

RESEARCH ARTICLE

# Crucified upon metals and alphabets: alchemical iconography of the sixteenth-century illustrated treatises by Martin Sturtz

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## Abstract

This paper addresses the links between alchemy, mining and religion in the early modern alchemical iconography of the German mining theorist Martin Sturtz. He created a special version of the prayer Vaterunser (Our Father) for miners and metallurgists and used the images from Christian and alchemical iconography to demonstrate the history of the creation of metals and how they grow inside the Earth. In one of his images, the Saviour is crucified against the background of coloured strips or stripes, symbolizing the seven metals inside a sedimentary complex. In another miniature, the blood spilling from his wound gives rise to ore veins in which metals ripen. These and the other iconographical and textual examples from Sturtz's treatises show the attempt to connect the mining process with alchemical theory and Christian religion. This paper will shed light on the origins of this unusual alchemical imagery and its connection with other alchemical and theological works, especially those by Paul Lautensack.

*Speculum metallorum* (Mirror of Metals) and *De humido radicali* (About the Radical Moisture) are not typically included in the list of well-known illustrated alchemical manuscripts of the sixteenth century. There are dozens of famous illuminated treatises created in this century, such as *Splendor solis*, the *Book of Lambspring*, Lacinius's edition of *Pretiosa margarita novella*, the *Coronatio naturae*, the *Rosarium philosophorum* and the Ripley Scrolls. However, Sturtz's neglected works are of great interest to the history of alchemical iconography. This is primarily due to their unique interconnections with religious themes and motifs, which were never replicated in other alchemical books.

Both works were written in German under the authorship of Martin Sturtz (1525–after 1597). Based on the preface for *Speculum metallorum*, we know that Martin Sturtz was born in Geyer near Annaberg-Buchholz in Saxony, studied mining, and attended university, where he obtained a master's degree. He constantly discussed montology, or mountain science (*Montanistik*), with university-educated people, alchemists and miners. Following his studies, Sturtz became a mining foreman in St Georgenthal (today Jiřetín pod Jedlovou).<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Sabine Paehr, 'Kupfer-, Blei- und Silbergewinnung: Mitteleuropäisches Hüttenwesen in der Frühen Neuzeit. Eine vergleichende Darstellung wissenschaftlicher Fachliteratur', dissertation, 2018, p. 82; Ivo Purš and Vladimír Karpenko (eds.), Alchemy and Rudolf II: Exploring the Secrets of Nature in Central Europe in the 16th and 17th Centuries, Prague: Artefactum, 2016, p. 284.

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Sturtz was not by mere coincidence a universal man of montology, a 'foreman, miner, smelter and tester' ('Steiger, Bergmann, Schmelzer und Probierer').<sup>2</sup> His father, Georg Sturtz, was born to a wealthy mine owner in Annaberg-Buchholz.<sup>3</sup> He was an educated man, a physician, who studied at the University of Erfurt, was awarded a degree in Wittenberg, and travelled across the German-speaking lands. In 1525, Georg Sturtz moved to Joachimsthal to work as the city doctor and established the first pharmacy there. Three years later, he helped secure a position for the humanist mineralogist and metallurgist Georgius Agricola in Joachimsthal, a post that became vacant when Sturtz and his family returned to Erfurt in 1528. Agricola later expressed his gratitude to Sturtz for this patronage in various writings.<sup>4</sup> In 1537, Georg even treated Martin Luther's illness. This chain of events demonstrates the material and intellectual status of the family in which Martin Sturtz grew up, continuing his father's endeavour to master both the practical and the theoretical sides of montology.<sup>5</sup>

This paper explores the origins of Sturtz's alchemical iconography, revealing how he actively borrowed motifs from other alchemical works and contemporary mystical and theological writings. To begin, we will examine the text and narrative of his first work, *Speculum metallorum*.

#### The iconography of Speculum metallorum (A Mirror of Metals)

Martin Sturtz's most famous treatise was *Speculum metallorum*, allegedly compiled and partially written with his colleague, Christoph Hofer, who held a senior role at the ironworks and knew first-hand about metals.<sup>6</sup> Sturtz copied a vast amount of the main text and some of the pictures from Ulrich Rülein von Calw's *Bergbüchlein* (The Little Book on Ores) of 1527, one of the first German-language works about mining, as well as from the *Schwazer Bergbuch* (Schwaz Mining Book) of 1554, and supplemented it with his introduction and conclusion, his own version of Vaterunser (the Lord's Prayer) and a series of elaborate illustrations.<sup>7</sup>

There are seven extant manuscripts of the *Speculum metallorum*.<sup>8</sup> The copy generally considered the first manuscript is held in the Stadtarchiv of Calw in Württemberg and dates to shortly before 1575.<sup>9</sup> The second is located in Dresden under the title *Bergbuch* and was copied by Abraham Schnitzer, an acquaintance of Christoph Hofer and a mining master from Württemberg in around 1590.<sup>10</sup> The third is in Brno, the fourth in Gotha and the fifth

<sup>&</sup>lt;sup>2</sup> Purš and Karpenko, op. cit. (1), p. 284.

<sup>&</sup>lt;sup>3</sup> Manuel Bachmann and Thomas Hofmeier, Geheimnisse der Alchemie, Basel: Schwabe, 1999, pp. 127-8.

<sup>&</sup>lt;sup>4</sup> Bachmann and Hofmeier, op. cit. (3), p. 127-8.

<sup>&</sup>lt;sup>5</sup> Rudolf Werner Soukup, *Chemie in Österreich: Von den Anfängen bis zum Ende des 18. Jahrhunderts*, Vienna: Böhlau, 2007, p. 139; Purš and Karpenko, op. cit. (1), p. 286.

<sup>&</sup>lt;sup>6</sup> Paehr, op. cit. (1), p. 96.

<sup>&</sup>lt;sup>7</sup> The Schwazer Bergbuch, like the Speculum metallorum, was only intended for a small group of people. If the Schwazer Bergbuch was created mostly for the court of King Ferdinand I, and well-funded companies connected with his government, Speculum Metallorum was also only accessible to a few people, mining and metallurgical specialists. Paehr, op. cit. (1), p. 151.

<sup>&</sup>lt;sup>8</sup> Paehr, op. cit. (1), p. 133; Franz Kirnbauer, *Speculum metallorum 1575*, Vienna: Leobener Grüne Hefte, 1961; Soukup, op. cit. (5), p. 299.

<sup>&</sup>lt;sup>9</sup> Calw, Stadtarchiv, Ms. M001. Purš and Karpenko, op. cit. (1), p. 274; Paehr, op. cit. (1), p. 133; Joachim Telle, *Alchemie und Poesie: Deutsche Alchemikerdichtungen des 15. bis 17. Jahrhunderts. Untersuchungen und Texte*, 2 vols., Berlin and Boston: Walter de Gruyter, 2013, vol. 2, pp. 549–56, esp. 551.

