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The Alchemical Laboratory in the Mirror of 16th and 17th Century Fine Art

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Zusammenfassung

In der ersten Hälfte des 17. Jahrhunderts wurde der Alchemist in seinem Laboratorium zu einem häufigen Thema in der niederländischen und flämischen Genremalerei. Manche der Darstellungen waren satirisch, andere zeigten Alchemisten in großer Ernsthaftigkeit und häufig in melancholischer Atmosphäre. Bis zur Mitte des 16. Jahrhunderts war die Darstellung des Alchemisten im Labor hauptsächlich alchemischen und technischen Traktaten vorbehalten. In diesem Beitrag werden daher unterschiedliche Beispiele alchemischer Labore in Kunst und wissenschaftlichem Kontext (Alchemie oder Metallurgie) verglichen. Besondere Aufmerksamkeit gilt dabei den fundamental unterschiedlichen Bedeutungsgebungen, die diesen Darstellungen innewohnen. Hier soll argumentiert werden, dass im Falle der Darstellung im wissenschaftlichen Kontext die Kunst als pragmatisch-nützliches Medium zur Darstellung von Laborequipment fungiert, im Falle der Genremalerei allerdings vielmehr das Labor mit seinen diversen Inhalten zum Erzielen eines malerischen Effekts instrumentalisiert wird.

Schlagwörter: Niederländische & flämische Genremalerei, Alchemistenlabor, Kunst und Alchemie

Abstract

During the first half of the 17th century, the depiction of the alchemist in the laboratory became one of the common themes in Dutch and Flemish genre painting. These depictions took different forms: some were satirical, while others showed the alchemist with some seriousness and frequently surrounded by a melancholic atmosphere. Until the middle of the 16th century, the depiction of alchemists and their laboratories was primarily the subject of alchemical and other technological treatises. It is important to compare various examples of the alchemical laboratory's portrayal in fine art and scholarly works dealing with alchemy or metallurgy. I want to draw attention to the differences in the depictions of the laboratory in both areas and the fundamental difference in the meaning of these depictions themselves. My premise that I would like to verify in this essay I formulate as follows: In the case of depictions in scholarly works, the art is a means of representing a subject of laboratory equipment, in the case of works of genre painting, the topic of laboratory equipment is a means of creating a picturesque work of art.

Keywords: Dutch & Flemish genre painting, alchemical laboratory, art & alchemy

Introduction

In the context of Dutch and Flemish genre painting during the first half of the 17th century, we encounter a very different artistic articulation of the theme of the alchemist in the laboratory than how this theme was depicted in medieval alchemical manuscripts and early modern printed texts. This is due to the fact that alchemy entered genre painting via external perceptions of the phenomenon through the wider layers of society at the time, and was not, therefore, a matter of the immanent expression of alchemical imagery. Whereas in expert alchemical contexts, depiction was related to real laboratory practice and based on the philosophical principles of the discipline. While several alchemists of the time regarded alchemy as the most important science revealing the secrets of nature and sometimes as bound up with sacred aspects of reality, *extra muros* it was often seen as a matter of wholly profane and vain attempts at self-enrichment. For this reason, in genre painting, the depiction of alchemy was either satirical in character or evoked a melancholic atmosphere reminiscent of its supposed futility.

The First Examples of Representations of Alchemists and their Laboratories

The first depictions of the alchemist in European art appear in the late Middle Ages. In the early 15th century fresco from Padua's Palazzo della Ragione, the alchemist is depicted in front of his distillation apparatus that refers to one important field of his activity, the production of drugs, both from plant and mineral substances.[1] In illustrations from the *Aurora Consurgens* manuscript of the same period, the alchemist is depicted as a sage watching the dawn and as a practitioner who heats an enormous crucible with his bellows.[2] The alchemical activity associated with the processing of minerals and metals had already attracted a lot of attention in the late Middle Ages by the efforts to produce precious metals through the philosophers' stone. The reports of fraud that occurred in the attempts at transmutation had caused a growing bad reputation for alchemy, which subsequently attracted the attention of prominent writers such as Francesco Petrarca in *De remediis utriusque fortunae* (1358–1366) and Geoffrey Chaucer in *Canterbury Tales* (written between 1387–1400).[3] The common

1. On the development of European alchemy, see Kopp 1886 [1971]; Ganzenmüller 1938; Holmyard 1968; Sherwood Taylor 1976; Gebelein 1991; Priesner, Figala 1998; Schütt 2000; Principe 2013; Calvet 2018

2. The oldest manuscripts of Aurora consurgens are found in Zurich (Zentralbibliothek, Rh. 172) and in Nelahozeves (Lobkowicz Library, ms. VI Fd. 26). See Obrist 1982, 278–283. Gabriele 1997, 49–96; Crisciani, Pereira 2016, 307–411.

3. Schütt 2000, 367. For Petrarch's critique of alchemy and its influence on Chaucer's work, see Coogan 1971, 273–275.

humanist view was that alchemist is „social deviant driven by greed“[4] and their critical statements about alchemy influenced the overall picture of this discipline in the late Middle Ages.[5] Alchemy has also been criticized and banned on several occasions by ecclesiastical authorities, for example, by the famous decretal of Pope John XXII. *Spondent quas non exhibent* from 1317.[6] With the development of printing, these literary-critical statements were accompanied by specific imagery. Petrarch's *De remediis utriusque fortunae* was published in 1532 in Augsburg under the title *Von der Artzney bayder Glueck des guten und widerwertigen* with woodcuts, probably created by Hans Weiditz.[7] Amongst the new literary works, Sebastian Brant's *Ship of Fools* (Basel 1494) was particularly critical of alchemy. Brant's *Narrenschiff*, which connected alchemy with the phenomenon of folly, gave scholars a new avenue of criticism, and to painters, a new approach to satire. The woodcuts for this book were created by Albrecht Dürer.[8]

This theme of alchemy as folly inspired Pieter Bruegel the Elder (c. 1525–1569) to a highly elaborate drawing from 1558.[9] When Philip Galle subsequently engraved this drawing, it became an important precursor to the future development of the alchemist's motif in genre painting in the next 150 years.[10] Bruegel's work was important for genre painting as a whole. In addition to the alchemist theme, it provided genre painting with several other themes, such as the famous village scenes of the peasants. In the engraving created according to Bruegel's drawing of the alchemist, it is important that its meaning is deeper than the mere satirical effect because of the verses with which it was supplemented.[11] At the time of this masterpiece by Bruegel, alchemy was diverse and had a broader scope and social status than in the late Middle Ages. The basic aim of alchemy remained the production of a philosophical stone allowing the transmutation of metals and acting as a universal medicine. Still, its technologies for processing metals and minerals found wider use in medicine and established a new direction called iatrochemistry.[12] This important change in the status and importance of alchemy was associated primarily with the work of Theophrastus Paracelsus (1493–1541).[13] To increase the efficiency of mining and metallurgy, mining experts adopted alchemical theories of metal formation. They

