



HAL
open science

Spagyria, Scheidung, and Spagürlein: The Meanings of Analysis for Paracelsus

Didier Kahn, William R Newman

► **To cite this version:**

Didier Kahn, William R Newman. Spagyria, Scheidung, and Spagürlein: The Meanings of Analysis for Paracelsus. *Traditions of Analysis and Synthesis*, 73, Springer Nature Switzerland, pp.41-57, 2025, Archimedes, 10.1007/978-3-031-76398-4_3. hal-04855380

HAL Id: hal-04855380

<https://cnrs.hal.science/hal-04855380v1>

Submitted on 7 Jan 2025

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

Chapter 3

Spagyria, Scheidung, and Spagürlein: The Meanings of Analysis for Paracelsus



Didier Kahn and William R. Newman

Abstract Paracelsus is often lauded for having created a new disciplinary identity for alchemy by basing it on the twin operations of analysis and synthesis. Indeed, his neologism for the field, *Spagyria*, is often said to express this pairing by embodying the Greek terms for decomposing and compounding (σπάω and ἀγείρειν). The present article disputes both this etymological claim and the underlying belief that Paracelsus had an interest in synthesis that paralleled his very strong promotion of analysis (*Scheidung*). As the authors argue, there is good reason to think that Paracelsus actually modeled the word *Spagyria* on the early modern Swiss coin that went by the name *Spagürlein*, *Spagürli*, or *Spagürle*. This derivation was appropriate for a discipline based on *Scheidung*, since the coin was the product of numerous metallurgical processes involving separation. The claim that *Spagyria* was a fusion of σπάω and ἀγείρειν was actually a product of Paracelsus's followers, not of the Swiss chymist himself.

Keywords Alchemy · Paracelsus · *Spagyria* · *Scheidung* · Decomposing and compounding

Capita nunc aliquot doctrinae in quibus cum medicis aliis non convenit, paucissimis ordine referam, ac rogo tuam Celsitudinem in primis, omnesque deinde lectores, ut velitis haec in iudicando examinare per summos philosophos, hoc est, qui naturae imitatione callent corpora componere et resolvere Spagyrica arte in prima sua principia, quorum tria invenit verissima, videlicet, sulphur, salem et mercurium sive liquorem, quae non stulta imaginatione aut fallaci oratione narrantur ac animis infirmis obtruduntur contra naturae ordinem, verum usu et experientia oculis subjiciuntur, verisque mentibus demonstrantur compositione

D. Kahn
CNRS, CELLF, UMR 8599, Sorbonne Université, Sorbonne, France
e-mail: dkahn@msh-paris.fr

W. R. Newman (✉)
Department of History and Philosophy of Science and Medicine, Indiana University,
Bloomington, IN, USA
e-mail: wnewman@iu.edu

et resolutione corporum, per ignem: Siquidem omnia corpora ex hisce tribus componuntur, in eademque resolvuntur, nec quicquam praeter haec tria in vilo corpore inveniuntur.

Let me now relate briefly and sequentially some chapters of a doctrine in which he [Paracelsus] does not agree with other physicians, and I ask your Highness especially, and all readers, that in judging these things you wish to have them examined by the greatest philosophers, that is, those who know how to compound and resolve bodies into their first principles by imitation of nature with Spagyric art, namely into sulfur, salt, and mercury or liquor, which are not related by fallacious rhetoric or by foolish imagination and thrust upon weak souls against the order of nature, but rather are brought beneath the eyes by use and experience, and are demonstrated to true intellects by composition and resolution of bodies through fire: Since all bodies are composed of these three and are resolved into them, nor are any things beyond these three found in common body.¹

3.1 A Greek Origin for Spagyria?

In the passage above, the early follower of Paracelsus Adam von Bodenstein advised Cosimo de' Medici to imitate nature by means of the “Spagyric art,” saying that like nature, the spagyrist employed a twofold process of synthesis and analysis. Bodenstein was stating a view that would soon become commonplace. Indeed, an etymology of the Paracelsian neologism *Spagyria* still accepted widely today derives the term by fusing the two Greek words *σπᾶν* and *ἀγείρειν*—to pull apart and to gather together. Thus, in 1844, the noted historian of alchemy and chemistry Hermann Kopp traced the phrase “die spagirische Kunst” back to the origins of alchemy, no doubt due to its Greek etymology, which he quoted.² Twenty-five years later, he confessed to his ignorance as to when the word “Spagiriker” first appeared, quoting Andreas Libavius extensively.³ Seventeen years later, in his *Die Alchemie in älterer und neuerer Zeit* (1886), he admitted the word originated in the sixteenth century.⁴ In the next century, James Riddick Partington, in his massive *A History of Chemistry*, approvingly mentioned the “probable” etymology given by Libavius, and referred to Kopp 1844 and 1869.⁵ Recent scholars have emulated Partington’s

¹Bodenstein’s 1563 dedication letter to Cosimo de Medici of the books on tartar by Paracelsus. See the edition of this dedication letter in Kühlmann and Telle (2001), 307.

²Kopp (1844), 160.

³Kopp (1869), 63–64. On Libavius, see below, n. 13–14. In this book, Kopp wondered how far the words of Carl von Prantl speaking of Plato’s ideas on transformation of matter might be true (Prantl [1856], 138: “Es scheint nachweisbar zu sein (aus Philo Judaeus und Plotin), dass die Bezeichnung ‘Spagiriker’ gerade aus diesen Platonischen Ansichten betreffs des Trennens und Vereinigens (σπᾶν–ἀγείρω) floss”).

⁴Kopp (1886), vol. 1: 4–5 n.

⁵Partington (1961), 134.

cautious but affirmatory statement on the Greek origin of *Spagyria*.⁶ Less specialized authors, or incautious ones, have boldly stated that Paracelsus himself invented the word by relying on the Greek etymology.⁷

In reality, the derivation of *Spagyria* from *σπᾶν* and *ἀγείρειν* found its origin among the first generation of Paracelsian scholars, who were attempting to bring a modicum of order into the chaotic *Nachlass* of their master. The first author that we know of who hypothesized this etymology was the French Paracelsian Jacques Gohory, dedicated as he was to making obvious how deeply Paracelsus was rooted in the humanist tradition of the *prisca philosophia*.⁸ Later in the same work, Gohory, among a series of conjectures on the Greek etymologies of Paracelsian words, suggested for *Spagyri* “παρὰ τὸ σπᾶω *traho* & ἄγυρις *concio*.”⁹ Two years later the German physician Martin Copus, in a book warning the reader against the dangers of antimony, suggested the soon-to-be standard etymology, no doubt normalized from Gohory’s.¹⁰ In 1576 another French Paracelsian, Joseph Du Chesne, claimed that:

the learned named the spagiric art from two Greek words, ἀπὸ τοῦ σπᾶν καὶ ἀγείρειν, because by this art a certain subtle, spiritual nature in which the power and effect of the remedy mainly resides, is extracted, and then brought together and condensed.¹¹

One year later, Theodor Zwinger, at whose home Du Chesne had privately defended his doctoral theses in 1575, called the alchemists:

those who can, through the action of fire, dissolve the heterogeneous bodies and coagulate the homogeneous. [...] Our popular Theophrastus Paracelsus, a man who excelled in this art to the point of being miraculous, called <alchemy> the spagiric art through an appropriate derivation, since it entirely consists ἐν τῷ σπᾶν καὶ ἀγείρειν, in extracting or separating, and compounding or coagulating.¹²

⁶ See e.g. *Principe* (2013), 129; Kahn (2016), 192.