<sup>&</sup>lt;sup>10</sup> Dresden, SLUB, Ms. B.132. Paehr, op. cit. (1), p. 83. Schnitzer also intended to print the *Speculum metallorum*, but was imprisoned for practising magic, committing alchemical fraud, incurring debts and having illegitimate children. He planned to produce copies of the *Speculum metallorum* in order to pay off his debts. Soukup, op. cit. (5), pp. 297–8. The fact that so many copies were made by Adam Schnitzler can be attributed to his desire to present

in Lindau.<sup>11</sup> The sixth manuscript was created soon after 1604 in Vienna, and the seventh, which also belongs to this period, is located in Stuttgart.<sup>12</sup>

The first part of the *Speculum metallorum* is devoted to geological and mineralogical matters. Although based on von Calw's text, Sturtz expanded it with religious, alchemical and natural-philosophical content. Christoph Hofer compiled the following two parts. The second part is, in fact, an almost untouched copy of the *Schwazer Bergbuch* and is mostly about mining and mining engineering. The third part is based on *Das Schmelzbuch*, a book on smelting, printed around 1550 by the mine owner Hans Stöckl that describes metallurgical processes and contains smelting recipes.<sup>13</sup> Here, the main focus will be on the alchemical and religious theory of the first chapter, its illustrations and Martin Sturtz's text of a Vaterunser for miners.

Martin Sturtz clearly adheres to alchemical theories about the formation of metals, connected with the seven planets from the primary substances sulphur and mercury.<sup>14</sup> Their ratio determines which metal will grow inside the mountains under natural heat and water, from the crudest lead to the finest gold. This idea comes from the widespread alchemical theory of metallogenesis which originated in Arabic alchemy. According to this theory, each metal was a 'seed' of gold: by extracting it from the Earth, a person stopped the natural ripening. The alchemist's task was to quickly transform the 'immature' metal into gold, doing the work that nature/God had been doing for thousands of years in a much-reduced time frame. Sturtz firmly believed that base metals, such as bismuth, could be transmuted into noble ones such as 'fine gold of Uphaz'.<sup>15</sup> With references to Hermes and Paracelsus, from whom he borrowed this theory, Sturtz endlessly cites ancient and medieval alchemists in the other parts of his text, including Aristotle, Jābir ibn Ḥayyān and Albert the Great, as well as Johannes Mathesius.<sup>16</sup>

Johannes Mathesius was a Lutheran reformer widely known for his compilation of Luther's *Tischreden* (Table Talk) of 1566. In his collection of sermons to the miners of Joachimstal known as *Sarepta oder Bergpostill* (1562), however, he also discussed mining and the nature and generation of metals in ore veins. This source was crucial for the alchemical-religious juxtaposition operated by Sturtz since Mathesius used biblical references to metals and mining in general, offering them as an example of God's providence. Mathesius compared subterranean heat, which influenced the growth of metals from the primordial matter (which he calls *Gur*), for example, with an alchemical furnace, seen as 'God's wondrous laboratory and distillation oven'.<sup>17</sup> Elsewhere, he emphasized that the beautiful colours and shapes of metals in ore veins are the wonders of God, who engendered them through his *semina*.<sup>18</sup> Mathesius not only criticized Agricola's opinion that metals and ore veins were not contemporaneous with the Creation but tried to both theologically and scientifically prove the rightness of the sulphur–mercury theory with examples from the

himself as a professional to clients, as he lacked a strong reputation as a skilled mining expert. By producing these copies, he aimed to bolster his credibility and attract business. Paehr, op. cit. (1), p. 135.

<sup>&</sup>lt;sup>11</sup> Brno, Moravský zemský archiv, Fond G 10, Nr. 365; Gotha, FB, Ms. A 1023. See Helmut Wilsdorf, 'Die Handschrift des Abraham Schnitzer in Gotha: Ein fünftes Exemplar vom Speculum Metallorum', *Veröffentlichungen des Österreichischen Museum für Volkskunde* (1976) 16, pp. 217–22; Lindau, ERB, Ms. P I 59.

<sup>&</sup>lt;sup>12</sup> Vienna, ÖNB, Cod. 11134. Soukup, op. cit. (5), p. 138; Stuttgart, WLB, Cod. jur. fol. 27.

<sup>&</sup>lt;sup>13</sup> Paehr, op. cit. (1), p. 135.

<sup>&</sup>lt;sup>14</sup> Paehr, op. cit. (1), p. 205.

<sup>&</sup>lt;sup>15</sup> Soukup, op. cit. (5), p. 141.

<sup>&</sup>lt;sup>16</sup> Paehr, op. cit. (1), p. 134.

<sup>&</sup>lt;sup>17</sup> John A. Norris, 'Auß Quecksilber und Schwefel Rein: Johann Mathesius (1504–65) and Sulfur-Mercurius in the Silver Mines of Joachimstal', *Osiris* (2014), 29, pp. 35–48, 44.

<sup>&</sup>lt;sup>18</sup> John A. Norris, 'The providence of mineral generation in the sermons of Johann Mathesius (1504–1565)', *Geological Society, London, Special Publications* (2009) 310, pp. 37–40, 38–9.

experience of miners.<sup>19</sup> For Sturtz, Paracelsus's theory of the three principles of salt, mercury and sulphur, supported by Mathesius's theological reasoning, was extended to metals and everything created by God on Earth, including humans.<sup>20</sup>

Mathesius also compared the Resurrection to the origin and decay of metals, likened the growth of metals in veins to the words of St Paul concerning the refinement of the human soul by means of spiritual love, and claimed that Moses and Job discussed that it was God who caused metals to form and grow.<sup>21</sup> These comparisons were clearly the basis for Sturtz's theory and, more specifically, for his illustrations.

The Trinity is depicted on the second page, near a unique version of the Vaterunser prayer for miners and smelters. Folk versions of this prayer, also with references to professional realities, were common at that time in the German-speaking lands, especially among soldiers or farmers.<sup>22</sup> The words of the standard Vaterunser prayer are written vertically, and a new sentence is placed next to each word. The words *Himmel* ('sky') and *Erde* ('earth') of the original Vaterunser were essential to Sturtz since they were also two of the four elements, the ground of rationalization for the presence of 'alchemical' words in praying, and a starting point for giving alchemical meaning to the liturgical text.

This prayer starts with the recitation of four elements:

Earth and sky, water and air, I always strive for an ore vein.<sup>23</sup>

And ends with a comparison between ore veins and humanity:

The Earth is the creature of God, So I am also the creation of the Lord.<sup>24</sup>

A manuscript in Bamberg contains two previously unaccounted works by Sturtz, discovered by Joachim Telle: the *Liber Raphaelis archangeli* (Book of Archangel Raphael) (1595) that was edited by him, and a short alchemical poem.<sup>25</sup> The latter transmits ideas very similar to the ones conveyed in the Vaterunser. In this poem, the work of God and nature are compared ('God and nature do nothing in vain', a Christianized quotation from Aristotle's *De caelo*), and divine grace is the 'engine' of nature and alchemical *prima materia*.<sup>26</sup>

Then only the divine grace

<sup>&</sup>lt;sup>19</sup> Norris, op. cit. (17), p. 48.

