

A recipe of quintessence: Distilling wine and bread in late medieval alchemy

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RESEARCH ARTICLE

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ABSTRACT

As a well-established practice, alcohol distillation represented a major technical development in the late Middle Ages. This analysis aims to interpret the alchemical instructions attributed to a certain Johannes Ungariae probably in the early fourteenth century, whose recipe circulated as far as Rome in the early modern period, attracting the interest of both a sixteenth- and an eighteenth-century collector.

The manuscript with the incipit '*Sic extrahendum quintam essentiam vini*' (Fol. 217, Sloan MS 3661.) has survived under the name of 'John of Hungary' as an alchemical recipe written in Latin, probably in 1322, as Ernő Simonyi has noted. In a comprehensive and coherent description of the underlying technology, Johannes Ungariae details the process of extracting the '*quinta essentia*' of wine, a method conceived to operate at the boundary between spirit and matter. John Elyott's copy preserved in the Sloane Collection stands as a rare example of the tradition of *alchymia operativa*, the applied, hands-on alchemy, first brought to light by Simonyi in political exile in London in 1859. Studying the manuscript is the initial stage of a broader project that aims to contribute to our understanding of the networks of knowledge transmission.

KEYWORDS

late medieval alchemy, *quinta essentia*, *spiritus*, *aqua vitae*, fractional distillation

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ALCHYMIA SPECULATIVA

Roger Bacon,¹ the thirteenth-century author on alchemy, distinguishes between its theoretical and practical branches. *Alchymia speculativa* concerns the material manifestations of the cosmological elements, whereas *alchymia operativa* aims at producing an elixir capable of perfecting metals as well as promoting human health. He held that things are made ‘better and more plentifully by art than they are produced by nature.’² As a foundational document of *alchymia speculativa* the Emerald Tablet (*Trismegistus*, 1541) served as a compendium of core tenets such as the notion of a single first principle and the correspondence between the macrocosm and the microcosm. Attributed in medieval tradition to the syncretic figure of Hermes Trismegistus, it re-entered European intellectual culture in the twelfth century. The alchemical *materia prima*³ was understood as an ultimate substrate—the common ground from which the Empedoclean elements⁴ could be derived. The ‘above’ and the ‘below’ are unified through the Aristotelian *quintessence*;⁵ by leaving the earthly components of the *materia prima* behind, it rises and falls like a subtle vapour, securing the essential bond between the celestial and the earthly realms.

Essentially, *quintessence* is perfection itself; and since everything carries its own *fermentum* within, *quintessence* is indispensable to the attainment of perfection. It is the key to health, where alchemy and medicine inevitably converge. The scholarly activities of the Franciscan friar John of Rupescissa⁶ is considered to offer a synoptic account from the mid-fourteenth century. The recipes produced by this shared pursuit of alchymia and medicine aim at an ultimate form—one fully realised in its very existence.⁷ Gold is one such manifestation, wine another; both remain value-laden substances that command a sense of reverence even today.

Medicinal wine consumption has a long and continuous tradition. In the Middle Ages, wine was used as the base for both cold and warm macerations, and it could be fortified as early as the fermentation stage with mineral, vegetal, and occasionally animal-derived ingredients. The sweeter the wine, the greater the therapeutic efficacy it was thought to possess. Across Europe, aromatic wines circulated widely as antidotes, remedies, and electuaries.

Bread, likewise, was understood as a perfected form of being—its *fermentum*,⁸ as it were, coming from itself. Dipped in wine, it could even serve as a *magisterium*⁹ for children, in the way prescribed by Maino de Maineri.¹⁰ It may be tempting to suggest that references to wine

¹Roger Bacon (1219/20–c. 1292).

²DeVun (2009), 56, 143.

³Interpreted within an Aristotelian framework, it lacks a determinate dimensionality. See: Hasse (2005), 316–317.

⁴Earth, water, air and fire.

⁵*Quinta essentia* is Aristotle’s fifth essence connecting the heaven and the earth as celestial substance, the incorruptible core essence beyond the Empedoclean essential elements: earth, water, air, and fire.

⁶Jean de Roquetaillade (c. 1310–c. 1366–1370) rose to prominence under the name of Johannes de Rupescissa. His treatises were copied and disseminated for centuries, occasionally with different titles: more than 140 copies of *De quinta essentia* attributed to him have survived alone, and numerous printed editions followed. See: DeVun (2009), 9, 158–159.