⁷ See e.g. Blaser (1979), 92; Menten (2013), 86b, or even Hauck (2008).

⁸ Gohory (1567), 196; Gohory (1568), 184: “Spagyros enim ubique suo vocabulo ac novo Chymicos intelligit, forte a σπᾶω quod ‘abstrahere’ significat, unde etiam dicuntur abstractores quintarum essentialiarum [an unfortunate allusion to a satirical excerpt against alchemists by Erasmus], & ‘gyro’ propter anfractus quos nunc a poeta audiistis” [allusion to a verse by G. A. Augurelli he quoted just before].

⁹ Gohory (1567), 356; Gohory (1568), 316.

¹⁰ Copus (1569), sig. Cij verso: “Diese *Tinctura* und andere dergleichen *praeparationes*, ist gefunden und wird zugerichtet/durch die Kunst der *separation* und *composition*, der nu oft gedacht/die itzund *corrupto vocabulo Graeco Spagirica* a σπᾶω & ἀγείρω, und auch sunst/*Artificium ἀναλύσεως & συνθέσεως* genandt wird.”

¹¹ Du Chesne (1576a), 162: “eruditi viri ex Graecis duobus verbis sic <Spagiricam artem> nominant, ἀπὸ τοῦ σπᾶν καὶ ἀγείρειν: quod per eam eliciatur, ac tum cogatur comprimaturque subtilis quaedam & spiritualis natura, in qua vis & effectus medicamenti praecipue consistit.” Likewise in Du Chesne’s own French trans.: Du Chesne (1576b), 189: “[...] d’autant que par icelle on tire, & puis on reserre & congele une substance plus subtile et spirituelle [...]”

¹² See the third edition of Zwinger’s *Theatrum Humanae Vitae*, quoted by Gilly (Forthcoming), First part, Ch. VI, 78.

But it was the Saxon schoolmaster Andreas Libavius who exercised the widest influence in spreading the supposed Greek origin of *Spagyria* among subsequent chymists. In his *Commentariorum* of 1606, Libavius repeated the now popular Hellenic etymology in the following words:

The moderns call it *spagiria* (σπαγειρία). Leo Suavius does not know from whence.... But most celebrated is that σύγκρισις καὶ διάκρισις of the old, called “coagulation” [and] “solution” by our artisans [i.e. chymists]. For the latter tear apart the structures of mixed bodies and break them up with their ingenious techniques and apparatus. Penetrating into the inner chambers of composite things, into the bedrooms and sanctuaries of their essences, they congregate and unite the homogeneous, while separating the heterogeneous. That is, in Greek σπᾶν and ἀγείρειν.¹³

What Libavius’s etymology of *Spagyria* lacked in originality it would make up for in influence. His words would have a major impact on the mainstream of seventeenth-century chymistry, being taken up by influential writers such as the Wittenberg medical professor Daniel Sennert and his intellectual heirs.¹⁴

For all the impressiveness of these early modern attempts at framing a Hellenic genealogy for *Spagyria*, there is much more at stake here than mere etymology, for the derivation of *Spagyria* from these Greek terms would imply—if true—that Paracelsus himself saw the basis of his chymical art to lie in a twofold decomposition and synthesis (or resynthesis) of matter. In the present paper we aim to dispute that view and at the same time, to propose an alternative etymology for the puzzling term *Spagyria*. We will argue, in fact, that *Spagyria* does not come from a fusion of two Greek words, or even from Greek at all, but rather from a Swiss coin that Paracelsus himself refers to in one of his many writings on syphilis, namely the *Spagürlein*, also called the *Spagürli* or *Spagürle*.¹⁵

¹³Libavius (1606), 77: “Spagirian (σπαγειρίαν) appellant recentes. Nescit Leo Suavius unde.... Sed celebratissima est illa veterum σύγκρισις καὶ διάκρισις coagulatio, solutio nostris artificibus dicta. Divellunt hi, perfringuntque compages mistorum adminiculis & instrumentis ingeniosis; & in penetralia compositarum rerum, cubaculaque & adyta essentiarum penetrantes, homogenea congregant, uniunt, & ab heterogeneis separant. Id est Graecis σπᾶν καὶ ἀγείρειν [...]”

¹⁴Libavius’s association of σπᾶν and ἀγείρειν with the terms that Democritus used for association and dissociation of atoms, σύγκρισις and διάκρισις, opened the door to an atomistic interpretation of *Spagyria*. For this development, see Newman (2006), chapter 3.

¹⁵See the online Grimm *Wörterbuch sub voce Spagürlein* at <https://woerterbuchnetz.de/?sigle=DWB>, consulted 1/25/23, for Paracelsus’s use of the term in *Drey Bücher von den Franzosen* (1529); ed. Johann Huser in Paracelsus, *Bücher und Schriften* (1589–1591) and *Chirurgische Bücher und Schriften* (1605), available online on the database THEO (www.paracelsus-project.org), referred to as H and H C, here H C:160b.

3.2 The Significance of “Spagyria” and “Scheidung” in Paracelsus’s Work

There is no doubt that Paracelsus built much of his practice, as well as his cosmology, medicine, and philosophy, on the concept of analysis. “Scheidung” is at the basis of his work from the very beginning. One of the earliest occurrences of the word, perhaps even the earliest, appeared when Paracelsus, in *Das Sechste Buch in der Artzney* devoted to tartaric diseases, introduced what he called this “new” method, namely separation, as one that he recently discovered:

As we intend to write about the incurable tartaric diseases, we want to [...] place before our eyes the perfect virgin *Experientia*, who, without any male seed, is a mother of all arts, and we want her to prove our whole writing beyond any doubt, so that her authority enable us to understand the origin of these diseases. [...] Moreover, we revel splendidly in the new discovery of separation, which has been, as far as we know, unknown to the ancients: judging by their writings, they came through the doors of experience as one-eyed people.¹⁶

As convincingly argued by Urs Leo Gantenbein, this treatise must date back at least to 1524: his arguments include among others the mention by Paracelsus of his “young blood,”¹⁷ the explicit display of his highest reverence to the Virgin Mary—here in the clothes of the “virgin *Experientia*”—as in the theological treatises he wrote in Salzburg in 1524, and the mention quoted above of his recent discovery of “Scheidung.”¹⁸ What he means there is not, however, that he only recently became aware of the relevance of alchemy to medicine: he learned alchemical procedures much earlier in his youth, as stated in a famous excerpt from his *Grosse Wundartzney*.¹⁹ His new discovery is, rather, the relevance of alchemical separation, i.e., analysis, to the understanding of the causes of diseases. Indeed, in the first chapter of the treatise he mentions the *tria prima*, i.e. mercury, sulphur and salt—for one of the first times ever in his writings²⁰—as the first principles out of which all things are composed: a conclusion he only could reach through the means of

¹⁶*Das Sechste Buch in der Artzney von den Tartarischen Kranckheiten*, H 4:14–15: “Dieweil unnd wir von den unheilbarlichen Steinkranckheiten schreiben wöllen/wöllen wir [...] vor uns stellen/die aller außbereiteste Jungfraw *Experientiam*, die ohne Männlichen Sahmen eine Mutter ist aller künsten/und wollend des ungezweiffelt sein/eine bewererin alles unsers schreibens: unnd also durch ihr ansehen von ihr entpfahen den ursprung diese Kranckheiten zu erkennen [...] Unnd fürtreffentlich ergetzet uns der newe fund der scheidung/der/als wir noch nit anders wissen tragen/den Alten unbekannt ist gewesen/und nach ihrem schreiben als Einöig antretten sind die thüren diser Experientz.”

