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Wax, cash and the mass. Making candles affordable in Late Medieval economies[1]

1.

Wax was an indispensable element of Christian religious devotion in the later Middle Ages. From the end of the twelfth century wax candles were required at the elevation of the Host, and over the thirteenth century the number of wax candles deemed necessary for Christian observance grew exponentially. By the fourteenth century numerous wax candles burned on and above the altars, before the cross, the baptismal font, in front of images and relics, in shrines and around tombs in every church in Europe. Additionally, vast numbers of wax candles were used during ordinary and extraordinary processions inside churches and on the streets, for such impressive festive displays such as the spectacular vigils of the Holy Ghost during Easter (Sapoznik 2019).

Wax was so crucial and ubiquitous in the liturgy that it fuelled the internal economy of religious institutions. This paper will analyse the use, reuse and barter of wax in circular economies within cathedrals, monasteries and professional guilds. It begins by examining the well-elucidated organization within English institutions, which will provide the background and context for a detailed case study of the confraternity of Orsanmichele in Florence, one of the best-attested examples of the circulation of wax within a religious institution, shedding light on what must have been widespread practice, especially in larger organizations, throughout Latin Europe.

The ledgers of the institutions under study demonstrate that both ecclesiastical and lay entities in the Christian West used large amounts of wax on a yearly basis for liturgical celebrations. Chandlers and apothecaries provided the candles, often in a monopolistic arrangement. Although there was some variability depending on the region or the period, it was common for burned wax stubs to be returned to the chandlers so their price could be directly discounted from the subsequent shipment of new candles. Larger candles (for example the Paschal candle, which could weigh up to 200 kg) could be partially rented to the institutions, who paid the full price for the completely burned wax, but only a lease for the remaining section of the candle that had been exhibited. Wax was a costly material, imported in large

[1] Acknowledgements: The research for this paper was funded by the Leverhulme Research Project Grant 'Bees in the medieval world: economic, environmental and cultural perspectives' (Leverhulme RPG-2018-080), held at King's College London.

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Referee List (DOI 10.36253/fup_referee_list)
FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Alexandra Sapoznik, Lluís Sales i Favà, *Wax, cash and the mass. Making candles affordable in late medieval economies*, © Author(s), CC BY 4.0, DOI 10.36253/979-12-215-0347-0.27, in Angela Orlandi (edited by), *Mezzi di scambio non monetari. Merci e servizi come monete alternative nelle economie dei secoli XIII-XVIII / Alternative currencies. Commodities and services as exchange currencies in the monetarized economies of the 13th to 18th centuries*, pp. 455-474, 2024, published by Firenze University Press, ISBN 979-12-215-0347-0, DOI 10.36253/979-12-215-0347-0

quantities from peripheral zones such as the Black Sea, Baltic hinterland, and the Maghreb, all regions which specialized in supplying wax of different qualities for this purpose (Sales i Favà, Sapoznik, Whelan 2021). This system and its variations allowed the necessary wax for the institutions to remain affordable.

The use of wax as a means of payment was not necessarily responding to a shortage of liquidity within an institution, but was the most straightforward mechanism to reutilize burned wax – still valuable – and cut the costs of buying new candles. As a consequence, both new and old wax could be used a means of payment between institutions and as a stipend for public officers. The paper will also deal with the latter, as it became a common currency for internal economies in which cash was partially substituted.

2.

Within larger religious institutions, the sacrist, who was in charge of maintaining the church, was responsible for supplying the majority of the wax and candles throughout the year. After payments for the fabric of the church, wax was the single most important expenditure of this office, which also included supplying oil, wine, incense, the Host, palms and ashes during Holy Week, and so on (Sapoznik 2019, 1159). Institutions associated with important saints' cults also had obedientiaries known as feretrars, or shrine keepers, who were responsible for the supply and maintenance of candles specifically for the shrine. In some institutions, such as Christ Church Canterbury, which housed the shrine to St Thomas Becket – probably the most famous and well-provisioned shrine in medieval England – the wax needed was so extensive that the sacrists acquired the wax for their office through the larger purchases of the feretrar (Nickson 2020). Between them, these two offices dealt with almost all of the wax required throughout the year within larger ecclesiastical institutions.[2] At the Abbey of Bury St Edmunds (Suffolk) for example, the sacrist provided the treasurer with 10 lbs (4.5 kg) of small candles and two candles of four lbs (1.8 kg) every week in summer, an amount which increased to 15 lbs (6.8 kg) of small candles in winter, and an additional four candles weighing 10 lbs for feast days. The treasurer dispensed these candles to the relevant brothers, including two torches for the prior when he ate in his chamber, or the subprior if he was taking the place of the prior, between the Nativity of the Virgin Mary and the Purification (8 September to 2 February), and each pair of brethren a torch between them (Gransden 2007, 265).

The provisioning of wax candles can therefore also demonstrate the particular institutional arrangements within these foundations. Since in large institutions obedientiaries were allocated manors or lands from which to receive the funds for their offices, the question arose over whether they should also keep the money received from the rents and profits of these manors and make the necessary payments themselves, contributing some portion of their incomes to the treasurer to be disbursed centrally, or, as at Christ Church Canterbury and Bury St

[2] Parish churches, too, required extensive provisioning of wax, and this was handled by the churchwarden (Sapoznik 2019, 1155).

Edmund's, that the income received from the properties given over to the various offices should be administered through stewards or treasurers who then gave all the income to the treasurer who disbursed the funds back to the obedientiaries as needed (Snape 1968, 85).[3]

2.1

The custumal of the Abbey of Bury St Edmunds (Suffolk) gives an indication of how candles were supplied to the community via a highly centralized administrative system. Scrupulous attention to the provision of wax demonstrates the importance of the commodity within the institution and its accounting framework. Thus even the candles for the servant who brought the prior's ale while he was eating in his chamber were accounted for, and it was specified that the candle to be given by the sacrist to the prior at Candlemas should be offered only if the latter was present at the Abbey, otherwise it could be offered in absentia if noted that it was a grace to ensure it was not enshrined as custom (Gransden 2007, 208; 265-66). Later additions to the customary stipulate the size of the candles to be supplied to the prior (14 inches, 35.5 cm, and not too thin), suggesting either that the prior was being short-changed or in danger of being too generously supplied, but in either case indicating the status associated with proper wax provision (Gransden 2007, 266).[4] This candle was but one part of the generous stipend allowed for the prior, from which he was not parted even in death: at Christ Church Canterbury, the 56 lbs of wax recovered from the room of Thomas Goldston when he died in 1468 were used for his burial and month's mind (Woodruff 1936, 62).[5]