<sup>&</sup>lt;sup>20</sup> 'Aus Quecksilber, Schwefel und Sal, / Erfüllt die Welt, all Berg und Tal, / Durchdringet all Kreatur der Erd, / Bis alles endlich zeitig wird'. Soukup, op. cit. (5), p. 138; Telle, op. cit. (9), p. 554.

<sup>&</sup>lt;sup>21</sup> Ana Maria Alfonso-Goldfarb and Marcia H.M. Ferraz, 'Gur, Ghur, Guhr or Bur? The quest for a metalliferous prime matter in early modern times', *BJHS* (2013) 46(1), pp. 23–37, 25; Norris, op. cit. (18), p. 39.

<sup>&</sup>lt;sup>22</sup> Franz Kirnbauer, 'Ein "Vaterunser für die Berg- und Hüttenleute", Österreichische Zeitschrift für Volkskunde (1958) 61, pp. 36-7, 36.

<sup>&</sup>lt;sup>23</sup> All translations in this article are my own, unless otherwise specified. Original text: 'Himmel unnd Erden / Wasser / Lufft / Also bin Ich verborgner Clufft / auch auff den beinen khommen rein'. Similar poetry is found in the *Bergkreye* (mining song) printed in 1530, exemplifying the connection between heaven and earth as a source of ores: 'Then I turn my heart and eyes alone to God / Who shows me Handsteine / native white silver ore / From whence my help will come / from God the lord / Who to make us pious, created heaven and earth'. Pamela H. Smith, 'The codification of vernacular theories of metallic generation in sixteenth-century European mining and metalworking', in Matteo Valleriani (ed.), *The Structures of Practical Knowledge*, Cham: Springer, 2017, pp. 371–92, 382.

<sup>&</sup>lt;sup>24</sup> Erden ist wohl ein Creatur / dann Ich bin auch ein solchie Figur.

<sup>&</sup>lt;sup>25</sup> Bamberg, Ms. nat. 7, Bl. 65v. See Telle, op. cit. (9), pp. 549–56.

<sup>&</sup>lt;sup>26</sup> 'Gott vndt Natur schafft nichts vmbsonst.'

Through creatures of all kinds Flows the nature and the semen Kinship of the paradise Where the metals rest.<sup>27</sup>

The poem then additionally lists salt, marcasite, gold and quartz, which rest in the bowels of the earth ('beuch der erden'). This connection of the divine with the substances hiding subterraneously through the alchemical *prima materia* is central not only in Sturtz's poetry but also in his works' iconography.

This short precis of Sturtz's texts' most distinctive alchemical elements is essential for understanding the unique interplay between alchemy and mining in his iconography. The emergence of such imagery was closely tied to the significance of mining science during the sixteenth century, a period shaped by the rise of mercantilism; a nation's wealth was directly linked to its mining success or failure in this economic framework. The scarcity of resources necessitated the development of innovative technologies, prompting the publication of numerous treatises on mining during this era.<sup>28</sup> With this context in mind, I will focus on the allegorical imagery in Sturtz's *Speculum metallorum*, which professional artists likely illuminated under his supervision.

## Christ crucified upon the seven metals

One of the first allegorical images of the treatise portrays the crucified Christ, representing the philosophers' stone (Figure 1).<sup>29</sup> This figure is inspired by the text of von Calw's Bergbüchlein, which explains the genesis of the ores with events in the firmament. We see the Sun and Moon, or their alchemical counterparts Sol and Luna, alongside the Saviour crucified against a backdrop of coloured ribbons or stripes representing the seven metals. A golden stripe is positioned directly behind the cross, creating the effect of a parallel or overlapping golden cross behind the wooden one. What is new to this image is the motif of vertical stripes overlaying horizontal stripes, which would be repeated in many other images by Sturtz. These stripes (which he termed Riegen) were conceived simultaneously as the image of the macrocosmic tree of metals and as a schematic representation of metallic ores inside veins of sedimentary complexes.<sup>30</sup> They mirror the central image of the cross, as they represent seven additional crosses on the background of the main one. The variety of their colours corresponds to the idea of the divine beauty of metals and follows the standard alchemical concept of hues of the seven metals/planets, also visualized in the Buch der Heiligen Dreifaltigkeit, where almost the same colours were applied to seven crowns of the four Evangelists, Holy Mary and the Trinity. In the Buch der Heiligen Dreifaltigkeit, the red crown represents Mars and iron; the green crown symbolizes Venus and copper; the white crown corresponds to Mercury and quicksilver; the blue crown denotes the Moon and silver; the golden crown signifies the Sun and gold; the black crown represents Saturn and lead; and the grey, green or yellow crown stands for Jupiter and tin.<sup>31</sup> These colours were clearly associated with the hues of the corresponding metals, and a similar palette appears in Sturtz's illustration. However, there are notable differences, such as Sturtz using light

<sup>&</sup>lt;sup>27</sup> 'Dann allein die göttlich genad / Durch aller Creaturen Gradt / Natur vndt Samen sonders fleyss / Verwandschafft aus dem paradeyss / Darin ruhen die Metallenn.'

<sup>&</sup>lt;sup>28</sup> Angela Kießling and Markus Tittes, 'Die Bergbücher des 16. Jahrhunderts: Schwazer Bergbuch, De re metallica ...', *Berichte der Geologischen*, Bundesanstalt (2005) 65, pp.102–4, 102.

<sup>&</sup>lt;sup>29</sup> Vienna, ÖNB, Cod. 11134, fol. 20r. See Tina Asmussen, 'Spirited metals and the oeconomy of resources', *Earth Sciences History* (2020) 39(2), pp. 371–88.

<sup>&</sup>lt;sup>30</sup> Bachmann and Hofmeier, op. cit. (3), p. 130.

<sup>&</sup>lt;sup>31</sup> For example, see Munich, Bayerische Staatsbibliothek, Cgm 598, fol. 23r.



Figure 1. Christ crucified upon the background of the seven metals. Martin Sturtz et al., Speculum metallorum, c.1590. SLUB Dresden/Digitale Sammlungen/Mscr.Dresd.B.132, fol. 22r.

blue for Jupiter and light red for Mercury. This variation may reflect an effort to achieve more lifelike representations of metals in a work dedicated to explaining mountain science, where such details were of particular significance.

This alchemical-metallurgic image is unique, with no known equivalents in alchemical literature before or after its creation. However, the motif of Christ crucified against an allegorical background, integrated into a natural-philosophical framework, does appear in certain theological treatises, suggesting that Sturtz may have drawn inspiration from this iconography. The earliest use of the Crucifixion upon an allegorical, schematical background is found in the manuscripts of *De laudibus sanctae crucis* (In Praise of the Holy Cross) (*c*.810) by Rabanus Maurus (*c*.780–856). The author inherited an antique tradition of arranging poems within figures and constructed a set of verses and figures mutually intersecting by form and meaning.<sup>32</sup> One of the images in the manuscript features the crucified Christ, though no cross is depicted. In this composition, Christ is used as a backdrop for the verses rather than being the primary focal point.