¹⁷H 4:14 and 15.

¹⁸Gantenbein (2020), 15–18.

¹⁹H C:101c–102a. See Benzenhöfer (2002), 27–30.

²⁰The *tria prima* are not named as mercury, sulphur and salt in this treatise, but only evoked—clearly enough—as “dreien materialischen dingen”: see below, n. 23. Elsewhere in the treatise (H 4:17) they are named the *Tres Primae*. Their only other early mention, quoted by Gantenbein (2020), 20–25, is found in *De Genealogia Christi*, another of the theological treatises written in Salzburg in 1524.

analysis, as explained by himself in a number of his other writings.²¹ His explanation here goes on to state that the three principles are a raw material, not without feces²² hidden in their very substance: these feces are the cause of the tartaric diseases—at least of the kind which we develop by our very nature, as opposed to the other kind, which we develop through the means of external things such as what we ingest.²³ In other words, “Scheidung” is the means—only recently discovered by Paracelsus—to find out that every natural body is composed of the three principles, a knowledge which, in turn, enables him to understand how the tartaric diseases originate.

In the treatise supposedly following *Das Sechste Buch in der Artzney*, namely *Das Siebendte Buch in der Artzney* devoted to mental diseases, Paracelsus still mentions “the great art of separation,” as if being in awe before its power—an attitude he will not display in later treatises. No powerful remedy, he states, against the sorts of mental illnesses he is discussing can be made without this art, which alone can prepare the wonderful quintessences that will perform this deed.²⁴ Here Paracelsus

²¹ See e.g. *Opus Paramirum*, H 1:74–75: “Das so da brinnt/ist der *Sulphur*, nichts brenndt/allein der *Sulphur*: Das da raucht/ist der *Mercurius*/Nichts Sublimirt sich/allein es sey dan *Mercurius*: Das da in Eschen wirt/ist *Sal*, Nichts wird zu Eschen/allein es sey dan *Sal*. [...] Wiewol das ist/im lebendigen *Corpus* sicht niemands nichts/dann ein Bawren gesicht: Die scheidung aber beweist die Substantzen. So red ich hie nit von der *prima Materia*: Dann ich will hie nit *Philosophiam* tractiren/sondern *Medicinam*. Also wie vom Saltz steht/so wissen vom Rauch/der beweist den *Mercurium*/der sich durch das Fewr auffhebt unnd Sublimirt: Unnd wiewol auch sein *prima materia* hie nit sichtbar ist/so ist doch sichtbar der ersten *Ultima Materia*: Also das der *Mercurius* da ist die ander Substantz des dings. Also was da brennt/vnnd den augen Fewrig erscheint/dasselbig ist der *Sulphur*/der verzeert sich/dann er ist *Volatile*. Nun ist das so da Fewr ist/auch ein Substantz/vnnd ist die dritte/die das *Corpus* gantz macht. [...] Dan was in den Bawren augen nicht liget/dasselbige ligt inn der Kunst/das in die augen gebracht werdt/das ist *Scientia Separationis*.”

²² The term “feces” or “faeces,” which is the plural of the Latin “faex,” has the primary meaning of “grounds, sediment, lees, dregs of liquids (cf. sentina),” as recorded in the Latin-English dictionary of Lewis and Short. See the Brepols *Database of Latin Dictionaries, sub voce*, consulted 1/26/23: <http://clt.brepols.net.proxyiub.uits.uu.edu/dld/pages/QuickSearch.aspx>. The term was often used in this sense in medicine and alchemy, for example during the processes of sublimation and distillation. See the *Oxford English Dictionary, sub voce*, consulted 1/26/23: <https://www-oed-com.proxyiub.uits.uu.edu/view/Entry/67598?redirectedFrom=faeces#eid>

²³ *Das Sechste Buch in der Artzney*, H 4:16: “das geschicht in zwen wege: Der eine ursprung ist in den dingen die uns solche krankheiten zufügen: Der ander ursprung ist in der Natur/die eine solche krankheit formiert [...] Alles das/so ausserhalb unsern Körpern ist/des wir geniessen und gebrauchen/wirdt auß dreien materialischen dingen geformiert und in Eim geendet/als wir *de Generationibus* melden. Solche drey ding werden in der Natur also grob/daß sie nimmer ohn *feces* nit wachsen/und haben alle mal eine wildniß in inen/die ihnen in ihrer Substantz verborgen ligen/ auß deren die Tartarischen krankheiten entspringen.”

²⁴ *Das Siebende Buch in der Artzney De Morbis Amentium*, H 4:91: “Wollen wir uns fürsetzen ein Praeservatiff/das den Menschen behüt vor der Ersten Privatz der Sinnen *Caduci*, und deßgleichen von der *Mania*, und also auch vor der *Chorea*, und also auch vor der Suffocation/und also auch vor der Privatz *Sensuum*. So ist ein semlichs ohne grosse kunst der Separation nit zu machen/sondern allein durch die *Quintas Essentias* soll und muß ein solchs zuwegen gebracht werden/die do durch wunderbarliche krafft/diesen Privatzen allen fürkommen. Dann es bedarff nit einer kleinen krafft unnd tugent/wider solch groß und ubertreffenliche krankheit vor zu bewaren und zu behüeten.”

obviously alludes to his *Archidoxis*, a treatise certainly begun at roughly the same time as *Das Sechste Buch in der Artzney* but most probably continued, or perhaps completed, later.²⁵

These two early mentions of the art of separation were followed by countless others throughout the years, either with the names “Scheidung,” “*separatio*,” “*spagyria*” or the like. The use of the word “*spagyria*” and its derivatives reached a peak in the Basel period in such works as *De Gradibus*, *De Vita Longa*, or the surgical works, and spread nearly everywhere in the other writings of Paracelsus. In the *Opus Paramirum* he even used the phrase “*scientia separationis*,” and elsewhere, “*ars spagyrica*.” Separation was sometimes the means by which the stomach-chemist separated the good from the feces within the human body.²⁶ Elsewhere it was the tool used by the physician to separate a disease from the vital force,²⁷ or to segregate the poison of a natural product from its healing virtue.²⁸ The notion of separation had a number of possible applications.

Nothing of this says much, however, about the context in which Paracelsus came to praise separation beyond every other chymical procedure. A closer look at his writings hints at two different contexts, one religious, the other empirical. The former draws on Genesis: Creation is the model that the physician must emulate. As God separated the light from darkness, so the physician must learn to recognize the darkness in all created things that prevents them from becoming remedies.²⁹ As God created separation (“Scheidung”) to separate everything contained within the great world from evil and death, so the physician must use it in the small world—i.e. the human body.³⁰ In cosmological writings, “Scheidung” is the means by which the

²⁵ Kahn (2024). *Das Siebendte Buch* contains a huge number of references to remedies described in the *Archidoxis*, whereas *Das Sechste Buch* only has very few references to them.