This careful accountancy of wax continued throughout the offices and among the communities of religious institutions. At Canterbury, the feretrars supplied two torches for the high altar, two of which were to burn from *Sanctus Sanctus* until after the elevation of the Host, each 8 ft tall (244 cm) and weighing 12 lbs (4.5 kg), to be renewed three times a year to maintain their size. Carrying such torches was likely to be unwieldy, and anyone who broke one had to pay for its repair out of his food allowance in the refectory (Woodruff 1936, 79). The presence of a such a wealthy and important shrine offered a means for spreading the burden and cost of provisioning the wax. For example, the shrine keeper also supplied wax for the brethren at the Purification (Candlemas, 2 February) regardless of whether they were present or not, according to the status of the recipient, including 3 lbs wax for

[3] This also explains the development of various obedientiary records, which can include a variety of information from straightforward manor accounts to shorter lists of rents, or more detailed accounts listing the minutiae of expenditure for the offices: compare for example Westminster Abbey Muniments Sacrist Rolls (WAM) 19621-19807 with Cambridge University Library Ely Dean and Chapter (CUL EDC) Sacrist Rolls 4a, 9a-b, 7, 18.

[4] Wax candles could also form part of payments to officials within secular households, as in Henry I's household where the chancellor was given «1 large wax candle and 40 pieces of candle» while other officers were paid in wax according to their status (fitzNigel 2007 198).

[5] See also Canterbury Cathedral Archives (CCA) DCc-Sacrist/46.

the prior, 2 lbs to other obedientiaries such as the refectorian, and 1 lb to the other monks (Jenkins 2022, 77). The monastery also maintained a separate room called the *deportum* (in other houses this was known as the misericord) in which small groups of monks could stay and eat without the usual restrictions of a Benedictine diet. The wax for the masses conducted there was supplied by the feretrar unless the sacrist was present, in which case it was he who supplied the wax (Jenkins 2022, 43). In institutions with less lavishly funded shrines than that of Canterbury, the sacrist remained the more important office for provisioning wax, facilitating its circulation throughout the institution, as at Ely where the sacrist bought 8 lbs wax from the cellarer and passed the same amount on to the infirmarer.[6] The cellarer's role also included the provision of candles in the refectory – as at St Swithun's in Winchester where the cellarer was responsible for the lights which burned 'night and day' in front of the cross in the refectory, although it was the refectorian who provided the 15 tapers for the chandelier hanging in front of the cross on Absolution Thursday (Kitchin 1886, 32).[7] At Exeter in 1444 six more candles were burned than was customary for obits in the cathedral, for which the treasurer charged the sacrist an extra 20d (Meyers 1996, 773).

2.2

The attention paid to the division of responsibilities regarding wax provision and the regulations around its supply extended also to the receipt of used wax and candle ends. In 1413 two valets of the Earl of Arundell were paid £1 6s. 8d. for melting the wax left over from the hearse of Richard II at Westminster Abbey and delivering it safely for the use of household of Henry V (Devon 1837, 328). Arguments over who should properly receive leftover wax could also arise. One such instance is that at St Paul's in London over the oblations left at a popular image of Mary. The burning candles and wax ends had long been taken by the chamberlains and bell ringers to a special chamber underneath the chapterhouse to be melted into candles for the dean and canons resident, but in the early fifteenth century, the bishop of London decided he wanted to take the income from the image for himself – something the dean and canons refused. In 1411 the Archbishop of Canterbury intervened to arbitrate, deciding in favour of the dean and canons, in a case which demonstrates the significant income generated through the recycling of candlewax (Dugdale 1658, 19).

Candle provision for funerals was one of the most popular bequests of late medieval wills, and it is unsurprising, given the religious and demographic trends of the later fourteenth and fifteenth centuries that candles for funerals and obits were a source of considerable potential income (Sapoznik 2019, 1156-57). Thus at Abingdon (Oxfordshire) in 1396 the monks petitioned the pope regarding the ancient custom by which they obtained the wax for the funerals of parishioners of the local church who were buried in the monastery's cemetery, including one candle

[6] CUL EDC Sacrist 18 (45 Edward III).

[7] The cellarer was allowed to re-use the candles from the tables for a corona near the chandelier (Kitchin 1886 32).

per person and a quarter penny, and all of the oblations offered for the obits (Snape 1968, 85). In a similar manner in the mid-fifteenth century the friar John Bredon spoke against the attempts of the monks at the cathedral church of Coventry to take for themselves the wax used in parishioners' funerals, noting instead that the unused wax from the candles which had lit the way to the burial should be reserved for the use of the parish church where the person was buried, or at for least those who had been involved in administering the sacraments to the deceased – a group which did not, apparently, include the brethren (Meyers 1996, 687).

The re-use of old wax was common across all types of religious foundation.[8] The feretrars of the shrine to St Etheldreda at Ely Cathedral made separate entries for incomes from wax and money. In 1421/2 the shrine keepers sold 64 lbs (29 kg) of wax to pilgrims for 21s. 4d. at a rate of 4d. per pound. The following year they sold 174 lbs (79 kg) again for 4d. per pound.[9] Given that the cathedral bought wax at a rate of 3.45d. per pound including transport and manufacture of candles that year, the cathedral was making just over a half penny per pound of wax, which would have accounted for about 8s. for the total amount of wax sold that year – in the grand scheme of cathedral expenses, hardly an enormous moneymaking activity. Yet as has been seen, wax candles were rarely burnt all the way down to the end. That the cathedral was reforming old wax into new candles is indicated from further entries in the feretrars' accounts, in which only the cost of manufacture is listed, usually at between 1.5-2d. per pound. If the cathedral was in fact selling a proportion of the wax more than once, the profit margins may have been substantial indeed. Moreover, shrines also attracted large numbers of wax votives and candles brought from outside the cathedral precincts which could then be put back into circulation within the wax economy (Acta Sanctorum 48 1765, 594-95; Nilson 1998, 108).

Although the wax used by institutions of varying sizes was most often obtained through cash purchases, it could also be acquired through rents in kind. Here, the churchwarden's accounts of St Dunstan's Canterbury (Kent) are instructive. In 1490 rents of 0.25 lbs (0.11 kg) were owed for three tenements and a half pound of wax (0.23 kg) for two tenements, all of which were valued at 8d/lb. Such nominal amounts must have represented only a small portion of the rents owed overall, and were likely more symbolic gestures in support of the church and its mission, than providing a significant proportion of the wax used in a year – that same year the church purchased 31 lbs (14 kg) of new torch wax for 10s. 4d., to be added to 10

[8] Examples of re-using wax are ubiquitous. As examples, in 1394 New College Oxford bought 76 lbs of old wax for 5.5d/lb (new wax cost the college 6.75d/lb that year); in 1445/6 Westminster Abbey paid the London wax chandler William Broke £41 3s 6d for new wax and for making candles from old wax and subsequent years note the labour for re-making wax was paid at a rate of 0.5d/lb - the same rate paid by Magdalene College Oxford in the late fifteenth century. It is clear that huge amounts of old wax were available for re-forming, such as the 451 lbs of old wax made into candles in 1453/5 at a cost of 21s 3.5d (New College Box 24 7342 (18-19 Richard II); Westminster Abbey Muniments 19695, 19702, 19703, 19074; Magdalene College libri compoti 1481/2 f.9v). This also occurred in smaller institutions, such as at St Edmund's, Salisbury, where 70 lbs of old wax were put toward the rood light in 1543/4 (Cox 1913, 54).