4. Newman 2004, 121
5. Figala 1998, 36–39; Matton 1995, 279–345
6. Ganzenmüller 1938, 83–96; Schütt 2000, 382; Calvet 2018, 185–194
7. Chastel 1981, 343–352; Raupp 1984, 59–112
8. Brant 1494; Schmidt 2010, 81–108; Schmitt 2010, 349–412
9. van Lennep 1966, 149–168; Orenstein 2001, 170–171; Principe, DeWitt 2002, 11–12; Völlnagel 2012, 115–117
10. Kaufmann 1997, 370–377
11. For an English translation of the verses, see Newman 2020, 317; cf Drago 2019, 39.
12. Clericuzio, 1998, 29–36
13. Müller-Jahncke 1998, 267–207

sought to use alchemical methods in their attempts to increase ore yields.[14] The discovery of mineral acids further broadened the spectrum of what alchemy could produce, bringing it closer to artisanal production as a precursor to chemical manufacture.[15] The social structure of its protagonists has changed considerably. During the Middle Ages, alchemy was mainly practiced by educated members of the clergy. Simultaneously, in the 15th and 16th centuries, it became a matter for burghers, both of the wealthy patricians and various craftsmen – like experts in assaying metals, goldsmiths, or glassmakers who, like alchemists, were associated with the "art of fire."[16]

Topics of Genre Painting

As the origin and development of the Dutch and Flemish genre painting were so closely linked to the growth of local bourgeois trade society in the 17th century,[17] it is not surprising that alchemy became one of its themes. In the general sense, genre painting was intended to satisfy the requirement of the representation of this social class. Therefore, unlike historical and mythological paintings for the higher social strata, it focused on depicting scenes that were supposed to have been taken from everyday life. The theme of the alchemist was included in contexts as diverse as scenes from markets and households, scenes from pubs with soldiers and prostitutes, peasant festivals, rural doctors visiting patients, but also scenes from the interiors of wealthy patricians and noble homes.[18]

This list of topics appears to be very broad, but in fact, was quite narrow. Genre painting chose only some of its observed phenomena from everyday life, and then combined them with an established repertoire of motifs and styles to create images that would transform daily banalities into artworks. These paintings were clever fictions and new or renewed image conventions.[19] Contemporary commentators usually emphasized the seemingly faithful appearance of the outside world, which the painters had captured in their paintings. However, they did not refer to realism in the modern sense of the word, but rather to the virtuose ability of painters to record and visualize all that exists, building the image space using light and shadow as well as convincing representation of materials and their surfaces.[20] As has been pointed

14. Suhling 1986, 293–314; Norris 2016, 657–670
15. Principe 2013, 85; See also Smith 2004; Nummedal 2007; Drago 2019
16. Hill 1975, 105; Nummedal 2007, 43–44
17. Franits 2004; Drago 2019
18. Sutton 1984; Brown 1999; Muizelaar, Phillips 2003; Salomon 2004; Silver 2006
19. Franits 1997; Franits 2004
20. Alpers 1983; Franits 1997, 4

out many times, there is a tendency towards moralism throughout genre painting.[21] It often depicts inferior behavior over which the observer could feel superior, as in the case of drunken peasants or quack doctors. The depiction of the latter had a long tradition in Dutch and Flemish art dating back to Hieronymus Bosch.[22]

The Alchemist between Satire and Melancholy

We can therefore say that the depiction of alchemists in genre painting corresponded both to the tendency to moral criticism[23] as well as to the transformation of everyday life into art work. It provided insight into other social environments, especially ones that were difficult to access otherwise.

Let us now distinguish in what way and with what intention the alchemist theme was dealt with by specific painters. In the first place, some depictions clearly continue the satirical tradition of Breugel's drawing and engraving. Its main intention was to show how the alchemist ruins himself and his family. In the depiction of the alchemist by Jan Steen (c. 1626–1679), we see an alchemist's crying wife who has to give her husband the last gold coin to melt in his crucible. Adriaen Van Ostade (1610–1685) portrayed the alchemist as an ordinary farmer trying to make gold in his cottage's miserable interior while his wife wipes their child's bottom in the background, presumably a reference, one supposes, to the outcome of her husband's work. Alchemy is a metaphor for human madness in Steen and Van Ostade's paintings, as well as in the engraving by Breugel, and the inevitable consequence of which is poverty that, according to the historical view, was not innocent but led to sin and crime. In contrast, genre painting of the 17th century also produced several depictions whose primary purpose was not to condemn alchemy through its practitioners' mocking depiction. The creators of these artworks paid great attention to depicting the laboratory correctly (especially its equipment) which became the independent and original artistic theme to some extent.

David Teniers the Younger (1610–1690) created the highest number of paintings with this theme. He worked on them from the mid-1640s until the 1680s, and numerous followers and epigones copied his paintings.[24] All these works were further disseminated through engravings, so we can say these depictions of alchemists personified alchemy in the general consciousness deep into the 19th century. In most cases, his alchemists are portrayed as scholars of old age, working near the furnace with the bellows, mixing ingredients, and often looking at books. The results of their work can

21. Franits 2004, 55; Principe 2014, 64
22. Franits 2004, 40
23. Principe, DeWitt 2002, 10
24. Davidson 1980, 39–42; Lüdke 2005, 136, 270–273

surely be questioned, but not the passion and seriousness with which they performed it. Their laboratories are basically standardized interiors that share features with some other interiors of Teniers' paintings. Another standard feature was the groups of two or three figures standing in the fireplace background, which may represent both the alchemist's helpers or the drinkers in pub scenes. Similarly, the repetitive motif of a man or woman looking from a high-placed window into the laboratory, or a fish or reptile hanging from the ceiling, also passed from one context to another. This latter motif probably passed into Teniers' paintings from period representations of *Kunstkammern*.[25]