²⁶ A prominent feature in the early *Volumen Medicinae Paramirum* (“De Ente Veneni”), among others. See e.g. H 1:24–25, 30, 31.

²⁷ See below, n. 33.

²⁸ E.g. in *Volumen Medicinae Paramirum*, H 1:27; *Drey Bücher der Wundartzney Bertheoneae*, H C:361c.

²⁹ *Von Ursprung, Herkommen und Anfang der Frantzosen Acht Bücher* (H C:217b): “Von anbegin/ das ist/von anfang der Welt/ist dz. Exempel der Artzney gesetzt worden/nach welchem wir Artzt uns richten sollend. [...] Erstlich in Beschaffung der Welt/ist Tag und Nacht ein ding gewesen/das war ein Dunckele/und zu nichten gut. Damit aber das es in nutz keme/ward das Liecht vom Finstern gescheiden/unnd also ward das Liecht der Tag/und die Nacht der Mond/und sein Gestirn. Das ist uns ein Exempel/das wir ein jegliche gewachsene Artzney/ein solche Dunckele zu sein sollen erkennen/unnd das mag nit widerredt werden.”

³⁰ *Ibid.*, 217b–c: “Dann der geschaffen hat die Scheidung/und die Scheidung gemacht/der hat scheiden das jhenig/das die grosse Welt erhelt/vor ubel und tödtligkeit. [...] Auff solches wissend/ so nuhn die Scheidung bey dem Artzt sein soll/das er zu gleicherweiß/ein Werck macht in der kleinen Welt zu schemen/Als Gott an der Sonnen gemacht hat. Und wie die Krafft der Sonnen und des Mons sind/also ist auch die Krafft seiner gescheidener Artzney/ein theil Sonn/ein theil dem Mongleich.” See also e.g. *Von den natürlichen Bädern*, H 7:297.

Creator separated all natural products from the prime matter—to put it simply. Separation is the straightforward path in the process of *creatio ex nihilo*.³¹

The empirical context, on the other hand, is primarily that of mining and refining: for example, as gold separates (“sich scheidt”) from its gangue, so the disease must be separated from life to be eliminated. Nor of course was gold the only metal that Paracelsus saw as undergoing “Scheidung” during its extraction. Building on an elaborate comparison in which he argues that subterranean mineral and metal veins form giant underground “trees,” Paracelsus argues that iron, silver, and other metals undergo a separation from their earthly impurities during their refining in the same way that a chestnut can be removed from the parts of its shell and membrane:

There are various trees that give their fruit not simply, but mixed, just as a chestnut and the like, which has externally a rough shell, after that another, then a membrane over the kernel. So there are also metals and genera of minerals that also exist in the form of such meats and skins, such as iron ore, silver ore, and other ores from which one must separate [*scheiden*] them, upon which one then finds the fruit within, which has been separated [*gescheidet*].³²

Moreover, as it may happen that it is up to the artist to follow up a task left unfinished by nature, such as separating the pure from the impure, the metal from the ore, so it is up to the physician to complete what nature has left unfinished in the microcosm [i.e., man].³³ Were it not for separation (“Scheidung”), there would be neither good nor base metals brought to light. Similarly, in the human body there would be neither health nor disease without separation.³⁴

Another “Scheidung”-comparison occurs twice, that of the distillation of wine. In a fragment from a book on mucilaginous substances within the body, Paracelsus states that such a substance is also found in wine as well as a residue from distillation of brandy and is called *Isop*.³⁵ Then, in his treatise *Von den Natürlichen Dingen*,

³¹ See e.g. *Philosophia de Generationibus et Fructibus Quatuor Elementorum*, H 8:64, 66, 130 ff. See also Weeks and Kahn (2024), 32–33, and the relevant passages in this English translation of the *Philosophia de Generationibus et Fructibus* and other such texts.

³² *Liber de Mineralibus*, H 8:340: “Es sind ettlich Beum/die geben ihr Frucht/und aber nit bloß/sonder gemengt. Als ein Kesten/und ihrs gleichen/hatt am eussersten ein rauhe Schelffen/dornach ein andere/demnach ein Heuttli über den Kern. Also sind auch Metallen/und *genera Mineralium*, die auch in solchen *Carnibus* und *Cutibus* ligend: Als Eisenertz/Silberertz/vnd ander Ertz/darumb mans muß darvon scheiden/so find man darnach die Frucht in demselbigem/so es gescheiden wirt.”

³³ *Von den Blatern, Lähme, Beulen, Löcheren unnd Zittrachten der Frantzosen*, H C:269a: “Weiter auch wie sich in *Mineralibus Aquarum* begibt/dz. sich das Gold von Ertz scheidt/also scheidt sich auch der *Morbus* vom Leben. [...] Und wie sich auch begibt/das der *Artifex* das/so der Natur ist uberbliben/vollenden soll/als das scheiden des Reinen vom unreinen/des Metallen vom Ertz: Also stehet neben im gleich der Artzt/das er solches/das der Natur in *Microcosmo* uberbleibt/vollende.” This comparison is developed further on the following page (269b).

³⁴ *Drey Bücher der Wundartzney Bertheoneae*, H C:359b: “Wann wo die Scheidung nicht were/so würden weder gut noch böß Metallen an tag kommen: Also auch im Leib/so die Scheidung nicht were/weder Gesundheit noch Kranckheit begegnete. Dieweil aber alle ding in die Scheidung geordnet seind/so ist der erste grund/das die scheidung soll erkennt werden bey einem Artzt.” See also *ibid.*, 362a.

³⁵ Paracelsus means viscous wine dregs. See *Ex Libro de Mucilagine* (H 5:216): “Also de *Pleuresi, Podagra* unnd *Arthetica* zu Judicieren. Item/also auch ist ein *Mucilago* im Wein: Aber sein *Mucilago* der ist viel/wirdt *Isop* genannt/der bleibt vom Brannten Wein/etc.”

he explains that he who is either a physician or an alchemist must not use raw sulphur without a preparation: its *arcanum* must be separated from its “filth” until it becomes as white as snow. *Ysopus* belongs there, he adds, “that is, the art of separation, which has been called *Ysopaica* for ages in alchemy and every work of separation.”³⁶

From this partial selection, one can see the enormous significance that Paracelsus ascribed to “Scheidung” from his earliest years up to his maturity and beyond. Most striking is the discrepancy between the importance of “Scheidung”, or analysis, to Paracelsus, and his relative lack of interest in synthesis. It is generally assumed that *spagyria* is the name used by Paracelsus for alchemy. However, the definitions of *spagyria* in Paracelsus are unequivocal: it is always defined as the art of separating the pure from the impure, excluding any mention of synthesis.³⁷ Even when Paracelsus spoke of “divine alchemy” (“Göttliche Alchimisterey”), it was only with reference to the separation of day from night, hot from cold, etc. in the creation of the world³⁸—in other words separation, not synthesis.