In the thirteenth and fourteenth centuries, a well-known allegory was that of the Tree of Life, or Tree of the Cross, in which Christ was crucified against the backdrop of a symbolic tree. This tree was composed of circles containing images of prophets and apostles, as well as scrolls and circles with biblical inscriptions, which together formed the branches and leaves. This type of image was inspired by Bonaventura (1221–74). In his *Lignum Vitae* (Tree of Life), such diagrams were used as an aid for meditation upon the sufferings of Christ.<sup>33</sup> The diagrammatic metallic stripes of Sturtz's image and schematic Bonaventurian scrolls with texts are designed similarly.

In the late medieval period, the Crucifixion could also be interpreted as an allegory of the fruit of the Tree of the Knowledge of Good and Evil, as seen in the *Salzburg Missal* (1478–89).<sup>34</sup> Elaborated theological allegories were created by the German artist Paul Lautensack (1478–1558), whom Sturtz would mimic (Figure 2). He interpreted Christ as a symbolic diagram and often portrayed him upon the allegorical background or inside the diagrams related to salvation. In one of his images, Christ is crucified on the background of a theological diagram consisting of stripes with twenty-nine letters of the alphabet. Each letter corresponds to twenty-nine references to God in Genesis 1 and one of the biblical nouns invented by Lautensack, which he called 'the spirits of letters'. The images of the four celestial bodies, including the Sun and the Moon, also carry theological meaning borrowed from biblical quotations.<sup>35</sup>

In another miniature, Christ is crucified against the backdrop of a giant bible featuring the seven apocalyptic seals. The book is open to Hebrews 1:2, and the text is legible.<sup>36</sup> In the same manuscript, there is another image of Christ crucified against the background of the giant bible, with each part of his body marked by numbers from one to fifteen. These numbers correspond to Lautensack's concept of the fifteen parts of Christ's body, each linked to biblical quotations, books of Scripture or other elements. Lautensack drew an analogy between Christ's body and the body of the Bible's text, comparing Luther's proposal to remove several books from the Bible – including the Apocalypse – to the dismemberment of the Saviour.<sup>37</sup>

Sturtz may have been familiar with some of the above-mentioned iconographical patterns, especially with those of Lautensack, who was a famous painter. Sturtz's superimposition of the crucified Christ's body onto a diagram of multicoloured metal stripes primarily served to highlight that the Lord created all ore veins and metals. According to alchemical

<sup>&</sup>lt;sup>32</sup> See Christian Heck, 'Raban Maur, Bernard de Clairvauz, Bonaventure: Expression de l'espace et topographie spirituelle dans les images médiévales', in Jeffrey F. Hamburger and Anne-Marie Bouché (eds.), *The Mind's Eye: Art* and *Theological Argument in the Middle Ages*, Princeton: Princeton University Press, 2006, pp. 112–32; Klaus Schreiner, *Gepeinigt, begehrt, vergessen: Symbolik und Sozialbezug des Körpers im späten Mittelalter und in der frühen Neuzeit*, Munich: Fink, 1992, p. 188.

<sup>&</sup>lt;sup>33</sup> See Philip F. Esler, 'Pacino di Bonaguida's tree of life: interpreting the Bible in paint in early fourteenthcentury Italy', *Biblical Reception* (2015) 3, pp. 1–29.

<sup>&</sup>lt;sup>34</sup> Munich, BSB, Hs. Clm 15710, fol. 60v. See Karl-Georg Pfändtner (ed.), Das Salzburger Missale: Bayerische Staatsbibliothek Clm 15708–15712; Abbildungen aller Miniaturen aus der Handschrift, Lucerne: Quaternio, 2011.

<sup>&</sup>lt;sup>35</sup> Erfurt, Die Bibliothek des Evangelischen Ministeriums im Augustinerkloster, Ms. 13. See Berthold Kress, *Divine Diagrams: The Manuscripts and Drawings of Paul Lautensack*, Leiden: Brill, 2014, pp. 147, 159, 572.

<sup>&</sup>lt;sup>36</sup> Bamberg, SB, RB.Msc.166, fol 81v. Kress, op. cit. (35), p. 560. The quotation in the King James Bible translation: 'But in these last days he has spoken to us by his Son, whom he appointed heir of all things, and through whom also he made the universe'.

<sup>&</sup>lt;sup>37</sup> Kress, op. cit. (35), pp. 264–5.



Figure 2. Christ crucified on the background of the giant bible. Paul Lautensack, *Erklärung der Apokalypse*, 1538–53. Bamberg, SB, Ms. RB.Msc. 166, fol 81v.

theory, they constantly matured within the Earth's depths. However, in light of the possible influence of Lautensack, it is important to note that Sturtz sought to depict precisely a theo-alchemical diagram rather than to create an allegory, which was typical of other sixteenth-century alchemical treatises.

## **Blood of Christ irrigates the ore veins**

In the other miniature from the *Speculum metallorum*, the crucifix grows out of the globe, and at its centre are the same seven horizontal and seven vertical stripes representing ore veins (Figure 3).<sup>38</sup> In the lower part of the globe, these come out of the ground, denoting that metals from the centre of the Earth could only be collected in the specific places where they

<sup>&</sup>lt;sup>38</sup> Vienna, ÖNB, Cod. 11134, fol. 40v. See Soukup, op. cit. (5), p. 138; Smith, op. cit. (23), pp. 382-4.



Figure 3. Blood of Christ irrigates the ore veins. Martin Sturtz et al., Speculum metallorum, c.1590. SLUB Dresden/Digitale Sammlungen/Mscr.Dresd.B.132, fol. 73r.

were closer to the surface. At the very centre, marked with the inscription *mitel* (*centrum*), is gold: that means that this metal is hard to extract since it is deeper in the Earth than the others. This composition also mirrors the structure of the Ptolemaic cosmos, where the Sun occupies the central sphere, flanked by Mars, Jupiter and Saturn on one side, and Venus, Mercury and the Moon on the other. In some contemporary sources, such as Konrad von Megenberg's *Buch der Natur* (Book of Nature), heavenly spheres were also represented as seven horizontal, coloured stripes.

The cross is marked with the word 'gold' and is illuminated with a real gold dye that is also used for the golden stripe, the crown, the halo of Christ and the top of the cross.<sup>39</sup> The cross is adorned with a golden crown, another symbol of this metal, which is also present in the *Buch der Heiligen Dreifaltigkeit*.<sup>40</sup> Christ's blood pours out of the wound in his side and gives rise to ore veins in which metals ripen. Christ's blood ends up on the Sun, depicted in eighteen different positions around the circumference of the circle, and it therefore affects the maturation of the ores indirectly, through the Sun's rays, as stated in Arabic alchemical theory.<sup>41</sup> Sturtz himself was critical about the latter detail – he did not believe that the natural maturation process could be observed during the short human life: 'If I were to leave ten pounds of copper sheets exposed to the sun for the rest of my life, it would not yield me a single quint of gold'.<sup>42</sup>