[9] CUL EDC 1/F/11/1-2 (Freretrars rolls); the price increased over time and reached 6d/lb by the later fifteenth century: CUL EDC 1/F/20 (1492).

lbs of old wax for 10d (Cowper 1885, 297-99).[10] Yet just because these rents were relatively small did not mean they were unimportant, as the church's pursuit of six years of back payments for wax rents from its tenant Jeffrey Peke shows. The itemised list of court costs amounted to 23d. (almost six days' work for an agricultural labourer) to receive the 3 lbs owed for rents of a half pound per year. It was apparently not uncommon for these rents to be paid reluctantly or not at all: in 1490, rent arrears were noted for two further tenements, one of whom, Richard Larkyn, was recorded as owing ten years of wax rents valued at 20d by 1500. Large institutions, too, could charge payments in wax, such as 4 lbs (1.8 kg) received in 1429 as forfeiture «from the tenants within the gate» at Christ Church Canterbury, valued at 2s or 6d/lb (Cowper 1885, 312; Woodruff 1936, 55).

2.3

However wax entered the institutions, it became part of a circular economy to be made, burned, re-formed, and burned again, circulating constantly through different hands and offices, bought, sold, and bought again, at each stage every re-weighed pound scrupulously accounted for. The care and attention given to the maintenance of wax, the provision of precisely weighed candles, the collection of melted wax and burnt ends all demonstrate the ways in which wax was a became a meaningful medium of exchange within religious institutions and, via rents in kind and pious bequests, entwined the laity into these internal networks of exchange.

The accounts from England are rich sources for understanding the institutional contexts for this circular economy of wax and offering detailed serial information for annual wax purchases. Nonetheless they rarely provide the serial information necessary to fully understand the circuits of consumption and use in their entirety. In contrast to this, the accounts of the confraternity of the Laudesi of Orsanmichele in Florence are among the most detailed extant documents to record the use of wax and its movement through an institution and offer unparalleled insight into this practice.

3.

In mid-March of 1365 two men, Francesco di Boccio and Franceschino Pepi, audited the accounts of the wax used by the lay confraternity known as the Compagnia dei Laudesi of Orsanmichele in Florence.[11] The result of their work, in

[10] Wax rents were also found in more rural settings, where again they were often small, such as the candle rents at Flintham (Nottinghamshire) in the fourteenth century: The National Archives (TNA) WARD 2/60/234. Although it should be noted that while small in terms of the amount needed annually, a half-pound of wax was substantial in terms of household production and the environmental constraints on bee productivity in England: Sapoznik 2019, 1170; Sapoznik forthcoming.

[11] Archivio di Stato di Firenze (ASF), Congregazioni Religiosi Sopprese (CRS), Capitani di Orsanmichele (OSM) 227, f. 3v (14-3-1365). Reference works about the confraternity (funded in 1291)

only half a folio, provides a clear picture of the amount of wax that had been funneled into the institution, and of the complexity of its management. The auditors stated that during the preceding accounting year, which started on 20 April 1364, all the wax gathered from the oratory which the confraternity ran in the grain market, the Loggia del Grano, accounted for 4,366 libbre (lbs). Furthermore, the guilds of Florence had made offerings amounting to 775 lb of wax. The institution had also bought another 1,610 lb for unspecified uses. These 6,751 lb correlate with the amount of wax Orsanmichele had sold during that same period in the form of candles (6,166 lb), and for the masses and the liturgical services that featured the vernacular sacred singing before the image of the Virgin, or *laude* (428 lb) (Wilson 1989). All of the wax sold or used totaled 6,594 lb. The difference between the income and the outcome of wax – 157 lb – was kept by the treasurer. This snapshot of a given year indicates that the confraternity sought to balance the amounts of wax entering and leaving the institution, and that their aim was to compensate the everyday expense of this product with the oblations made in the oratory, in addition to raising extra revenues. With the aid of several extant ledgers, the following paragraphs analyze this accounting system, in which cash was mostly substituted by the flow of wax. The focus is the 1350s and 1360s, from which a set of these books are under custody of the Archivio di Stato di Firenze.

3.1

By the early fourteenth century, the confraternity of Orsanmichele had become the main distributor of alms to the poor in Florence, and the popular cult which had developed around its sculpture of the Madonna received offerings of votive wax in massive quantities. Most of this wax was supplied directly on-site by the confraternity itself.[12] Accounts corresponding to the candles sold in the oratory of Orsanmichele have been preserved for the period from September 1352 to December 1365 (although with a two-year gap between July 1362 and 1364). These provide 1,461 different entries, which indicate the reception of bundles (*mazzi*) by Orsanmichele, which probably contained 80 slim candles of about 4 gr each.[13]

The candles were acquired from the chandlers in the city by the main officers of the confraternity, the treasurer (*camarlengo*) or the syndic, and were afterwards handed to the individual in charge of selling them. This officer (the *messo*) was

and its oratory in the market of Orsanmichele are: La Sorsa (1902), Finiello Zervas (1996a, 1996b and 2015), Henderson (1997 196-237) and D'Aguanno Ito (2024).

[12] As was common at other institutions such as the cathedral of the city (Fabbri 2002, 15). The candles and votive images sold in the sanctuary of the Santa Casa in Loreto near Ancona also yielded large revenues in the fifteenth and the sixteenth centuries (Moroni 2016).

[13] We do not have direct evidence of the composition of each of these bundles. Nonetheless, if we take into account that thin candles produced in the city (*candele de due denari*) could typically weigh 4 gr, and that on average each bundle purchased from the apothecaries weighed 318 gr, it can be suggested that the bundles contained 80 pieces each (ASF, CRS, OSM 222 and 227). In 1353, the guild in which the chandlers were organized (*medici e speziali*) banned the production of candles weighing less than 2 gr each. Labelled as *candele derratale,* the consuls of the guild could decide the minimum weight every year (Ciasca 1922, 244). See also Shaw and Welch (2011, 168) which supports these estimates.