Synthesis, however, does occur in a few instances in the works of Paracelsus. In *Von den ersten dreyen Essentiis* he began the treatise explaining, as he did in several other works, that every natural body produced by its own element, i.e. by one of the four elements, is composed of the three principles, salt, sulphur and mercury. But then he went on, explaining the process: from the three principles a conjunction occurs, yielding a body with a united essence. Unfortunately he did not pursue this line of argument, and explained instead which qualities each of the *tria prima* was endowed with, before turning to medicine.³⁹ Perfectly aware as he was that his

³⁶ *Von den Natürlichen Dingen* (H 7:164–65): “Der ein Artzt ist oder ein Alchimist/der soll den Sulphur nit brauchen/wie er an ihm selbst ist: Sondern Separirt in sein Arcanum, vom Unflat sauber gewaschen und geschieden/dz. er werde baß gewaschen/unnd werde in seiner Tugendt weisser dann der Schnee. Darzu gehört *Ysopus*, das ist/die Kunst *Separandi*, die dann von alter her *Ysopaica* heist/in der Alchimey und aller Sequestration. Roh aber ist [er] zu dem gemeinen Mann/ zu dem gemeinen Handel ein trefflich ding.” Whether *Isop/Ysopus/Ysopaica* were derived from the plant hyssop (and why), or from any other source, is unknown.

³⁷ See e.g. *Quatuordecim Libri Paragaphorum* (H 3:360): “und solchs confortieren muß geschehen per spagyricos gradus, das purum ab impuro zogen werde.” *Eilff Tractat: Vom Stul Lauff* (H 4:179): “gleich einem Spagirischen der die ding alle subtil aufftreibt/und scheidt/reinigt/unnd in viel weg/jetzt in dem weg/darnach in ein andern weg/so lang biß gefunden wirdt das jenig das er begert.” *Scholia in libros de Gradibus* (H 7:363): “Spagyrus dicitur, qui singulas corporum substantias, purum corpus ab impuro, separare novit, habetque rerum experientiam.” Ibid. (H 7:366–67): “Ubi namque desinit natura, Spagyricus incipit. Cum purum ab impuro separatur, feces quae remanent, nihil omnino valent. Primo igitur fiat separatio puri corporis ab impuro, estque tunc in secundo gradu, scilicet operativae virtutis. Deinde sublimatio separat corpus illud puratum a puriori per digestionem, scilicet, so du last digeriren/& supernatantia semper depono, quousque desunt: estque reliquum in tertio gradu: postea distilla in Sole, eritque in quarto gradu.”

³⁸ *De Meteoris* (H 8:214). See Weeks and Kahn (2024), 32–33.

³⁹ *Von den ersten dreyen Essentiis* (H 3:15): “Ein jetlichs gewechs/daß sein Element producirt/wirt in drey ding gesetzt/dz. ist/in *Sal, Sulphur* unnd *Mercurium*: Auß den dreyen wirt ein Conjunction/ die gibt ein corpus und ein vereinigt wesen. Was hie dz. *corpus* antrifft/wirt nicht gemelt/allein das inner des *corporis*.”

theory of the three principles necessarily involved their synthesis, he paid the latter very little attention.

Only in one other work, *De Renovazione et Restauratione*, did Paracelsus mention synthesis. Renovation and restoration of metals, he wrote, can be attained by reducing the metal to its three constituent principles, the *tria prima*. Then the “matter of the *tria prima*” may become the same metal again. On the contrary, human beings cannot be reduced to their prime matter—the *tria prima* or the human seed –, for this matter is beyond our grasp. Furthermore, it is not in our power to bring a human being up to a new birth and even create an immortal creature.⁴⁰

These two occurrences are to be contrasted to the massive number of occurrences of separation and its synonyms in the works of Paracelsus. Thus, *spagyria* cannot be considered as a plain synonym for alchemy in the usual sense of the word: it lacks an essential component, namely synthesis, which is an integral part of traditional alchemical sources. To cite but one example, the late medieval *Theorica et practica* ascribed to the Franciscan alchemist Paul of Taranto explicitly states that alchemists can fabricate the known metals by conjoining the proper quantities of their principles, mercury and sulfur, as long as those principles also have the appropriate degree of volatility, the correct color, and the right purity. Paul even goes so far as to use the analysis of metals by fire and corrosives, followed by their resynthesis, to disprove the influential Thomistic theory that “perfect mixts” like the metals cannot be analyzed into their ingredients. This early example of the *reductio in pristinum statum*, a type of demonstration that would acquire great fame in the writings of Daniel Sennert and Robert Boyle, was a gift of alchemy, but not of Paracelsus.⁴¹ Thus, the original model for “Scheidung” was not necessarily alchemy per se, if by that term one means the transmutation of metals, for the creation of a new metal, whether by direct combination of sulfur and mercury or by conversion of one metallic species into another, implied a type of synthesis. Hence transmutative alchemy typically included synthesis and, most of all, did not emphasize separation above all other operations.

⁴⁰*De Renovazione et Restauratione* (H 6:101): “mag derselbig wol wider zu seinen dreyen Ersten kommen/daß sein Saltz/sein Schwefel/und sein *Mercurius* widerumb erscheinen/als in seiner ersten Geberung/und des Metallen Wesen gantz vergeht/unnd kein Metall mehr ist. Darnach mag auch wol beschehen/daß die *Materia trium Primarum* zu einem Metall wider wirt/als vor: Als auß daß Kupffers Ersten dreyen/widerumb ein Kupffer. Das ist auch wol *Restauratio* und *Renovatio* in den Metallen: dann er ist newgeboren/auß eim gemachten Metallen und perficirten. Aber diß ist kein *Restauratio* noch *Renovatio* hie/zu rechnen gegen dem Menschlichen: Dann auß ursachen/dz. wir nit mögen gebracht werden in die drey Ersten/oder in unser *sperma*, auß dem wir wider möchten Renovirt unnd Restaurirt werden/wie wir jetzt haben angezeigt von den Metallen: denn es wer darnach in unserm gewalt/das wir uns möchten besseren in der andern Geberung/dann die Erst gewesen were [...] Also wir auch auß uns möchten ein untödtliche Creatur Schöpfen/des wir nit Macht haben: unnd also einer solchen *prima materia* sind wir beraubt/unnd in ein unwiderbringliche gewandelt/die nit mag zuruck gezogen werden/sondern muß fürfaren/wie sie angefangen hat/und nicht gedencken dem wider zu zukommen/davon es außgangen ist.”

⁴¹Newman (2006), 40–44.

To summarize the points that we have been making, Paracelsus's longstanding fascination with "Scheidung" or analysis, coupled with his relative lack of interest in synthesis, provides considerable reason to doubt that *Spagyria*, the synonym of "Scheidung", stemmed from a fusion of the Greek *σπᾶν* and *ἀγείρειν*. Aside from the fact that neologisms based on Greek words are rare in his works and awkwardly made up,⁴² why would Paracelsus have built synthesis into the word (in the form of *ἀγείρειν*) only to ignore practically all discussion of synthesis in his corpus? From what source then did Paracelsus derive the term *Spagyria*?