A cross or Christ of cosmic proportions, towering above the Earth, globe or world map is a motif known from cosmological treatises. One of the most famous examples is found in the *Liber floridus* (Book of Flowers), written by the French Benedictine monk Lambert of Saint-Omer (*c.*1090–1120).<sup>43</sup> In the striking image, Christ sits on the heavenly throne above the Earth, and the seven planets revolve around it. In another example, the eleventh-century image from the *Bamberg Gospel Book*, Christ sits upon a complex set of allegorical scenes, positioned within a sphere that represents the Earth.<sup>44</sup> Similar examples could be found in the *mappae mundi* (Macrobian maps occasionally used coloured stripes and letters to delineate climes) and in cosmological or geographical treatises and frescoes, a frequent one being Christ embracing the globe.<sup>45</sup> The Christ-above-Earth motifs that most closely resemble Sturtz's can be found in Paul Lautensack's previously mentioned works; in one such image, the crucified Saviour is depicted surmounting the earth.<sup>46</sup>

The blood of Christ causing the growth of metals is a new theme that developed the old iconographical motif of the blood of Christ, which has a mystical effect on some objects. First, images of this kind appear in medieval mystical books dedicated to meditations on Christ's wounds and the properties of his blood. In these depictions, oversized drops of blood drip from Christ's wounds, creating streams from his side.<sup>47</sup> Christ's body is sometimes shown entirely covered in blood, with it filling the entire space of his figure.<sup>48</sup> In some examples, the blood or images of his bleeding wounds occupy the entire page.<sup>49</sup> In

<sup>46</sup> Berlin, SB, KdZ 862. See Kress, op. cit. (35), p. 509.

<sup>47</sup> Cambridge, UB, Ms. Add. 5944. See Bert Roest, 'A meditative spectacle: Christ's bodily Passion in the Satirica Ystoria', in MacDonald, op. cit. (45), pp. 31–55.

<sup>48</sup> Cologne, Schnütgen Museum, Inv. Nr. M340. See Jeffrey F. Hamburger, Nuns as Artists: The Visual Culture of a Medieval Convent, Berkeley: University of California Press, 1997, p. xxvi; also Wolfenbüttel, HAB, Cod. Guelf. 85 Aug. 2°, fol. 136v. See Sven Limbeck (ed.), Bilder lesen: Deutsche Buchmalerei des 15. Jahrhunderts, Lucerne: Quaternio, 2016, pp. 18–19; Jeffrey F. Hamburger, The Visual and the Visionary: Art and Female Spirituality in Late Medieval Germany, New York: Zone Books, 1998, p. 139.

<sup>49</sup> See a prayerbook with red-coloured pages symbolizing the blood and wounds of Christ, London, BL, Ms. Egerton 1821.

<sup>&</sup>lt;sup>39</sup> At least in three manuscripts I have consulted: copies from Calw, Vienna and Dresden.

<sup>&</sup>lt;sup>40</sup> Munich, Bayerische Staatsbibliothek, Cgm 598, fol. 23r.

<sup>&</sup>lt;sup>41</sup> Lawrence Principe, The Secrets of Alchemy, Chicago: University of Chicago Press, 2013, p. 235.

<sup>&</sup>lt;sup>42</sup> Soukup, op. cit. (5), p. 141: 'wenn ich zehn Pfund Kupferblech die Tage meines Lebens an der Sonne gedeckt stehen ließe, es trüge mir nicht ein Quint Gold'.

<sup>&</sup>lt;sup>43</sup> See Wolfenbüttel, HAB, Cod. Guelf. 1 Gud. lat., fol. 64v (twelfth century); Paris, BNF, Ms. Lat. 8865, fol. 59 (thirteenth century).

<sup>&</sup>lt;sup>44</sup> Bamberg, SB, Msc.Bibl.94, fol. 154v.

<sup>&</sup>lt;sup>45</sup> See David S. Areford, 'The Passion measured: a late-medieval diagram of the body of Christ', in A.A. MacDonald (ed.), *The Broken Body: Passion Devotion in Late-Medieval Culture*, Groningen: Egbert Forsten, 1998, pp. 211–38; Andrei Pilgun, *Вселенная Средневековья: Космос, звезды, планеты и подлунный мир в иллюстрациях из западноевропейских рукописей VIII-XVI веков* (Universe of the Middle Ages: Space, Stars, Planets and the Sublunar World in Illustrations from Western European Manuscripts of the 8th–16th Centuries), Moscow: Gamma, 2011.

other mystical images from the fifteenth century, St Catherine or Agnus dei is shown sucking the blood from Christ's wound.<sup>50</sup> From the fifteenth century onwards, German mystical depictions also portray nuns bathing in the blood of Christ, symbolized as the 'fountain of life' ('der Brun des Lebens').<sup>51</sup> Finally, in some rare German religious images, we see that the blood of Christ sprinkles the body of the praying person like a ray of grace.<sup>52</sup> This iconographical development reflects a shift in mystical iconography, where Christ's blood, once a symbol of his passions, becomes associated with the spiritual transformative process that affects the believer. Based on this iconographic trajectory, Sturtz, who worked in a mystically inclined environment, could have drawn upon these themes to develop his unique alchemical iconography, blending religious symbolism with alchemical transformation.

Returning to the images created by Sturtz, it is important to emphasize that the Crucifixion was seldom used in the alchemical context. Besides the *Buch der Heiligen Dreifaltigkeit*, there are few images of the Crucifixion in sixteenth-century or earlier alchemical books. One of the most 'alchemical' and unusual Crucifixions is found in the sixteenth-century alchemical compilation from Bamberg, also connected with the name of Sturtz.<sup>53</sup> A paper Crucifixion is cut and glued to the page on which two alchemical vessels are drawn in place of the Virgin Mary and John, who usually stand by the crucifix (Figure 4). The fact that the Crucifixion has been cut out and glued separately near the two retorts suggests that this alchemical allegory was intentionally constructed by either the illuminator or the user of the manuscript.<sup>54</sup>

However, while some scenes in Christian and alchemical iconography are similar, Sturtz's unique motif of the Crucifixion at the Earth's centre, and especially the motif of Christ's blood causing the growth of seven metal ores, were unknown in European imagery before the *Speculum metallorum*. Sturtz most likely did not directly copy motifs from any of the mentioned medieval images, but their frequent occurrence in contemporary Christian art strongly influenced him. The principle of 'iconographical stability' and the reliance on the unwavering authority of preceding theologians and alchemists, characteristic of the late Middle Ages, often led authors to redraw established images rather than create new ones, believing that authoritative depictions, like authoritative texts, conveyed ideas more reliably. Since Sturtz's text largely draws from the works of authors he admired, ranging from Hermes to Paracelsus, it would have been unusually bold for him to create an entirely new iconography.

As we have seen, one of the most likely direct influences on Sturtz's imagery could be the work of Paul Lautensack. In Lautensack's images, we find many elements that are also present in Sturtz's – such as lines connecting different parts of the images to illustrate

<sup>&</sup>lt;sup>50</sup> Paris, BNF, Ms. All. 34, fol. 43v; Berlin, Kupferstichkabinett, Ms. 78 A 14, fol. 28r. See Hamburger, *The Visual and the Visionary*, op. cit. (48), pp. 460–2; Berlin, SB, Ms. germ. oct. 541, 30v. This scene is called 'Christus öffnet sein Herz dem als Lamm dargestellten Discipulus' in German tradition. See Gerard Achten, 'Die Kartäuser und die mittelalterlichen Frömmigkeitsbewegungen', in Werner Schäfke (ed.), *Die Kölner Kartause um 1500: Eine Reise in unsere Vergangenheit*, Cologne: Kölnisches Stadtmuseum, 1991, pp. 138–45. The motif of St Catherine sucking the blood from Christ's side wound, in my opinion, may have originated from a misunderstood depiction of the Descent from the Cross, as seen in some versions of the *Speculum humanae salvationis* (Mirror of Human Salvation). For example, see Admont, Benediktinerstift, Cod. 101, fol. 28v.