Francesco di Lora between 1352 and 1355 (Finiello Zervas 1996a, 39-40, doc. 33), and from that date on Chiaro Benvenuto (a man of the same name would become treasurer in the 1380s). They stored the candles in a *fondachetto* or shop inside the loggia.[14] The candles were put in baskets on a sales counter (*descho*) in front of the oratory for the public to buy.[15] Worshippers left their coins in an alms box (*cassette*), grabbed a few candles, and lit them before the sacred images.[16]

3.1.1

During the fourteen years between 1352 and 1365 at least 32 different apothecaries (*speziale*) were involved in the candle supply to the confraternity. Most of these provided less than the equivalent of 200 kg of wax in small candles and appear only in a single year.

However, nine individuals were more proactive in their relation with the institution and were each responsible for providing 400 kg of wax or more.[17] Two of these, Giorgio da Michele and Bernardo Salvini, are documented over the entire period, with the exception of 1364 and 1365, for which the ledgers do not list the names of apothecaries who had provided the candles. These two men brought 6,677 and 5,770 kg of candles to the institution respectively. In 1358 alone, Da Michele manufactured a total of 1,752 kg which were sent to the Capitani.

[14] ASF, OSM 222, f. 8r (28-10-1353). Nevertheless, a statute of the confraternity issued in 1333 mentions that a bottega or shop was *under* the loggia (La Sorsa 1902, 195). Indicatively, many of the wax manufacturers and sellers of the city had their shops around Orsanmichele by the mid-fourteenth century (Ciasca 1927, 45). Orsanmichele's *fondachetto* was described as the *fondachetto delle masseritie* (commodities) by the 1390s, probably a reference to the goods left as bequests to the confraternity and that were subsequently sold at auction: ASF, CRS, OSM 231.

[15] ASF, CRS, OSM 222, f. 8r (28-10-1353); OSM, CRS, 230, f. 1r (1377).

[16] ASF, CRS, OSM 224, s.f. (25-6-1360).

[17] Among these, we find the shop of Ugolino di Vieri near the Basilica of Santo Spirito (this was likely not the famous Sienese goldsmith that worked in Florence, but a contemporary of his) and an apothecary nicknamed *il Papa*. The former was *consoli* of the guild of doctors and spice sellers by 1350 (Ciasca 1927, 718). About the latter apothecary, see Zazzeri (2003, 209). Of all the suppliers of wax, the sources give the workplace of several of them: Ponte Vecchio (2), Santo Spirito (2), Corte Nuova (1), San Pietro (1), the Ferrivecchi (1) and San Niccolò (1).

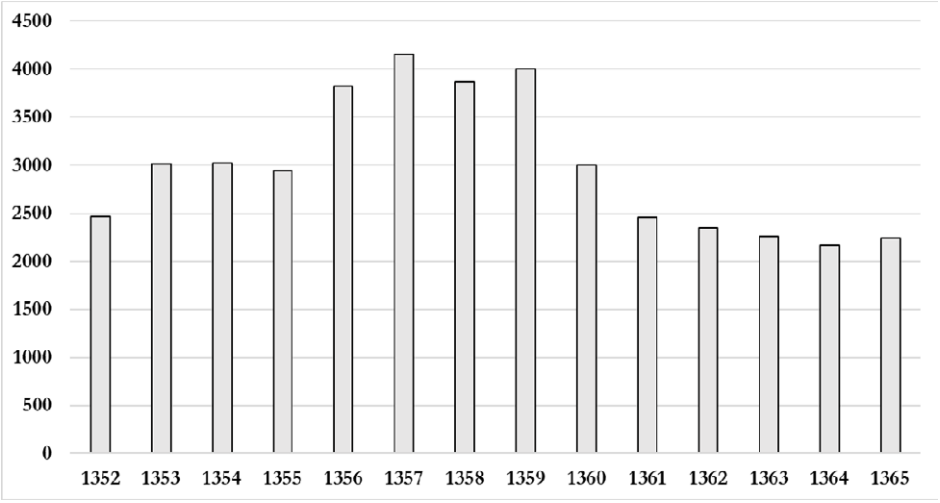
Tab. 1. **The candle supply to the oratory of Orsanmichele, 1352-1365**[a]

Year	Giorgio da Michele	Bernardo Salvini	Salvestro di Nanni[b]	Tinuccio Barone	Andrea di Francescho	Lucha delle Chiavi	Benoço di Segardo	Piero Sinibaldi	*Il Pigna*	Others	no information	Totals
1352[c]	87.1 (149.8)	187.8 (287)	375 (568.5)							25.6 (19.3)	146.5 (220)	822 (1,244.5)
1353	381.7 (598.5)	331.1 (520.5)	588.9 (909)							508.5 (788.6)	1,207 (1,889.3)	3,017.2 (4,705.9)
1354	336.9 (513.5)	50 (79)	455.4 (689)							76.4 (113)	2,106 (3,302.5)	3,024.7 (4,697)
1355	451.2 (759.5)	543.4 (963.5)	909.1 (1,564.5)						223.7 (409.5)	216.9 (374.5)	603.6 (1,048.3)	2,947.9 (5,119.8)
1356	277 (439.4)	381.5 (597)	432.6 (669.5)						202 (312)	240.1 (375.5)	2,292.8 (3,573)	3,826 (5,966.4)
1357	895.2 (1,384)	493 (759.8)	515.7 (817)	1,187 (1,915.5)						52.6 (82.4)	1,007 (1,679.5)	4,150.5 (6,638.1)
1358	1,752 (2,837.7)	676.1 (1,065.5)	163.9 (323.7)	693.4 (1,093.9)						376.7 (603.9)	208.9 (320.5)	3,871 (6,245.2)
1359	1,260 (2,032)	747.6 (1,184.7)	67.8 (105.5)	6.5 (11.5)		955.4 (1,547)	473.1 (759.6)	255.1 (407)		226.9 (371)	4.6 (8.5)	3,997 (6,426.8)
1360	608.2 (1,056.5)	662.6 (1,078.5)		403 (569)	633.7 (1,008.5)		173.3 (312)	207.7 (386)	10.2 (15.5)	297.6 (576)	6.8 (10.5)	3,003.1 (5,012.5)
1361	363.9 (587)	803.9 (1,369.5)		618.8 (1,008)	632.8 (1,070)			36.1 (60)				2,455.5 (4,094.5)
1362	264 (474.5)	893.1 (1,623.75)			907.3 (1,612)					175.5 (326)	115 (211.5)	2,354.9 (4,247.8)
1364[d]											1,624.1 (2,912.5)	1,624.1 (2,912.5)
1365											2,245.5 (3,960.5)	2,245.5 (3,960.5)
Totals	6,677.2 (10,832.3)	5,770.1 (9,528.7)	3,508.4 (5,646.7)	2,908.7 (4,597.9)	2,173.8 (3,690.5)	955.4 (1,547)	646.4 (1,071.6)	498.9 (853)	435.9 (737)	2,196.8 (3,613.1)	11,567.8 (19,136.5)	37,339.4 (61,271.3)

a. Kg. of wax (currency: *lire*). Showing those 9 *speziale* that sold over 400 kg. during the ten years. *b:* In Chorte Nuova (Borgo Aguesanti) *c:* from September to December. *d:* from March to December.

