



THE RELATIONSHIP BETWEEN POTTERS AND PHARMACISTS IN 17TH-CENTURY HOLLAND

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ABSTRACT In the 17th century, Delft became famous for its distinctive blue-and-white earthenware, a response to the delicate porcelain imported by the Dutch East India Company (VOC). Local potters sought to emulate this style, yet evidence of the specific materials they used remains limited. Historical records reveal a strong link between pharmacists and potters: invoices indicate that potters regularly sourced both medicines and raw materials from pharmacies. Additionally, there is evidence that pharmacists also stocked items produced by potters. This article investigates the organisation of pharmacies during the 17th century and examines the reciprocal relationship between potters and pharmacists, highlighting the intersection of these professions.

Introduction

Delft is renowned for its blue-and-white earthenware, which flourished in the 17th century (Figure 1). Few documented recipes for producing this type of ceramic have survived, as much of the knowledge was safeguarded and transmitted orally. The earliest comprehensive written account of Delft pottery production is Gerrit Paape's 1794 book.¹ Although earlier references to Delft recipes exist, they are incomplete and lack the depth of Paape's work.

Potters in the 17th century obtained their raw materials through various channels. While clay traders are well documented, information on local suppliers of glazes and colouring agents remains limited.² Clay and marl (a calcium-rich dry clay) were transported by small ships from domestic and foreign sources, including England, Germany and the southern Netherlands. However, other materials were bought from specialised merchants and pharmacies. Evidence for this is found in Delft's municipal archive, where two early 17th-century invoices list pottery materials purchased from a pharmacy. These records provide unique insight into the business operations of two Delft potters during a period of significant growth in the ceramics industry.



Figure 1 Plate, tin-glazed earthenware showing a doctor in his workshop. Willem Jansz. Verstraeten, c.1645–c.1660, Rijksmuseum Amsterdam, inv. no. BK-NM-3132.

The pharmacy in the 17th century

Pharmacists have been practicing in the Netherlands since at least the 13th century.³ The earliest Dutch prescription book, the *Antidotarium Nicolai*, originated around 1300 from monastic manuscripts and treatises. Over time, new medicine books were created specifically for pharmacists.⁴ Initially, pharmacists did not belong to a dedicated guild; instead, they were part of the broader 'kramers' (tradesmen) guild.⁵ Local variations existed, however, in some regions, where pharmacists joined guilds such as the Cosmas and Damian guilds, or St Luke's, which was also often home to painters.⁶ This, as well as the material connections between these professions, reveal the strong intertwinement of medicine and painting in the Middle Ages.

Until the Renaissance, the ideas of the Greek physician Hippocrates (460–377 BC) and the Roman Greek physician Galen (2nd century AD) were leading in western medicine.⁷ According to their humoral theory, a person's temperament depended on a balance among four bodily fluids – mucus, blood, yellow and black bile. Disruption of the natural harmony between these fluids could lead to disease, and associated drugs were aimed at restoring this balance by using strengthening, blood-purifying, laxative and emetic agents based on humoral pathology.⁸ However, the growing influence of theories developed by the Swiss physician Paracelsus (1493–1541) and his followers, which advocated chemical-based treatments, began to transform pharmacy practice in the 16th century.⁹ Pharmacies in the 17th century therefore often included a chemical cabinet (*chimy-castgen*), stocked with various raw materials such as mercury, arsenic and antimony.¹⁰ These pharmacies were not solely dedicated to medicines but also sold pigments, wax, resin, gum, glue and ink – materials used by both artisans and potters. Medicines were prepared on-site, often in dedicated workshops or even outside on the street. Pharmacy was a skilled trade, with apprentices undergoing three years of training under a master pharmacist before qualifying to open their own establishments after passing the pharmacy exam.¹¹

Alchemy

Alchemy is often described as a quest for the elixir of life or Philosopher's Stone to turn base metals into gold. In the early 17th century, medicine, alchemy and glassmaking were closely intertwined as all three fields relied on similar materials, equipment and techniques. Through their experiments, alchemists made substantial contributions to the development of physics and chemistry.¹² They were early practitioners of what we now recognise as material science, with a particular fascination for the transmutation of substances and the fundamental role of fire in these processes.¹³