⁷Thus it is associated with the philosophers’ stone.

⁸Leaven.

⁹Master-preparation, medicament.

¹⁰Maineri (c. 1295–1368) was a physician from Milan. He is not commonly associated with the use of distillation in his magisterial practice.

necessarily invoke Eucharistic symbolism, even when the language does not explicitly signal that context.¹¹ However, when wine appears alongside bread, it would be unreasonable to set aside this interpretation. Alchemical recipes engaging the Eucharist stand at the intersection of philosophical and devotional vocabularies and imaginaries.

ALCHYMIA OPERATIVA

In the hope of extracting the *quinta essentia*, the golden age of distillates took shape, propelled by increasingly refined technologies. Almost any substance could serve as material for experiment: botanical preparations, animal parts and even human blood itself.¹² By breaking substances down into their constituent elements, stripping away the earthly components, and drawing out their essence—the divine nature—matter could be reconstituted in a perfected, incorruptible form.

Wine,¹³ as the grape brought to the fullness of its being, is an abundant source of *quinta essentia*. The *aqua ardens* obtained through its distillation is so rich in *quinta essentia* that it becomes the very water of life, the *aqua vitae*. To produce it in its purest form is a noble aim of *alchymia operativa*.

Zosimos of Panopolis¹⁴ writes about distillation as early as the fourth century. Quoting a certain Mary the Jewess,¹⁵ he records that a large flask¹⁶ is required to prevent it from cracking when it comes into contact with the hot distillate. In the tenth century, the Greek term *ambix*¹⁷ already denoted the still itself rather than, in its original sense, the still-head. By the first half of the twelfth century, Magister Salernus¹⁸ was already distilling alcohol, though with relatively low efficiency.¹⁹ The vessels could provide poor heat transfer, and the technology likely lacked efficient cooling. As a result, the proportion of water probably remained predominant in the distillate,²⁰ which scarcely could be flammable.

Taddeo Alderotti of Florence (1206 × 1215–1295) provides a clearly documented early case of fractional distillation of wine—the effective separation of alcohol from other volatile

¹¹DeVun (2009), 124–125.

¹²Red wine is a frequent component of *magisteria*, but human blood, too, was regarded as a vehicle for an incorruptible essence, whatever its ultimate source was thought to be—just as even spoiled wine could still be treated as a suitable medium from which *quintessence* could be drawn.

¹³Even spoiled one.

¹⁴Alchemist born around 300. See: Halversen (1998), 18.

¹⁵She is credited with the invention of the water bath: bain-marie for distillation. See: Halversen (1998), 18., Rasmussen (2014), 79–80. and Szabadváry (1986), 79–80.

¹⁶As a receiver.

¹⁷*Ambix* was transmitted via Arabic as *al-anbiq*, and came to use in Latin as *alembic*. See: Rasmussen (2014), 83.

¹⁸His treatises around 1100–1150 describe wine distillation (*aqua ardens*). The School of Salerno was an early institution in Europe to offer formal medicinal curriculum. See: Rasmussen (2014), 83, 89. and Moran (2005), 12.

¹⁹Szabadváry (1960), 20–23.

²⁰This may explain why it attracted little interest before the thirteenth century.

components—made possible by the efficient cooling of the serpentine condenser.²¹ By repeating the operation multiple times, he further purified—that is rectified—the distillate, resulting in an ethanol content as high as c. 90% v/v.²² The following table offers a comparative overview of the early innovators, which helps to situate Johannes’s recipe and assess its contribution (Table 1).

The decisive role of Italian *alchymia operativa* was made possible by the development of Venetian glassmaking, which by the thirteenth century provided the technological conditions necessary for experimentation. Raw materials from the Levant had higher levels of magnesium and calcium, which significantly improved the glass vessels’ resistance to thermal shock.²⁵ The first scholarly treatise devoted specifically to glass production, however, appeared only in the early seventeenth century, summarising the workshop experience of Antonio Neri (1576–1614), who worked in Medici service in Florence. Its illustrations²⁶ nonetheless help to

Table 1. Outline of milestones in fractional distillation with experimenter practitioners mentioned in this study