In total, the impressive quantity of 42 tons of candles could have been sold in their stand during those 14 years, which would equal a volume of c. 43.7 m^3. In the years that are documented, sales of wax yielded a gross revenue of 61,271 lire for the confraternity.[18] For comparative purposes, this would have paid all the daily wages of 24 skilled laborers during those 14 years (Goldthwaite 1982, 436).

Graph 1. **Amount of wax sold as candles at the oratory of Orsanmichele, 1352-1365 (in Kg)***



* Note to the graph: The figures for 1352 have been interpolated from the accounts corresponding to only 4 months.

On average 3,040 kg of wax was sold each year, peaking in the late 1350s with 4150.5 kg in 1357, with perhaps a declining tendency observed from 1360

[18] The selling of candles, along with the donations in kind and the participation of the company in the municipal public debt, raised profits that allowed the confraternity to accomplish its religious and charitable duties, along with financing notable pieces of art for the Loggia, such as Bernardo Daddi's panel of the Virgin (1347) and Andrea Orcagna's tabernacle that enshrined the image (1352-1359) (Cassidy 1988; 1992; Finiello Zervas 1996, v. 2, 94-95; Henderson 1997, 208-18). However, not all confraternities were as popular or successful in the strategy of selling candles. The confraternity of Gesù Pellegrino also sold small candles in its own oratory so the parishioners could light them during the masses and leave them before the crucifix. See, respectively ASF, CRS, Gesù Pellegrino, 918.34, f. 81r (3-7-1351); f. 42r (19-6-1351). Between November 1343 and February 1352, the confraternity sold only an estimated 74 kg of wax (raising 88 l.). In 1343 (with data from 2 months) the company of Gesù Pellegrino sold 1.19 kg in candles (worth 1 l.); 1344: 9.01 kg, 8 l.; 1345: 11.4 kg, 10 l.; 1346: 10.04 kg, 11 l.; 1347: 9.06 kg, 8 l.; 1348 (9 months, data from summer is lacking likely due to consequences of the pestilence): 5.6 kg, 7 l.; 1349 (10 months): 5.6 kg, 8 l.; 1350 (6 months): 5.8 kg, 11 l.; 1351: 14.8 kg, 21 l.; 1352 (2 months): 1.4 kg, 2 l. See ASF, CRS, Gesù Pellegrino, 918.34.

onwards.[19] These very large quantities indicate the success of the oratory in the city and its region (Migliore, 1684, 535). The confraternity's wax strategy was thus fueling the local economy, not only for the dealers in wax, but also the painters who decorated some of the candles (Ciasca 1927, 68; Finiello Zervas 1996a, 92, doc. 193), string makers and cotton dealers who sold the wicks, and the porters who transported the wax through the city. Unfortunately, because the chandlers tended to provide a unified price to their larger clients, often even discounting the cost of wicks from the overall price, these other sectors are rarely mentioned in the sources.[20]

3.2

Most of this wax was sold in the form of small candles of c. 4 gr each. Given that some 42 tons of wax were sold here, this implies that more than 10 million candles were lit in front of the image of the Virgin in these 14 years. The pace of candle selling varied greatly throughout the year. This can be calculated since the sales ledgers include both the dates when the candles arrived at the stand, and when they had been monetized (sold) and paid back to the treasurer. For example, during the first trimester of 1357 – which included Candlemas (2 February) and the Annunciation (25 March), the major feasts of the Virgin – an average of 1,200 candles were sold and presumably lit, per day. This was the most active and candle-intensive period of the year. In the second trimester an average of 870 candles were used per day, in the third 780, and in the fourth 760.[21] This required an efficient system put in place by the confraternity, in charge not only of collecting the stubs and the remnants once the worshippers had left, but also of persistently cleaning the site given the great amounts of dripped wax that covered the facilities.[22]

The candle seller was supposed to transfer the money obtained from the sales of the candles as soon as possible, but this was sometimes not so swiftly accomplished (La Sorsa 1902, 85). On 9 November 1352, the sale of 440 bundles of candles yielded 220 l., of which 155 l. were given to the institution in less than two weeks.[23] But the remaining 65 l. – or perhaps the candles themselves – were

[19] Similarly, Finiello Zervas (1996b, v.2, 81-82) has calculated that in 1349 on average c.77,000 candles were sold monthly (≃ 300 kg per month, or 3,700 kg annually.).

[20] Chandlers thus prevented their clientele from resorting to the self-production of wax candles (Sales i Favà and Vela 2022, 191).

[21] ASF, CRS, OSM 222, f. 22r-f. 25v. The *due feste di nostra Donna*, referring to the feasts of the Purification and the Annunciation are also noted (ASF, CRS, OSM, 253, f. 44r (2-1-1356)).

[22] The many candles hanging from the ceiling and walls has traditionally been held responsible for, as the responsible for the fire that destroyed the Loggia and an adjacent building in 1304 (Franceschini, 1892, 13; Ciasca 1927, 47-48). It was common to hire personnel to scratch off the wax to collect it for re-use. In the late sixteenth century, the city guilds brought boys to the processions to pick up the dripping wax from the torches (Bernardi 2000, 234). Drip pans in the Oratory of Orsanmichele were also used for this purpose (Finiello Zervas 1996a, 166, doc. 407).

