monsters, i. e. wolf Fenrir possibly influenced Christian iconography in the early Middle Ages, which later was described more thoroughly by Joyce Galpern in his unpublished dissertation "The Shape of Hell in Anglo-Saxon England."[4] As stated in Gary Schmidt's book "The Iconography of the Mouth of Hell. Eighth-century Britain to the Fifteenth Century",[5] the image of the anthropomorphic hell mouth had developed during the tenth century Benedictine reform in England where it was

1. For example: Oven of Maurice of Hessen-Kassel. Germany, 1601. Kassel, Museumslandschaft, Astronomisch-Physikalisches Kabinett; Alchemical Furnace, Nuremberg or Augsburg, c. 1575. Dresden, Kunstgewerbemuseum. Inv. no. 40919.
2. As for example in an alchemical notebook. Germany, c. 1620. New Haven, Beinecke Library. Mellon Ms. 50, fol. 30v.
3. Shapiro 1942
4. Galpern 1977
5. Schmidt 1995

first used in private contexts. It then spread across western Europe where it was often drawn in public spaces to show the horrors of hell and to visualize them in a memorable way. Between the twelfth and fifteenth centuries the image of the hell mouth was elaborated with many details like a cauldron with damned souls in it (like in Holkham Bible),[6] and sometimes resembling a brick furnace (as it is in the Utrecht Psalter[7] and its English copy[8]). In the fifteenth century the hell mouth became a part of mediaeval drama tradition and was shown among other theatrical props to wider audiences. Although in the same period this motif had gone out of fashion in some countries, this was not the case in Germany or France. And as we will see next, it had not gone out of fashion in alchemical manuscripts of the sixteenth and seventeenth centuries where this motif was adopted.

The alchemical furnace was a device for keeping a constant fire for a long time: as we have already seen, all this could not but cause associations with hell. That is the reason why some alchemical allegories show the jaws of hell as an *athanor*. This metaphor is used in the lavishly illustrated alchemical treatise *Thesaurus thesaurorum*, created in Italy around 1725: its hell mouth was most definitely copied from a Biblical manuscript or from some spiritual book, where frontal images of hell mouths were more typical.[9] The only new detail added to the traditional iconographical scheme is a vial in the very center of the hell mouth, where, in illuminated manuscripts, a cauldron with sinners is usually located, pointing at the alchemical context of the image. A demon with an oven in his belly, strikingly similar to the devil on the right panel of Bosch's triptych *The Last Judgment* (kept in Vienna), is depicted in the so-called "Sabaoth Manuscript", written in Czechia in the seventeenth century (fig. 51).[10] This image shows a kind of tamed demon, who now serves as a perfect oven for the operation of the Philosopher's stone. This is clearly meant as a metaphor, not implying any use of magic or summoning rituals. An interesting and unusual metaphor appears in a version of *Rosarium philosophorum* from the sixteenth or early seventeenth century (kept in the National library of France).[11] This is a unique image which isn't included in the other manuscripts of the *Rosarium*. There is no hell mouth, but damned sinners are sitting in a hellish-looking space behind a stone fence which obviously represents a side of an alchemical furnace.

6. London, British Library. Ms. Add 47682, fol. 34r.
7. Utrecht, Universiteitsbibliotheek. Ms. 32, fol. 5r.
8. London, British Library. Ms. Harley 603, fol. 5r.
9. London, Wellcome Institute. Ms. 4775, 74.
10. Mnichovo Hradiště, Zámecká knihovna, A MS. 77.
11. Paris, Bibliothèque nationale de France. Ms. Latin 7171, fol. 30r.

