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Agents, authorities, and aqueducts: a book of accounts and water management in fourteenth-century Genoa

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Abstract
This article examines a little-studied fourteenth-century archival record relating to Genoa's aqueduct. The aqueduct was a vital source of freshwater to areas within and beyond the city walls. The document is the only surviving record of its kind and the purpose underlying its production is not immediately clear. This paper places the source in the context of Genoa's physical water infrastructures and what we know about their regulation. It argues that it is a record of sums paid to an agent of Genoese authorities for seasonal water access during the (relatively) dry summer of 1356. This study then uses the record to broaden understandings of the execution of water management in medieval Genoa. It illustrates how authorities engaged with a range of actors of different occupations and varied socio-economic status. The transactions reflect not only practical needs but also socio-economic hierarchies, moral and interpersonal expectations, and financial motivations. These dynamics are recognizable both in the entries themselves and through reflection on the role and position of Galeoto, the book's scribe. While its entries are limited in the information they provide, the interactions that the book records shift focus away from the top-down perspectives of water management in medieval Italian cities gained from statutes, decrees, and other normative sources. Instead, it captures water management as an interpersonal process shaped by overlapping public and private interests–which, in turn, reflect the complexity of social and economic life in medieval Genoa.

Keywords Medieval · Water · Urban · Water management · Genoa · Italy · Aqueduct

Introduction

The *Cronica Sicilie* (c. 1348), an anonymous chronicle composed in Palermo, provides a report of the 1318 siege of Genoa. The attack was conducted by exiled members of one of the city's political factions, in a period when conflict between groups of Genoese ruling

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elites was rife (Petti Balbi 2007). The work describes how the exiles advanced towards and besieged Genoa. Their assault was an intense one, with the city and its surrounding strongholds taken within just a few weeks. Within their description of the violent attacks launched, the *Cronica*'s author(s) specify that the exiles destroyed the aqueduct that led water into the city (Colletta, ed. 2013)

The interest of the *Cronica*'s author(s) in a siege of Genoa is unsurprising. Given the strong political and economic ties between the northern Italian urban center and Palermo, the work as a whole engages extensively with events in Genoa (Trasselli 1969; Abulafia 1977; Giunta 1985; Corrao 1994). What is more remarkable is that an account of the episode written in a Sicilian city features commentary specifically on the destruction of the aqueduct. It suggests that it was expected that the chronicle's Palermitan audience would understand the profound effects of the water loss that the act created. The damage would, indeed, have been substantial. Genoa's medieval aqueduct snaked down from the Ligurian Apennines to bring freshwater into the port city, and fueling mills and other industry along the way. The ruin of just part of this freshwater artery would have caused immense harm to its population and economy.

Genoa's medieval aqueduct was built in place of an older, Roman conduit, and remained in use until the middle of the nineteenth century. Many of its twenty-eight kilometers of channels are still intact, with its wider parts now popular footpaths for walkers. Given its lengthy period of use, and its prominence in Genoa urban and peri-urban topography, several book-length studies have analyzed the historical use and evolution of the aqueduct (most notably, Podestà 1879; Stringa 1980; Temporelli and Cassinelli 2007). Beyond what survives of its physical structure, our understandings of the premodern history of the construction derive from regulations governing authorities issued surrounding its use. Statutes and decrees relating to the aqueduct survive in large numbers from the fifteenth century onwards, and these give a useful impression of the measures taken to distribute and maintain water supply. As such, they align with the numerous normative regulations available for cities across northern and central Italy that scholars have used to develop a picture of technologies and regulations surrounding the provision of this resource in and around urban centers (Squatriti et al. 2000; Kucher 2005). In the last few years, researchers have used these sources to consider the ideas and ideals that shaped urban government (see Geltner 2019 on health). Jane L. Stevens Crawshaw recently examined regulations and decrees issued by Genoese authorities together with those of Venice (2023). Her study highlighted the importance of environmental ideals and notions of the collective good surrounding the regulation of urban space in influencing the administration of the city's water supply. In doing so, it is invaluable not only in expanding our understanding of the practical measures undertaken by authorities, but also the ideas and interests that shaped them.

In this article, I explore further factors which contributed to this picture. I use a source which has not been studied previously to consider the execution of measures introduced to manage water supplied by Genoa's aqueduct in the mid-fourteenth century. This source is Archivio di Stato di Genova, *Antico Comune* 765. On its front page, a brief note states that the book is a record of the accounts (*racione*) of the aqueduct, documenting sums received by a Galeoto de Andrea.[1] It contains 110 entries noting exchanges that had taken place between June and October 1356. *Antico Comune* 765 is the only Genoese aqueduct accounts book that survives, and features few clues about why it was made and conserved in this

[1] Names that appear in Latin in the document are rendered into modern Italian throughout this article.

specific instance. While tax records relating to the use and maintenance of Genoese public and private fountains are extant from the sixteenth century onwards (Stringa 1980), this book predates them by around a century and cannot be assumed to reflect identical practices. The lack of clarity seems to have put off even those most familiar with Genoa's medieval records. The entry for this item in Valeria Polonio's guide to the *Antico Comune* archival collection is much briefer than almost all others. She hypothesizes, with uncharacteristic vagueness, that, "It is a logbook of sums collected between 9th June and 11th October *de racione aquaducium*: the payers are usually artisans, and the sums perhaps represent fees for the use of water." (my translation; Polonio 2012.) My understanding aligns with but develops Polonio's interpretation. In my view, most of the book's entries were payments for seasonal water access during a period of potential scarcity, though some sums seem to have been handed over for other purposes.

While partial, the book offers a rare window into how authorities oversaw the management of the supply of the medieval aqueduct. It shows us Galeoto, the official collecting funds on behalf of authorities, operating in dialogue with a range of individuals in a variety of socio-economic positions. I explore how these engagements were informed by procedural precedents, expectations placed on administrations, and interpersonal dynamics. While the unique and time-limited nature of the source means that it only offers us a fleeting glimpse at these processes, I argue that the source encourages us to view water management in medieval Genoa as dynamic and shaped by many individuals and many interests.

My findings on the interrelationship between water management and a variety of social and economic factors complement recent studies of water organization in premodern Italian cities. These studies align somewhat with "water governance" perspectives used across the Social Sciences, policy, and in studies of more contemporary historical contexts (Olsson and Head 2015; Schmidt and Matthews eds. 2017). This approach recognizes that political authorities are not the only party engaged in managing water resources. Instead, many actors shape water infrastructure, distribution, and its moral and political significance through their daily use of water, interactions between themselves and with authorities, and through their informal and formal involvement in its regulation. Along similar lines, Michele Campopiano has highlighted the more political aspects of large-scale water management projects in the medieval Po Valley. Processes such as land reclamation involved a range of elite and non-elite actors and fostered forms of political organization and resistance (Campopiano 2013a, b). Meanwhile, David Gentilcore's work on Naples has recognized the many trades involved in the construction and maintenance of water infrastructure, from stonemasons to supervisors (Gentilcore 2019). Given the more limited nature of the sources available to us, it is almost always more difficult for medievalists to build up a picture of these interactions than it is for those researching more modern contexts. Nonetheless, it is crucial to recognize the participation of a range of actors in shaping water supply whenever possible.