One prominent figure bridging these fields was Johann Kunckel (1637–1703), a German alchemist, pharmacist, scientist and glass producer.¹⁴ Kunckel exemplifies the overlap between the fields of alchemy and glass production.¹⁵ In alchemical tradition, the colour red generally symbolised

successful transmutation, and the search for red glass therefore became part of the quest for the Philosopher's Stone.¹⁶ Kunckel successfully created red glass and documented his methods in *Ars Vitruvia Experimentalis* (1679), which is a critical German translation of Antonio Neri's *Ars Vitruvia* (1612) with commentary and notes on both Neri's Italian text and its 1662 English translation by Christopher Merret.¹⁷ In his handbook, Kunckel's contributions extend beyond just glassmaking; the section *Von der Holländischen kunstreichen Weissen und bunten Töpffer-Glasur- und Mahlwerck (von etlichen Holländische Barcellan-Arbeit genennt)* is known as the earliest description of the Dutch tin-glaze technique.¹⁸ Kunckel thus played an important role in the distribution of knowledge about tin-glazed earthenware.¹⁹

During the 18th century, the preparation of medicines began to evolve. Drugstores and chemist shops initially took over this practice from alchemists and pharmacies, and by the 19th century, pharmaceutical production had shifted entirely to industrial manufacturing. The pharmacist's role transformed from that of a craftsman, capable of broad experimentation across fields, to a regulated profession requiring university-level education.

Handbooks for pharmacists

In the 17th century, there was no centralised regulation for medicine distribution. Several cities in the Republic had their own prescription books, or 'pharmacopoeia', while



Figure 2 Jan Bisschop, 1657, engraved title page of *Pharmacia Galenica & Chymica* (photo: Margot van Schinkel).

others adopted existing ones. These books were compiled by local doctors and had to be followed by pharmacists. Following publication in Amsterdam of the first pharmacopoeia in 1636, these books remained the standard for drug preparation until approximately 1805.²⁰ Pharmacopoeias stated which medicines had to be present in the pharmacy and how they had to be prepared.²¹ The ingredients for medicines were categorised into materials derived from the plant, animal and mineral kingdoms.

Pharmacopoeias were initially in Latin, the scholarly language of the time, until Flemish pharmacist Jan Bisschop (1590–1664) translated a pharmaceutical book into Dutch. Written in 1651, and most likely first printed in 1657 in Amsterdam, *Pharmacia Galenica & Chymica* compiled contemporary pharmaceutical knowledge, drawing from a range of 17th-century sources (Figure 2).²² Although Bisschop, a Jesuit and court pharmacist in Vienna, lacked formal scientific training, his book was considered scientifically sound by the doctors who approved and subsequently widely distributed it, making it a significant educational resource for pharmacists and others (such as artisans) across the northern and southern Netherlands.²³ Since Bisschop had not obtained permission for the publication from the superiors, he only used his initials, leaving the work anonymous for many years. Divided into seven parts (with later editions including an eighth appendix), the book covered essential knowledge for pharmacists and practical techniques.²⁴ In addition to recipes for medicines, drinks, porridge and soap, it also provided instructions for making inks, varnishes and gilded leather.²⁵

Pharmacists' practical experience with preparing various substances over fire also gave them alchemical knowledge. The 17th century witnessed tensions between followers of Galenic principles and advocates of newer, chemistry-based methods. Bisschop chose not to interfere in the conflict, instead describing the various principles in his book and clarifying in the subtitle what he meant by the title: 'that's Apothecary and Alchymist or Art of Distillation'. In chapter 7, he defines alchemy as follows:

Alchymia is an art that learns to decompose or melt the natural or mixed substances or to bring them back together when they are melted or decomposed to make healthier and more pleasant medicines.²⁶

In this definition, the science of materials is clearly embedded. Bisschop emphasised that alchemy was rooted in experimentation, acknowledging that mishaps were common, as mixtures could easily explode or ignite in the laboratory. In this way the term 'alchemist' would have gained its negative connotation; this well suited the followers of Galen who had an aversion to medicines produced in this way.²⁷ Pharmacists had to prepare medicinal syrups, oils, and certain raw materials, over a fire in the pharmacy, requiring cooking pots or pans. Ceramic vessels, whether or not lead glazed, were particularly suitable for this purpose. Bisschop regularly

emphasised the importance of using a new clean ceramic pot, flat pan, flask, jug and *teyle* (earthenware vessel) for preparing specific products.²⁸

The book further details various techniques for medicine production and highlights the significant role of the 'chemical furnace' (*Chemischer Forneysen*), illustrating this and other distillation equipment. The chemical furnace was made of iron, but Bisschop suggested that potters could create the upper segment with a small chimney.²⁹ For the preparation of specific products, such as tartar and iron salt (*crocus martis*), he recommended using a specialised pottery kiln.³⁰ He mentions this type of *pot backer's oven* (potter's kiln) several times in relation to the calcination of metals such as copper and lead. Unlike the large Delftware pottery kiln described by Paape, Bisschop's kiln was very small, suitable for firing just a few pots at a time. This can be found in the description to make salt, which describes putting ash into clean pots to calcine in the kiln's upper part until the pots were fired.³¹