Figure 51.: **Sabaoth Manuscript. Czechia, 17th c., Mnichovo Hradiště, Zámecká knihovna, A MS. 77.**

Dragon Metaphors for Furnaces

The mouth of a fiery dragon has already been a variant of the hell mouth iconography in Christian art. In alchemical manuscripts the stove could also turn into a dragon. In the most famous alchemical treatise of all time, the *Splendor solis*, created in Germany in the first half of the fifteenth century, there is an image of a putto who is pouring a phial into a dragon's mouth and operating the bellows inside his chest. This image shows the dragon as an entirely metaphorical alchemical furnace, without alluding to any explicit elements of a furnace, such as fire, walls, or other details. The

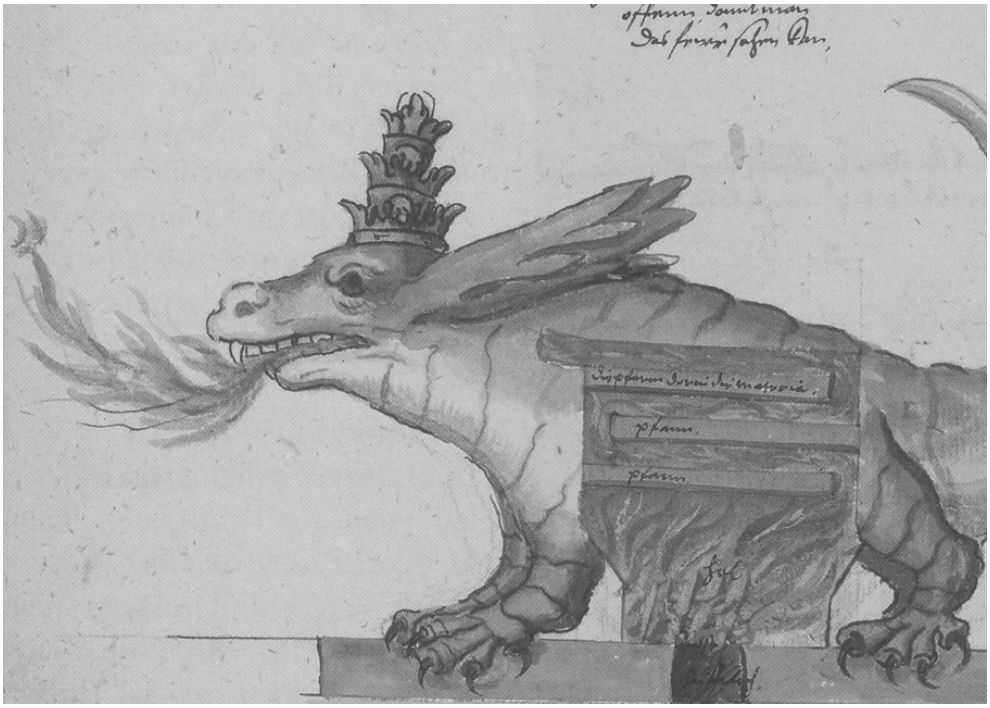

Figure 52.: **Balthasar Hacker. Entwurf eines Probierofens. Wittenberg, 1578. Dresden, Das Sächsische Hauptstaatsarchiv, 10024, Geheimes Archiv Loc. 4512/3, fol. 5v**

other example is the *Entwurf eines Probierofens* made by Balthasar Hacker in German Wittenberg in 1578 showing the alchemical laboratory of his master, Kurfürst August von Sachsen, and his wife Anna (fig. 52).[12] This dragon is presented as a scheme of a cross section of an alchemical oven. A papal tiara on its head marks the hybridisation of the alchemical motif with a Lutheran one – it was very popular to show the Pope as a dragon or beast of the Apocalypse in Protestant caricatures.

These two depictions of alchemical furnaces as fiery dragons could also have another root. Their genesis goes back to the manuals on military technology as for instance *De re militari* written in Verona in 1472 by the humanist Roberto Valturio. This manual was very popular at the time and included many drawings with allegorical elements, i. e., a siege weapon in the form of a dragon with a cannon in its mouth, called *Arabica machina* (fig. 53).[13] It is an open question, whether Valturio thought it was a real shape of this device or just used some descriptions of the machine uncritically. Nev-

12. Dresden, Das Sächsische Hauptstaatsarchiv. 10024, Geheimes Archiv Loc. 4512/3, fol. 5v.
13. Firenze, Biblioteca Medicea Laurenziana. Inc. 2.10.