This article begins with an outline of the place of the aqueduct within medieval Genoa's water supply, and its path through the medieval city. After this, I explore the written sources available for understanding Genoa's freshwater infrastructure in the late medieval period. The early records show the diverse factors that shaped water management. As well as being practical, they reflected the interests of individuals, the image-construction of ruling regimes, and moral and charitable ideals. The contents of these other sources are also useful for understanding *Antico Comune* 765, particularly in their highlighting the seasonality of measures taken by governing authorities. The second section therefore ends with an expla-

nation of my interpretation of this record. I analyze its contents in the third section. Overall, Galeoto's notarial record shows that access to water in medieval Genoa was shaped by social hierarchy, financial relations and incentives, and interpersonal relationships.

I

Late medieval Genoa was a medium-sized city. Population estimates put around 60,000 people within the city walls at the end of the Middle Ages, with another 60,000 in the peri-urban areas that immediately surrounded it (Balard 2017). These figures may have been higher in our period, but depleted from the peak of the pre-Black-Death early fourteenth century, when the inner-city population potentially reached 100,000 (Lopez 1976). In general, Genoa's geography and climate meant that water supply was sufficient to meet the needs of those in and around the city. Genoa has a Mediterranean climate, and experiences hot and dry summers. During the other seasons, particularly Spring and Autumn, the urban center sees high levels of precipitation because of its position on the Genoa Low cyclone track (Acquaotta et al. 2018).

Genoa is in a kind of natural amphitheater. Facing the sea on one side, it is surrounded by mountains on the others. The medieval city therefore relied primarily on flows of freshwater that descended from two large Appenine valleys: the Bisagno to the east, and the Polcevera to the west. Genoa's medieval aqueduct collected water from the Bisagno river, due to its closer proximity to Genoa, more optimal slopes and soil, and the higher rate of rainfall it received (Balard 2017). The medieval structure was built over and around the remains of an earlier, Roman aqueduct. This ancient conduit had been abandoned by the central Middle Ages. Archaeological remains suggest that the construction of the medieval aqueduct began in the eleventh century, and by the end of the twelfth century it reached Castelletto, on the city's north-east, where it then ran into the walled city (Stringa 1988). Its point of origin was brought forward in the late thirteenth to mid fourteenth century, to increase the volume of water it could transport into the growing city from the Bisagno river. This expansion of water infrastructure mirrored moves in other Mediterranean cities of the pre-Black Death fourteenth century, as burgeoning populations and the growth of industry created greater demand (Seferović and Stojan 2007).

Like other Italian centers, there was strategy underlying the use of water at different points along the aqueduct's path (Kucher 2005). The layout ensured the provision of clean water to meet the needs of the population, and that water destined for domestic and drinking purposes was not contaminated by industry. From its point of intake at the bottom of the Rio (stream) Trensasco, the course of the aqueduct snaked down through several valleys, furnishing mills and religious foundations along the way. As it neared the city, its course went around San Bartolomeo degli Armeni (a church established by Armenian exiles in 1308), splitting into two courses: one heading north into the Castelletto district, the other to the east. The two paths followed the medieval walls, and were reunited at the Molo: close to the port.

The northern, Castelletto line supplied mills, as well as the *Castello d'acqua*: which distributed water to many of the city's *bronzini*, or private fountains. It then followed the rampart path, reaching the Porta (gate) dei Vacca and feeding several more mills along the way. After this, the northern path split again, with two separate paths leading down towards

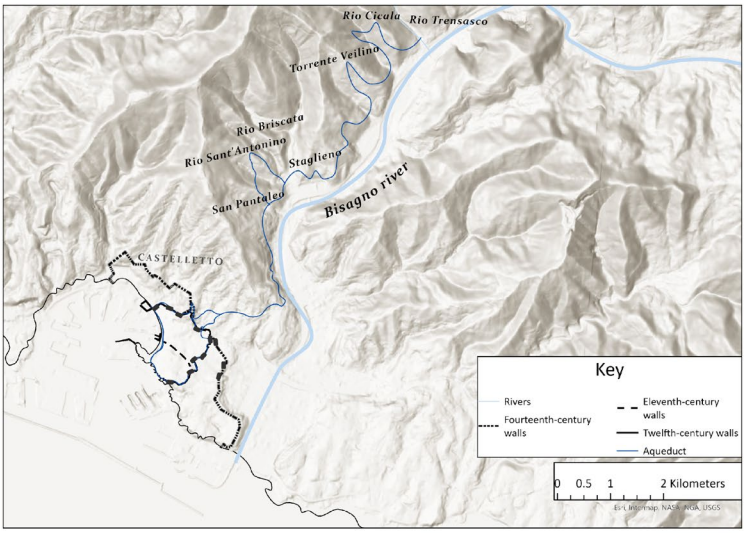
the port. One of its channels went west, passing by the *Darsena* (arsenal) to get to two washhouses. The other traced the shops and warehouses that lined the *Ripa*, with its water used for public latrines and to power the Zecca (mint) and was also directed to the vegetable market at the Piazza Raibetta, where it was presumably utilized for hygienic purposes. It ended at the cistern and fountain of the *Cannoni del Molo* (Balard 2017).

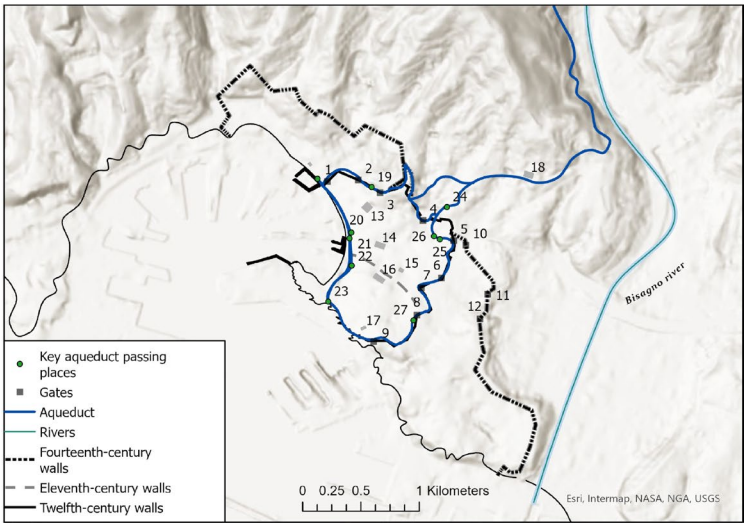
The second main path followed the eastern walls of Genoa. After supplying water mills near the modern-day Villetta di Negro park, it crossed near the Spinola Palace and the Salita Santa Caterina. A small diversion led water to the Piazza Fontane Marose, terminating at the seafront. The main section passed over the Porta Aurea, and continued along the walls, traversing the arch of the Porta Sant'Andrea (Porta Soprana). Here, it supplied a water tower and provisioned the washhouse in the Piazza Lavandaie ("of the washerwomen") (Rawcliffe 2009). Next, it split into two smaller channels: one supplying mills and more washhouses; the other reaching two cisterns. Two cisterns still survive in this place, one of which was built in the fifteenth century. However, it may have replaced an earlier construction. The rest of the water was then directed to the Molo, meeting the Castelletto section. In this case, for both the aqueduct's northern and eastern paths, water was contaminated by its use for washing, hygienic, and waste disposal purposes only towards the end of its passage. This trend reflected in part the concentration of populations and industries in the port area, but also the need to maintain purity until this point.