The book's appendix also contains an early guide to ceramic restoration, offering 'a way to make cement' for repairing broken pottery. The adhesive consisted of a mixture of wax, colophonium, powder of (incense) resin, and turpentine. In early modern times, efforts were made to reuse or repair products as much as possible, and pharmacists were careful with their pots. Remarkably, attention was given to aesthetics, with Bisschop noting that matching the adhesive to the pot's colour made repairs less noticeable. Therefore, colour powders from crushed bricks or tiles, ground alabaster and cinnamon powder could be added to the glue.³² The shards were heated before applying the adhesive, and after cooling, the jar was ready for use. Another recipe for gluing cracked pots involved a thick paste of linseed oil and red lead (*menie*), applied with a knife and cured in sunlight. Once dried, the pot was reusable but not suitable for hot water.³³

Minerals, metals and stones in the pharmacy

Pharmacopoeias often dedicated an entire chapter to minerals, which were used in both internal and external medicines. A 1664 inventory list from a relatively large Delft pharmacy near the Voldersgracht includes a variety of minerals, with corresponding prices, such as *cerussa* (lead white), *bolus* (clay earth), *erugo* (Spanish green), *Plumbum ustum* (burnt lead), *Aurum foliaceum* (gold leaf) and *auripigmentum* (orpiment) – many of which also served as pigments in painting.³⁴

In pharmacies, various rocks (*lapides*), including semi-precious stones, were crushed and used in recipes. Lapis lazuli, for example, was used to produce the pigment ultramarine but also had medicinal applications, as evidenced by an apothecary jar, dated 1541 and labelled PILLE. DE.LAPIS.LAZALI (pills made of lapis lazuli).³⁵ The preparation and pill recipe can still be found in Bisschop's book. However, in the Netherlands, cobalt-containing materials,

rather than ultramarine, were used to create a blue decoration on ceramics.

Minerals also had notable applications in the pottery industry. Lead oxide (litharge) was an important ingredient in glazes that provided a glossy, watertight finish to pottery. This was significant as Delft potters aimed to imitate the thin, shiny porcelain imported from Asia by the Dutch East India Company (VOC). To achieve this, they created a glaze by calcining lead and tin in a 3:1 ratio, producing a lead-tin oxide powder (lead stannate), also used by contemporary painters as a lead-tin yellow pigment.³⁶ The tin gives the glaze its characteristic white colour, leading to this type of ceramic being known as tin-glazed earthenware. The calcination required a special reverberatory furnace, described by Paape as '*tinoven*'.³⁷ This might be the same type that Bisschop refers to as '*pot backer's oven*' in his book. The calcination of lead and tin resulted in a semi-finished product that needed further processing into glaze. Paape also mentions obtaining lead ash from lead-casters (*loodgieters*).³⁸

To enhance the gloss of their product, potters sometimes applied an additional layer of thin clear glaze, known as a *kwaart* layer, on top of the tin glaze. This layer, a pure lead glaze, used lead oxide (litharge of gold), or *goutglit/goutgelit/goudglette* in contemporary Dutch sources. Chemistry as we know it today did not yet exist and materials were identified by different names. Although the chemical distinction is not clarified, litharge is considered the most stable form of lead oxide (PbO) and a purer product compared to lead ash.³⁹

In pharmacopoeias, *goudglit* (powder or scales) appears under the Latin *Lythargyrium Auri*, listed among the minerals. Recognising lead's toxicity, it was only used externally in the pharmacy, typically in ointments, poultices, lotions and plasters (*pleijster*). Plasters were made by blending wax, oil, fat, protein and gum arabic with medicinal agents such as resins, plant extracts, turpentine and lead white.⁴⁰ This mixture was heated until it thickened into a 'hard ointment', which could then be shaped into rolls or applied to textiles. Plasters were used if a drug had to be applied to the same place for a long time.⁴¹ Considerable healing power was attributed to plasters, leading to their frequent use. Lead plasters made with *goutglit*, known for their purifying and healing effects, became standard in VOC ship medicine chests.⁴² Beyond its medicinal applications in pharmacies, *goutglit* was also found in artists' materials. The varnish recipes described by Bisschop are also based on *Lythargyrium*.

Other minerals common in pharmacopoeias, such as tartar, antimony and clays (bolus), also had uses in pottery. Mined in quarries, bolus, a natural earth pigment, contained iron oxide-rich aluminium silicate, making it suitable for decorating ceramics. Paape, in his writings on Delft pottery, recommends 'Best Bolus burned five or six times and stirred each time' as a crucial raw material for producing high-quality red paint.⁴³ Although pharmacies stocked bolus in chunks, it is unclear whether potters actually purchased it from them.