It turns out that curiosity also played a role in the popularity of this type of works, as especially Teniers' paintings made it possible to look into such social contexts, which in many cases were dubious or sometimes mysterious. That is why the depiction of witches also belonged to the context of genre painting, and especially in the work of this significant artist. This need to satisfy fantasy also led to the presence of one religious theme in Teniers' genre painting themes: The temptation of St. Anthony, which offered another opportunity to display hellish scenes. I believe that this curiosity influenced the inclusion of the alchemical workshop in the themes of genre painting. The alchemical laboratory's overall appearance, as genre painting depicted it, could also give the viewer an impression of mystery, especially when its interior did not differ much from some of the scenes involving witches (figs. 49, 50). However, this alleged relationship of alchemy and witchcraft wasn't based only on artistic intention but could have been influenced by the infamous Hammer of Witches (*Hexenhammer*, *Malleus Maleficarum*).[26] While previous scholastic medieval discussions on alchemy have primarily elaborated on alchemy's ability to transmute species, this book declares it as demonic art in the first chapter already and associates it with witchcraft.[27]

The paintings of Thomas Wijck (c. 1616–1677), who was also immensely interested in the subject of the alchemist in the laboratory, are very close to Teniers' representations. He depicts his alchemists not only as scholars but as real "philosophers" because this had been the designation of the adepts of alchemy since the Middle Ages.[28] Accordingly, he surrounded them with a much larger number of books and

25. Davidson 1987, 62–80. Cf. Impey, MacGregor 2001, figs. 1, 4, 51; Kaufmann 1997, 374

26. First edition published by Peter Drach, Speyer, before April 1487.

27. Newman 2004, 54–62. The importance of this modern link between alchemy and witchcraft, which was propagated by such influential works, cannot be overlooked. Alchemists were not subjected to similar levels of persecution in the early modern period as alleged witches. However, information about the witch hunt in the 17th century circulated in the "public opinion" at that time and attracted attention. Another shadow fell on alchemy; it was perceived not only as a fraudulent art but also as a devilish art.

28. This conception of the alchemist as a philosopher was taken from Arabic alchemy through writings such as Turba Philosophorum. See Ruska 1931.

manuscripts as a symbol of their knowledge.[29] He also filled his laboratories with furnaces and several vessels to give his paintings a more melancholic tone, corresponding to both philosophical searching and feelings of *vanitas* (fig. 45).

Figure 45.: **Thomas Wijck, The Alchemist, c. 1660–1677. Oil on panel, 47,4 x 39,9cm. Herzog Anton Ulrich-Museum Braunschweig Museums, Inv.-Nr. GG 358**

Both Teniers and Wijck very faithfully depicted vessels and furnaces, the equipment of an alchemical workshop. Different apparatuses and vessels can be identified with period images in alchemical and technological literature, for example in the works of Pseudo-Geber, *Geberi philosophi ac alchimistae maximi de alchimia libri tres*, , Strasbourg 1531, Andreas Libavius, *Commentariorum alchymiae pars prima*, Joannes Saurius, Frankfurt am Main 1606, Georgius Agricola, *De re metallica libri XII*, Johan Froben, Basel 1556, or Lazar Ercker, *Beschreibung Allerfürnemisten Mineralischen Ertzt und*

29. Kaufmann 1997, 373; Lennep, 1966, 161

Bergkwercksarten, Georgius Nigrinus, Prag 1574.[30] The question remains how many of these painters had seen this equipment firsthand, and how much this remarkable consensus was based on knowledge readily available in the books of the time. I believe that this latter option was undoubtedly at play. In a few examples, we will compare the typical depictions of an alchemist and his laboratory in genre painting with depictions of the same subject that we encounter in alchemical books and manuscripts.

Comparisons of Alchemical Interiors from Genre Painting and Alchemical Works

Thomas Wijck's Painting and the Engraving Oratory and Laboratory from Khunrath's Amphitheatrum sapientiae aeternae

Let us compare one of Thomas Wijck's paintings of an alchemical laboratory from 1660–1670 (fig. 45) and the well-known and often reproduced double plate engraving "Oratory and Laboratory" from *Amphitheatrum sapientiae aeternae* (fig. 47) by the Leipzig doctor Heinrich Khunrath (1560–1605). This important work of theosophical alchemy was first published in 1595 in Hamburg and contained, in addition to the mentioned engraving, three other circular double plate engravings. The second, substantially expanded edition of the work was published in Hanau 1609 and, in addition to the four circular engravings, including the "Oratory and Laboratory," contains five other rectangular engravings.[31] The author designed the pattern for the engraving "Oratory and Laboratory" himself, as he did for other engravings. Unlike them, it was the only one masterfully drawn by the important Dutch painter and architect Hans Vredeman de Vries (1527–1609).[32]

For this reason, the engraving is a direct testimony of alchemical practice, although it is not a realistic record of Khunrath's laboratory, but a mixture of technical and symbolic elements.[33] The large idealized hall is divided into the oratory on the left and the laboratory on the right, which refers to the necessary interaction of mental and intellectual work with manual work. While the great tabernacle on the left was certainly not a common piece of equipment in the alchemist's dwelling, the laboratory depicted on the right provides a realistic picture of technical equipment at that time, as we know of it from the literature on alchemy, mining, or distillation.

30. For a detailed analysis of these sources, see Purš, Karpenko 2023.
31. Forshaw 2006, 195–220; Forshaw 2011, 175–200; Schmidt-Biggemann 2014, 41–83; Purš 2015, 50–89; Purš 2017, 258–267; Purš, Karpenko 2023, 394–407
32. Borggrefe, Lüpkes, Huvenne, van Beneden 2002, 345
33. For laboratory alchemy in Khunrath's work, see Karpenko 2015, 88–107.

When we compare Wijck's painting with Khunrath's engraving, we see at first glance that the basic components of Khunrath's depiction are present but transformed. However, while in Khunrath's engraving, they are precisely separate and structured, Wijck's painting displays them in the form of a scattered jigsaw puzzle - as though someone had taken the ideal space of *Amphitheatrum* and shaken it thoroughly. In Wijck's painting, we see a large space constructed in an elongated perspective, in which books referring to alchemy's theoretical part predominate as well as the distillation apparatus and various vessels that refer to the alchemical practice. Only musical instruments are missing here; however, there is no hanging dragon on Khunrath's engraving, in the place of which is a star-shaped chandelier. The fundamental difference we see in Wijck's painting is that there is no reminder to ask for God's contribution through prayer, which was one of the leitmotifs of alchemical literature throughout the Middle Ages but also in the early modern times. Understanding of alchemical writings and success in laboratory work should have been a *Donum Dei*, God's gift, and the granting of divine favor. Despite the two depictions' external similarity, there is a fundamental difference in their conceptions of alchemy.