[23] In two different instalments by the 24th and the 25th of that month: ASF, CRS, OSM, 222, f. 2r (9-11-1352).

kept by the salesman as his salary.[24] Other premodern institutions in the western Mediterranean are also known to have paid part of their salaries in wax to the officers.[25]

Once in their hands, the parishioners would light these thin candles in front of the image of the Madonna. The parishioners also carried other wax objects such as votive images, and larger and fancier candles with them, purchased from chandlers, and apothecaries, or from external stands. The amounts and types of products placed in the oratory, as discussed below, is a clear evidence of this practice. But by 1375 the guild of the doctors and spice sellers, under which the wax dealers were organized, would finally ban all men or women from selling any type of wax in the square or under the Loggia of Orsanmichele (Ciasca 1922, 289).[26]

3.3

Two different extant ledgers include the accounts for the oblations left in wax, and perhaps also the wax that had only partially burned in front of the tabernacle. This was all known as the *tratta di cera*.[27] The accounts correspond to the period April 1360 to February 1366, providing 496 entries with a total volume of wax of c. 11,693 kg distributed as follows: in 1360, 1,859 kg (9 months); 1361, 2,291 kg; 1362, 2,081 kg; 1363, 1,854 kg; 1364, 1,603 kg (10 months); 1365, 1,893 kg; 1366, 112 kg (2 months). All of this valuable wax was explicitly collected by command of the treasurer and under close surveillance of the *proposto* of the oratory or the capitani of the confraternity.[28]

Most of it was left by individuals carrying small *moccoli* (tapers) and votive images (none of which can yet be described).[29] But some 21% of this wax (2,413

[24] ASF, CRS, OSM 222, f. 3v (28-12-1352). Something similar would occur with a payment made to Tadeo di Mone in February 1353: ASF, CRS, OSM 222, f. 5r (11-2-1353).

[25] One distant but clear example is the *ración* or stipend of 353 kg of wax (rendered in torches) given to the butler of Prince Phillip of Spain between 1539 and 1547. See Archivo General de Simancas (AGS), Sitios Reales, Legajo 74, *Libro de la cera que se gasta en servicio del Príncipe nuestro señor*, f. 108v. Other officers were paid in wax in that same setting (see e.g. payments in wax made by the house of Queen Juana of Castile in 1511 to her officials. AGS, Sitios Reales, Legajo 13, *Cuenta de gastos de la casa de la Reina Doña Juana*, f. 5v-6r).

[26] Other sites in Italy, such as the sanctuary of the Santa Casa in Loreto also forbade unauthorized chandlers from selling candles in their facilities in the late fifteenth century. There, the local authorities were also active in taxing the trade of votive images and in regulating the manufacturing standards (Moroni 2016).

[27] ASF, CRS, OSM 224 and 227.

[28] ASF, CRS, OSM 224, s. f. (13-4-1363 and 27-5-1363). The high value of wax did not go unnoticed. In 1367 Sandro del Rosso, official of the confraternity in charge of lighting the candles, was accused of having stolen 1 lb of entire – ie. not burned- *candele minute* which were subsequently found inside his bag. One way to prevent the thefts was to place two officials who controlled each other onsite. This burglary took place in less than an hour, the time during when his colleague was away having dinner. According to the captains, who fined him with 100 l. or the seizure of his house, this was not the first time he had been caught stealing candles (Finiello Zervas 1996a, 63, doc. 93).

[29] A single image left in August 1360 weighed 4.1 kg. ASF, CRS, OSM 224, s. f. (2-8-1360). About the full-body wax images that stood in the oratory, see Migliore (1684, 535).

kg) were institutional oblations, provided by the different guilds of the city to the Madonna of Orsanmichele, exclusively in the form of larger *torchietti*. They brought these on the patron saint day of each guild (e.g. the blacksmiths made their oblation on Saint Eligius, 25 June). All seven major guilds and the minor twelve were active in this practice, as part of their corporate patronage towards Orsanmichele. Each one of these candles contained on average 160 gr (Shaw and Welch 2011, 182, note 56).[30] This is valid for all guilds except for three of the major ones (the merchants of Calimala, the money changers, and the notaries and judges), who repeatedly offered slightly larger *torchietti,* weighting c. 240 gr each. Over the period under study on each guild gave average some 19 kg of wax to the confraternity (Fahye Stanley 2011, 144).[31]

Taking advantage of the wax left behind was a common practice in the city. In the Baptistery of San Giovanni, the Opera or fabric was controlled by the merchant's guild of Calimala. Here, all candles and votive images (along with silk cloths) left by the worshippers were gathered by the institution's officials and reintroduced into the market. The revenues were thus used as a means of financing the enhancement of the building. Although the data preserved for San Giovanni is meager, we know that at the feast of Saint John in 1336 alone, the wax left as oblations weighed some 1,200 kg (Fabbri 2017, 78-80). In that same decade, the Opera of the cathedral of Siena was able to collect c. 3,750 kg of wax per year from the candles found there (Giorgi and Moscadelli 2005, 171; 180; 341).

3.4

This system takes us back at Orsanmichele with the reuse and the recycling of wax that had previously been collected in the oratorio.[32] In the first case, the accounts indicate that the treasurer issued a relatively small amount of candles and wax for different liturgical acts that took place both inside and outside the oratory: in 1360 131.5 kg[33] were issued; in 1361 83 kg; in 1362 113.5 kg; in 1363 84.3 kg; in 1364 159.2 kg; in 1365 147.3 kg; and in 1366 19.4 kg.[34] The main example of the reuse of wax are the sets of candles (weighing on average 8 kg in total) that were taken to many different churches of the city (Santo Spirito, San Romolo, Santa Croce, Santa Maria Novella, San Piero Scheraggio, San Lorenzo, San Giulio, San Marco, Sant'Apollinare, Ognissanti, Santa Maria del Carmine, San Simone, San Michele Visdomini, Santa Felicità, Santa Maria degli Ughi, Santa Margherita, San

[30] Every year the consuls of the wool guild decided the weight of the candle that was to be donated (Finiello Zervas 1996a, 20-21, doc. 4; 113, doc. 257).

[31] According to La Sorsa (1902, 81-85, 219-220), the guilds also offered large amounts of wax to the oratory feast of Saint Anne. See note 48.

[32] As stated in ASF, CRS, OSM 224, s. f. (1360): «*Uscita di cera fatta per Bartolomeo di Ruchho Savini* [the treasurer], *salvo che quella che si da agli speciali per fare candele per la compangnia."*

[33] Includes only April-December.

[34] Includes only January and February.

Niccolò) to celebrate the masses of the Captains of Orsanmichele.[35] The *messo* was the officer in charge of transferring the wax. With the shipment of medium-sized candles[36] and *torchietti*, the confraternity was actively contributing to the spreading of wax throughout the city. Once burned, the leftover wax was collected by these institutions.[37]

Similar candles were also used onsite, lit during the *laude* that were sung in the vigils of different patron saints' days at the oratory,[38] whilst larger *cerotti* (c. 340 gr each) or *giunte* (850 gr) were placed on chandeliers or torches by a body of officers, who are generally named in the accounts.[39] On these occasions the smallest candles were given *a mano* to the worshippers.[40] Taking into account the high cost of wax in the Florentine market, the splendid illumination in candles of these routine acts appears extravagant, and this contributed greatly to the reputation of Orsanmichele.[41]

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[35] ASF, CRS, OSM 224, s. f. (18-5-1360); (18-1-1361); (29-7-1360); (16-9-1360); (19-11-1360); (21-9-1361); (3-12-1361); (24-7-1362); (17-9-1362); (15-3-1363); OSM 227, f. 49v (17-9-1364); 50r (18-11-1364); 50r (20-1-1365); f.51r (21-3-1365); f. 51v (17-7-1365), f. 52r (19-11-1365). Brendan Cassidy (1992, 191) has explained that since Orsanmichele was not a church «the compagnia established a network of connections to the priests and churches of the city to serve its sacramental needs».