3.3 Spagyria, Spagürlein, and Saigerprozess

As we stated earlier in this paper, an alternative possibility is that Paracelsus built the odd word *Spagyria* on the name of a contemporary Swiss coin, the *Spagürlein* (also called *Spagürli* or *Spagürle*). The word appears once in the edited work of Paracelsus, where he uses it to disparage learned physicians, whose fancy Greek terms are not worth "a *Spagürlein* more than [those of] the *Wallseer* who live in the high mountains and think no otherwise than that their language is that of the whole world".⁴³ As the vitriolic passage implies, the *Spagürlein* was a coin of low value. According to the Grimms' *Wörterbuch*, its value was set at three Lucerne *pfennige* in 1477.⁴⁴ Other sources, and indeed surviving specimens, reveal that the coin was made of silver, albeit not of the purest sort.⁴⁵ Initially stemming from mints in Northern Italy, the *Spagürlein* also began to be coined in the Swiss cantons in the first decade of the sixteenth century.⁴⁶ It was a widely dispersed coin in early modern Switzerland, as the quotation from Paracelsus suggests (Fig. 3.1).

⁴² See e.g. *yliaster/filiastes, idechtrum, taphneus...* In his *Theophrasti Paracelsi [...] Compendium* Gohory tried to divine Greek etymologies in such Paracelsian neologisms from *De vita longa* as *necrolii, scaiola, aniadus, adech*, and, less obscurely, *ilech*. Only his etymology of *spagyria* was found convincing by contemporary Paracelsians.

⁴³ Paracelsus, *Drey Bücher von den Frantzosen*, in Paracelsus (1605), 160b: "Nun so etliche Bücher der Artzney auff dem Kriechischen angefangen haben/vermeinen sie/dieweil die Sprach die Bücher regier/so regier sie auch die Krancken. Also lernen sie die Griechischen Bücher lesen/unnd so sie dieselbigen außlernen/so können sie nichts/unnd werden also *Doctores*/die heissen nicht Artzt/sonder Kriechen. Kein Artzt soll sich beschirmen mit der Sprach/allein mit Practick. Nit mit einem Spagürlin ist Kriechen mehr begabet/dann die Walseer in den Hohen Bürgen/die doch auch nit anders meynen/jr Sprach sey die gantz Welt." As suggested by Urs Leo Gantenbein, whom we warmly thank, "Bürgen" is nothing more than an idiosyncratic way of writing "Bergen". Walser German is a dialect spoken by inhabitants of the Alps and other regions, known as the Walser people.

⁴⁴ See the online Grimm *Wörterbuch sub voce Spagürlein* at <https://woerterbuchnetz.de/?sigle=DWB>, consulted 1/25/23.

⁴⁵ See *Coin Archives* at www.coinarchives.com/w/openlink.php?l=5865420%7C6702%7C2309%7C8452851c0d7a6c67b919976e1716612f, consulted 6/2/24.

⁴⁶ Kunzmann and Luraschi (2000–2002).



Fig. 3.1 Obverse and reverse of a sixteenth-century *Spagürlein* from Lucerne. (Courtesy of Leu Numismatik)

But why then would Paracelsus have given his beloved pursuit of “Scheidung” a name derived from a low-grade silver coin? As we have already seen, one of the principal occupations that Paracelsus linked to “Scheidung” was the set of metallurgical operations required to separate commercially useful metals from their ores and to refine them once they had been smelted.⁴⁷ Coin manufacture in turn required metals of standard composition, which could only be acquired by means of refining. The mining and refining of silver had undergone a major innovation in the century or so before the birth of Paracelsus with the discovery of the *Saigerhüttenprozess* or *Saigerprozess*, a method of refining silver from copper ores that had previously been unprofitable for that purpose.⁴⁸ The *Saigerprozess* consisted of two principal operations, both of which followed the initial reduction of impure copper (often containing less than 2% silver) from its ore. The processes involved liquation of the reduced, impure copper after it had been enriched with lead in order to separate out a lead-silver mixture, followed by “drying” or oxidation of the exhausted metallic “cake” to remove residual lead in the form of molten litharge containing most of the remaining silver. The combined lead-silver that the liquation provided would then be cupelled in order to separate the silver in relatively pure form. As for the silver-rich litharge yielded by the “drying” process, it could be smelted to yield argentiferous lead, which could in turn be cupelled as well. This rather complicated but effective refining process helped set the stage for a boom in European mining during the fifteenth and sixteenth centuries. It was an example of contemporary high-tech that yielded immediate economic consequences.

At the same time, the *Saigerprozess* was also a striking example of mineral analysis, involving sequential stages of “Scheidung”. First there was the smelting of the

⁴⁷This point has also been made by Urs Leo Gantenbein, though without reference to the Swiss *Spagürlein* coin. See Gantenbein (2000).

⁴⁸Most of the information found here on the *Saigerprozess* stems from L’Heritier and Tereygeol (2010).

copper ore, which involved roasting and then reduction of the metal. The nature of these operations as a “Scheidung” potentially involving the three Paracelsian principles would have been evident both from the sulfurous fumes given off during the roasting and from the slag that was left behind as a residue. Second, the liquation of the lead-copper-silver cake during the *Saigerprozess* itself had as its goal the separation of the lead-silver from the copper, hence a second “Scheidung.” The “drying” process was also an example of *Scheidekunst*, since it resulted in the flow of molten, silver-rich litharge, from the metallic cake left behind by the liquation. Finally, the cupellation itself provided yet another stage of “Scheidung”, since the lead and the porous walls of the bone-ash cupel provided a final separation of the silver from the lead.

One can see then that the sixteenth-century metallurgy of extracting silver provided a spectacular platform for observing entire sequences of “Scheidung.” Even if such small change as the *Spagürlein* did not undergo the full panoply of refining processes available in the sixteenth century, and may even have been made of low-quality billon that had undergone surface enrichment, some of these sophisticated operations would have gone into its production.⁴⁹ But what did Paracelsus actually know of such practical metallurgy at firsthand? Here our knowledge is unfortunately vague, as indeed it is for most of Paracelsus’s life. We know, for instance, that he moved with his father from the Swiss village of his birth, Einsiedeln, to the southern Austrian town of Villach when he was about 9 years old, in 1502. Villach had been a center for lead mining since the late Middle Ages, thanks to the immense *Bleiberg* located there, which was mined until 1993. But we have no idea how long Paracelsus remained in Villach before he took up a life of wandering at some point in the 1510s. His experience of Villach may well have been restricted to his childhood and early teenage years. Our first piece of relatively solid knowledge about Paracelsus’s association with the mining industry stems from a famous passage in his *Grosse Wundartzney* of 1536. Here Paracelsus lists five famous churchmen whom he claims to have been teachers of his *von kintheit auf*, and from whom he claims to have learned *adepta philosophia*. At the end of this list, however, Paracelsus adds another teacher of quite different character, namely “the noble and steadfast Sigmund Füger of Schwaz, together with a number of his laborants.”⁵⁰

Since the 1880s it has been known that this Sigmund Füger was actually Sigmund Fieger of Schwaz, a member of the lesser Austrian nobility who controlled a famous silver mining industry in Carinthia.⁵¹ Referred to in its day as “the mother of all mines” (“Aller Bergwerke Mutter”), Schwaz was perhaps the most famous center of

⁴⁹Dr. Christian Weiss, Kurator Numismatik & Siegel at the Schweizerisches Nationalmuseum, kindly informs us that the *Spagürlein* was often made of debased alloy (billon), which then underwent a process of surface enrichment called *Weißsieden*, which worked by removing copper and other base metals from the surface of the coin flan by means of cooking in weak acids, such as found in a solution of tartar. Once the coin was put into circulation, the thin layer of purer silver would eventually wear off, revealing a more coppery color beneath.