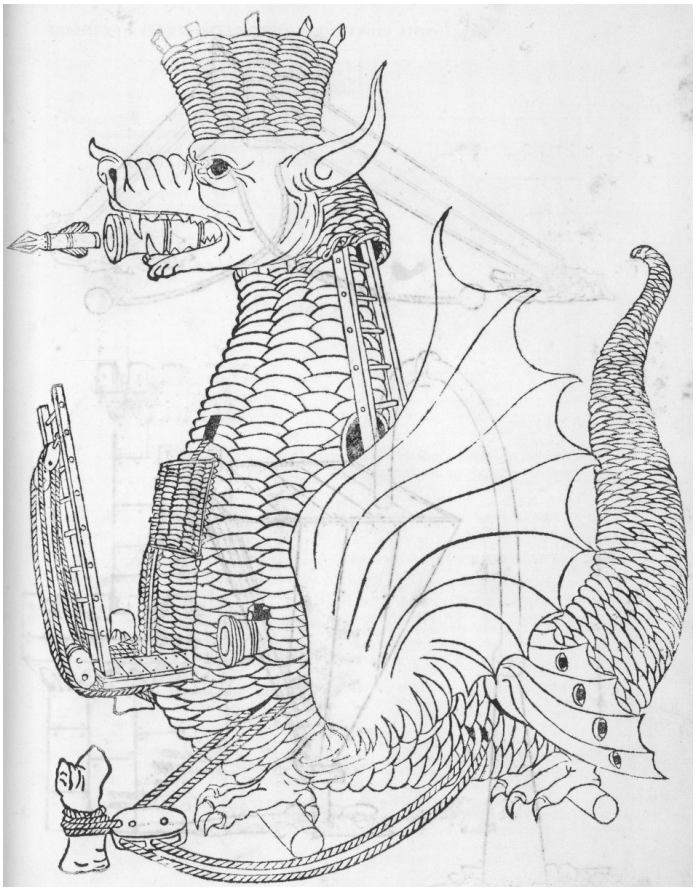

Figure 53.: **Roberto Valturio, *De re militari*. Verona, 1472. Firenze, Biblioteca Medicea Laurenziana, Inc. 2.10, c. 166r. Su concessione del MiBACT. E' vietata ogni ulteriore riproduzione con qualsiasi mezzo.**

ertheless, this memorable image could have inspired the appearances in subsequent iconography, including the depictions of the alchemical furnace in the form of a dragon.

The Oven as a Building

Other miscellanies on the siege of castles, engineering, and production of buildings often show similar allegories and could presumably be the source for the other types of allegories of alchemical ovens. Such treatises as *Bellifortis*, for example, in some

manuscripts were accompanied by alchemical treatises, which is why *Bellifortis'* images could have inspired alchemical ones.[14] Some alchemical illustrations show an *athanor* as a building. It could be a three-storey house with an alchemical vessel inside a tower on a gable roof, as in the French "F. de La Rose-croix manuscript", created in circa 1700.[15] There is no decoration except two red window shutters and a flag on top of the tower. This metaphorical depiction probably arose due to the similarity of oven structures to those of houses. Both are made of stone and both were constructed to keep warmth inside themselves. According to the alchemists, a furnace was a house for a vessel with the future Philosopher's stone inside of it.

A different approach to the details of a furnace appears in the title-image for the so-called alchemical "Book of Lampsring" (drawn in 1625 by the famous copper engraver Matthäus Merian the Elder) as a part of the prominent collection of alchemical treatises published under the name *Musaeum Hermeticum*. A royal figure is located next to the large, castle-shaped alchemical furnace. Its shape is very peculiar and the three towers have three independent flags. Merian or his alchemical advisor borrowed all the iconography from the Lampsring manuscripts of the sixteenth and early seventeenth centuries and created only one additional image himself. Surprisingly, this illustration was rethought in the later illuminated manuscript of "Book of Lampsring" of the seventeenth or eighteenth centuries, now kept in Admont Benedictine Abbey.[16]