Relationship between pharmacists and potters

Pharmacists buy from potters

At the end of the 16th century, special regulations were drawn up in Delft for pharmacies, which included an article concerning the storage of medicines.⁴⁴ From this time on, pharmacies were required to improve their storage of products based on acidic ingredients, such as jams and syrups. Instead of using canisters of lead or tin, these products had to be stored in glass or glazed ceramic jars.⁴⁵ These containers were typically crafted from coarse pottery, coated with a white glaze and often decorated with colourful designs (maiolica). Three common types of 17th-century pharmaceutical pottery include the syrup jar (a convex shape with handle and spout on one foot), the cylindrical jar (albarello), and the oil jar (a cylindrical jug with ear and spout), among other forms.⁴⁶

Pharmacists frequently ordered their jars from potters, although procuring them was not always straightforward. One example is a preserved bill that records Leiden pharmacist Nicolaes Chimaer's trip to Haarlem to have pots manufactured for furnishing the pharmacy of the Catharinagasthuis (hospital) in Leiden.⁴⁷ In 1636, he reported making four trips to Haarlem, noting that he had gone twice in vain.⁴⁸ Finally, a woman named Duyfgen Steffens delivered the ordered pharmacy jars, providing a receipt for the transaction, now preserved in the hospital archives in Leiden:

Geleverd aen Nicolaes Chimaer op den 24 July 1636

*16 siroep potten
8 provisipotten
15 oli potten
25 cons ende salv potten
7 waeter kannen
14 pil potten ende spesipotten*

voor paecken ende de knecht tot drinckgelt gegeven ende beliept te samen vijftich gulden en de 4 stuvers

Delivered to Nicolaes Chimaer on 24 July 1636

*16 syrup jars
8 storage jars
15 oil jugs
25 conserve and ointment jars
7 water jugs
14 pill jars and spesi pots*

For packing and giving the servant money for drinking is together fifty *gulden* and 4 *stuvers*⁴⁹

All three basic forms of pharmacy jars are mentioned in this document, with the syrup and oil jars being easily recognisable. The cylindrical jars are noted under '*cons[erf] ende salv pots*'.

Agreessor ter begaenst van Jan Joop
 Antoni de Man Apothecaris

	Dus 20' Finij, big. 5 zout antimonium	—	0	—	17	—	0
den 24 Decem	Nocq vry list voor goud	—	1	—	12	—	0
	Nocq vry papp van diverse simplicia	—	1	—	2	—	0
25'	Nocq vry Spolma drauck van roborbor & agaris wts tot 3 made gdenichew	—	2	—	10	—	0
	Nocq vry Conyentus ofr paerd	—	0	—	5	—	0
27'	Nocq wts d' papp herb boorß	—	1	—	2	—	0
20	Nocq vry papp met botoni water geroockt	—	0	—	14	—	0
	Nocq vry groot vlijster	—	0	—	14	—	0
	Nocq vry vrygali drauck van roborbor & menna	—	1	—	4	—	0
	Nocq vry Fuloy van diverse distilatis	—	0	—	10	—	0
den 1 Januari 1620	Nocq hys qu' carles	—	0	—	3	—	0
	Nocq hys confit latoude stouck	—	0	—	5	—	0
	Nocq vry groot vlijster	—	0	—	14	—	0
2'	Nocq vry Fuloy herb boorßgoud	—	0	—	10	—	0
	Nocq wts d' vrygali boorßgoud	—	0	—	10	—	0
4'	Nocq wts d' vrygali	—	0	—	10	—	0
5'	Nocq vry Spolma drauck met 2 onstly sirop van roborbor	—	1	—	14	—	0
	Nocq 2 onstly sirop van suer	—	0	—	6	—	0
0'	Nocq vry vrygali drauck van agaris wts & menna	—	1	—	2	—	0
	Nocq vry Fuloy met vrygali sirop	—	0	—	16	—	0
	Nocq vry sirop on te eish	—	0	—	5	—	0
	Nocq vry olij on te streich	—	0	—	6	—	0
	<u>Summa</u>	—	19	—	11	—	0
	Hier tegenover goud is gegaen an zott	—	5	—	1	—	0
	<u>Rofft</u>	—	14	—	10	—	0

Ich onderaghten dat hiem van vrygali sirop
 van van Joop hield boedag te hys d' d' 8 April
 Ant. 1620 Antoni de Man Apothecaris

Figure 3 Bill of pharmacist Antoni Cornelisz de Man, dated 8 April 1620 (photo © Gemeente Archief Delft).