In assessing the authenticity of Wijck's depiction, the question is whether 17th-century painters like him could have had access to alchemical laboratories, or more precisely, to spaces where adepts sought to produce the philosophers' stone. I think this is rather unlikely. It was certainly not a problem for painters to visit the workshops of artisans who carried out diverse chemical operations, and they were certainly not completely barred from goldsmith's and assayer's workshops or pharmacies.[34] In all these rooms, they could see furnaces, distillation apparatuses, or various containers, as shown by comparing the distillation apparatuses from Wijck's painting to that on woodcuts from Lazar Ercker's work. However, the transmutational alchemy world remained as closed in early modern times as it was in previous centuries. The laboratory's description evidences this in the chemical house design of Andreas Libavius from 1606. The author requires that the most important work is performed in areas inaccessible to those not initiated into alchemical practices.[35]

Thus, the creators of genre representations very likely had to rely on the possibilities above. As we have already mentioned, they also undoubtedly drew on the depictions found in both alchemical and technological books. The standard equipment of the painting workshop included swatches and collections of pattern cartoons. The artists worked creatively and used them according to their intentions and the expectations of their customers. It was a repetition and a new combination of a certain set of motives.

34. Jensen 2017, 2
35. Newman 1999, 59–60

Although it cannot be denied that some alchemists seeking the philosophical stone worked with their assistants in similar, overcrowded spaces to the ones Wijck presents in his paintings, it is almost certain that craft workshops could not have looked like this. The reality of the scenes depicted is contradicted by two circumstances which are quite practical in nature: disorder in the laboratory would impede the efficient progress of the work and bring inevitable equipment losses, and equally unlikely is the chaotic distribution of books throughout the laboratory. In early modern times, books were not a cheap commodity, and since alchemical literature was published in low quantity, perhaps only in print runs in the hundreds, they were rare and highly valued. Some rare books were even copied by hand until the 18th century. And last but not least – one more reason why Wijck's paintings must be seen primarily as sui generis – a laboratory as he depicts it would have burned down very quickly. Undoubtedly, the danger of fire was one reason an alchemist working in a townhouse attracted his neighbors' attention, who reacted quite naturally out of an instinct for self-preservation.

Cornelis Bega's Alchemist and Anonymous Drawing of an Alchemist from a Late 16th-Century Manuscript

The difference between an artistically captured, fantastic laboratory – albeit made up of very real depictions and renderings of actual objects – and a much more likely representation of an alchemist in front of his furnace is shown convincingly by the comparison of *The Alchemist* by Cornelis Bega (1631/32–1664) (fig. 48) and an illustration of the alchemist from a late 16th-century manuscript, which is found in the Nuremberg Germanisches Nationalmuseum (fig. 46).[36] It is a typical *Sammelhandschrift*, originating in Strasbourg in 1578–1588 and containing the alchemical treatises of Janus Lacinius, Geber, Lamspring, or Johann Sternhals and many others. It is richly decorated with symbolic designs, and the picture of the alchemist before his furnace is found at the very beginning of the fol 2r. We can therefore assume that he could represent the author or owner of the manuscript. In the colored line drawing, we see the adept in a fashionable hat and flashy clothes sitting by a large distillation furnace, whose hearth he manipulates, while his other hand rests on an hourglass. Above the furnace there are carefully stacked glass cucurbits and retorts. They are also interwoven into the scroll ornament surrounding the drawing.[37]

36. Shelf mark. Hs 16752; numerous color drawings, 20 x 15,5cm. Nürnberg, Germanisches Nationalmuseum, Online-Ressource (Handschriften der Frühen Neuzeit aus der Bibliothek des Germanischen Nationalmuseums).

37. Illustrations from Lazar Ercker's *Beschreibung Allerfürnemisten Mineralischen Ertzt und Bergkwercksarten* also shows us this correct way to handle glass alchemical vessels.

Figure 46.: **The Alchemist, manuscript from 1578–1588 (Straßburg). Nürnberg, Germanisches Nationalmuseum, shelf mark. Hs 16752, Fol. 2r**

In Bega's depiction of the adept, we see a similar transformation as we have seen in the comparison of Wijck's painting and Khunrath's engraving. While the glass jars are carefully placed on a shelf or used for decorative ornaments in the manuscript illustration, Bega's alchemist is chaotically surrounded with all kinds of jars and crucibles in the immensely picturesque scrum. As Wayne E. Franits says, "Bega captured everything with astonishing mimetic fidelity [...] Even the mess and reflections in the tools scattered around the room were skillfully captured. Bega also displayed the dust lying on the discarded earthen containers in the foreground."[38] According to art critics at that time, this painting presented a "beautifully painted