Period/ Date	Figure	Early example of technological/ theoretical innovation	Result/Efficiency
4th century	Mary the Jewess/ Zosimos	Glass flasks with poor durability	Structural limit: cracking under thermal stress
Mid-12th century	Magister Salernus	Early alcohol distillation	Low ethanol content
Late 13th Century	Taddeo Alderotti	Serpentine condenser, fractional distillation	'perfectissima' ²³ c. 90% v/v ethanol
1322	Johannes Ungariae	Bread-wine fermentation, fractional distillation, alcohol is quintessence	Strongly grounded biochemical synthesis, high ethanol content
c. 1325	Ortolan ²⁴	<i>Spiritus quintae essentiae</i> ... alcohol is quintessence	High ethanol content
c. 1350	Johannes de Rupescissa	<i>De consideratione quintae essentiae</i> alcohol is quintessence	High ethanol content
1612	Antonio Neri	<i>L'Arte Vetraria</i>	Standardisation of high-resistance vessels

²¹Controlling condensation is vital for effective distillation. Alderotti’s condenser is a long coiled tube that cools and condenses the vapour as it passes through, allowing the most volatile components to distil over and be collected separately. His contemporaries, including Arnald de Villa Nova and Ramon Llull, also experimented with wine distillation, however, access to Venetian glassware likely created particularly favourable conditions for laboratory experimentation in Italy. See: Rasmussen (2014), 102.

²²He collected a distillate equal to about 30% of the wine’s volume, and at each rectification he took five-sevenths of the preceding distillate. He may have repeated the operation even ten times See: Forbes (1970), 60–61.

²³Alderotti called ten times distilled *aqua vitae* ‘perfectissima’. See: Rasmussen (2014), 100.

²⁴Also referred to as Hortulanus.

²⁵Rasmussen (2014), 82–84.

²⁶Neri (1612).

identify the laboratory vessels mentioned in earlier descriptions, since remarkably few medieval depictions have survived (Fig. 1).

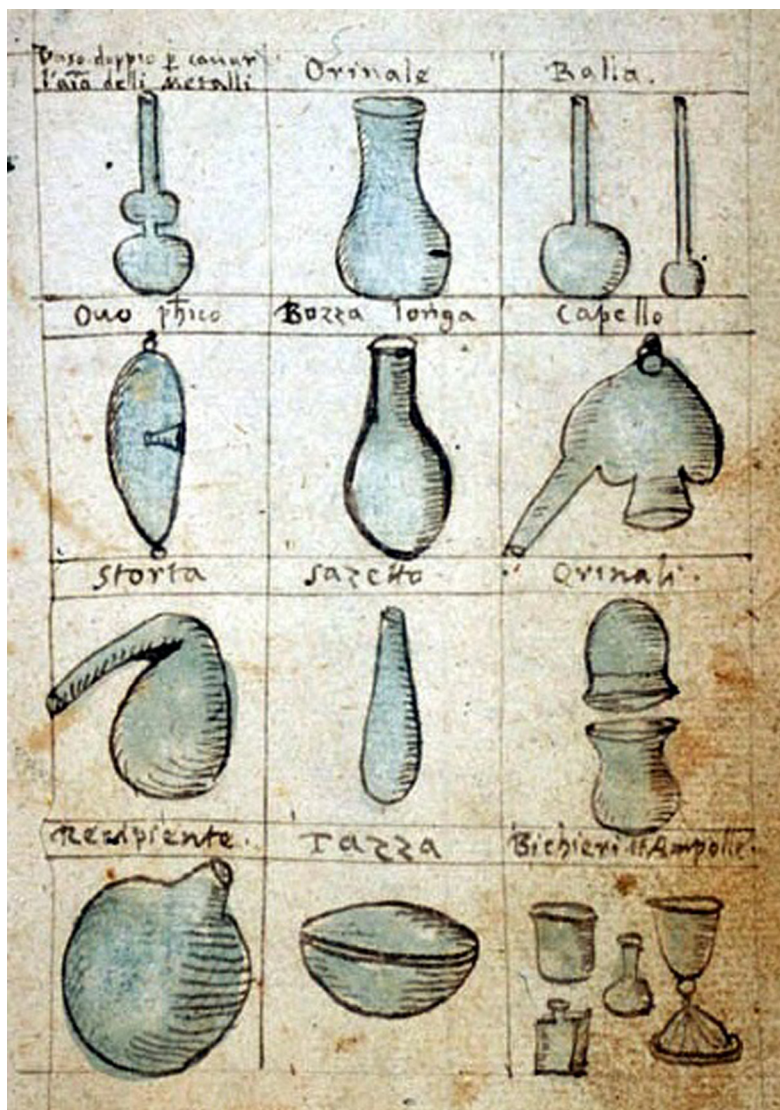


Fig. 1. Illustration from Antonio Neri²⁷

²⁷I am grateful to Paul Engle for his kind permission to reproduce his photograph of the illustration on f. 38r of Antonio Neri, *Libro intitolato Il tesoro del mondo di Pietre* (MS Ferguson 67, GB 0247), University of Glasgow Library, Special Collections (c. 1598–1600). <https://www.conciatore.org/2013/12/scientific-glassware.html> 2026.01.07.