[36] Labeled as *candele grosse* and weighing 25 gr or 33 gr.

[37] The chapels and altars controlled by the Capitani in other sites also received wax, such as their altar in the Hospital of Montelupo in the contado of Florence. See ASF, CRS, OSM 224, s. f. (2-9-1360). The abbot of the convent of Montescalari, also in the contado, received also some candles from Orsanmichele as an annual gift (*abette*), both from the confraternity itself and the guilds: ASF, CRS, OSM 224, s. f. (20-4-1360). Wax was used in these cases as a means of gaining territorial control and prestige for the confraternity.

[38] As one example, the 1.4 kg in candles used in the laude during the vigil of Saint Luke in 1360: ASF, CRS, OSM 224, s. f. (17-10-1360). Although it seems that ordinary laudes were sung every evening, we do not know if there was any candle lighting in these occasions (La Sorsa 1902, 196).

[39] ASF, CRS, OSM 224, s. f. (23-6-1360). The 1333 statute of the confraternity states that the Madonna had to be kept under a veil, and that every time she was uncovered (on Sundays, other feasts, or at specific request by someone), two candles had to be lit (La Sorsa 1902, 202).

[40] ASF, CRS, OSM 224, s. f. (23-5-1360 and 29-7-1360).

[41] Not all the confraternities of the city were able to use or to exchange the wax left as oblations for their own purposes. During the 1340s and 1350s, the confraternity of Gesù Pellegrino was driven to the market in pursuit of *torche*, *candele minute* and *grosse*. In November 1345 c. 200 gr of wax were bought in order to fix a torch that was lit in the precise moment when the Host was raised during the Eucharist (*per raconciatura d'un torchio che s'acende quando si lieva i signiore*). The amounts of wax bought here are dwarfed by the ones presented above for Orsanmichele. In 1343 (with data from 2 months) the treasurer of Gesù Pellegrino purchased 1.02 kg (worth 18 s. 11 d.); 1344: 11.6 kg, 153 s. 4 d.; 1345: 11.2 kg, 193 s. 1 d.; 1346: 5.5 kg, 110 s. 2 d.; 1347 (10 months): 3.4 kg, 67 s. 8 d.; 1348: 8.04 kg, 192 s. 8 d.; 1349 (7 months): 3.7 kg, 112 s. 6 d.; 1350 (6 months): 5,9 kg, 215 s. 10 d.; 1351: 19.5 kg, 563 s. 10 d.; 1352 (1 month): 0.7 kg, 60 s. 9 d. The recourse to the *free* market left the institution subject to the oscillations of the prices of wax, which escalated in the period under study. By 1344, wax was purchased in Florence at an average price of 13 s. 2 d./kg, and in 1350 it almost tripled to 36 s. 10 d. kg. Given the high prices, the treasurer of the institution must have been eager to barter the leftover wax and the oblations for new candles, as in January 1348, when candles were purchased and also bartered for tapers: *uno resto di chandele che baratamo a mocholi.* Alternatively, as occurred in most ecclesiastical institutions, tallow candles and oil were used, not only for illuminating the facilities, but in some liturgical contexts such as alongside crucifixes and images. Tallow was substantially cheaper than wax and was hence used to alleviate the institutions' expenses. In 1344 Florence, tallow candles

3.4.1

Most of the wax that was recovered in the oratory or offered as oblations was sent to apothecaries who would render it into the initial *candele minute*, charging only the manufacturing costs and not for the material itself, since it was the confraternity who had provided it. Only one ledger for the chronology under study gives an account of this stage of the process. The data available in this case runs from March 1364 to February 1366, during which c. 5,350 kg of wax were sent to the apothecaries, who returned 5,236.6 kg of candles.[42] Amongst the latter we still find Bernardo Salvini, and Francesco da Michele, likely a descendent of Giorgio da Michele.[43]

Between 1364 and 1366 six different apothecaries of Florence received wax regularly.[44] They mostly took *moccoli* and torches that had entered the circuit through bequests, but also white wax and images of other origins. The melting and the manufacturing of each type needed different skills. *Cera nuova* was the easiest to melt and remodel, and consequently its manufacturing was the cheapest, at 15 d./lb. Processing the predominant smeared *moccoli* was much more expensive at 22 d./lb. In the end, the production of candles made with 5,236.6 kg of wax between 1364 and 1366 cost 1,055 l. The chandlers produced the candles and, to come full circle, these were sent back again to the confraternity, who would sell them.

Given the patchy nature of the extant data, we can only calculate the gross profit of the wax circuit for 1365. The amount earned from the sales of candles that year had reached 3,960.5 l. and the cost of recycling wax was 579 l. It can be seen that the system put in motion by Orsanmichele was yielding profit margins of 85%.[45] With the decline of popular devotion at the oratory in the last quarter of the fourteenth century (in a period of intrusiveness of the local government into the financial policies of the confraternity, and of accusations of corruption towards the Capitani) (Henderson 1997, 218-227), these extraordinary figures diminished. Between March and December of 1391 only one workshop was selling to the Capitani a total of 37 *doppieri*, 244 *cerotti*, 14 *giunte* and 234 bundles of *candele grosse* weighing 445 kg.[46] Both *doppieri* (double-branched candles) and *cerotti* were placed

cost 60% less (5 s. 1 d./kg) than those made of wax, while in 1350 their price was 80% cheaper (6 s. 7 d.). Still, for 1345, it has been calculated that the expenses of both wax and oil accounted for 25% of the budget of the company of Gesù Pellegrino. See Henderson (1997, 148) and ASF, CRS, Gesù Pellegrino 918.34.

[42] The difference was likely the result of spilling wax during the manufacturing process. Of the volume of candles returned, 4,425.7 kg were in the form of *candele minute,* 323.5 kg in larger candles, and 487.4 kg in unspecified pieces.

[43] Francesco da Michele also provided the confraternity with wax by 1377. See ASF, CRS, OSM 230.

[44] Giorgino de Giorgio produced candles weighing 3,307.5 kg in total (cost: 714 l); Francesco da Michele, 983.5 kg (192 l); Bernardo Salvini: 589.6 kg (138 l); Mateo di Ser Niello: 289 kg (47.5 l); Niccolò di Giovanni: 49 kg (6 l); Zanobi di Dofino: 17.7 kg (n.a.): ASF, CRS, OSM, 228 (1364-1366).