38. Franits 2004, 140

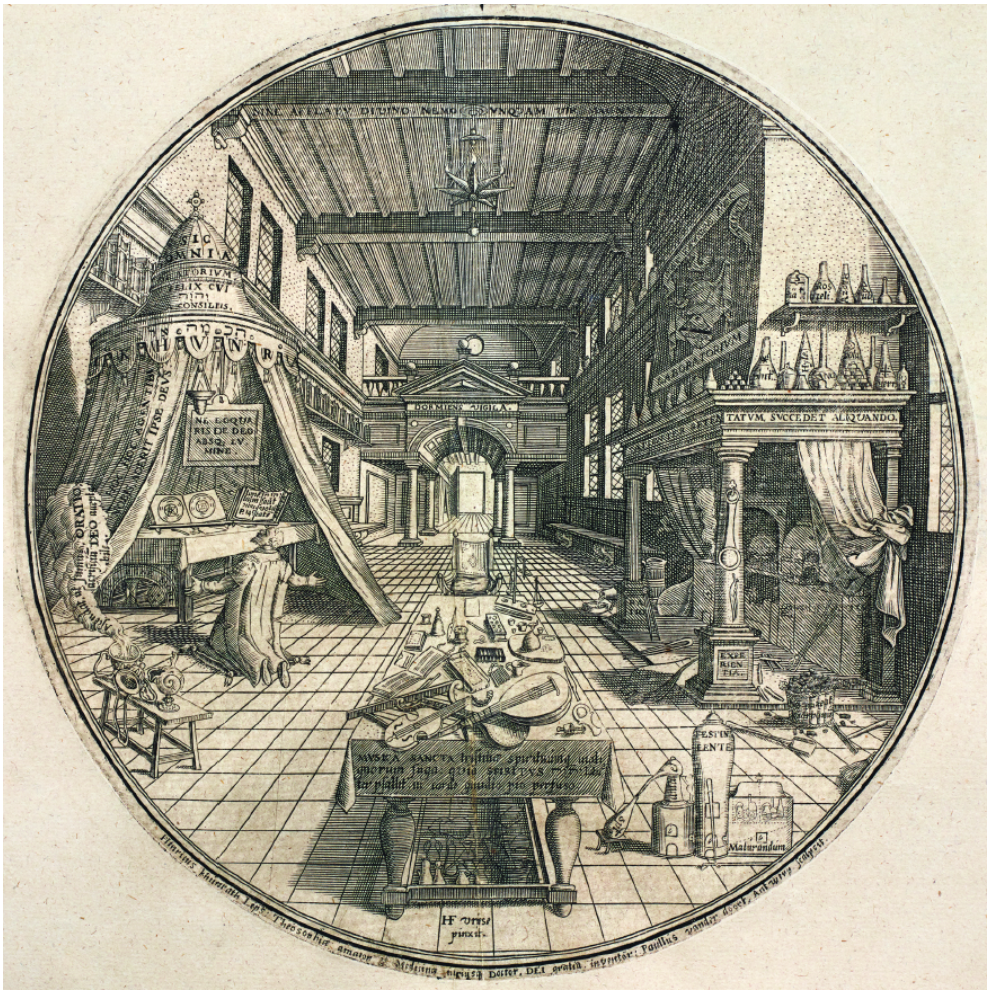

Figure 47.: **Oratory and Laboratory, double plate engraving from Heinrich Khunrath, Amphitheatrum Sapientiae Aeternae, Hanau 1609. The Library of the Royal Canonry of Premonstratensians at Strahov, Prague. Photo: Vlado Bohdan, Institute of Art History, Czech Academy of Sciences.**

mess," an example of brilliant painting skills.[39] Indeed, the painting is truly based on a deliberate, extreme tension between enormous clutter and its virtuoso depiction, which is perfectly "by nature." This was appreciated by both the art theory at that time and the alchemists themselves because, according to them, *Ars nostra imitatio*

39. Franist 2004, 6; Franits 1997, 4

Figure 48.: **Cornelis Bega, The Alchemist, c. 1663. Oil on panel, 41,3 x 38,1cm. Getty Museum, Los Angeles. Digital images courtesy of the Getty's Open Content Program**

est naturae.[40] Therefore, we can interpret the virtuoso performance of the painting as a transmutation of the lowest, ordinary "domestic disorder" into the alchemical goal of imitating nature, or "walking in its footsteps." Michael Maier congenially captured this idea in his *Atalanta fugiens* (Oppenheim 1617, 1618) on Emblem XLII, whose epigram begins with the words „Dux Natura tibi, tuque arte pedissequus illi esto lubens".[41] Bega's seemingly simple depiction of a hopeless figure, ruined by alchemy and dressed in once lavish clothing, conceals this essential alchemical idea.

40. For a detailed discussion of this topic, see Newman 2004.
41. See *Furnace and Fugue*, https://furnaceandfugue.org/atalanta-fugiens/emblem42.html

Books in Laboratories in Genre Paintings

The above also applies to assessing another distinctive motif, which we encounter mainly in Wijck's alchemists' depictions. It is an abundance of books, manuscripts, and sheets of notes. In my opinion, it was not only motivated by artistic and aesthetic considerations, but it carried two references, the first of which could be described as obvious and the second as hidden and obvious only to those who had not only superficial knowledge about alchemy. The first and immediately obvious can be well described in the words of Jane Russell Corbett: „It is difficult to respond to the general disorder of these workrooms as anything other than a negative comment."[42] This conclusion is confirmed by comparison with the significance of the disorder in other genre paintings, such as Jan Steen's *The Dissolute Household*, where this mess is accompanied by the much-relaxed behavior of the depicted society it naturally compliments.[43] However, in Wijck's paintings of alchemists, the extreme "mélange" of books, papers, vessels, tools, and scattered materials does not indicate laziness, but rather an interest in the activity, even if it is a search without finding or – as Thomas DaCosta Kaufmann says – the negative effect of excessive curiosity.[44] In a different context, Pieter Bruegel the Elder depicted such obsessive activity in the drawing *Everyman*, which has been preserved in an engraving of Pieter van der Heyden and Hieronymus Cock. A man wandering with a lantern in the chaos of things cannot find himself; the only difference here is that things define his operating space without the presence of books.[45]

But Wijck's picturesque mess might not necessarily have only negative connotations. We also encounter piles of books - while not to this extent - in the images of scholars or saints, where it surely does not refer to confusion in their heads. We also find this motif in Wijck´s depiction of the Vision of Saint Dominic.[46] It could be argued that in similar depictions of saints or scholars the books are depicted without other objects and thus symbolize "pure science" in the sense of scholasticism - the science that is not tainted by manual labor. But for alchemy, it was necessary to verify theoretical knowledge in the laboratory. It follows that the mixture of books and instruments in the depictions of alchemists did not decrease their scholarly level but quite logically illustrated the basic imperative for each "philosophus per ignem."[47] The positive significance of the number of books piled up around the alchemist may be obvious to those familiar with the time's alchemical literature, emphasizing the repeated

42. Corbett 2006, 254
43. See Salomon 2004, Plate 85
44. Kaufmann 1997, 373
45. Silver 2005, 100–102
46. Drago 2019, Plate 6
47. Principe 2014, 61

study of alchemical texts before the beginning of the laboratory work. One important alchemical publication from the 17th century expressed this imperative in words: „Ora, lege, lege, lege, relege, labora et inveniens."[48]

Therefore, it is possible that Wijck and other artists creating similar works were aware of the demands of book study in alchemy. The texts first had to be repeatedly studied, descriptions of laboratory processes theoretically reconstructed, and then practically verified. However, it should be emphasized that there could be mainly recipes and notes in the labs. The alchemist had to bring theoretical knowledge to the laboratory in a sublimed form in his mind, not in a pile of books.[49] The study of alchemical literature was extremely demanding due to its encrypted nature. The authors not only used *Decknamen*, the interpretation of which depended on the context in which they were used but also the method of the "dispersion of knowledge": „At a crucial point of the discussion, the alchemist would break off or change the subject, only to resume it at some seemingly unrelated or distant locus. It was up to the reader to reassemble the pieces of the puzzle and fit them into the ordered whole."[50]

Thus, the researcher had no choice but to read numerous treatises and methodically compare them repeatedly. The aforementioned Michael Maier also used the same method: "I started by comparing the meanings of the words used in different places […]. Although I worked hard on it for several months, I didn't find anything worthwhile. I had the feeling that the same author […] did not agree materially or verbally with other authors or with himself."[51] This process of studying alchemical texts accurately formulated a statement, „liber librum aperit," the book opens another book. It is possible that Wijck also expressed this idea through a plethora of books in his paintings. We find it even more clearly in the depictions of laboratories by David Teniers the Younger who depicted not only books lying on top of each other but literally holding each other open (see fig. 49, bottom right).[52] Although Teniers approached the depiction of alchemists and their laboratories differently from Wijck and did not represent them with such excessive clutter, he was able to express a similar idea with fewer books. However, it should be added that the number of vessels and tools in his paintings resemble a still life rather than real clutter.