<sup>&</sup>lt;sup>51</sup> Karlsruhe, BLB, Ms. St. Peter pap. 4, fol. 30v; Augsburg, UB, Ms. Cod. I. 3 8° 2, fol. 261r. See Hamburger, Nuns as Artists, op. cit. (48), pp. 19, 27–8. See also Adolf Spamer, Das kleine Andachtsbild vom XIV. zum XX. Jh., 2 vols., Munich: Bruckmann, 1930, vol. 2, ill. CLXXXII.

<sup>&</sup>lt;sup>52</sup> Berlin, SB, Ms. germ oct. 53, fol. 2v.

<sup>&</sup>lt;sup>53</sup> Bamberg, UB, Ms. Nat. 7, rear cover.

<sup>&</sup>lt;sup>54</sup> Other uses of the scene of the Crucifixion in an alchemical treatise are found in an early seventeenth-century copy (1616) of Paracelsus's *Thesaurinella naturae* (Treasures of Nature). However, the image follows standard iconography, and there are no alchemical supplements other than those found in the accompanying texts. See Copenhagen, KB, Ms. 1765, fol. 135r.



Figure 4. Crucifixion with two alchemical vessels at Christ's sides. Alchemical miscellany, sixteenth century. Bamberg, UB, Ms. Nat. 7, rear cover.

their internal relationships, the Earth as the foundation of the cross and schematic backgrounds for the depiction of the Crucifixion. If these motifs were not directly copied from Lautensack, they likely emerged from the same intellectual milieu of the late sixteenth century, shaped by the theological, mystical and alchemical ideas with which Sturtz was undoubtedly familiar.

## The iconography of De humido radicali (About the Radical Moisture)

Sturtz's second book is called *De humido radicali in Creatione Dei*; the single known manuscript was created in 1597 in Goldkronach and is now held in Basel.<sup>55</sup> As no other copies are known, it is likely that this manuscript was the original created by Sturtz himself. Like *Speculum metallorum*, *De humido radicali* contains twelve illuminations, corresponding to specific places within the treatise.<sup>56</sup> This book continues the author's endeavour to combine the Christian and alchemical paradigms visually.<sup>57</sup>

<sup>&</sup>lt;sup>55</sup> Basel, UB, Ms. K II 8. About the dating see Bachmann and Hofmeier, op. cit. (3), p. 126.

<sup>&</sup>lt;sup>56</sup> Purš and Karpenko, op. cit. (1), p. 286.

<sup>&</sup>lt;sup>57</sup> Purš and Karpenko, op. cit. (1), p. 287.

*De humido radicali* is named after the Galenic principle of prime moisture (*humidum radicale*), which is the water over which the spirit of God hovered before creation (Genesis 1:2), the same as alchemical *Samen* (*semina*) or *prima materia*. Its narrative concerns relationships between mining and natural-philosophical alchemical theory, as well as between alchemy, mining and Christianity. Images precede chapters in which various aspects of the alchemical and mining theory are revealed. At the beginning of this treatise, Sturtz paraphrases Hermes's *Tabula smaragdina* (Emerald Tablet), comparing it with the creation from the Gospel of John.<sup>58</sup> Then he quotes from 'biblical alchemy', as he put it, namely from Moses, Aaron, Job, Eliphaz, Jeremiah and Jesus.<sup>59</sup>

One of the many 'fake' title pages marks the beginning of the first chapter. Sturtz compares the structure of the underworld to a garden (presumably of Heaven), where sedimentary layers represent trees; their veins function as branches; various ores serve as leaves; flower stones (such as chrysanthemum crystals) are the flowers; and metals, minerals and gems are the fruits. The second chapter discusses the world immediately after Creation from a natural-philosophical perspective, extensively citing the Bible and alchemical texts, thereby integrating theo-alchemical elements. The subsequent chapters explore biblical comparisons and provide practical information about mines, veins and their locations both in distant regions and locally. Following this, eleven chapters describe the macrocosmic tree of metals and its relation to mining, the transformation of metals, the connection between the macrocosmic tree and the specific manifestations of metals within mine passages, the identification of ore deposits in the landscape and the properties of each of the seven metals.<sup>60</sup>

Judging by the extensive content of this book, it seems that *De humido radicali* was Sturtz's magnum opus. While in his first work most of the images were copied from other sources with only a few original creations, in *De humido radicali* all of the motifs are his own design and align closely with Sturtz's alchemical and mining concepts. I will now examine the most striking of these images, grouping them by type and attempting to uncover their origins.

### Alphabetic cross and divine numerology

As in the *Speculum metallorum*, in this treatise Sturtz continues to develop the motif of Christ crucified against the background of the seven metals but connects it to new alchemical and Christian themes.

In the image with the twenty-four letters of the Latin alphabet (I/J and U/V here are the same letters) we see the Trinity (Figure 5).<sup>61</sup> But if God the Father with the Holy Spirit rises above the main composition, the crucified Christ is now again at the heart of the diagram. The two circles in which he is inscribed look like parts of a magic seal: the external one contains the letters of the alphabet, twice repeated, while numbers from one to twelve are also written twice on the internal circle. Inside is the crucified Christ alongside the inscription 'God the Lord, All glory to him, The order is how he lets it be', and the word 'the primordial' at the base of the cross, denoting Christ's role in metallogenesis, with the implication that Christ was present at Creation. Below this stands a second circular diagram: a depiction of the four elements. Compared to the upper diagram, this forms a binary relationship between Christ as the creator and the four elements, as well as Earth and Heaven.

<sup>&</sup>lt;sup>58</sup> Bachmann and Hofmeier, op. cit. (3), p. 34.

<sup>&</sup>lt;sup>59</sup> For example, Deuteronomy 8:13; Job 28; Jeremiah 6:27-30. Bachmann and Hofmeier, op. cit. (3), p. 129.

<sup>&</sup>lt;sup>60</sup> Bachmann and Hofmeier, op. cit. (3), pp. 129-32.

<sup>&</sup>lt;sup>61</sup> Basel, UB, Ms. K II 8, fol. 50r. Purš and Karpenko, op. cit. (1), p. 283; Bachmann and Hofmeier, op. cit. (3), pp. 130, 136.



Figure 5. Alphabetic cross. Martin Sturtz, De humido radicali, 1597. Basel, UB, K II 8, fol. 15r.