Indeed, one of the major roles of the aqueduct was to supply public and private potable water. Genoa's wealthiest and most powerful clans (*alberghi*) paid for the right to private fountains, or *bronzini* (Balard 2017; Stringa 1988). These were usually placed within or near the complexes of houses of their family and faction (Bezzina 2023; Hughes 1975; Grendi 1975). However, artisans and workers of various kinds also possessed these private water access points. At the end of the Middle Ages, the fountains were taxed by urban authorities. One register from 1531 lists 234 *bronzini*, with the owners of each paying a tax of two *lire* (Stringa 1988). Such a figure would have been markedly lower in our period (Balard 2017). Meanwhile, public fountains, or *cannoni*, provided potable water to the public at large. Three major *cannoni* were situated near the main gates of the city: San Tommaso, Sant'Andrea, and the Porta Aurea (Soprana). This positioning was presumably so they were easy and convenient to find and access. These three *cannoni* were among around eighteen public fountains in Genoa at the end of the Middle Ages (Balard 2017) (Figs. 1 and 2).

The aqueduct was complemented by other, smaller-scale sources of water supply. For example, while most of the public fountains were fed by the aqueduct, some were supplied by springs. There were also wells positioned throughout the city. Twenty-four are recorded in the fourteenth century, and were named after families that had paid for their construction (e.g., Grillo, Lomellini, and Streiaporco) or ecclesiastical foundations (e.g., San Tommaso, Sant'Agnete, San Pancrazio, San Siro, San Matteo) (Balard 2017). Alongside these, there seem to have been rooftop channels that directed rainwater into cisterns (similar discussed in Magnusson and Squatriti 2000).

In this case, the aqueduct was a crucial feature within a larger system of freshwater infrastructure in medieval Genoa. Within this, different elements served distinct purposes for the city's population, and measures–such as the positioning of polluting industries at the end of water's passage–were in place to ensure different needs could be met. With this understanding of the aqueduct's role in medieval Genoa's water supply, it is valuable to explore the





Gates 1- Porta Vacca 2- Porta San Agnese 3- Porta di Pastorezza 4- Porta di Fontane Marose 5- Porta di Murtedo 6- Porta Aurea 7- Porta San Egidio 8- Porta Sant'Andrea (Porta Soprana) 9- Portello della Marina 10- Porta dell'Acquasola	11- Porta dell'Olivella 12- Porta degli Archi **Key sites** 13- San Siro 14- Santa Maria delle Vigne 15- San Matteo 16- San Lorenzo (cathedral) 17- Archiepiscopal Palace 18- San Bartolomeo degli Armeni	**Key aqueduct passing places** 19- Castello d'acqua 20- Ripa 21- Mint 22- Piazza Raibetta 23- Cannoni del Molo 24- Villetta di Negro 25- Spinola Palace 26- Piazza Fontane Marose 27- Piazza delle Lavandaie 28- Darsena

Figs. 1 and 2 Maps of the course of Genoa's medieval aqueduct. I produced these with reference to maps in Beneš (ed) 2018 and outlines of the aqueduct in Stringa (1980) and Balard (2017)

written sources available and the insights that they provide into the factors and interactions that influenced its management.

II

Before the fifteenth century, few written sources survive for understanding Genoa's water infrastructure. Nonetheless, the records that are extant give a sense of the diverse factors that shaped water management in the medieval city. These were practical, as we saw above, but also related to the interests of individuals and small communities, the image-construction of ruling regimes, and moral and charitable ideals.

Genoa's few but detailed historical narrative sources do not treat water supply in any depth. The sole reference to the aqueduct appears in the *Annales genuensis*, written at the turn of the fifteenth century. The text is an account of the most important developments in the city's past, with a particular focus on high politics. One of its authors, Giorgio Stella (d. 1420), praised construction work on the aqueduct (likely renovation or extension), which had taken place in 1295 (Stella, ed. Petti Balbi 1975). His report is frustratingly brief. Nonetheless, Stella's decision to mention the building indicates the symbolic pertinence of the aqueduct. Evidently, constructions for the sake of ensuring water provision for the city were seen as noteworthy and associated with good government. This significance is further attested in parts of the surviving physical structure of the aqueduct. There are several monumental plaques, which commemorate moments of construction and renovation, such as the extension in 1355 (Stringa 1980). The structure and its purpose were clearly a source of political prestige.

Alongside this, Genoa's administrative records show us some of the more practical aspects of building and maintaining the aqueduct. Documents relating to the structure, and water in Genoa more generally, are scarce; remarkably so given the overall size of the city's medieval archive. Nonetheless, there are references to the aqueduct in a handful of Genoa's famously extensive notarial records. These mentions usually relate to the ownership and construction of property nearby. For example, a 1232 agreement between a Guglielmo Piccamiglio and the rector of San Sisto church, in the city's east, relates to the strategic placement of a conduit between the house of the church and the city wall, so that it did not disturb the residents (quoted in Balard 2017). Notarial agreements like this show us how the course and nature of the aqueduct were determined through the involvement and negotiation of different parties, with distinct needs and priorities.

The need to coordinate and engage diverse groups is also attested to in other archival records. For example, in the fourteenth-century accounts of the *Salvatores portus et moduli*: a body initially founded to maintain Genoa's port, but whose remit had slowly expanded to deal with public space and many shared utilities in the city (Polonio 1977 ; Doria and Piergiovanni Massa, eds. 1988). Each year the *Salvatores* sent someone to assess the condition of the aqueduct. Their accounts set out wages paid to workers in building trades hired to repair or alter the structure, and the materials that they used to do so. Michel Balard utilized these records to reconstruct patterns of payment and employment of laborers in the period just after the Black Death (Balard 1997). The people (women, as well as men) hired to contribute to these projects were often employed on a short-term basis, presumably alongside other temporary roles.

More documentation pertaining to the administration of the aqueduct survives from the second half of the fifteenth century. By this stage, responsibility for its maintenance fell under the remit of the *Patrum communis et salvatorum*, with a special *Magistrato delle acque* ("magistracy of water") established by decree in 1491 (Crawshaw 2023). This governing body oversaw the regulation and maintenance of Genoa's urban and extra-urban water infrastructure. Inspectors were appointed to manage parts of the aqueduct and ensure that it was neither damaged nor drawn from in an unlicensed manner by locals (Stringa 1988). The *Patri* produced a variety of records relating to the aqueduct which still survive; including several tax registers of owners of *bronzini*. Alongside this, they kept copies of a number of decrees and laws issued in attempts to govern the use of Genoa's water supply. These records allow us not only to understand the kinds of measures taken, but also the moral and religious discourses deployed surrounding the provision of water. As explored in depth by Stevens Crawshaw, access to water was framed as a charitable enterprise; one of the Christian works of mercy. Accordingly, a lack of water was a profound failing by authorities, particularly if it affected the poor. These connotations also meant that the maintenance of water infrastructure was frequently framed as pious and charitable endeavor (Stevens Crawshaw 2023). These moral and religious values and expectations are reflected in the decrees, and should be seen as having shaped interactions surrounding Genoese urban water supply, in symbiosis and dialogue with the political, interpersonal, and economic demands mentioned above.