48. Mutus liber, in quo tamen tota Philosophia hermetica, figuris hieroglyphicis depingitur[…], Rupellae apud Petrum Savouret MDCLXXVII
49. Cf. Newman 2019, 298, Humphrey's remarks about Newton's laboratory at Trinity College, Cambridge.
50. Newman 1994, 117
51. Maier [1609], Aiijv–[Aiiijr]
52. Teniers even used this motif in the painting Witches Initiation (fig. 49).

Figure 49.: **David Teniers the Younger, Witches Initiation, late 1640s. Oil on panel, 48 x 69.5 cm. Gemäldegalerie der Akademie der bildenden Künste Wien. Inv.-Nr. GG-865**

Conclusion

In this essay, I have tried to show that the theme of the alchemist in the laboratory in genre painting can be interpreted from different points of view. While these images reproduce the appearance of individual apparatuses like ovens and vessels accurately, they serve to create a 'reality effect'[53] rather than to depict a real laboratory. These paintings are dominated by artistic strategies typical of genre painting and undoubtedly take into account the audience's interests, who appreciated these paintings and decorated their homes with them. Nevertheless, I do not think that they would tell us to a greater extent what image bourgeois society at that time formed about alchemy, even though they definitely influenced it. This social class of merchants had a very pragmatic sense of reality, and therefore they knew well to distinguish reality from skillfully and precisely created illusion. These images satisfied the need to look beyond the veil of everyday life, see what was hidden, and give access to the

53. Franits 2004, 121

Figure 50.: **David Teniers the Younger, The Alchemist, c. 1643–1645. Oil on panel, 50,7 x 71,2 cm. Herzog Anton Ulrich-Museum Braunschweig Museums, Inv.-Nr. GG 140. Photo: B. P. Keiser**

imagination over what was more or less secret. Forbidden fruit attracts the most. It was a play of emotions, which could be manifested both by laughter over the explicitly satirical scenes typical of the work of Jan Steen and Adriaen van Ostade as well as by the delightful pleasure of looking behind the mirror, which could be achieved by Wijck's and Teniers's paintings of alchemical laboratories. The premise that I proposed at the beginning of this study, is confirmed: the topic of laboratory equipment in genre painting is a means of creating a picturesque work of art. Nevertheless, this creative process was much more complicated and not so straightforward. The alchemical tradition was exploited for inspiration and, at least in some examples, preserved in a strongly transformed and not entirely obvious form. As I have tried to show on the motif of "mess" and the excess of books, in some cases, the depiction of alchemical themes by the method of "negation of negation" leads to results that speak unexpectedly authentically about alchemy. This direction of interpreting the alchemist's motif can be utilized for the further interpretation of alchemy in genre painting.

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Bibliography

[1] Abraham, Lyndy. 1998. *A Dictionary of Alchemical Imagery*. Cambridge.

[2] Alpers, Svetlana. 1983. *The Art of Describing: Dutch Art in the Seventeenth Century*. Chicago: The University of Chicago Press.

[3] Borggrefe, Heiner, Vera Lüpkes, Paul Huvenne and Ben van Beneden. 2002. *Hans Vredeman de Vries und die Renaissance im Norden*. München: Hirmer.

[4] Brant, Sebastian. 1494. *Das Narrenschiff*. Basel: Johann Bergmann von Olpe.

[5] Brinkman, Abraham and A. M. A.1975. *Chemie in der Kunst*. Amsterdam: Rodopi.

[6] Brown, Christopher. 1999. *Scenes of Everyday Life: Dutch Genre Paintings from the Mauritshuis*. Oxford: Ashmolean Museum.

[7] Calvet, Antoine. 2018. *L´alchimie au Moyen Âge, XII^{e}–XV^{e} siècles*. Paris: Librairie Philosophique J. Vrin.

[8] Chastel, André. 1981. "Pétrarque et son illustrateur devant la peinture." In *Etudes d'art médiéval offertes à Louis Grodecki*, edited by Sumner Mc K. Crosby and André Chastel, 343–352. Paris: Ophrys.

[9] Clericuzio, Antonio. 1998. "Alchemie, neuzeitliche". In *Alchemie. Lexikon einer hermetischen Wissenschaft*, edited by Claus Priesner and Karin Figala, 29–36. München: C. H. Beck.

[10] Coogan, Robert. 1971. "Petrarch's Latin Prose and the English Renaissance." *Studies in Philology* 68, No. 3: 270–291.

[11] Corbett, Jane Russell. 2005. "Convention and Change in Seventeenth-Century Depictions of Alchemists." *Art & Alchemy*, edited by Jacob Wamberg, 221–247. Copenhagen: Museum Tusculanum Press.

[12] Crisciani, Chiara, and Michela Pereira. 2016. "'Aurora consurgens': Un dossier aperto." In *L´Alchimia nel medioevo*, edited by Chiara Crisciani and Michela Pereira, 307–411. Florence: Sismel Edizioni del Galluzzo.

[13] Davidson, Jane P. 1980. *David Teniers the Younger*. London: Thames & Hudson.

[14] Davidson, Jane P. 1987. "I am the Poison Dripping Dragon": Iguanas and their Symbolism in the Alchemical and Occult Paintings of David Teniers the Younger. *Ambix* 34 (2): 62–80.

[15] DeWitt, Lloyd and Lawrence Principe. 2005. "Alchemy and its Images in the Eddleman and Fisher Collections at the Chemical Heritage Foundation." In *Art & Alchemy*, edited by Jacob Wamberg, 221–247. Copenhagen: Museum Tusculanum Press.

[16] Dostálová, Magda. 2015. "Život a práce alchymisty v obrazech." *Teorie vědy* XXXVII, 1: 51–76.

[17] Drago, Elisabeth Berry. 2019. *Painted Alchemists. Early Modern Artistry and Experiment in the Work of Thomas Wijck*. Amsterdam: Amsterdam University Press.

[18] Dupré, Sven. 2014. "Artists and the Philosophers´ Stone." In *Goldenes Wissen. Die Alchemie. Substanzen, Synthesen, Symbolik*, edited by Petra Feuerstein-Herz und Stefan Laube, 87–97. Herzog August Bibliothek Wolfenbüttel.