⁵⁰*Das Ander Buch der grossen Wundartzney* (H C:102a): “der Edel und Vest Sigmund Füger von Schwatz mit sampt einer anzal seiner gehaltenen laboranten.” See Benzenhöfer (2002), 28.

⁵¹Schubert and Sudhoff (1889), 86–87.

mining in the Alps. According to one modern source, the primary ore available in Schwaz was a type of *Fahlerz*, a complex sulfide mineral containing numerous metallic elements in addition to copper and silver. The extraction technology employed in Schwaz came to be known as the *Abdarrprozess*, a local variant of the *Saigerprozess*.⁵² Fieger not only directed the mining operation at Schwaz, but also employed the workers to whom Paracelsus refers in a laboratory probably devoted mainly to refining and *Probierkunst*. According to Eduard Schubert and Karl Sudhoff, Paracelsus was active in Schwaz at some point between 1510 and 1520; more recent scholarship has suggested the period 1522/23.⁵³ Unfortunately, we have been unable to uncover any evidence to support either set of dates, though Paracelsus's acknowledgement of Fieger's role in his education suggests that their interaction was early. At any rate, the first occurrences of the relevance of separation to Paracelsus date back, as we have seen, to writings from his Salzburg period (1524–1525). For now we can only say that it is entirely possible that the *Saigerprozess* in its Tyrolian incarnation was an impetus to Paracelsus's subsequent emphasis on *Spagyria* as the art of separation.

3.4 Conclusion

Although we have thrown light on the likely connection between the term *Spagyria* and the technology of metallic extraction and refining, particularly that of silver, obvious questions still remain. Given that Paracelsus's experience with the world of mining and metallurgy probably began either in Villach or Schwaz—both of them principalities in Austria—why would he have chosen the name of a small Swiss coin for his innovation? Many possibilities exist, given the incompleteness of our data on the life of Paracelsus. Yet one thing is clear: despite having abandoned Einsiedeln at an early age, Paracelsus was proud of being Swiss. As he says in his *Chronik des Landes Kärnten*, Carinthia may have been his “second fatherland,” but Switzerland was the first.⁵⁴ It is entirely possible, though of course far from sure, that the term *Spagyria* may have been a reflection of Paracelsus's self-identification as a Schweizer. Furthermore, its derivation from the name of the Swiss coin may explain that the first occurrence of the word *spagyria*, or more exactly *spag[yrus]*,⁵⁵ recently discovered by Urs Leo Gantenbein, is not in the Basel writings among Paracelsus's other numerous neologisms of this time period as was formerly

⁵² Soukup (2007), 211 and 128, 132–133.

⁵³ Schubert and Sudhoff (1889), 87; Soukup (2007), 209.

⁵⁴ Paracelsus (1928), 4: “das ander mein vaterlant...” See likewise the *Grosse Wundarznei*, H C:56a: “Ich hab hierinn bißher ein Ländtlichen Spruch geführet/das mich keiner Rhetoric, noch Subtiliteten berühren kan/sonder nach der Zungen meiner Geburt/und Landssprachen/der ich bin von Einsidlen/des Lands ein Schweitzer [...]”

⁵⁵ As explained by Gantenbein in his apparatus criticus (see note 57 below), only the first four letters are legible due to the fold of the manuscript. The last four are the most plausible conjecture.

assumed,⁵⁶ but in one of the possibly earliest writings of Paracelsus, the *Super Salve regina explicatio*—a Latin treatise on the Virgin Mary.⁵⁷ Unlike his other neologisms, *Spagyria* seems to reflect Paracelsus's experience with the Switzerland of his youth, and the derivation of the term from a coin was probably meant to reflect the multiple processes of "Scheidung" that went into its manufacture, not the paired appearance of analysis and synthesis proposed by later Paracelsian commentators.

Finally, there is yet another possibility as to why the *Spagürlein* might have been associated with *Scheidung* in the mind of Paracelsus. In modern German, the term "Scheidemünzen," literally "division-coins," or "fractional coins" refers to small denomination coinage whose face value often exceeds the worth of its material. As we have pointed out, the *Spagürlein* was itself a low-value coin, and in Swiss numismatics it is in fact referred to sometimes as a "Scheidemünze."⁵⁸ Unfortunately, we have not been able to verify any occurrence of the term "Scheidemünze" before the seventeenth century, though the expression "Entscheidung der Oberwehr" (division of large coinage) already appears in the second half of the fifteenth century.⁵⁹ It remains an intriguing possibility whether Paracelsus was thinking of *Scheidung* in this sense as well when he engaged in his own coining of the expression *Spagyria*.

What further ramifications can we draw from this study? Above all, it appears that the tradition of paired analysis and synthesis already present in medieval alchemy (and no doubt earlier) did not play a significant role in the work of Paracelsus himself, whatever his early followers may have said. The pairing of analysis and synthesis, which supported the overthrow of the Thomistic theory of perfect mixture and the formulation of atomic and corpuscular theory in the seventeenth century, and which went on to serve as a basis for Antoine Laurent Lavoisier's famous "balance-sheet" method for relating input and output in chemical reactions, did not descend from Paracelsus. It was rather the product of an independent and earlier alchemical tradition that Paracelsus' followers integrated into his work. This is not the only case where earlier alchemical innovations have been absorbed by the reputation of Paracelsus, of course. One thinks of the medical alchemy pioneered in the fourteenth century by John of Rupescissa and pseudo-Ramon Lull, whose works Paracelsus knew both at first- and second-hand. Paracelsus invented iatrochemistry no more than he invented the paired process of analysis and synthesis. We say this

⁵⁶ Benzenhöfer (2005), 219–20 ("Kennwörter der in Basel gehaltenen Vorlesungen"). On his list of "Kennwörter der sicheren bzw. Wahrscheinlichen Frühwerke," Benzenhöfer listed as well one occurrence of "spagirisch." This occurrence, however, appears in the *Elf Traktat* (H 4:179), a work actually posterior to the Basel period, as demonstrated by Weeks (1997), 38–40.

⁵⁷ We warmly thank Urs Leo Gantenbein for indicating this finding. The text will be part of his *Neue Paracelsus-Edition*, vol. 2 (forthcoming). The occurrence is: "medicus ut peritus spagyryus, natura vera ut operatrix." As pointed out by Gantenbein, this is a paraphrase of a common medieval medical dictum: "natura omnium est operatrix, medicus vero minister."

⁵⁸ Kunzmann and Luraschi (2000–2002), 25.