The importance placed on fulfilling this responsibility because of its moral and political weight is clear in a set of regulations from 1459, which outline the responsibilities of the *Patrum Communis et Salvatorum* in relation to the aqueduct. They state that the officials must ensure that the structure is kept in good condition, that sections of it are opened and closed to allow water to flow according to need, and that they coordinate work to maintain it. It also permits them to raise money to meet these needs, license private fountains, and punish those who prevent the provision of water for the city (Desimoni, ed. 1885: doc. III). Other decrees which feature in the same collection of measures issued by the *Patri* also relate to Genoa's water supply, and the aqueduct particularly. These show a similar concern for ensuring the drinking water needs of the population are met at times of scarcity. The statutes frequently relate to licenses for private fountains being annulled at times of drought, in order to ensure that the poor were not deprived of access to the resource (e.g., Desimoni, ed. 1885: doc. XL).

By the sixteenth century, a seasonal approach to the aqueduct seems to have been regularized. In the drier summer months (usually May to September), the *bronzini* were sealed with lead to guarantee sufficient water was supplied to public fountains (Crawshaw 2023). The records of the *Patri* set out harsh punishments for those who violated these restrictions. For example, one decree from 31st June 1548 outlines that,

> "…During the period from the first day of June until 15th September, it shall not be permitted for any person, whether [of] religious or secular [status] and whether privileged [with private water access] or not, to take water from the aqueduct, nor by the way of the holes, nor of *rebochi* (literally: the reopening of the holes), nor by any [other] way, under penalty of a hundred *scurtari* or, according to the judgement of the most illustrious and magnificent prefects, of condemnation to prison for a year." (my translation; Desimoni, ed. 1885, doc. CLX.)

This decree highlights the importance of water supply, and its moral and political connotations. The threat of such extreme punishments demonstrates the severity of the offence, and thus the seriousness with which Genoese authorities treated the risk of water shortages in the hot summer months.

While *Antico Comune* 765 was produced two centuries earlier, I believe that this seasonality and concern for water preservation on the part of authorities is key to understanding the record. Documents attesting to regularized, seasonal practices surrounding water only appear from the fifteenth century, so it is difficult to know whether this was routine in the mid-fourteenth century. Regardless, the initiative recorded in *Antico Comune* 765 does seem to be a response to possible water shortages. Its entries correspond only to the period between June and October 1356: Genoa's dry summer months when water was at its scarcest. Although the dendrochronological information available is incomplete for Liguria at this time, it seems that the threat of drought was particularly acute in the years around the production of the record. The 1350s brought an unprecedentedly dry period for this north-western Italian region, after a long run of wetter years in the decades prior (Fig. 3). This trend may reflect the climatic instability caused by the transition between the Medieval Climate Anomaly and the Little Ice Age (Campbell 2016; Bauch 2018; Bauch and Schenk 2019). Such a shift would have been a shock to existing behaviors of water use and management in Genoa and its vicinity. In this case, the book records activities related to seasonal adaptations to conserve water. Exactly what these measures were is hinted at by other aspects of the accounts.

Antico Comune 765 has the same dimensions as other kinds of books of accounts collected for official purposes on behalf of Genoese authorities in the fourteenth century. The volume contains 110 entries, the compilation of which was overseen by a man called Galeoto de Andrea. Approximately the first third of the book's pages are written on. The entries are brief and provide only basic information. On the left, they include the date when the exchange took place, and identify the person who paid the sum. The payees are usually distinguished by their name, place of origin or residence, and their occupation. In some cases, they are identified through a surname and/or notable family

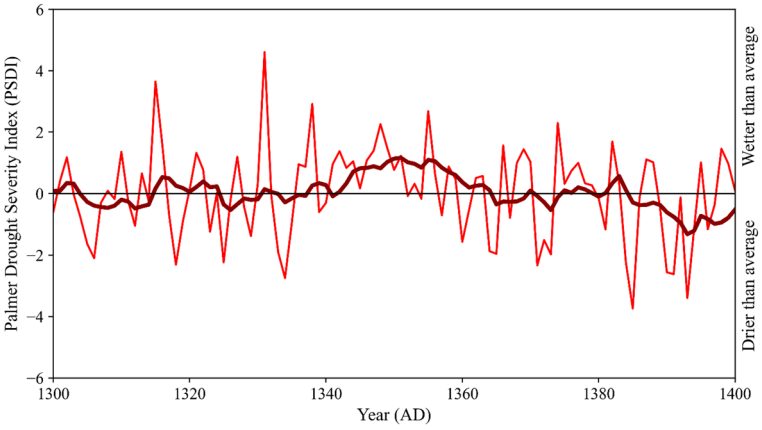


Fig. 3 Drought severity in Liguria in the fourteenth century (0 is average conditions over a 2000-year period). Full credit to Jasper Verschuur for producing this graph for me. Data from the Old World Drought Atlas (Cook et al. 2015)

member. As such, *Antico Comune* 765 provides similar information to other books of accounts collected (or paid) on behalf of Genoese authorities. To the right is a statement of the amount given (or, occasionally, promised) to Galeoto, which almost all have crosses next to them; presumably indicating that the sum had been paid. These are divided into *lire*, *soldi*, and *denarii*. One *lira* was made up of twenty *soldi*, and a *soldo* was constituted of 12 *denarii.* At the end of each day, Galeoto created a tally of the sums that he had collected. There is further tallying on and just inside the front and back covers of the book, and a final tally on the last, filled in page. There are several slips of paper folded around the spine but within the covers of the book.

While *Antico Comune* 765 only contains very straightforward information, the document is sufficiently extensive to be able to develop an understanding of why it was compiled; particularly when viewed alongside other sources available relating to Genoa's aqueduct. Only one actor, Nicolo de Ponte, appears making a payment more than once during this five-month period. His second payment was made on behalf of his tavern (*... per sua taberna*). The sums recorded in the books are generally large, ranging from a few *soldi* and *denarii* to half a dozen *lire*. Both the singularity of the payments and their high value suggest that this was a one-off transaction for something long term, rather than for a single use of the water. It might be suggested that the sums were a contribution for the maintenance of the aqueduct, especially as the inscription mentioned above attests to its extension in 1355: the year before the accounts were recorded. However, the sums are irregular, and this irregularity indicates that this was not a tax levied across the population for the maintenance of the aqueduct. Furthermore, the amount people pay does not correspond regularly with wealth, occupation, or status, so it is difficult to find criteria determining how much was paid. It is also worth noting that it is not possible to place the individuals listed in one particular quarter of Genoa, given the scare information about them. The entries seem to pertain to the city as a whole (Figs. 4, 5, 6).