The canonisation of distillation accelerated in the thirteenth and fourteenth centuries. The Florentine alchemist-physician Taddeo Alderotti was among the founders of the University of Bologna's medical faculty. Through his teaching²⁸ distillation became institutionalised, and fractional distillation spread across Europe. It was John of Rupescissa, associated with Montpellier, however, who enriched the literature to such an extent that he is often credited with promoting the flourishing of distillation and with linking *spiritus* to *quinta essentia*—even though, a quarter century earlier, Ortolan²⁹ had already made this connection in his commentary on the Emerald Tablet. Yet as the terminology was taking shape through the centuries, *quinta essentia* or *spiritus* cannot always be straightforwardly equated with ethanol. Meanwhile, the appetite for a concentrated form of the oldest recreational drug was also growing.

'SIC EXTRAHENDUM QUINTAM ESSENTIAM VINI...'

Little is known about the author of the alchemical recipe unearthed by Ernő Simonyi.³⁰ In light of the points outlined above, it is plausible that Johannes Ungariae³¹ studied in Italy, quite possibly in Bologna,³² popular among Hungarian students on *peregrinatio academica*. This is further suggested by his use of vernacular terms that were common in Tuscany and the Veneto between the eleventh and fifteenth centuries. Dating the text to the late Middle Ages³³ also seems to be supported by the fact that the Latin manuscript shows no affinity with humanist Latin.³⁴

The manuscript recorded as John Elyott's possession is a copy, with its recipient indicated as Sixtus. The British Library catalogue identifies Pope Sixtus V (1585–1590) as the manuscript's recipient; yet the copy is dated 1572, when Felice Peretti³⁵ was not Bishop of Rome but Bishop in Fermo. The first three figures named Sixtus, elevated to the succession of St Peter almost a

²⁸Siraisi (1990), 148.

²⁹Ortolan discussed *quinta essentia* around the time Johannes Ungariae probably recorded his recipe. By then, the topic seems to have been treated as fairly self-evident, given the work of several predecessors. Guerrero (2002–2007), 30–45.

³⁰Ernő Simonyi (1821–1882) led a remarkably colourful life: a veteran of the 1848–49 War of Independence, he went into exile and arrived in England in 1850 as a political refugee. Alongside earning a living, he conducted research in the British Museum's manuscript collections, copying documents pertaining to Hungary. His notes on fol. 217. Sloane MS 3661 are in line with The British Library's Archives and Manuscripts Catalogue entry for the same folio, which links the manuscript to John Elyott as owner with the date 1572 noted alongside. Ernő Simonyi also records the name of William Belyngslye as the copyist from Bristol, and notes a similar date based on the annotation in the volume in which the folio is bound. See: <https://searcharchives.bl.uk/catalog/040-002116051> (accessed 15 Jan 2026) and Simonyi (1859), 16–17.

³¹The vernacular Ungariae without the expected initial 'H' in Latin suggests Italian influence.

³²Padua is another likely setting, or Salerno as discussed below.

³³The manuscript is bound together with other fourteenth-century alchemical texts. See Sloane MS 3661.

³⁴I am grateful to Áron Orbán for his help in transcribing the manuscript.

³⁵Also referred to as Piergentile.

millennium earlier, can likewise be ruled out. It is therefore worth considering Sixtus IV, who governed the Roman Church from 1471 to 1484, as a highly plausible patron.³⁶

The copyist is to be commended for also preserving the telling illustration—an especially valuable feature—since remarkably few visual representations of technological innovations in medieval science have survived (Fig. 2).