Furnaces as Churches

A Gothic church with its specific decorations turns into an alchemical oven in the pages of the *Buch der Heiligen Dreifaltigkeit* out of a German alchemical miscellany of circa 1585–1600 (fig. 54).[17] The church shape underlines the noble or divine nature of alchemical furnace, which not only produces gold, but was also thought to purify the microcosm, as God does for the macrocosm. The decoration of a Gothic church surely was not used in producing actual *athanors*, but such details were widely used in iconography, appearing in the mediaeval illustrations of Psalm 120:5 ("garden enclosed") and in the *Bellifortis'* images of generic buildings such as bath-houses to show their significance.[18]

14. Heidelberg, Universitätsbibliothek. Cod. Pal. germ. 787
15. Los Angeles, Getty Institute. Manly Palmer Hall Ms. 24, fol. 18v.
16. Admont, Benediktinerstift. Cod. 829, fol. 9v.
17. Kassel, Universitätsbibliothek. 4° Ms. chem. 72, fol. 294r.
18. For example, see: Karlsruhe, Die Badische Landesbibliothek. Cod. Durlach 11, fol. 114r; or: München, Bayerische Staatsbibliothek. Clm 30150, fol. 81r.

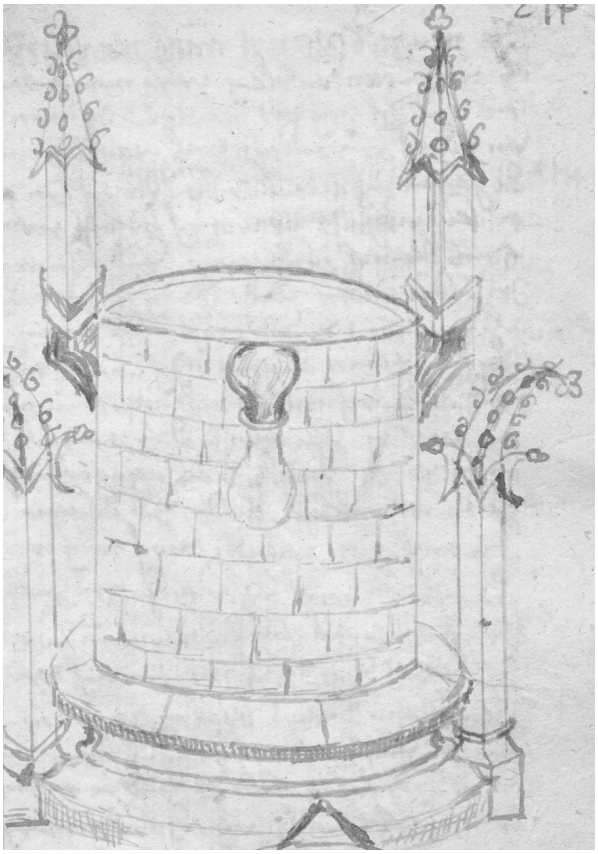

Figure 54.: **Alchemical miscellany. Germany, c. 1585–1600. Kassel, Universitätsbibliothek. 4° Ms. chem. 72, fol. 294r.**

The *athanor* as Metaphorical Tree

The other metaphor of an *athanor* is a tree, which usually symbolizes the source of *prima materia* in alchemical imagery. In various alchemical manuscripts its leaves or branches could represent the four elements, the seven planets, the twelve operations or the output of gold or silver. In the illustrations from a 1614 manuscript copy of Heinrich Khunrath's *Lux in tenebris* (kept in Copenhagen Royal Library), the tree appears as a unifying symbol of Adam, Eve, and the Serpent, who personify alchemical silver, gold, and mercury, respectively (fig. 55).[19] The Biblical *arbor scientiae boni et mali* becomes an *athanor,* in which an angel with devil's feet (which was a typical imagery for the devil in the illuminated manuscripts and frescoes at the time) blows