Having disregarded these alternative explanations for the production of the aqueduct record, my understanding is that the amounts reflect a sum paid for the use of Genoa's aqueduct's water supply throughout the summer: either through drawing from public sources, or a more private point of access. David Gentilcore explored how in late medieval Naples, water rights were allocated in the city's currency dominations (*tari*, *tornesi* and *carlini*) according to the diameter of a fountain's spout (*bronzo*) (Gentilcore 2019). This kind of accounting could be what we see in the record, which would explain the irregularity of amounts paid to Galeoto. Otherwise, it was an amount agreed upon by the administrator and the water user on the basis of the need of each payer. In this case, the book records a special levy on the use of water in medieval Genoa during the dry summer months; either because it was necessary, or because it was expected to be. It should be noted that it also occasionally mentions payments for other purposes (also discussed below).

Antico Comune is therefore useful in presenting an official collecting funds on behalf of authorities. Not only does this give us a sense of how a process surrounding water management was coordinated, but it allows us to consider how an agent of authorities interacted with other actors in its course. It also shows who paid for water access in later medieval Genoa and allows for speculation around why these payments took place. In this sense, the book complements Genoa's other written sources which highlight the relationship between water infrastructure and political authority, the negotiation and coordination of works, and

Fig. 4 Antico di Stato di Genova, Antico Comune, 765. The front cover. Photos are my own, kindly reproduced with the permission of the archive

the influence of morality and public expectations. Our aqueduct record provides a snapshot of the varied actors, interests, and expectations that shaped how water from the aqueduct was distributed in mid-fourteenth-century Genoa. The rest of this article is dedicated to exploring how.

III

As the very existence of the book attests, a key actor engaged in coordinating the provision of water was Galeoto de Andrea: an agent of Genoese authorities. I will therefore begin by focusing on who Galeoto was and what he was doing. This allows us to consider how Genoese authorities chose to manage water payments, the motivations of the administrator, as well as how the coordination of the aqueduct fell within broader, official administrative activities.

All our knowledge of who Galeoto was stems from the information available from *Antico Comune* 765. I was unable to find reference to him elsewhere in Genoa's archival records. From his hand, his modes of accounting, and the abbreviations he uses, it can be assumed that Galeoto had training as a notary. Genoese notaries are very well studied. These professionals produced private acts and documents, as well as official records, from the eleventh century (Petti Balbi 2009). Galeoto's training would have

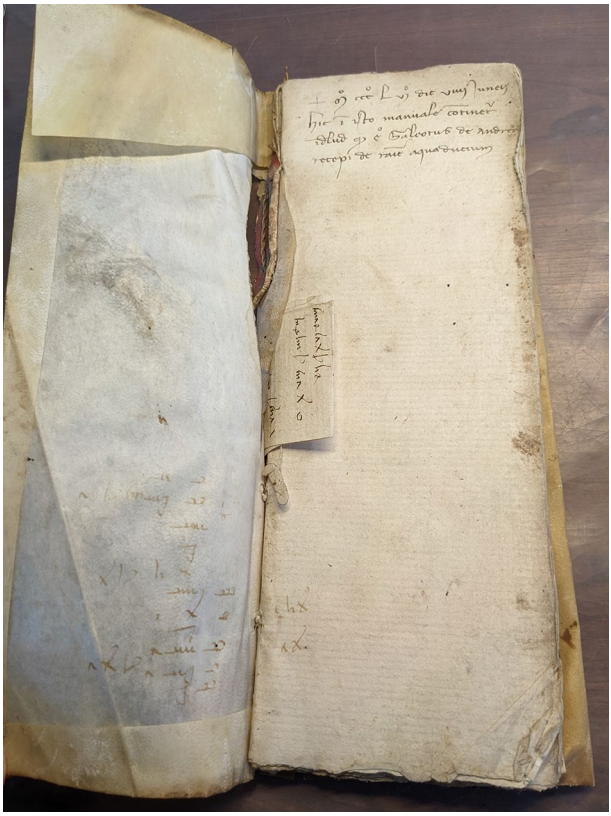


Fig. 5 Antico di Stato di Genova, Antico Comune, 765, 1r. Photos are my own, kindly reproduced with the permission of the archive

given him not only skills relevant to producing documentation but imparted him with *publica fides*: "public trust" (Piergiovanni 2006; Rovere 2022). That is, with recognition among the population at large that he could be trusted to carry out his role properly, and that the documents he produced were legally valid. The statutes of many Italian centers order the appointment of individuals or committees to monitor the condition and use of water infrastructure. These regulations tend to emphasize that those holding these positions should be of good social standing (e.g., a *bona persona*) (Cadinu 2025). For example, in Siena, work on the city's water infrastructure and the resolution of accounting disputes was mediated by committees of men deemed religious (*viri religiosi*) and men of penitence (*uomini di penitentia*) who had pledged to uphold higher standards of behaviour (Kucher, 2005). In many cases, at least one member of an appointed committee was a notary (Kucher 2004). This was presumably because of his record-keeping skills, but we should also factor in the trust associated with the notarial profession here.

Although there is no information about this particular office, it is probable that Galeoto had purchased the right to collect the water fees. Many responsibilities and rights to raise revenue relating to urban government and public life in mid-fourteenth century Genoa were put up for auction. In fact, the purchasing of responsibilities was more frequent than straightforward appointment (Petti Balbi 1991). These rights were most often bought by notaries. Galeoto's engagement in this activity therefore gives a sense of how different rationale underlying these appointments intersected. While in many

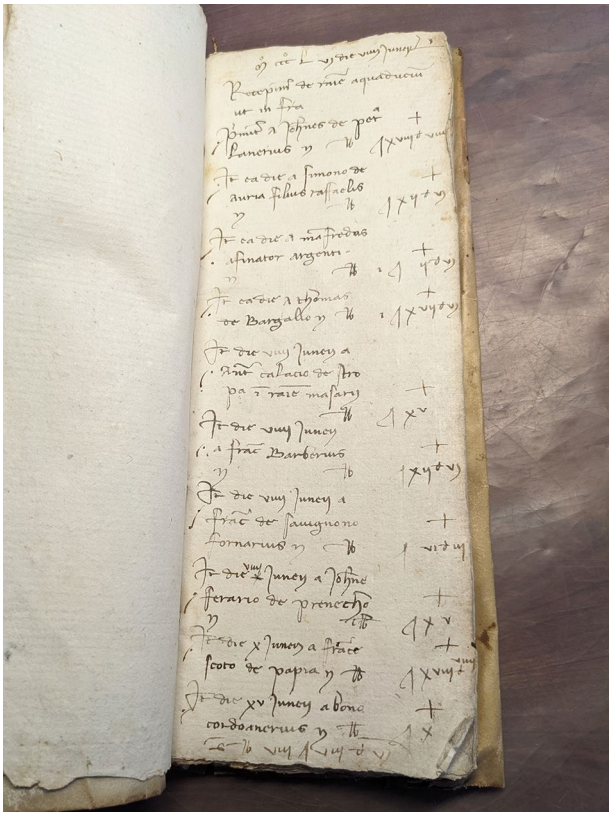


Fig. 6 Antico di Stato di Genova, Antico Comune, 765, 2r. Photos are my own, kindly reproduced with the permission of the archive

cities, these positions were unpaid, it seems that in Genoa this emphasis on the trustworthy officeholder merged with financial incentives. Rather than simply a sense of contributing to common interests, participation in water administration was profitable. Public and private motivations were interlinked.