John's recipe may well have attracted the interest of papal circles, not least because the Eucharist is present within it in its full materiality. From 120 freshly baked loaves steeped in six barrels³⁸ of sweet red wine—two entities brought to the fullness of their perfection—he prepares a mash in which the 'aseptic' bread³⁹ functions as the caloric substrate feeding fermentation, while the wine⁴⁰ serves as the carrier of the microbial inoculum. Our alchemist thus outlines a kind of grain–wine distillate, effectively dissolving the ancient beer-versus-wine dilemma.⁴¹

His fermentation takes approximately two weeks, which presupposes an ideally controlled fermentation temperature.⁴² From both the description and the accompanying drawing it emerges

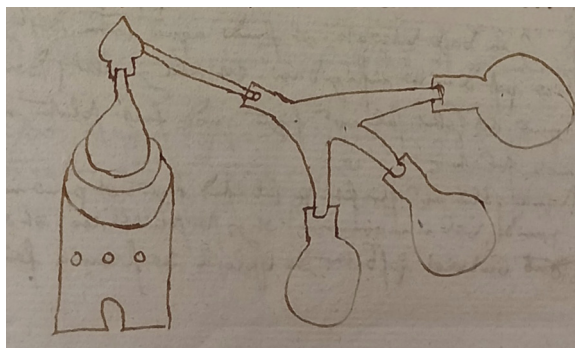


Fig. 2. The alchemical apparatus of Johannes Ungariae used for fractional distillation. From the British Library Collection: f. 217. Sloane MS 3661³⁷

³⁶Sixtus IV was well educated and is known to have studied at several Italian universities, including Padua, Bologna, and Florence. While his pontificate is often associated with political violence, he also commissioned the Sistine Chapel and is credited with founding the Vatican Library. It is not unlikely that, in establishing the library, documents recording the achievements of medicine to date were collected. In this context, the manuscript in Elyott's possession may ultimately derive from a copy produced for Sixtus IV, including the recipe attributed to Johannes Ungariae. The sixteenth-century copy, may thus descend from the copy produced in the last quarter of the fifteenth century.

³⁷I am grateful to Katerina Borisova and Daniel Wilkinson for their kind assistance with access to and permission for British Library material. <https://searcharchives.bl.uk/catalog/040-002116051> (accessed: 7 Jan 2026).

³⁸Somewhere between 180 and 350 L (c. 316.76–615.91 pt) based on Zupko (1981), 5–9.

³⁹*Recentes et calidi quum extrahuntur a furno* (fresh and hot when taken out of the furnace)

⁴⁰He recommends the wine be sweet, a quality that also promotes efficient fermentation.

⁴¹Molnár (2025).

⁴²The warmth of the loaves, fresh from the oven, ensures favourable conditions for initiating fermentation.

that John of Hungary belongs to the Alderottian tradition:⁴³ he separates the heads, hearts⁴⁴ and tails, although he does not seem to apply the Florentine scholar's serpent cooler.⁴⁵ Yet his instructions suggest that he refined his technology effectively—both ensuring an effective seal and regulating how the still is charged. He performed repeated distillations in a bain-marie, heating four to six alembics in parallel, and then allowed the high-ethanol distillate to rest for forty days. Even allowing for production losses incurred during the process, the alcohol yield of his mash attests to the efficiency of his method.

From six loaves he is able to produce a cup⁴⁶ of distillate with a considerable alcohol content.⁴⁷ If one takes the cup's volume to be 0.2 L,⁴⁸ then 120 loaves would yield at least 4 L⁴⁹ of concentrated *spirit*,⁵⁰ a respectable result from roughly 1.8–3.5 hL⁵¹ of mash.

The instruction undoubtedly distinguishes *aqua vitae* as an alcoholic distillate from *spiritus* as the (al)chemical alcohol—a term that, in this context, clearly refers to ethanol.⁵² The explicit separation of the middle run (heads) is evidence of fractional distillation, enabling the production of a distillate rich in *spiritus*. It is also apparent that the author identifies the *spiritus* of *aqua vitae* with *quinta essentia*.⁵³

Johannes Ungariae treats the conceptual relationship between *quinta essentia* and the *spiritus* of *aqua vitae* as self-evident. His text is unlikely to be rooted in Rupescissa's treatises: if the author of Hungarian affiliation was already working on '*Sic extrahendum...*' in 1322, Rupescissa would have been only about ten years old. This would confirm that, however prolific the Franciscan friar later became, the canonisation of *quinta essentia* and its association with alcohol (whatever terminology was used in the fourteenth century) did not originate with him.