Arguably, this is the most elaborate image Sturtz ever created, and certainly the most diagrammatical one. Twenty-four numbers correlate with twenty-four letters, representing the fullness of things created by God, and evoking the well-known metaphor of Alpha and Omega from Revelation 22:13. This is also hinted at by the apocalyptic saying below: 'At the beginning, praise be to God, [as] in the end' ('Im Anfang Gelobet sei Gott, im Ende'). The number twenty-four, corresponding to the number of letters in both the Latin and ancient Greek alphabets, is also linked to the twenty-four elders who worship God in Revelation 5:8. Additionally, it aligns with the total number of books in Luther's New Testament when the four Gospels are counted as one, as well as with the twenty-three classical books plus the Apocalypse. This number similarly corresponds to the number of books in the Old Testament, as mentioned in the preface to Luther's Bible. The sum of all letters and all numbers is 72, the number of the Apostles of Christ, as well as the number of God's names in Christian Kabbalah.<sup>62</sup>

<sup>&</sup>lt;sup>62</sup> Martin Goodman (ed.), On the Art of the Kabbalah, Lincoln: University of Nebraska Press, 1993, p. 273.

The importance of the Lord for the work of a metallurgist, miner and alchemist is emphasized by side aphorisms paraphrasing Matthew 7:18: 'A good tree bears good fruit' ('Ein gutes Baum bringet gute Früchte') on the left-hand side and 'A bad tree cannot bear good fruit' ('Ein böser Baum kann nit gute Frücht bringen') on the right. A similar idea is conveyed by the inscriptions flanking the head of God the Father: 'Foothills are on the rise' ('Vorgebirg sind im zunehmen') on the left, 'The lands will come to fruition' ('Die Lender voltragen kommen') in the centre, and 'Submountains are on the wane' ('Nachgebirg im abnehmen') on the right. These phrases are separated by vertical lines that divide the entire image, especially the diagram below. To the right of the Creator, the 'good' side, are aphorisms about good fruits and the full bowels of the Earth, as well as two parts of the alphabets divided into six groups with eight letters each, based on artistic intention, which seems to be purely geometrical. In the 'perfect' centre are God the Father, the Holy Spirit, Christ, the twentyfour numbers surrounding him, the diagram of the four elements and the aphorism about fruits. On the right, the 'bad' side, we have aphorisms about bad fruits, the lack of ores in the mountain and the corresponding twenty-four letters. As the image is also divided into two horizontal halves, we note that the figure of Christ connects the two planes of the universe, the heavenly spheres at the top with the earthly elements at the bottom.

The depiction of Christ crucified against letters and numbers evokes allegories in which the cross is set against words or Scripture, similar to the images found in the works of Rabanus Maurus or Paul Lautensack. The letters here can symbolize the universe's fundamental building blocks, with the Lord as an omnipotent writer, using them to create the world around Him. The words 'Plusquamperfectum' ('More than finished') and 'Wortt' ('Word') refer to the concept of the world as a book created by elemental letters, as well as to Christ as the Logos – the surpassingly perfect Word. This may imply that Christ/the philosophers' stone is so abundantly overflowing with perfection that its virtues flow outwards into creation/project onto lesser metals and perfect them. In this context, the words 'Fortitudo' ('Strength') and 'Bedenklich' ('Dauntingly') highlight the incomprehensible power of the Creator, potentially echoing the alchemical phrase espoused in the *Tabula smaragdina*: 'Its force is above all force' ('Haec est totius fortitudinis fortitudo fortis').

According to the hypothesis of Manuel Bachmann and Thomas Hofmeier, when writing his book Sturtz probably had to hand Lacinius's edition of *Pretiosa margarita novella* (The Precious New Pearl), originally written in 1339 by the Italian alchemist Petrus Bonus (active between 1330 and 1339).<sup>63</sup> The cosmological diagram with seven trees depicted as sticks bound together and denoting seven metals is indeed close to the previously seen images by Sturtz with seven horizontal stripes placed on seven vertical ones. At the start of his work, Lacinius provides a tabular list of basic alchemical terms, each linked to a specific letter of the alphabet. A stands for Chaos, B for Matter, C for Form, D for Heaven, E for elements, F for Alteration, G for Mixing, H for Dissolution, I for Generation and so forth, with subsequent letters corresponding to alchemical operations or the seven metals. This concept, echoed in Sturtz's alphabetic cross, highlights a potential borrowing from Lacinius. However, while this aligns with Sturtz's broader trend of visualizing alchemical ideas, it does not account for the biblical symbolism unique to Sturtz, which is absent in Lacinius's work.

The visual separation technique observed in Sturtz's earlier work reappears in his depiction of the legend of Daniel, now intertwined with sacred numerology.<sup>64</sup> In the image, Daniel is shown seated in a praying pose on a tree, holding a pickaxe over his shoulder. However, instead of the tree's base revealing hidden treasure, there is a circle inscribed with the numbers one to twelve, repeated twice, and a large cross formed by seven horizontal and

<sup>&</sup>lt;sup>63</sup> Bachmann and Hofmeier, op. cit. (3), pp. 131, 225.

<sup>&</sup>lt;sup>64</sup> Basel, UB, Ms. K II 8, fol. 58v. Bachmann and Hofmeier, op. cit. (3), pp. 130–1, 137.

seven vertical stripes, representing the seven metals. Below the tree, six intertwined serpents, resembling the bundles of metal stripes above, evoke motifs from the *Buch der Heiligen Dreifaltigkeit* and other treatises, where such serpents symbolize the *prima materia*.<sup>65</sup>

These serpents rest on a background of twelve stripes, some marked with signatures or symbols for various mined materials, including *Kies* (gravel), *Wismet* (bismuth), *Bleischweiss* (lead glance), *Talck* (talc), *Glantz* (possibly acanthite) and the three Paracelsian principles depicted as pictograms. This composition highlights the mystical relationship between the metals – including those beyond the seven classical ones – their material properties, divine numerology and the heavenly forces believed to have originally generated them.

#### **Sturtz and Lautensack**

In his second and final treatise, *De humido radicali*, Sturtz continued his exploration of theological–alchemical imagery, developing a style that integrated elements borrowed from others, notably Paul Lautensack, alongside his own innovations. Sturtz's adoption of Lautensack's iconographic motifs, such as circular diagrams, numerological symbolism and Christological imagery, demonstrates the influence of theological diagrams on his alchemical thought. Examples of Lautensack's circular diagrams include images of Christ crucified against alphabetic and numeric backgrounds; the Woman of the Apocalypse within a segmented circle, divided into twenty-four sections, associated with numbers and letters of different alphabets; and apocalyptic Christ inside a twenty-four-part circle, with each part marked by a number from one to twenty-four.<sup>66</sup>

There is also a depiction of Jesus crucified against the background of a six-pointed star, positioned within a diagram divided into thirty segments, each associated with numbers one to thirty and corresponding letters.<sup>67</sup> In a similar representation, the Saviour is shown crucified within a circle divided into twenty-four numbered sections, supported by God the Father, accompanied by the Lamb of God and the Apocalyptic Book with its seals.<sup>68</sup> Lautensack also features an image that is iconographically closest to Sturtz's work: the crucified Christ encircled by Roman numerals one to twelve, as well as two additional circles, one containing four numbers and the other four planets (Figure 6).<sup>69</sup> These motifs inspired Sturtz's incorporation of numerology, sacred geometry and alchemical symbolism in his work, particularly in his depiction of Christ surrounded by numbers, letters and planetary associations.