Transcription bill Jan Joppen 1620

Ghelevert ten behouwe van Jan Joppen
&[per-door] Antonij de Man Apotecaris

		gul-	st	p*
	<i>Den 28^e Junij 1619. 5 pont antimonium</i>	0	17	8
den 24 Decem-	<i>Noch een clisteer geset</i>	1	12	0
	<i>Noch een pappe van deversse simplicia</i>	1	2	0
25 ^e	<i>Noch een Aposema dranck van roberber en agaricus tot 3 mael gebruijckens</i>	2	18	0
	<i>Noch een vnguentum ofte salve</i>	0	5	0
27 ^e	<i>Noch eens de pappe als voorS-</i>	1	2	0
28	<i>Noch een pappe met betonij water gecoockt</i>	0	14	0
	<i>Noch een groote pleijster</i>	0	14	0
	<i>Noch een purgasi dranck van roberber en manna</i>	1	4	0
	<i>Noch een Julep van deversse distilatie</i>	0	18	0
den 1 Janua-	<i>Noch aen que carlen</i>	0	3	0
1620	<i>Noch aen consite latouw steelen</i>	0	5	0
	<i>Noch een groote pleijster</i>	0	14	0
2 ^e	<i>Noch het Julep als voorschreven</i>	0	18	0
	<i>Noch eens den selfden soercoeldranck</i>	0	18	0
4 ^e	<i>Noch eens het selfde</i>	0	18	0
5 ^e	<i>Noch een Aposema dranck met 2 onssen sijroop van roberber</i>	1	14	0
	<i>Noch 2 onssen sijroop van fiolen</i>	0	6	0
8 ^e	<i>Noch een purgasi dranck van agaricus en manna</i>	1	2	0
	<i>Noch en Julep met eenige sijroope</i>	0	16	0
	<i>Noch een sijroope om te licken</i>	0	5	0
	<i>Noch een olije om te strijcken</i>	0	6	0
	<i>Summa</i>	19	11	8
Hier tegens hebbe ick gehadt aen potten		5	1	0
	<i>Reste</i>	14	10	8

Ick ondergeschreven bekenne van wegen het sterfhuijs
van Jan Joppen alles voldaan te sijn Actum den 8 April
An^o. 1620 Antonij de man Apotecarus

*[Bill in gulden, stuivers and penningen. 1 gulden (f) = 18 stuivers, 1 stuiver = 16 penningen.]

[First lines:] Delivered to Jan Joppen by apothecary Antonij de Man

antimonium = antimony

Noch een = another

clisteer = intestinal lavage

pappe = pulp, applied externally

deversse = various

simplicia = single raw material, medicine ingredient

Aposema dranck/ soercoeldranck = (cold) drink, used for fever and other ailments that were thought caused by an excess of heat

roberber = rhubarb

agaricus = mushroom

Tot 3 mael gebruijckens = up to 3 uses

vnguentum / salve = ointment

als voorS: = as before

betonij water gecoockt = decoction of betonie

purgasi dranck = purifying drink

manna = air-hardened sap that runs from trunk and branches of the *Fraxinus ornus*, when injured (used as laxative)

Julapium = mixture of water, sugar (usually honey) and plant decoction(s)

que carlen: ?

latouw steelen = reed-like plant whose stems were used

het selfde = the same

fiolen = violets

sijroope om te licken = syrup to lick

olije om te strijcken = externally applied oil

[Last lines:] Against this I have had pots

I, undersigned, declare that by the death

of Jan Joppen everything is paid for on 8 April 1620



Figure 4 Cornelis de Man, *Collective portrait at the apothecary's in Delft, "In the mirror"*, c.1670, oil on canvas, 90 × 112 cm, National Museum Warsaw, inv. no. M.Ob.22 MNW.

Many plain white tin-glazed ointment jars were also produced for pharmacies.⁵⁰ Sticky medicines, which could not be wrapped in paper, were often stored in such jars. While mussel shells were sometimes used for similar preparations, these small jars provided a more practical solution. Typically, a small quantity was transferred from the large pharmacy cylinders into one of these jars, which was then sealed with a pig's bladder tied with string. These jars were also used to store other materials such as pigments.⁵¹ Additionally, many small and cheaper jars were produced with a transparent lead glaze instead of a tin glaze. The inventory list of Harlinger pharmacist Siedt Pytters' property, dated 13 June 1684, lists 380 red jars, 51 green jars and 42 white jars.⁵²

Potters buy from pharmacists

The transaction between apothecary Nicolaes Chimaer and Duyfgen Steffens demonstrates clearly that apothecaries acquired pharmaceutical pottery from potters. In turn, potters also visited pharmacists to obtain medicines and raw materials, as shown by two surviving bills from Delft pharmacists, dated 1620 and 1636. This period is particularly interesting, as Delft's pottery industry was undergoing significant expansion and refinement. By 1620, the city was home to 8 factories; by 1640, this number had increased to 11, and by 1670, it had reached 28 potteries.