The recipe's requirements in raw materials⁵⁴ and technology presuppose the infrastructure of a large household and laboratory. Johannes Ungariae seems accustomed to aristocratic or high-clerical demand. His *quinta essentia* is closely related to the legendary *aqua reginae Hungariae*

⁴³Rasmussen (2014), 84–86.

⁴⁴The highest ethanol concentrate appears here.

⁴⁵Alderotti could achieve ethanol concentrations of up to about 90 % v/v employing the serpentine condenser—a long coiled tube. Neither the illustration nor the text of Johannes suggests its use.

⁴⁶*Ciphus* in the manuscript.

⁴⁷'*Proiciendo unam guttam ex eo in aëre evanescet*' (if you throw a single drop into the air, it evaporates).

⁴⁸It is equal to roughly 0.35 pt (UK), and is a cautious estimate, since *cyphus* of 0.3–0.6 L (c. 0.53–1.06 pt) was not unusual either. Zupko (1981), 5–9.

⁴⁹7.04 pt.

⁵⁰Probably ethanol.

⁵¹316.76–615.91 pt.

⁵²It is a type of alcohol with the chemical formula CH₃CH₂OH. In everyday usage it is identified with alcohol.

⁵³'*De 6 panibus in supatis in vino potes extrahere ciphum 1 aquae.*' (From six loaves thrown into wine you can extract one cup of *aqua* [*vitae*].) '*...accipiendo aquam de medio[,] quia ibi transit totus spiritus 5ae essentiae...*' (taking the *aqua* [*vitae*] from the middle, because the entire *spiritus* of the *quinta essentia* passes through there) '*...spiritus transeat[,] et flegma maneat in fundo...*' (*spiritus* may pass through and the flegma may remain at the bottom) '*...spiritum aquae vitae...*' (*spiritus* of the *aqua vitae*).

⁵⁴120 loaves of bread and 1.8–3.5 hL (316.76–615.91 pt) wine.

associated with Elizabeth Łokietek.⁵⁵ It takes little imagination to envisage John as a physician working at the court of Charles I of Hungary (1308–1342), albeit the legend's historical basis has not been confirmed. Anjou Károly Róbert⁵⁶ had ties to Salerno, and these may have intersected with the scholarly activity of Johannes Ungariae, possibly educated in the School of Salerno.

CONCLUSIONS

The recipe attributed to Johannes Ungariae is a valuable witness to the circulation of alchemical-medical knowledge across late medieval Europe, and helps to place Hungarian scholarly activity within a wider European milieu. If the '*Sic extrahendum...*' manuscript is correctly dated to 1322, it points to a technically sophisticated environment that predates—and in some respects anticipates—the better-known writings of John of Rupescissa. Even allowing for uncertainties surrounding provenance, the text suggests that the identification of *spiritus* with *quinta essentia* was already in functional use in the early fourteenth century, and that its practical implications were being worked out in the language of procedure as much as in theory.

Beyond its technical interest, the significance of the recipe lies in the way it brings together precision of operation with a register of devotional meaning articulated through procedural language, without the syncretic mystical idiom that characterizes many alchemical manuscripts of the period, and would become more prominent in a great number of sixteenth- and seventeenth-century alchemical writings. In Johannes's laboratory, bread and wine are not merely evocative materials: they form the substrate of a carefully staged process—fermentation, distillation, and rectification—aimed at producing a purified distillate resistant to corruption. Read in this light, the recipe articulates a distinctive attempt to materialise perfection through technique.

Finally, the manuscript's later transmission—into early modern collecting contexts—underscores the durability of the text. It reminds us that the fourteenth-century flourishing of distillation was not the achievement of a single authorial breakthrough, but the cumulative outcome of practitioners working at the intersection of medicine, alchemy, and theology. Johannes Ungariae therefore emerges not simply as a name attached to a recipe, but as evidence for a broader continuum of expertise whose reach extended from Hungarian-associated circles into Italian scholarly and curial environments.

⁵⁵Elizabeth of Poland (1308–1380), the wife of Charles I of Hungary (1308–1342), is said to have eased her own—and her husband's—pain and relieved the symptoms with *aqua reginae Hungariae*. However, a fourteenth-century reference to *aqua reginae Hungariae* has not yet been confirmed. Such recipes circulated in several variations, and their main ingredient was probably an alcoholic distillate and herbs, mainly rosemary; some sources, however, mention vinegar. The earliest mention of the queen consort using rosemary distillate is fairy-tale-like and dates to the seventeenth century in Praevotius's treatise, where it appears as a remedy for gout (podagra), as well as a perfume or skin-care preparation. Rosemary distillates already appeared in thirteenth-century treatises, for example in writings associated with Arnald of Villanova. Villanova, (1478), 21r. and Praevotius (1666), 6–8.