There is another compelling alchemical connection linking Sturtz to Lautensack. At Heidelberg University Library, I uncovered an alchemical and medical miscellany that Sturtz himself may have created. This manuscript includes Paracelsus's printed works bound together with a handwritten copy of Sturtz's *Liber Raphaelis Archangeli*, produced around 1594–1600 in south-western Germany near Lake Constance.<sup>70</sup> An illustration in this treatise features Sturtz's depiction of Christ crucified, positioned over indistinct stripes representing metals and encircled by two sets of numbers from one to twelve. The body of Christ is linked to the twelve months of the year, the twelve winds represented as the heads of young men blowing, the twelve cardinal directions, twelve types of gemstone (such as topaz and emerald) and the twelve zodiac signs. While this is a simplified version of

<sup>&</sup>lt;sup>65</sup> See, for example, Berlin, SB, Ms 78 A 11, fol. 122v.

<sup>&</sup>lt;sup>66</sup> Bamberg, SB, Ms. RB.Msc.166 (hereafter B1), fol. 36r; London, UL, The Warburg Institute Library, Ms. FHH 198 (hereafter L1), fol. 28v; L1, fol. 2r; Nuremberg, GNM, Ms. 3147, fol. 38r.

<sup>&</sup>lt;sup>67</sup> B1, fol. 65v; L1, fol. 46r.

<sup>&</sup>lt;sup>68</sup> B1, fol. 109v.

<sup>&</sup>lt;sup>69</sup> Bamberg, SB, Ms. RB.Msc.167, fol. 159r; Copenhagen, KB, Ms. Thott 40, 2°, fol. 121r; L1, fol. 40v (here the content inside the circle is not finished), 108r. See Kress, op. cit. (35), pp. 556–7.

<sup>&</sup>lt;sup>70</sup> Heidelberg, UB, Cod. Sal. VIII, 96, Vol. 1, fol. 3v.

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Figure 6. Christ inside three circles, one of them with numbers 1 to 12. Paul Lautensack, Apocalipsis Jhesu Christi, after 1587. Bamberg, SB, Ms. RB.Msc. 167, fol. 159r.

a previous image (Figure 6), it incorporates even more connections between the body of Christ and cosmological, elemental and mystical concepts, further reflecting Lautensack's iconographic influence (Figure 7).

The most compelling justification for the connection between Sturtz and Lautensack lies in the fact that Lautensack's works were studied by alchemists such as Oswald Croll (1560–1609), who created intricate visual alchemical allegories, and Johann Huser of Glogau (c.1545–1600), the editor of Paracelsus's writings. The latter is particularly noteworthy, as a 1596 letter from Huser to the alchemist Franz Kretschmeir, Bergmeister of Goldkronach – the city where *De humido radicali* was composed and where Martin Sturtz resided – suggests that Huser was familiar with Lautensack's works and possessed several of his manuscripts.<sup>71</sup> I also found at least one manuscript of Lautensack's work in the important chemical collection of Vossius, where his treatise is placed among other alchemical texts.<sup>72</sup>

As it is evident that alchemists engaged with Lautensack's imagery, it becomes clear that some of Lautensack's diagrams could have been reinterpreted through an alchemical lens. In one of his diagrammatical images, we see the head of Christ placed between the Moon and the Sun, also flanked by the words 'Gott' and 'Wort' – with these potentially being interpreted by alchemists, such as Sturtz, as an alchemical symbol of Sol and Luna despite its being originally a depiction of the eclipse at Christ's death. Perhaps exactly this image inspired Sturtz to use the inscription 'Wortt'.<sup>73</sup>

Moreover, in the books of Lautensack, we can find hints of alchemy. In the manuscript of Lautensack's *Erklärung der Apokalypse* (Explanation of the Apocalypse), now held in

<sup>&</sup>lt;sup>71</sup> Kress, op. cit. (35), pp. 267–70.

<sup>&</sup>lt;sup>72</sup> Leiden UL, VCF 44.

<sup>&</sup>lt;sup>73</sup> L1, fol. 82v.



Figure 7. Christ inside seven circles, one of them with the numbers 1 to 12. Martin Sturtz, *Liber Raphaelis archangeli*, c. 1594–1600. Heidelberg, UB, Cod. Sal.VIII,96,Vol. 1, fol. 3v.

Bamberg, after the word 'FINIS' at the very end of the first treatise we find an alchemical diagram with the symbol of salt, sulphur and mercury upon the depiction of the Apocalyptic Book.<sup>74</sup> On the book's seven seals are symbols representing the seven metals. Sulphur is linked to the Sun and God, with the letter  $\alpha$  positioned within its triangle. Mercury is associated with the Star of Bethlehem, while Salt is connected to the Moon and the 'Word', with the letter  $\omega$  placed within its square.<sup>75</sup> This image and accompanying text were likely added by a different hand, suggesting that it may have been an interpolation by an alchemically inclined reader, owner or copyist. The text reads,

It is impossible to open the seven seals of the Sealed Book, which is Christ Jesus, unless the Lamb himself does it. Just as impossible as it is to open the closed book that is closed with its seven seals, as recorded here, unless you do it yourself [symbols of Sulphur, Salt, Mercury].<sup>76</sup>

We have seen not only that the works of Sturtz and Lautensack are connected thematically and iconographically, but also that Lautensack was known and studied by alchemists close to Sturtz. His works were likely circulated and discussed within the same circles to which Sturtz had access, contributing to a shared visual and conceptual vocabulary that bridged the realms of alchemy, theology and visual culture. Given Sturtz's interest in discussion with various mining specialists and alchemists in the places where he lived, it is highly likely that

<sup>&</sup>lt;sup>74</sup> Salt is denoted with the symbol of potash or tartar, possibly to make these pictograms look like three crosses.
<sup>75</sup> B1, fol. 104v.

<sup>&</sup>lt;sup>76</sup> 'So unmöglich es ist, der sieben Siegel eins zuerst öffnen an dem verschlossenen Buch welches ist Chriftus Jesus, es sei dann das es das Lamb selbst thue. Eben so unmöglich es auch ist, das verschlossene Buch das nah mit seiner sieben Siegeln, wie hier verzeichnet, zuveröffnen, es sei dann das es thue sie nah selbst'.

he could have drawn inspiration from the ideas transmitted by Lautensack or even directly from the copies of treatises, available in the area of Goldkronach and actively debated in the alchemical circles, among Paracelsians and miners in the 1590s.

In conclusion, Sturtz's innovative approach to visualizing alchemical concepts, particularly through connecting the body of Christ with the numbers, letters and metals, stands without parallel in alchemical iconography. While he drew from a wide range of alchemical, mining and Christian sources, it is clear that Paul Lautensack's work deeply influenced his visual methods and the synthesis of these motifs. Sturtz's unique contribution to alchemical imagery can thus be understood as a distinctive interpretation of Lautensack's theologicalalchemical diagrams, which he adapted and transformed to create original motifs that resonate with both alchemical and theological symbolism.

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