These bills are the only known documents of this kind from the period, as no extensive archival research on the topic has been conducted. Such research could require skills in interpreting pharmacists' handwriting as well as understanding the Latin or period-specific names of multifunctional drugs and minerals. It is plausible that similar records may exist in archives elsewhere.

The first bill (Figure 3), attributed to pharmacist Antoni Cornelisz de Man (1587–1665), provides a fascinating glimpse into 17th-century pharmacy activities.⁵³ Antoni took over the pharmacy named *De Spiegel* around 1612, located on the Koornmarkt in Delft. A portion of the pharmacy, featuring a fireplace, appears in a painting by Antoni's cousin (Figure 4). Although the bill is dated 28 June 1619, it was written after the death of a man named Jan Joppen in 1620. It opens with a mention of '5 *pont* (pound) antimony', and proceeds to list various medicines, primarily cold drinks against fever, laxatives, ointments, poultices and syrups.

As previously mentioned, antimony was a common component in 17th-century medicines and, according to the pharmacopoeia, a standard item in pharmacy inventories. Potters, however, also used antimony to create a yellow colour for pottery. The significant quantity of antimony listed on this bill suggests that the buyer may have been a potter, a theory further supported by the note at the bottom: 'here I have had the jars'. This statement implies that De Man had ordered jars for his pharmacy, with the cost of the jars balanced against the medicines and materials supplied to the potter. The bill provides a valuable reflection of

Hoor Koninge van Eybert Jansz
 plateelbaeker.
 Jansz seft met sey goudt hout des 22 Jan
 1636 2 id mij sey vorf Jendies goudt.
 des schme was ties guld — 10-10-0
 22 Jan 60 fl goudt guld — 6-0-0
 11 fl. 60 fl goudt guld — 6-0-0
 nos 60 fl goudt guld — 6-0-0
 22 fl. van Echts amandele — 2-4-0
 id Martij 70 fl goudt guld — 7-0-0
 4 fl antimon — 1-4-0
 13 22 Cordiaal water met boue
 Elixer vitz Matot: sparcklynder — 1-1-0
 nos 22 22 — 1-1-0
 22 water ties — 0-7-0
 22 klifoor — 1-10-0
 22 Cordiaal water — 0-14-0
 Som — 2-44-3-2
 5-7-0
 and vest nos vout vofoume:
 van me ges guld: — 2-2-0-0
 Som: 53-2-2
 49-0-0

Naer gesaelt vande doel van Salijer
 Eybert Jansz plateelbaeker dese
 naar volge neder inge.
 Jansz seft des 22 Martij 1636
 60 fl goudt guld — 6-0-0
 60 fl goudt guld — 6-0-0
 54 fl goudt guld — 5-2-0
 Som: 17-2-0
 dander so: — 53-0-0
 Som: 70-2-0
 In vider gesen ver bekome van dese Jan
 dan de lye betaelt te sijn of 12 Midy 1636
 voor Me^r Jean Boogaert

Figure 5 Bill of pharmacist Johan Cornelisz Boogaert, dated 17 May 1636 (photo © Gemeente Archief Delft).