[45] Although this appears as a lucrative business, it is still far from Henderson's estimates for 1355-1357, likely an even more dynamic period for which the author asserted that candle selling in Orsanmichele produced 300% to 400% of profit (Henderson 1997, 215).

[46] Giorgino di Giorgio's workshop had likely been granted a monopoly to supply the oratory: ASF, CRS, OSM 231, f. 2v-3r (1391) and 49v (1391).

by the new altar of Saint Anne in the oratory, a cult of political significance.[47] The *giunte*, likely even thicker candles, were lit in front of the tabernacle. It appears evident that business had decayed.

3.5

At the height of its fame, the managers of the oratory of Orsanmichele ran a complex system combining wax recycling and candle production, to raise significant revenues. This sophisticated scheme employed, indirectly, several professionals who produced standardized types of candles and charged similar prices. Such an important amount of wax coming in meant that almost the only cash the oratory was required to pay was for manufacturing the candles, while the rest (salaries, the material itself, probably even the new candles needed for the liturgy) was bartered for wax.

In the fourteenth century, Orsanmichele became a symbol of communal charity at the centre of the guild strategy of the city as it sought to control civic and religious institutions. As the main economic means through which guilds and the wider population demonstrated their relationship with the company, wax and candles played an important role in this scheme. In this, the religious significance of wax translated into a means of payment which reinforced social and political relations in the city. The high price of wax and the value it retained with re-use combined with its necessity and symbolism to make it an optimal currency substitute.

4.

Given the value of wax in the later Middle Ages, the officers in charge of supplying it both to ecclesiastical and lay institutions were very careful in its accounting, noting its income and expenditure often in minute detail. This study has shown how tradition and written customaries were precise in determining the amount of this material to be provided, by whom and to whom. This latter aspect also indicates that candles were rarely burnt down to the ends – at least in their first use – and that the leftover wax and unused candle ends, easily re-melted and re-formed, were a valuable commodity. We have seen how multiple circuits of use and re-use existed, from the internal economies of larger institutions through which wax cycled through the hands of various officers, to closed circuits which also included external buyers. Thus, we have seen how institutions in both England and Italy profited not only from the sale of candles, but also from the collection of the remaining stubs which had themselves already been sold at least once to the parishioners. These and other practices, such as entries of wax in rents or as oblations, gifts between organizations, lowered the prices of the wax offered by the

[47] The Duke Gualtieri di Brienne had been expelled from the local government on the day of Saint Anne 1343 after being accused of tyrannical rule (Henderson 1997, 205; Finiello Zervas 1996b, v. 2, 59).

institutions, allowed its use for all strata of society. The article has presented these two study cases, although the mechanisms put in motion are traceable throughout the Christendom in the period under scrutiny (e.g. Sales i Favà and Vela 2022; Sales i Favà, forthcoming for Iberia, Vincent 2004, 170-73 for France and Motsianos 2019 for Byzantium).

This *moral economy of wax* was fully possible in the case of larger institutions, which were capable of cutting expenses in varied ways. They became such important clients that they were able to reach agreements with chandlers through which, for example, wicks were discounted or only the manufacturing of candles was charged, but not the reused material. The desire to display wealth through wax candles had a further important consequence, because it meant that there were always used candle ends of various sizes for sale. This made wax affordable and accessible for both urban and rural poor – and for those who could not afford even this, it was well-known act of charity to provide wax candles for the impoverished.[48] The circular economy of wax allowed for the institutions to place candles at more affordable prices than the 'free' market, so that even the poorest could participate in these celebrations of civic and religious significance. Everyone could have access to some amount of wax for prominent religious festivals and in the celebrations of their own lifecycle: baptisms, weddings, and funerals. But the system varied over time. For instance, the decline in Orsanmichele's popularity by the late fourteenth century has been noted, which must have reduced the capacity of the institution to place affordable candles amongst the urban lower classes. Still, institutions of all sizes reached a certain degree of circular economy. Smaller parishes, chapels or shrines were all vigilant of their burning candles. They reintroduced the smeared and smoked wax into the round-trip system with their own chandlers.[49]

Since the use of wax candles was predicated on religious practice, the extraordinary demand for wax likely reached its peak in the later Middle Ages, when demand across Europe was high due to a confluence of religious, economic and demographic factors. These facilitated the desire – which became necessity – for extravagant displays of light within religious contexts. The moral economy of wax, in which re-circulation and exchange allowed for popular engagement in acts of piety through wax candles, benefitted all levels of society. The extent of this benefit, in terms of economic practicality and religious sensibility, changed over time as markets, practice and belief also shifted.

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[48] For example, the enormous customary candle offered by the city of Dover to Canterbury Cathedral -the length of the city's walls and kept wound around a large wheel -was made into candles for the funerals of the poor (Nilson 2001, 107); on funding the wax for paupers' funerals at the collegiate church of Howden (Durham) 1497-1513 see Durham Cathedral Muniments 4.1 Ebor 56-60. Individual parishioners could also participate in similar mechanisms of wax dispersal as institutions: for example, Margaret Brafeld of Northampton left money in her will of 1487 for 13 torches to be burned on the anniversary of her death, with the leftover wax sent to various institutions for their use (Edwards 2005, 142).

[49] The recycling of wax persisted until the advent of paraffin candles in the twentieth century (Marquès 1959, 46; Closas i Mestre 2009, 17).

The constant re-cycling of wax may also have had broader market implications in medieval communities. On the one hand, the article has described how large institutions preferred to buy their wax from a handful of select chandlers – those with enough capacity to handle the enormous quantities with which these institutions dealt annually – and this likely concentrated wealth into the hands of a narrow group of large-scale chandlers. At the same time, however, the broader mechanisms through which wax was continually recycled and re-formed may also have acted as a brake on this concentration. We have seen that both old and new wax were used simultaneously. Much of this new wax was imported, meaning that the chandlers dealing in it needed to work through a supply chain which included merchants of long-distance trade and their factors. The constant flow of old wax alleviated some of the pressure on the supply of new wax, which would otherwise not have been sufficient to meet demand.[50] This in turn may have allowed a space for a wider array of wax-sellers, who were not necessarily keyed into privileged networks of exchange, but rather focused on smaller amounts of wax for sale to the general populace. In all of these ways we see again how wax candles, so vital to Christian religious devotion, were made affordable in late medieval economies.

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[50] The scale of this trade is currently under study as part of the project Bees in the Medieval World (forthcoming) but see also Sapoznik 2019 (Baltic trade) and Sapoznik 2021 (Maghrebi trade).

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