The record also gives some sense of the manner in which Galeoto undertook his responsibilities. Here, one of the most significant clues is not the entries themselves, but several slips of paper that are folded around the spine of the accounts book. These slips are notes of debt and obligation. They follow a consistent formula. The first, for example, details how Corrado, a crossbowman, had given Galeoto various objects, including two skirts: one white, and one made of silk, so evidently of value. These items had been pledged to Galeoto as a deposit in exchange for money owed for "services and work(ers)" (*p[ro] serve[n]ti et laboratores*). On first impression, this seems to refer to work owed and pledges in relation to water infrastructure. Genoa's archives and those of several other Italian cities house records of payments made for labor around water management structures (Balard 1997; Gentilcore 2019; Kucher 2004). However, as the entries on the slip continue, they tell a different story. On the same leaf, Galeoto noted a similar pledge, but this was made for the *armata*, or fleet, of Antonio Grimaldi and Antonio Blancheto. It is difficult to identify the exact fleet that this transaction is related to. The 1350s was a time of conflict between Genoa and Venice: a rival maritime power (Epstein 1996). Most of those who appear in later entries on these slips seem to have

been involved in Genoa's fleet in some way. There is, for example, a second entry for Corrado, a crossbowman; perhaps the same man as mentioned above. While this Corrado pledged goods, Galeoto noted that he later ran away at sea. Similar is seen in the entry for Guillermo, an ironmonger. Galeoto states that he owes him for "services". He received a skirt from him as a pledge, as well as some other goods. Like Corrado, Guillermo is noted to have escaped at sea.

Although these runaway mariners may be striking initially, the abscondence of Guillermo and Corrado reflects a frequently recorded phenomenon. Genoa's *Archivio di Stato* holds several dozen registers of the crews of the city's ships and their pay, and occasionally details of itineraries and provisions (Balard 2017; Origone 1978; Musarra 2020). They also frequently note whether, when, and occasionally where, crewmen abandoned ship and reveal that this was a frequent phenomenon. Indeed, there are several surviving books which focus entirely on documenting those who ran away.

These crew logs are tangentially related to the aqueduct itself, but they give us insight into how the management of the city's water systems was related to broader practices of documentation and official administration. Galeoto's skills in writing and accounting made him valuable to the Genoese urban government in lots of ways. The existence of the slips within the aqueduct accounts book suggests that he took on numerous roles and responsibilities, and conducted them simultaneously. This multiple officeholding is also attested to in the book itself. An entry from June 17th notes that Galeoto had collected a sum of one *lira* and one *soldo* from Andriollo Spinola as punishment for harm he had caused to "the Genoese *castra* and to us" (*caux[a] q[uod] erat c[a]stra Ian[ue] et no[bis] hab[i]t mall[i] nata*). The penalty does not seem to relate to water infrastructure, and it therefore seems that authorities had requested that Spinola paid the fine to Galeoto on their behalf.

These slips, together with the book, are therefore informative about Galeoto's skillset and the context in which he conducted his collection of the sums for the aqueduct. Galeoto possessed skills as a notary, including systems of accounting and writing. His professional role also likely bestowed him with a trustworthiness deemed appropriate for handling a shared amenity. At the same time, we can recognize that holding these roles benefited him personally, in securing personal revenue. Together, these factors encourage us to place water management within a complex and growing late medieval urban administration, but importantly highlights that this was dependent on individuals, their skills, and how they related to others.

Beyond Galeoto, the people named in the entries of *Antico Comune* 765 reflect how water was embedded in Genoese socio-economic life in the broadest sense. The record reveals a wide range of different actors engaged in purchasing the resource, for a variety of purposes. At the same time, the entries indicate the negotiation of the socio-economic status, needs, and expectations of different individuals. As in other Genoese (and Latin Mediterranean) administrative and notarial records from the later Middle Ages, those listed in the aqueduct accounts book are identified through their occupation, place of origin, their place of residence, or a combination of these details. Also like these other documents, *Antico Comune* 765 displays a diversity of origins among the city's population.

The overwhelming majority of the individuals involved in recorded transactions were from, or resident in, Genoa, its outskirts, and territories across Liguria which

were under Genoese political control (Guglielmotti 2018). Alongside the Genoese and Liguria payers, a few individuals have names that place their origins in other parts of northern Italy; such as Pavia, Fossano, Udine, and Asti. This may reflect mobility for economic and trading purposes, with each of these cities involved in commerce at least across northern Italy. A smaller minority still are identified with reference to areas under Genoese authority in other parts of the Mediterranean region, as part of their trading empire (Origone 2018). The first entry in the volume, for example, related to Giovanni of Pera, a woolworker (*lanerius*), who paid one *lira*, eighteen *soldi*, and eight *denarii* on 9th June. Pera (later Galata) was the neighborhood in Constantinople (Istanbul) where a community of Genoese people lived and traded, with the permission of Byzantine emperors (and then Ottoman sultans). Later in the volume, Galeoto recorded that he had received eighteen *soldi* and nine *denarii* from Angelo of Crete, a caulker (*calafatus*) on 30th August.

Alongside this geographical diversity, Galeoto attributes a variety of occupations to those paying for water use in this summer period. These include, in no particular order (my translations of these terms are based on renderings into modern Italian in the index of Bezzina 2015): a silver refiner (*afinator argenti*); shoemakers (*calacio; calegarius*); a barber (*barberius*); butchers (*matelar*; *mantelar*); blacksmiths (*ferrario; ferrarius; faber*); a cordwainer (*cordoanerius*); a wool carder (*battiglio*—as in *battilana* in modern Italian); cheesemakers (*fromagario*; *formagerio*); innkeepers (*tabernario*); bakers (*fornarius*); tailors (*taciator; taliator*); dyers (*papavario; tintor*); woolworkers (*lanerius*); a hatmaker (*capirterio*); papermakers (*cartario*); a fabric merchant (*draperius*); a shearer (*acimator*); a caulker (*caraffatus*); candlestick makers (*candelario*); and a *magister* (probably master of a trade). Members of different professions appear throughout the record, without any clear indication of a seasonality or prioritization of their kind of work. The most frequently given occupations in the record are shoemaker (eight), woolworker (seven), blacksmith and butcher (both five). A significant number of individuals (around half) are not identified by profession, but just by geographical origin or family line. These descriptions do not necessarily mean that they were not using the water for work, as modes of identification in notarial records usually reflect the input of the notary, the individual named, and others within the community rather than any established rule.