Transcription bill Egbert Jansz van Swennen 1636

	<i>Reeckeninge van Egbert Janssen plateelbacker. Inden eersten met hen gereeckent den 22 Jan- en is mij suiijvers sculdich gebleven</i>					
1636		<i>de somme van tien guld-</i>	<i>dus</i>	10	0	0
28 Jan-		<i>60 lb. [pond] goutgelit</i>		6	0	0
		<i>8 lb. antimon-</i>		2	8	0
11 Feb:		<i>60 lb. goutgelit</i>		6	0	0
		<i>noch 60 lb. goutgelit</i>		6	0	0
		<i>aen ol: van Soete amandelen</i>		0	4	0
18 martij		<i>70 lb. goutgelit</i>		7	0	0
		<i>4 lb. antimon-</i>		1	4	0
13		<i>een Cordiael water met 3 once</i>				
		<i>Elixer vite mathiol-: en parel suycker</i>		1	8	0
		<i>noch eens een</i>		1	8	0
		<i>een watertien</i>		0	7	0
		<i>een klisteer</i>		1	10	0
		<i>een Cordiael water</i>		0	14	0
		<i>Somma</i>		44	3	0
				5	7	0
		<i>ons rest noch van hout [van ouds] de somme van negen guld:</i>	<i>dus</i>	9	0	0
			<i>Som-</i>	53	3	
				5	7	0?
				48	6?	
	<i>naer gehaelt vande doet van Saliger Egbert Janssen plateelbacker dese naer volgende d'ingen Inden eersten den 29 martij 1636</i>					
		<i>60 lb. goutgelit</i>		6	0	0
		<i>60 lb. goutgelit</i>		6	0	0
		<i>54 lb. goutgelit</i>		5	8	0
			<i>Som-</i>	17	8	0
			<i>d'andere so-</i>	53	3	0
			<i>Som-</i>	79	11	0
	<i>Ic onder gescreve bekenne van dese som- danckelijc betaelt te sijn desen 17 Meij 1636 foor me Joan Bogaerts</i>					

[First lines:] Bill of potter Egbert Janssen. Counting with him from 22 January 1636 and owed me

de somme van = the amount of
tien guld = ten gulden
goutgelit = litharge of gold
antimon = antimony
ol: van Soete amandelen = sweet almond oil
Cordiael water = water for the heart
Elixir vite mathiol = elixir of life
parel suycker = pearl sugar
noch eens = another
watertien = ?
klisteer = intestinal lavage
vande doet = of death
dese naer volgende d'ingen = these to next things

[Last lines:] I, undersigned, I declare that the amount has been gratefully paid on 17 May 1636 for me, Joan Bogaerts

a pharmacist's role in this era, as they were sought out not only for medicines and materials, but also, when needed, to perform medical procedures.⁵⁴

The second bill (Figure 5), created by the apothecary Johan Cornelisz Boogaert (?–1661), sheds light on the periodic purchases made by a master potter in the year 1636.⁵⁵ Boogaert's pharmacy, located on the Wijnstraat in Delft, issued this bill following the death of master potter Egbert Jansz van Swennen.⁵⁶ Like the previous bill, it includes antimony among the purchased materials, along with lead, listed as *goutgelit*. The bill shows monthly transactions: at the end of January, 60 pounds of *goutgelit* and 8 pounds of antimony were bought, followed by two additional 60-pound orders of *goutgelit* two weeks later. On 18 March, 70 more pounds of *goutgelit* and 4 pounds of antimony were purchased.

By the end of March, another 178 pounds of *goutgelit* were recorded across three purchases, totalling 428 pounds of *goutgelit* and 12 pounds of antimony over a two-month period. This bill shows that antimony cost exactly three times more per pound than lead. It is no coincidence that antimony and lead oxide were purchased together. Over 150 years after the bill's date, we still find the combination of antimony and *goudglit* in a recipe for making 'a yellow' in Paape's handbook for producing yellow colour on Delft pottery. A pharmacopoeia contains instructions on how a pharmacist had to burn lead to obtain lead oxide, although it remains unclear whether, in this particular case, it was prepared in the pharmacy or if the pharmacist had acted as an intermediary. In addition to raw materials, medicines were delivered on the last date on the bill. The *Elixir vite Mathioli*, an elixir with 'life-prolonging' power, was included but, sadly, did not extend the potter's life for long as he died a short time later.

What is unclear on the bill is the passage '*ons rest noch van hout de somme van negen guld:*' (us rest for wood the sum of nine *gulden*). Did the potter also buy a batch of wood from the pharmacy? It is also possible that this should be interpreted as '*vanouds*' (traditionally), referring to a known purchase or customary service that required no further explanation.⁵⁷

Conclusion

In 17th-century Holland, pharmacists and potters had a close, reciprocal relationship. Potters supplied pharmacists with essential ceramic vessels such as pots, pans and jars used for preparing, storing and dispensing of medicines, as well as specialised components for their chemical furnaces. Conversely, pharmacists sold products with both medical and artistic applications that were valuable to potters. Pharmacopoeias and pharmacists' handbooks from this period thus serve as valuable resources that occasionally include recipes for producing artists' materials and restoration materials. Pharmacists, mindful of the care needed for their jars, also shared prescriptions for repairing broken items. Notably, in the work of pharmacist Jan Bisschop, two recipes for adhesives used for mending broken jars can be found.