[19] Figala, Karin. 1998. "Alchemiekritik". In *Alchemie. Lexikon einer hermetischen Wissenschaft*, edited by Claus Priesner and Karin Figala, 36–39. München: C. H. Beck.

[20] Forshaw, Peter J. 2006. "Alchemy in the Amphitheatre. Some Considerations of the Alchemical Content of the Engravings in Heinrich Khunraths Amphitheatre of Eternal Wisdom (1609)." In *Art & Alchemy*, edited by Jacob Wamberg, 195–220. Copenhagen: Museum Tusculanum Press.

[21] Forshaw, Peter J. 2011. "Behold, the dreamer cometh: Hyperphysical Magic and Deific Visions in an Early Theosophical Lab-Oratory." In *Conversation with Angels. Essays Towards a History of Spiritual Communication, 1100–1700*, edited by Joad Raymond, 175–200. London: Palgrave Macmillan.

[22] Franits, Wayne ed. 1997. *Looking at Seventeenth-Century Dutch Art: Realism Reconsidered*. Cambridge: Cambridge University Press.

[23] Franits, Wayne. 2004. *Dutch Seventeenth-Century Genre Painting: Its Stylistic and Thematic Evolution*. New Haven, CT: Yale University Press.

[24] Furnace and Fugue. 2020. *A Digital Edition of Michael Maier's Atalanta fugiens (1618) with Scholarly Commentary*, edited by Tara Nummedal and Donna Bilak. https://furnaceandfugue.org/

[25] Gabriele, Mino. 1997. *Alchimia e Iconologia.* München: Forum.

[26] Ganzenmüller, Wilhelm. 1938. *Die Alchemie im Mittelalter*. Paderborn: Bonifacius-Druckerei.

[27] Hartlaub, Gustav Friedrich. 1959. *Der Stein der Weisen. Wesen und Bildwelt der Alchemie*. München: Prestel Verlag.

[28] Hartlaub, Gustav Friedrich. 1991. *Kunst und Magie. Gesammelte Aufsätze*. München: Luchterhand Literaturverlag.

[29] Helmut Gebelein. 1991. *Alchemie. Die Magie des Stofflichen*. München: Diederichs.

[30] Hill, Christopher R. 1975. "The Iconography of the Laboratory." *Ambix* 22: 102–110.

[31] Holmyard, Eric J. 1968. *Alchemy*. London: Penguin Books.

[32] Impey, Oliver, and Arthur MacGregor, eds. 2001. *The Origins of Museums. The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe*. Looe: House of Stratus.

[33] Jensen, William B. 2017. *The Alchemist in Art: A Few Misidentifications and Misinterpretations. Department of Chemistry, University of Cincinnati*. http://www.che.uc.edu/jensen/w.%20b.%20jensen/Reprints/The%20Alchemist%20in%20Art.pdf

[34] Karpenko, Vladimír. 1998. "Alchemy as *donum dei*." *Hyle* 4, no. 1: 63–80. http://www.hyle.org/journal/issues/4/hyle4_1.htm

[35] Karpenko, Vladimír. 2015. "Heinrich Khunraths Vom hylealischen Chaos: chemische Aspekte." *Studia Rudolphina* 15: 88–107.

[36] Kaufmann, Thomas DaCosta. 1977. "Kunst und Alchemie." In *Moritz der Gelehrte. Ein Renaissancefürst in Europa*, edited by Heinrich Borggrefe, Vera Lüpkes, and Hans Ottomeyer, 370–377. Eurasburg: Edition Minerva.

[37] Klinge, Margaret und Dietmar Lüdke. 2005. *David Teniers der Jüngere 1610-1690: Alltag und Vergnügen in Flandern.* Heidelberg: Kehrer Verlag.

[38] Klossowski de Rola, Stanislas. 1997. *The Golden Game. Alchemical Engravings of the Seventeenth Century*. London: Thames and Hudson.

[39] Kopp, Hermann. 1971. *Die Alchemie in älterer und neuerer Zeit* [1886], Band I.–II. Hildesheim: Georg Olms.

[40] Kraus, Paul. 1986. *Jâbir ibn Hayyân. Contribution à l'histoire des idées scientifiques dans l'Islam – Jâbir et la science grecque*. Paris: Les Belles Lettres.

[41] Maier, Michael. 1609. *De medicina regia & vere heroica, Coelidonia, (Quae & Phalaia, Aurelia aurea, Lapis sanitatis philosophicus, Sulphur auri, rex Fontinam ingrediens, multisque aliis nominibus dicta innotuit) eiusque modo inventionis, essentia, viribus & usu, tum corporibus humanis feliciter medendis, tum aliis cum fructu experimentandis, Tractatus utilissimus*, [Praga].

[42] Matton, Sylvain. 1995. "L´influence de l´humanisme sur la tradition alchimique." *Micrologus* 3: 279–345.

[43] Muizelaar, Klaske, and Derek Phillips. 2003. *Picturing Men and Women in the Dutch Golden Age: Paintings and People in Historical Perspective*. Yale University Press.

[44] Müller-Jahncke, Wolf-Dietrich. 1998. "Paracelsus". In *Alchemie. Lexikon einer hermetischen Wissenschaft*, edited by Claus Priesner and Karin Figala, 267–270. München: C. H. Beck.

[45] Newman, William R. 2020. "Painted Alchemists: Early Modern Artistry and Experiment in the Work of Thomas Wijck. Revue Book of Elisabeth Berry Drago." *Ambix* 67 (3): 316–317.

[46] Newman, William R. 1994. *Gehennical Fire. The Lives of Georges Starkey, an American Alchemist in the Scientific Revolution*, Harvard University Press.

[47] Newman, William R. "Alchemical Symbolism and Concealment: The Chemical House of Libavius." In *The Architecture of Science*, edited by Peter Galison and Emily Thompson, 59–78. Cambridge, MA: The MIT Press.

[48] Newman, William R. 2004. *Promethean Ambitions. Alchemy and the Quest to Perfect Nature*. Chicago: The University of Chicago Press.

[49] Norris, John A. 2016. "Mining and Metallogenesis in Bohemia during the Sixteenth Century." In *Alchemy and Rudolf II. Exploring the Secrets of Nature in Central Europe in the 16th and 17th Centuries*, edited by Ivo Purš and Vladimír Karpenko, 657–670. Prague: Artefactum. https://www.academia.edu/32120412/Mining_and_Metallogenesis_in_Bohemia_during_the_Sixteenth_Century

[50] Nummedal, Tara E. 2014. "The Alchemist in his Laboratory." In *Goldenes Wissen. Die Alchemie. Substanzen, Synthesen, Symbolik*, edited by Petra Feuerstein-Herz und Stefan Laube, 121–128. Herzog August Bibliothek Wolfenbüttel.