⁵⁹ The earliest reference to "Scheidemünze" in the Grimms' *Wörterbuch* stems from 1691. See <https://woerterbuchnetz.de/?sigle=DWB&lemid=S05968> *sub voce*. For the 1474 expression "Entscheidung der Oberwehr," see Maßmann (1911), 7. We thank Jutta Schickore for this reference as well as several others concerning "Scheidemünzen."

not in an attempt to belittle Paracelsus, however, but rather with the goal of determining the precise reasons for his undeniable success, beginning in the second half of the sixteenth century, and continuing even today. Obviously part of this success was due to the efforts of the first generation of Paracelsians to integrate Paracelsus into the learned tradition of the *prisca philosophia*, as we can see in both Gohory's and Bodenstern's writings, not to mention others of their contemporaries. The spurious Greek etymology of *spagyria* was part of this effort. Ironically, the sole mention of the *Spagürlein* made by Paracelsus himself occurred in the midst of a rabid attack against the humanist doctors who, he argued, thought of themselves as skilled physicians due to their knowledge of Greek, not their practical medical training.

Bibliography

- Benzenhöfer, Udo. 2002. *Paracelsus*. Hamburg: Rowohlt Taschenbuch (1st edition, 1997).
- . 2005. *Studien zum Frühwerk des Paracelsus im Bereich Medizin und Naturkunde*. Münster: Klemm & Oelschläger.
- Blaser, Robert-Henri. 1979. *Paracelsus in Basel*. Muttentz: St. Arbogast Verlag.
- Copus, Martin. 1569. *Das Spissglas Antimonium oder Stibium genandt/in ein Glas gegossen/es sey Seel oder Rodt/das man Vitrum Antimonii nennt/ein warhafftige Giff und gantz gefehrliche schedliche Artzney sey*. No place [Braunschweig]: no name.
- de Menten, Pierre. 2013. *Dictionnaire de chimie: Une approche étymologique et historique*. Brussels: De Boeck.
- Du Chesne, Joseph. 1576a. *Sclopetarius, sive De curandis vulneribus, quæ Sclopetorum & similitum tormentorum ictibus acciderunt, Liber. Ejusdem Antidotarium Spagiricum, adversus eosdem ictus*. Lyon [Geneva]: Jean Lertout.
- . 1576b. *Traité de la cure generale et particuliere des archusades, avec l'antidotaire spagirique pour preparer & composer les medicaments*. Lyon [Geneva]: Jean Lertout.
- Gantenbein, Urs Leo. 2000. Die Beziehungen zwischen Alchemie und Hüttenwesen im frühen 16. Jahrhundert, insbesondere bei Paracelsus und Georgius Agricola. *Mitteilungen, Gesellschaft Deutscher Chemiker / Fachgruppe Geschichte der Chemie* 15: 11–31.
- . 2020. The Virgin Mary and the Universal Reformation of Paracelsus. *Daphnis* 48: 4–37.
- Gilly, Carlos. Forthcoming. Theodor Zwinger e la crisi culturale della seconda metà del Cinquecento. <https://doczz.it/doc/282880/theodor-zwinger-e-la-crisi-culturale-della-seconda-metà-del>. Accessed 30 December 2022.
- Gohory, Jacques (Leo Suavius). 1567. *Theophrasti Paracelsi Philosophiae et Medicinae Utriusque Universae Compendium*. Paris: Philippe de Roville.
- . 1568. *Theophrasti Paracelsi Philosophiae et Medicinae Utriusque Universae Compendium*. Basel: Pietro Perna.
- Hauck, Dennis William. 2008. *The Complete Idiot's Guide to Alchemy*. New York: Alpha Books.
- Kahn, Didier. 2016. *Le Fixe et le Volatil. Chimie et alchimie, de Paracelse à Lavoisier*. Paris: CNRS Editions.
- . 2024. L'Archidoxis et la Theophrastia. In *D'Uranie à Gollum: Mélanges en l'honneur d'Isabelle Pantin*, ed. Jean-Charles Monferran, Tristan Vigliano, and Alice Vintenon, 45–72. Paris: Champion.
- Kopp, Hermann. 1844. *Geschichte der Chemie*. Vol. 2. Braunschweig: Vieweg.
- . 1869. *Beiträge zur Geschichte der Chemie*. Vol. 1. Braunschweig: Vieweg.
- . 1886. *Die Alchemie in älterer und neuerer Zeit*. Heidelberg: Carl Winter.
- Kühlmann, Wilhelm, and Joachim Telle. 2001. *Corpus Paracelsisticum*. Vol. 1. Tübingen: Max Niemeyer.

- Kunzmann, Ruedi, and Fabio Luraschi. 2000–2002. Bissoli aus der Münzstätte Bellinzona. *Schweizer Münzblätter* 50–52, Heft 202: 24–26.
- L’Heritier, Maxime, and Florian Tereygeol. 2010. From Copper to Silver: Understanding the Saigerprozess through Experimental Liquefaction and Drying. *Historical Metallurgy* 44: 136–152.
- Libavius, Andreas. 1606. *Alchymia, Commentariorum in librum primum alchymiae partis I. Lib. I*. Frankfurt: Peter Kopff.
- Maßmann, Fritz. 1911. *Geschichte der Scheidemünze und Scheidemünzumlaufl im Handelskammerbezirk Dortmund*. Heidelberg: Rössler & Herbert.
- Newman, William R. 2006. *Atoms and Alchemy. Chemistry and the Experimental Origins of the Scientific Revolution*. Chicago–London: The University of Chicago Press.
- Paracelsus, Theophrastus. 1605. In *Chirurgische Bücher und Schriften*, ed. Johann Huser. Strasbourg: Lazarus Zetzner.
- . 1928. In *Sämtliche Werke*, ed. Karl Sudhoff, vol. 11, 1st ed. Munich–Berlin: R. Oldenburg.
- Partington, James Riddick. 1961. *A History of Chemistry*. Vol. 2. London: Macmillan.
- Principe, Lawrence M. 2013. *The Secrets of Alchemy*. Chicago–London: The University of Chicago Press.
- Schubert, Eduard, and Karl Sudhoff. 1889. *Paracelsus-Forschungen*. Vol. 2. Frankfurt a. M.: Reitz & Koehler.
- Soukup, Rudolf Werner. 2007. *Chemie in Österreich: Bergbau, Alchemie und frühe Chemie*. Wien: Böhlau.
- von Prantl, Carl. 1856. Die Keime der Alchemie bei den Alten. *Deutsche Vierteljahrs-Schrift* 1–2: 135–151.
- Weeks, Andrew. 1997. *Paracelsus: Speculative Theory and the Crisis of the Early Reformation*. New York: SUNY Press.
- Weeks, Andrew, and Didier Kahn. 2024. Introduction. In Paracelsus. *Cosmological and Meteorological Writings*. Leiden: E. J. Brill.

Didier Kahn is Senior Researcher at the CNRS (CELLF, UMR 8599, Sorbonne Université). His work focuses on the works of Paracelsus, the history of alchemy and its relations to science, literature and religion in early modern France and Europe. He is also a member of the editorial team of Diderot’s complete works known as DPV (Paris: Hermann).

William R. Newman is Distinguished Professor in the Department of History and Philosophy of Science and Medicine, Indiana University (Bloomington). His main present research interests focus on early modern “chymistry” and late medieval “alchemy,” especially as exemplified by Isaac Newton, Robert Boyle, Daniel Sennert, and the first famous American scientist, George Starkey.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