Those in each of these trades would have required water. In his article on water in fourteenth-century Siena, Michael Kucher divides industrial uses into three categories: for energy to produce motive power; as an agent in chemical processes (including washing); and/or to flush away waste (Kucher 2005). Most of the occupations listed in our record would have used water in their craft for one or more of these processes. For many of them, water would also have been invaluable for cleaning materials, wares, and spaces. However, in many cases it is difficult to be sure of how water was used in their work, and how much of it was necessary for different tasks. In cheesemaking, for example, the quantity of water needed would depend on the kind of cheese being produced (Gobbetti et al. 2018a, b). Existing scholarship on water and medieval industry has tended to focus on those whose industries were situated strategically to ensure they could use the water, most notably milling (Lucas 2006; Squatriti 1997) which was usually located outside of the city. *Antico Comune* 765 shows a greater variety of crafts and industries that required consistent access to varying quantities water. This Genoese

source shows how these functions intersected, but also how they could take place on smaller scales.

These individuals paid varied amounts to Galeoto. The sums exchanged are inconsistent, but they do seem to correlate with levels of use. Many of the biggest spenders were engaged in fabric production. For example, Guirardo de Dominicho, a dyer, paid one *lira* and five *soldi* on 7th August; Antonio, a wool carder, paid the same amount on 18th June. For both industries, water was crucial in chemical production processes, as well as for cleanliness and the washing away of waste (Kucher 2005). Innkeepers also handed over large sums. For example, on 7th June, Bartolomeo Franzono paid four *lire*. The brewing of beer was not widespread in later medieval Italy (Unger 2004). However, water was likely important in these establishments for food preparation and hygienic purposes. It was also important for drinking. Providing drinking water was an obligation for innkeepers in later medieval Genoa. A statute survives from the fifteenth century which states that innkeepers were required to have at least three glasses of water available per customer during the summer months (Desimoni 1885: doc. XII). This legislation reaffirms the notion that authorities were concerned that the drinking needs of the population were met. In this case, while it is impossible to know exactly what the water was for, there does seem to be a relation to levels of use. *Antico Comune* 765 reveals a considerable number and wide range of professionals in need of water. This would have generated a complex set of needs regarding the distribution of this resource and the high volume of people engaging with authorities in relation to its provision.

The record shows significant seasonal concentration. Galeoto notes down the vast majority of payments in the warmest Summer months: 37 in June; 32 in July; and 30 in August. Just three transactions are recorded for September and two for October. Two are undated. This peak seems to anticipate and reflect strain on water supply during the hottest period of the year. The subsequent decline is harder to interpret. It could suggest less immediate need among the water users who had not already paid. Otherwise, it could reflect Galeoto's record-keeping decisions and reduced appearances to collect sums. Perhaps, it reflects the presence of others collecting the sums–but this is impossible to explore without further evidence.

Alongside a wide range of crafts and industries, the aqueduct accounts include payments by members of Genoa's leading political families. That is, the patricians whose lineages dominated political decision-making councils and offices. Their control of the political apparatus was replicated within the cityscape—with them existing in the *alberghi*—or family quarters of the city. As mentioned, many of these areas had their own private fountains by the middle of the fourteenth century. These elites occasionally gave large sums to Galeoto. One of the last entries is, for example, from Luchino de Auria (Doria), who paid four *lire* and ten *soldi.* No additional information is provided, but the large amount could reflect payment for private access in his family compound. In this sense, it highlights water access differentiated along socio-economic grounds. However, on the whole, the patricians are not recorded as having paid the greatest sums to the aqueduct accounts. If they were paying for domestic use, the amount of water these elites required was likely to have been less than those in many industries. In this case, the record shows us a complex set of private water demands, with sums paid corresponding more to needs than the wealth of the purchaser.

What is also noteworthy about the entries for the city's elite is that they present them interacting with Galeoto's administrative procedure in a distinct way to Genoa's wider population. The political and economic elites are identified differently in the record than their less affluent counterparts. Rather than being labelled with a profession, they use their family name and mention a relative; for example, there is a Simono de Auria [Doria], "son of Raffaelo" (*filius Raffaelus*). Such a manner of identification is similar to modes in other Genoese administrative and notarial documents. They also behave differently. In several cases, Galeoto reports that these individuals did not go to him in person to make their payments, but were instead represented by proxies. The use of proxies to pay for water is not just an elite phenomenon; for example, Galeoto provides an entry from 18th June stating that he had received one *lira* and five *soldi* from Jacopo de Lamorta on behalf of (*de fere[n]te*) Nico Blancho. However, their use by elites seems more consistent. On 10th June, Galeoto notes that Corrado Spinola, of another leading Genoese family, had paid him on behalf of the Marquis of Savona (*Marcho Saruaigon*). The same day, and maybe at the same time as her kinsman, Margarita, the wife of Galeazzo Spinola, made a payment on behalf of Manfredo Cocharello (another prominent merchant family) of one *lira*, seventeen *soldi*, and six *denarii*. In this case, while subtle, these dynamics reveal groups of the population had different ways of encountering and engaging with these administrative processes. These elite dynamics encourage us to view interactions surrounding water distribution as differentiated by socio-economic status and customs and protocols that existed around them.

The appearance of Margarita, wife of Galeazzo Spinola, is worth remarking on further as she is one of only two women who appear in the record. The other, Johannina Peirenera features on 6th October making a payment of seven *soldi* and six *denarii* alongside an unnamed son (*ad ed fillio*). While a small sample size, these two women together show women only involved in these transactions if acting with or on behalf of men. In both instances, they act as procurators for relatives or others within their social sphere. The appointment of women (sometimes alongside a younger, male relative) as legal and economic representatives in a period of absence or incapacity was reasonably common in late medieval Genoa (Bezzina, 2018a, b, c; Smith 2012). What is more puzzling is the general absence of women. Women were often economic agents in medieval Genoa. Scholarship in recent decades has emphasized the financial responsibilities and involvement in business of women, particularly during widowhood (see Bezzina 2018a, b, c). Equally, several industries dominated by women in medieval Genoa required extensive use of water; not least, the washhouses mentioned in my outline of the flow of this resource in and around the medieval city. Perhaps these washhouses had distinct arrangements with urban authorities. It could be suggested that women's absence in *Antico Comune* 765 reflects that the book tends to be concerned with those from certain industries and that men usually took on the role as primary economic representative for households and businesses.

More generally, the practices surrounding procurators and representation demonstrate the significance of interpersonal relationships in shaping payments for water. The appearances of Margarita and Johannina show us that familial bonds and elite connections were key. Occasionally, the document reports individuals from the same occupations paying on the same day; for example, two shoemakers met Galeoto on 1st July, and two paper makers made payments on 20th August. Perhaps these people had

travelled together, reflecting the solidarities that emerged between those who lived and worked with or near to one another (Bezzina 2018a, b, c; Hughes 1977).

One set of exchanges later in the record shows a more complex set of proxies and obligations. Almost all the transactions recorded in Galeoto's register are straightforward; he was either given or promised a sum by another party. Yet, occasionally, the records point to more complicated dealings. Several payments were made on behalf (*de ferente*) of someone else, as detailed above. Although other references to such arrangements involve Genoese merchants, a cluster of transactions which appear together diverge from this tendency. On 17th July, Galeoto logged that he had received five *lire* from Jacopo Rivello of Asti, Piedmont, on behalf of (*p[ro]stator*) Antonio Luxardo (*Luxiardo*). This is the first of four transactions that took place on the same day, are recorded one after another, and which each involve a man from Asti paying five *lire* on behalf of Luxardo. The second, third, and fourth of these entries describe Luxardo as a banker (*bancher[ius]*).