⁵⁶Angevin Caroberto (Charles I of Hungary) claimed to have inherited the Principality of Salerno.

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Appendices

Transcript of f. 217. Sloane MS 3661

Sic extrahendum 5am essentiam vini breviter et in omni perfectione[,] sicut fuit extracta Romae pro papa Sixto a Johanne Ungariae.

Recipe vini rubei optimi dulcis, delectabilis odore et sapore. Et pone in una tina barillos⁵⁷ 4 vel 6 dicti vini. Et pro 6 barillis recipe panes 120 recentes et calidi quum extrahuntur a furno: et aperi eos per medium[,] et pone in dicto vino. Et dimitte ibi stare per 24 horas: et panis extrahet ad se totam 5am essentiam vini ad se[,] et vinum, quod remanet extra panem[,] remanebit separatim a suo spiritu tanquam corpus mortuum. Habeas bocias⁵⁸ 4 vel 6 magnas tenentes⁵⁹ 4 vel 6 bocale [,]⁶⁰ et quarta pars remaneat vacua, et cum suis capellis et recipientum iuncturis bene clausis cum farina et luto ante impastetur cum aqua[,] et ponatur cum pecia[,] et desuper ligetur bene cum spago grosso[,] quod unum filum tangat alium. Et pone ad distillandum per balneum quod bene distillet[,] nihil refert quod aqua bulliret. Et notandum[,] quod quanto minus extrahitur de dicto vino per alembicum[,] maioris est perfectionis. De 6 panibus insupatis⁶¹ in vino potes extrahere ciphum 1. aquae. Et ut cito expedias[,] labores cum 3[,] 4 vel 6 bociis. Et hoc fiat in urinali: quia melius est ut possis intramittere in anum ad implendum et ad vacuandum. Cum extraheris totam perfectionem a panibus[,] rectifica eas pluries cum instrumento inferius depicto, accipiendo aquam de medio[,] quia ibi transit totus spiritus 5ae essentiae. Et quanto pluries rectificatur, maioris est perfectionis. Et ut totus spiritus transeat[,] et flegma maneat in fundo[,] super os bociae ponas bombacem positam infra duos pannos lineos quod sit spissum per unum parvum digitum. Et hoc est magnum secretum[.] Infra 12 dies vel 15 dies potes ipsam conducere in omni perfectione sumendo solummodo spiritum dictae aquae vitae. Et pone dictum spiritum aquae vitae in vase brachiali per 40. dies[,] erit in omni perfectione[,] quod proiciendo unam guttam ex eo in aëre evanescet et solvet mannam [superscr. mummiā]. Etc.

English translation of f. 217. Sloane MS 3661

Thus, briefly and in full perfection, the *quinta essentia*⁶² of wine is to be extracted, as Johannes Ungariae⁶³ extracted it in Rome for Pope Sixtus.⁶⁴

⁵⁷It was regionally variable in volume: c. 0.2–1 hL, roughly 35.2–175.98 pt (UK). See: Zupco (1981), 5–9.

⁵⁸It was regionally variable in volume c. 1 L, roughly 1.75 pt. See: idem. 15.

⁵⁹*Prae tenentes, tenert scriba del.*

⁶⁰It was regionally variable in volume: c. 0.6–3 L, roughly 1.06–5.25 pt. See: Zupco (1981), 12–13.

⁶¹MS. in supatis.

⁶²*Quinta essentia* is Aristotle's fifth essence connecting the heaven and the earth as celestial substance, the core essence of the Empedoclean essential elements: earth, water, air and fire.

⁶³The expected Latin form would be Hungariae; the manuscript instead reads *Ungariae*, a variant that reflects Italian milieu.

⁶⁴The British Library's Archives & Manuscripts catalogue entry for Sloane MS 3661 identifies the pope as Sixtus V. However, the dates given suggest that the reference is more likely to be Sixtus IV, unless the manuscript was copied at a later date.