19. København, Det Kongelige Bibliotek. Ms. 1765, fol. 134v.

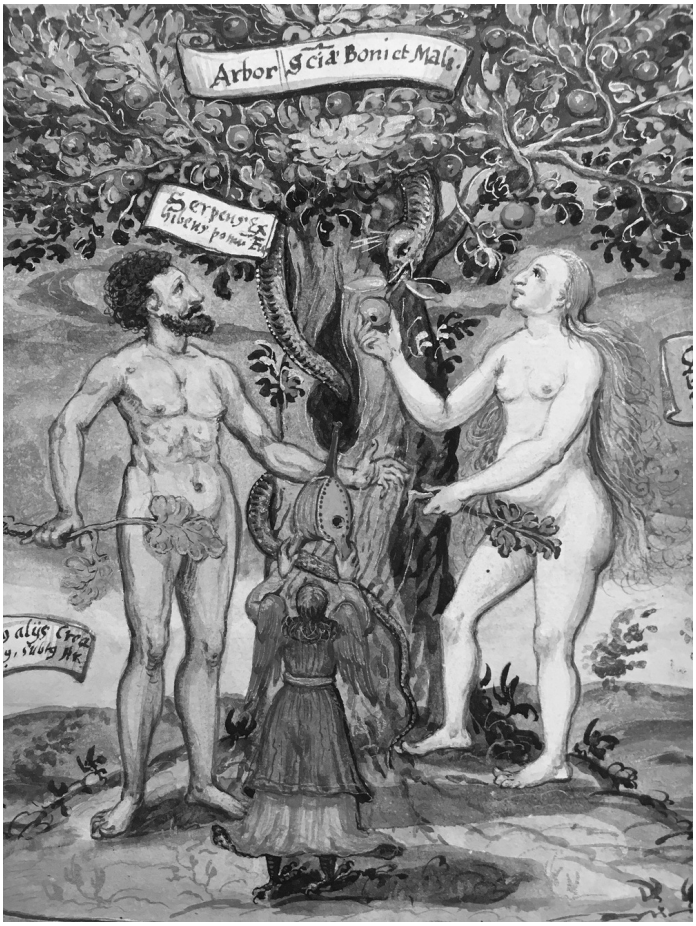

Figure 55.: **Heinrich Khunrath, *Lux in tenebris*. Germany, 1614. København, Det Kongelige Bibliotek. Ms. 1765, fol. 134v.**

fire with a pair of bellows. This could possibly show the legend of the genesis of alchemy, which goes back to the forbidden knowledge given to Adam. A similar allegory is contained in a prominent French manuscript written (and probably illustrated) by Jean Perréal in 1516. The manuscript was intended as a gift to King Francis I of France, and its only miniature was so beautiful that it was cut out of the manuscript in 1850. On the miniature, the alchemist talks to an allegory of nature: A naked woman with wings is adorned with a crown showing the symbols of the seven metals. She sits on a throne made of tree trunks: their interlacing means a mixture of the four elements. At the base of the throne, one can see an *athanor*. Next to it there is the inscription "primal matter". The top of the throne is crowned with an image of

a flask with red elixir inside, signed "work of nature". To the right of the alchemist is the laboratory labelled "mechanical work". The allegory illustrates an episode in the text in which Nature shows to the lamenting alchemist the difference between the True Art, arranged according to natural laws, and his attempts to imitate it, an unworthy technical alchemy. The alchemist repents and decides to abandon useless experiments forever, following Nature instead. Last but not least, the tree appears from the *athanor* on the illustration to the seventeenth century alchemical treatise from Vatican Apostolic Library *Speculum veritatis*.[20] Here it is clearly a product of the *opus magnum*, since even the growing flowers on it are visible. The furnace seems to be the tree trunk and the branches coming out of it when the Philosopher's stone is ready. The analogy is obvious: the tree grows the fruits like the *athanor* nurtures the stone.

For this essay a big choice of illustrated alchemical manuscripts was surveyed, but only very few contain allegorical depictions of *athanors*. At the same time there are thousands of allegorical illustrations of alchemical vials. Thus, statistics are pointing to the fact that the oven was probably not of particular importance in the symbolic language of early modern alchemists.

Sergei Zotov is a PhD student at the Centre for the Study of the Renaissance (Warwick University, UK), writing on the topic ‚Alchemical iconography as mediator of knowledge on the example of European manuscripts of 15h and 16th centuries'. Sergei is also a member of the Renaissance Society of America (RSA) and of the Society for the History of Alchemy and Chemistry (SHAC).

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20. Vaticano, Biblioteca Apostolica. Ms. Lat. 7286.