With extensive hands-on experience in preparing medicines, pharmacists developed extensive knowledge of materials and their behaviour when exposed to fire. Both pharmacists and potters used reverberatory furnaces for the calcination of metals. The pharmacist and alchemist Johann Kunckel significantly contributed to the knowledge of tin-glazed earthenware. As the 18th century unfolded, however, a gradual shift occurred in drug preparation practices, with pharmaceutical chemistry gradually evolving into an independent science, increasingly conducted outside the pharmacy.⁵⁸

In Delft, two potters purchased antimony and lead (oxide) from a pharmacy in addition to medicines, as evidenced by two preserved bills. While the discussed bills provide a glimpse into this intriguing aspect of history, it is conceivable that more documents of this nature may be preserved in archives yet to be explored. Further archival research in Delft or beyond could reveal additional insights into the transactions between pharmacies and potters.

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Notes

1. Paape 1794.
2. Van Lookeren Campagne-Nuttall 2022.
3. Bosman-Jelgersma 1994.
4. For further study see *Liber de Vinis* by Arnald de Villanova (1240–1311) who provided the first authentic and detailed description of distilling essential oils for medical purposes, and Henri de Mondeville (c.1260–1320) who played an important role with his *Chirurgia* in the development of medicine books for pharmacists.
5. Wittop Koning 1986: 20.
6. Clarke 2011: 14.
7. Van Duin et al. 2017.
8. Bosman-Jelgersma 1994: 60.
9. Pharmacia (*arsenijmengkunde*) is divided into pharmacia Galenica & pharmacia Chemica.
10. Bosman-Jelgersma 1994: 60, 62.
11. Wittop Koning 1986.
12. Von Kerssenbrock-Krosigk 2008.
13. Ibid.
14. Van Aken-Fehmers 2013: 130.
15. Engle 2014: 4.
16. M. Didier, online lecture, 'Alchemie, Kunst en Erotiek', Embassy of the Free Mind, 11 April 2024.
17. Van Aken-Fehmers 2013: 130.
18. <https://doi.org/10.1080/00026980.2020.1826823> (accessed 17 October 2024).
19. Van Aken-Fehmers 2013: 130.
20. Wittop Koning 1986: 70.

21. *Pharmacopoea Amstelredamensis of d'Amsterdammer Apotheek*. Amsterdam, 't Amsterdam Nicolaas ten Hoorn. 1723. Sammlung Vester (DFG) / *Pharmacopoea Amstelredamensis of d'Amsterdammer Apotheek* (uni-duesseldorf.de) (accessed 3 August 2024).
22. *Bisschop 1657*; *Vandewiele 1975*.
23. For example, the Dutch historian and artist, Simon Eikelenberg (1663–1738) was aware of Bisschop's work. In Part 3 of 6, number 324 of the 'Eikelenberg transcriptions', he refers to Bisschop's work on 'yellow varnish on gilded leather'. See also *Boeynaems 1957*.
24. een *bijvoegghsel of aanhangsel inhoudende: verscheyden Recepten ende Secreten seer goet, nut, ende profijtig van den apotheker geweten, in gene Boecken beschreven*.
25. *Bisschop 1657*: 441.
26. *Ibid*: 323.
27. *Ibid*.
28. *Ibid*: 440.
29. *Ibid*: 342.
30. *Ibid*: 392 and 394.
31. *Ibid*: 378.
32. *Ibid*: 438.
33. *Ibid*: 439.
34. *Bosman-Jelgersma 1979*: 395.
35. *Wallis 1904*: xiv.
36. *Van Lookeren Campagne-Nuttall 2022*.
37. *Ibid*: 92.
38. *Paape 1794*: 56.
39. *Van Iperen et al. 2024*: 9.
40. *Bosman-Jelgersma 1994*: 66.
41. *Ibid*.
42. *Gawronski et al. 1992*: 214.
43. *Paape 1794*, 'Beste Bolus vijf a zesmaalen gebrand en telkens omgeroerd'.
44. *Bosman-Jelgersma 1979*: 38.
45. *Ibid*: 377.
46. *Wittop Koning 1991*.
47. *Ibid*: 46.
48. *Ibid*.
49. Unless stated otherwise, all translations are by the author.
50. *Van Aken-Fehmers 2013*: 107.
51. *Van Geenen 2013*.
52. Zie www.kleinekerkstraat.nl boedelinventarissen. Tresoar, Nedergerecht Harlingen (13-16) inv. nr. 217 folio 83r.
53. Gemeente Archief Delft, inv. no. 1309 Weeskamer (archieff nr. 72).
54. 'een *clisteer geset*' (intestinal lavage).
55. *Bosman-Jelgersma 1979*: 133-4.
56. Gemeente Archief Delft, inv. no. 2549 Weeskamer (archieff nr. 72).
57. Transcription Menno Leenstra.
58. *Wittop Koning 1986*.
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