Luxardo was from a family that was relatively prominent in Genoese political and economic life, but is poorly documented. The lineage may have had roots in Chiavari, on the eastern end of the Ligurian Riviera. In 1393, they formed an *albergo* (clan), "de Franchi", together with the Tortorino, Figone, Magnerro, and Cocharello families, which attempted to compete with older, noble dynasties in terms of prestige (Musarra 2020). Antonio Luxardo appearing as a banker in the decades prior to this action suggests that he contributed to the rising financial position of his family. By contrast, abundant material survives relating to the commercial life of Astigians. Medieval Asti was an influential regional power, with extensive territories around it in Piedmont (Pia 2017). Given the city's strategic position on trans-Alpine paths between northern Italy and France, its merchant-bankers enjoyed a good deal of success, and had a sizeable presence across these regions (and further afield) (Castellani 1998). Together with the merchant-bankers from north-western Italy more broadly (from cities such as Alessandria, Tortona, and Piacenza), there was a notable Astigian presence in later medieval Genoa. These traders offered banking services to the Genoese, and were able to dominate commercial traffic between the Ligurian port and the urban centers of northern Italy (Tognetti 2018). Many Astigian traders settled permanently in Genoa, taking up citizenship in the city (Petti Balbi 1989; 2014).

The details provided about these exchanges in the record are limited, and therefore exactly what took place cannot be stated with any certainty. These men from Asti are not identified by occupation, and thus presumably made a living through commerce and banking. In this case, what they do point to is a longer, more complicated chain of transactions which came to center around payments for the aqueduct. These amounts together seem far too large to reflect one man's payments into the aqueduct. The substantial sums could reflect parts of a penalty, as we witnessed with another (albeit much smaller) payment from an elite figure earlier in this piece. Alternatively, they could be money given charitably in order to boost Luxardo's status. Another possibility is that they may have been fronted by Luxardo on behalf of many others; however, it seems odd that Galeoto would not have noted these fourth parties. What can perhaps be stated with more assertiveness is that Astigians owed substantial amounts money to Luxardo and these were payments of a standardized amount towards them. Such regular payments do not appear elsewhere. Put more simply, my understanding is that these trans-

actions reflected engagements of debt and credit, with Luxardo as player within them. However, the scarce information available makes it impossible to interpret what exactly was going on that led to these exchanges.

Regardless, this short sequence of Astigian payers (likely bankers themselves) tied to a banker draws our attention to the fact that paying for water and the aqueduct was embedded in Genoese economic life in this period. In this example, it figured in the working out of credit, debt, and obligation between actors. This is by no means surprising. However, given the scarcity of records which pertain to water's use and management in this medieval city, the record provides a rare window into how moments of exchange relating to this resource extended outwards into economic dynamics more generally. In the use of proxies, together with the credit and debt, the purchasing of water access echoed broader marketplace dynamics. Scholars of medieval markets have stressed the centrality of complex webs of obligation to exchange of goods and services (Davis 2011). Within this, they have emphasized the importance of trust as an underlying and enabling framework. The lines of credit extended around water could be seen to mirror the structures around which contemporaries constructed broader, financial and commercial obligation; for example, familial ties (Lord Smail 2017; Padgett and McLean 2011) and common identities (e.g., geographical origins). The engagement between authorities and urban populations surrounding water therefore took place in continuity with interlinked social and economic ties.

Conclusion

The first part of this article offered an overview of the route of Genoa's aqueduct and its place within the medieval city's water infrastructure. This context was followed by an overview of the sources available for considering water management in medieval Genoa, and how different kinds of materials unpack the various factors that shaped the distribution of the resource. Not distinctly from aiding political image, water had important moral significances that made it a priority for governing authorities. This importance is attested to in the large number of statutes and decrees which survive from the late medieval and early modern periods that center on keeping water clean and ensuring the needs of the poor are met at times of scarcity; particularly in the warm summer months. The book of accounts must be recognized in this seasonal context: it represents the execution of measures carried out in the warm summer months to monitor water supply, during a period when rainfall levels were lower than they had been in the decades prior.

Galeoto's collection of sums shows us the negotiation involved in the introduction of these kinds of measures. As well as allowing consideration of the qualifications, responsibilities, and personal motivations of the agents of governing authorities, and thus the meeting of public and private interests, *Antico Comune 765* reveals the range of people paying for water in medieval Genoa. These individuals needed water for a variety of purposes. In this sense, the record brings to the forefront the importance of these water systems for urban industry and the economy. However, it also pulls into focus how these transactions were embedded in a much more complex set of social and economic

encounters. The ways in which people interacted with these processes reflected their socio-political status, interpersonal relationships, and strings of debt and obligation.

Some aspects of the record are unsurprising. The individuals listed come from diverse geographical origins, but are most often identified as being from Genoa and its Ligurian hinterlands. Likewise, Galeoto noted down interactions with a wide range of occupations, which were dispersed spatially. Payment patterns suggest a correlation between usage and contribution, but wealth and social status still played a role. Members of the city's elite ruling families occasionally gave substantial amounts of money to Galeoto; likely for private water access in their family residential complexes. They also seem to have engaged with the notary on different terms. The presence of these elites in the record points to urban water access being differentiated on the basis of socio-economic status, not just need.

Alongside socio-economic factors, Galeoto's book emphasizes how moral ideals came into play. He took the responsibility of collecting the sums as a notary, presumably with the skills and trustworthiness associated with such a qualification. Nonetheless, his occupation and a desire to contribute to a shared good was not his only incentive. They merged with the financial opportunity to take a share of the contributions. The record is not expansive enough for an in-depth examination of how co-actors related to one another; but perhaps thinking in terms of trust also allows us to situate water within a wider web of financial obligations. The record places the administration of the aqueduct in the middle of Genoa's complex, interpersonal financial sphere. It is particularly evident through Galeoto simultaneously managing debt and obligation relating to a ship and the appearance of the banker from Asti.

The record is brief and standalone in Genoa's archive. It therefore cannot tell us in what ways these dynamics shifted over time. Equally, the sparsity of the information it provides forces a degree of conjecture about exactly what was going on around its entries. Nonetheless, the aqueduct accounts book gives an important, alternative perspective to more normative sources. Much of what we know about water provision in medieval Italian cities comes from statutes, decrees, and regulations issued by urban authorities. These records are crucial for understanding just how important the provision and regulation of water was to urban governments, and the kinds of measures they took in relation to its management (Balestracci 1992). It is difficult to understate the volume of measures taken by both Genoese administrations and those across Italy to ensure water supply was consistent, clean, and accessible. Given that Galeoto's record is dateable to a moment where city authorities were coping with or anticipating scarcity, this document shows us the execution of a water-related policy, in all its complexity.

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