[51] Nummedal, Tara E. 2007. *Alchemy and Authority in the Holy Roman Empire*. Chicago: The University of Chicago Press.

[52] Obrist, Barbara. 1982. *Les débuts de l'imagerie alchimique VIV^e^– XV^e^ siècles*. Paris: Le Sycomore.

[53] Orenstein, Nadine N. et al. 2001. *Pieter Brueghel the Elder: Drawings and Prints*. New York: Metropolitan Museum of Art.

[54] Priesner, Claus and Karin Figala, eds. 1998. *Alchemie. Lexikon einer hermetischen Wissenschaft*. München: C. H. Beck.

[55] Principe, Lawrence M. 2013. *The Secrets of Alchemy*. Chicago: The University of Chicago Press.

[56] Principe, Lawrence M. 2014. "Spaces of Wonder and Ruin. Alchemical Laboratories in Early Modern Painting." In *Art and Alchemy. The Mystery of Transformation*, edited by Sven Dupré, Dedo von Kerssenbrock-Krosigk and Beat Wismer, 60–70. München: Hirmer.

[57] Principe, Lawrence M. and Lloyd DeWitt. 2002. *Transmutations: Alchemy in Art. Selections from the Eddleman and Fisher Collections at the Chemical Heritage Foundation*. Philadelphia, PA: Chemical Heritage Foundation.

[58] Purš, Ivo. 2017. "Heinrich Khunrath v zrcadle svého Divadla." In *Divadlo věčné Moudrosti a teosofická alchymie Heinricha Khunratha*, edited by Ivo Purš and Martin Žemla, 258–267. Praha: Trigon.

[59] Purš, Ivo. 2015. "Perspective, vision and dream: Notes on the plate Oratory-Laboratory in Heinrich Khunrath´s Amphitheatrum sapientiae aeternae." In *Latin Alchemical Literature of Czech Provenance*, edited by Tomáš Nejeschleba and Jiří Michalík, 50–89. Univerzita Palackého v. Olomouci.

[60] Purš, Ivo, and Vladimír Karpenko. 2023. *The Alchemical Laboratory in Visual and Written Sources.* Prague: Academia (forthcoming).

[61] Raupp, Hans-Joachim. 1984. "Die Illustrationen zu Francesco Petrarca: 'von der Artzney bayder Glueck des guten und widerwertigen' (Augsburg 1532)." *Wallraf-Richartz-Jahrbuch* 45: 59–112.

[62] Read, John. 1936. *Prelude to Chemistry. An Outline of Alchemy, its Literature and Relationship*. London: G. Bell and Sons.

[63] Read, John. 1947. *The Alchemist in Life, Literature, and Art*. Edinburgh: Thomas Nelson and Sons.

[64] Rehn, Dana Kelly-Ann. 2011. *The Image and Identity of the Alchemist in Seventeenth-Century Netherlandish Art*. Diss. MA, University of Adelaide.

[65] Ruska, Julius. 1931. *Turba Philosophorum: Ein Beitrag zur Geschichte der Alchemie.* Berlin: Springer.

[66] Salomon, Nanette. 2004. *Shifting Priorities: Gender and Genre in Seventeenth-Century Dutch Painting*. Palo Alto: Stanford University Press.

[67] Schmidt, Siegrid. "Sebastian Brant's Ship of Fools and its Woodcuts." In *Behaving like Fools: Voice, Gesture, and Laughter in Texts, Manuscripts, and Early Books*, edited by Lucy Perry and Alexander Schwarz, 81–108. Turnhout: Brepol.

[68] Schmidt-Biggemann, Wilhelm. 2014. "Der Text der Bilder. Das ikonologische Programm von Khunraths *Amphitheatrum sapientiae aeternae*." In *Heinrich Khunrath, Amphitheatrum Sapientiae Aeternae – Schauplatz der ewigen allein wahren Weisheit. Clavis Pansophiae* 6, edited by Carlos Gilly, Anja Hallacker, Hanns-Peter Neumann and Wilhelm Schmidt-Biggemann, 41–83. Stuttgart: Frommann-Holzboog.

[69] Schmitt, Lothar. 2010. "Sebastian Brant, Albrecht Dürer und das Narrenschiff." In *Sebastian Brant und die Kommunikationskultur um 1500. Wolfenbütteler Abhandlungen zur Renaissanceforschung* 26, edited by Klaus Bergdolt, 349–412. Wolfenbüttel.

[70] Schütt, Hans-Werner. 2000. *Auf der Suche nach dem Stein der Weisen. Die Geschichte der Alchemie*. München: C. H. Beck.

[71] Silver, Larry. 2006. *Peasant Scenes and Landscapes: The Rise of Pictorial Genres in the Antwerp Art Market*. Philadelphia, PA: University of Pennsylvania Press.

[72] Smith, Pamela H. 2004. *The Body of the Artisan. Art and Experience in the Scientific Revolution*. Chicago: The University of Chicago Press.

[73] Suhling, Lothar. 1986. "'Philosophisches' in der frühneuzeitlichen Berg- und Hüttenkunde: Metallogenese und Transmutation aus der Sicht montanistischen Erfahrungswissens." In *Die Alchemie in der europäischen Kultur- und Wissenschaftsgeschichte,* hrsg. von Christoph Meinel, 293–314. Wiesbaden: Harrassowitz.

[74] Sutton, Peter. 1984. *Masters of Seventeenth-Century Dutch Genre Painting*. Philadelphia, PA: Philadelphia Museum of Art.

[75] Taylor, Frank Sherwood. 1976. *The Alchemists*. Flamingo.

[76] Kaufmann, Thomas DaCosta. 1988. *The School of Prague. Painting at the Court of Rudolf II.* Chicago: The University of Chicago Press.

[77] van Lennep, Jacques. 1965. "L' alchimie et Pierre Bruegel l´ancien." *Bulletin des Musées Royaux des Beaux-Arts de Belgique*, Quatorzième année: 105–126.

[78] van Lennep, Jacques. 1966. "L' Alchimiste – Origine et développement d'un thème de la peinture du dix-septième siècle." *Revue Belge d'Archéologie et d'Histoire de l'Art* XXXV: 149–168.

[79] van Lennep, Jacques. 1985. *L' Alchimie. Contribution à l'histoire de l'art alchimique*. Paris: Dervy Livres.

[80] Völlnagel, Jörg. 2012. *Alchemie. Die Königliche Kunst.* München: Hirmer.