Take very good⁶⁵ sweet red wine, pleasant in smell and taste. Put four or six *barillos*⁶⁶ of the said wine into a vat. And for six *barrillos* take 120 loaves of bread, fresh and hot when taken from the furnace; split them in the middle and put them into the said wine. Let it stand there for 24 h: the bread will draw the whole *quinta essentia* of the wine to itself, and the wine that remains outside the bread will stay separated from its own *spiritus*⁶⁷ like a dead body. Take four or six large *bocias*,⁶⁸ each holding four or six *bocales*,⁶⁹ leaving one quarter empty, and close them well with their own *capellos*⁷⁰ sealing them also at the joints to the receivers with flour and clay kneaded with water, then with cloth laid on, and bind them tightly from above with thick twine so that one strand touches the other. Place them to distil in a *balneum*,⁷¹ which distils well, it makes no difference, if the water boils. And it should be noted that the less that is extracted from the said wine through the alembic, the greater its perfection is. From six loaves thrown into wine you can extract one *ciphum*⁷² of *aqua [vitae]*.⁷³ And to proceed quickly, work with three, four or six *bocias*. Do this in a *urinale*,⁷⁴ because it is easier to fill and empty through the *anus*.⁷⁵ Once you have extracted the whole perfection from the breads, rectify it several times with the instrument depicted below, taking the *aqua [vitae]* from the middle, because the entire *spiritus* of the *quinta essentia* passes through there. And the more often it is rectified, the greater the perfection is. And so that the whole *spiritus* may pass through and the *flegma*⁷⁶ may remain at the bottom, place cotton, the thickness of a little finger, set between two layers of linen, over the mouth of the *bocia*. And this is (a/the) great secret. Within twelve or fifteen days you can bring it to full perfection by taking only the *spiritus* of the said *aqua vitae*. Put this *spiritus* of the *aqua*

⁶⁵*Optimi* can mean either 'very good' or 'the best'. In this context, it probably signals wine of excellent quality rather than an absolute superlative.

⁶⁶The Latin *barillus* means a 'small barrel' or 'little cask'. See Magro (1677), 73. and Du Cange Tom. Prim. (1733), 1,027.

⁶⁷*Spiritus* refers to the spiritual substance, in this passage it correlates with the properties of ethanol.

⁶⁸*Bocia* in medieval Latin is 'flask' or 'small barrel'. See: du Cange Tom. Prim. (1733), 1,210. and Zupco (1981), 15.

⁶⁹The vernacular *bocale*, a type of bottle, suggests Italian ties. In medieval Latin the word appears as *bocalus*. See: du Cange Tom. Prim. (1733), 1,208. and Zupco (1981), 12.

⁷⁰The manuscript uses the vernacular *capello* (cappello: hat or cap) suggesting Italian linguistic influence. In this passage it clearly refers to the vessel's lid.

⁷¹*Balneum* means bath that is bain-marie here. In a bain-marie (water bath) heat is transferred gently and uniformly. The bath water is heated directly and, due to its good heat capacity and conductivity, delivers evenly distributed heat to the walls of the immersed vessel.

⁷²*Ciphus*, scyphus or cypus is a drinking vessel usually with handles. See: du Cange Tom. Prim. (1733), 398. Idem Tom. Sec. (1733), 1,289. Idem Tom. Sext. (1733), 293. and Latham (1965), 427.

⁷³*Aqua vitae* means the water of life, typically denoting alcoholic distillate.

⁷⁴*Urinale* is a type of vessel with wide rim for collecting and inspecting urine extensively used in alchemical processes.

⁷⁵*Anus* means outlet that is the rim of the vessel here.

⁷⁶Phlegma in Latin, phlegm in English. The spelling in the MS suggests Italian influence.

vitae into a *vas brachiale*⁷⁷ for forty days: it will be in full perfection, since if you cast a single drop into the air it evaporates—and it dissolves *manna*⁷⁸ [corrected to *mummy*⁷⁹], and so forth.

⁷⁷*Vas brachiale* probably refers to a vessel with arm-like handles, allowing the *spiritus* to circulate within them.

⁷⁸*Manna* denotes 'miraculous fluid from saints' tombs'. See: Latham (1965), 288. and also du Cange *Tom. Quar.* (1733), 420.

⁷⁹*Mummy* means either the mummified corpse itself, or the resinous balm deposits gathered from the surface of mummies. See: du Cange *Tom. Quar.* (1733), 1,086. and Latham (1965), 307.