Waste in Water, Water as Waste

Informal Collective Action in Seventeenth-Century Holland

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Water is inherently circular as it perpetually remains within the hydrologic cycle, continuously re-emerging as water. During the seventeenth century, city-dwellers in the province of Holland did not always need the help of formal bodies to make arrangements regarding the use and disposal of water. In Holland's cities, various entities, each operating at its own level and with its own responsibilities, oversaw different aspects of society. This article explores which parties within this polycentric governance system took the responsibility for the drainage of surplus water and the availability of water of sufficient quality for consumption or production purposes. It argues that along with established organizations, occasional alliances played an important role as well.

In 1645, the yarn bleachers within the jurisdiction of Haarlem sent a petition to invoke the help of the municipal magistrates, while referring to the interests of other stakeholders in the local cloth industry. The bleachers had organized themselves to prevent the establishment of a polluting fulling mill along the ditch where they did their trade. They pointed out that for years they had been boiling, cooling and rinsing their yarn to the northwest of the city because that was almost the only place nearby that could provide what they needed: 'acceptable and fresh water, not infected with any filth or impurity'.[1] The other place where fresh dune water flowed into the city

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1 'goet bequaem ende versch water, met geene vuijlicheijt nochte onreijnicheijt geinfecteert', Noord-Hollands Archief (NHA), Stadsarchief van Haarlem (SA), inv. nr. 3964.

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was the Brouwersvaart, but that source was already in use as a freshwater reserve for Haarlem's brewers. The example of the yarn bleachers shows that in the seventeenth century citizens in the province of Holland monitored the preservation of their own environment closely. They did this sometimes in conjunction with, but also sometimes without the involvement of, the authorities. Or, as in the example of the yarn bleachers, citizens organized themselves to make the first move and then sought the backing of the government. By forming constantly shifting associations, they made arrangements about the way they dealt with water.

Seen on a global scale, water is a circular substance, since it cannot escape the hydrologic cycle and will re-emerge time and again as water. Evaporating surface water condenses into clouds and returns to the earth in the form of precipitation. There it infiltrates the soil or runs off to form larger bodies of water, from where it can evaporate again. Humans cannot break the hydrologic cycle, but they do make use of it. The yarn bleachers of Haarlem preferred the rainwater fallen on and infiltrated into the dunes west of the city because it was relatively pure. We might say that by using it, they created – on a very small scale, compared to the natural cycle – a hydrologic cycle of their own. They temporarily took out several measures of water for their own use: first to boil the newly twined yarn with a plant-based lye, then to cool it down in a mixture of watered buttermilk, and finally to rinse it. When the bleachers returned the water to the natural cycle – where it infiltrated the soil or ran off towards the Spaarne River – it was mixed with lye and buttermilk. It was still water, and could probably be used for several purposes, but no longer for processes that required fresh water – at least until it had evaporated and rained down again. In the same way, the wastewater coming from a fulling mill would render a once suitable stream useless for the yarn bleachers. Their petition to the magistrates is but one of the many examples of how Holland's early modern inhabitants unified on a temporary basis, in order to get things done, to fend off harm or to challenge decisions.

It is hardly surprising that water was – and is – one of the topics that brought people together. Water is both omnipresent and versatile, and can at the same time be a necessity for one group of people – e.g. for irrigation, to produce consumables, or as a cleansing agent – and a threat to another, for instance in the form of floods.[2] In other words, water forces people to work together, in large and permanent confederations

2 For an overview of the meanings that the seventeenth-century inhabitants of Holland attributed to the substance of water, see M.E. Foncke, *Water's Worth. Urban Society and Subsidiarity in Seventeenth-Century Holland,* Krommenie 2020, ch. 1.

such as water boards, but also in occasional alliances. Moreover, as the example of the yarn bleachers demonstrates, a certain use of water can spoil the utilization by others, even if the source is not entirely depleted.[3] In short, water of the right quality is a common-pool resource and comes with collective action dilemmas. It is, however, not the only social dilemma connected with water management. Whereas Haarlem's yarn boilers appealed for reasonably pure water, many city dwellers in seventeenth-century Holland were preoccupied with getting rid of surplus water that had arrived at their premises in the form of precipitation. The use of precious space for drainage, the potentially destructive effects of water on structures, as well as the tendency of people to use water to get rid of other waste brought people together to make arrangements, thus taking responsibility for their immediate environment.

A close look at the way that people dealt with an ordinary substance such as water tells us a lot about the way society was organized. Among other things, examining their wastewater treatment shows us that seventeenth-century city dwellers in Holland did not always need to refer to governments and formalized institutions to get things done. Instead, they were allowed to make arrangements among themselves – up to a certain point, which this article will explore. Both the early modern province of Holland and the Dutch Republic at large can be characterized as a polycentric governance system, which in the words of Michael McGinnis is 'a diverse array of communities and public and private authorities with overlapping domains of responsibility, interact[ing] in complex and ever-changing ways.'[4] This does not necessarily mean that all these authorities were equally powerful.[5] In the Dutch republic, the governance system

3 U.C. Ewert, 'Water, Public Hygiene and Fire Control in Medieval Towns. Facing Collective Goods Problems while Ensuring the Quality of Life', in: *Historical Socal Research* 32.4 (2007), pp.222–251; E. Ostrom, 'The Challenge of Common-Pool Resources', in: *Environment: Science and Policy for Sustainable Development* 50.4 (2008), pp.8–21.

4 M.D. McGinnis, 'Polycentric Governance in Theory and Practice: Dimensions of Aspiration and Practical Limitations', in: *Working paper from the Ostrom Workshop, Indiana University*, Bloomington 2016, p.1. For an in-depth explanation of polycentric governance, see V. Ostrom, C.M. Tiebout, and R. Warren, 'The Organization of Government in Metropolitan Areas: A Theoretical Inquiry', in: *American Political Science Review* 55.4 (1961), pp.831–842; L. Hooghe and G. Marks, 'Unraveling the State, but how? Types of Multi-level Governance', in: *American Political Science Review* 97.2 (2003), pp.233–243; J. van Zeben, 'Polycentricity as a Theory of Governance', in: J. van Zeben and A. Bobić (eds), *Polycentricity in the European Union,* Cambridge 2019, pp.9–27.

5 Hooghe and Marks, 'Unraveling the State' (n. 4), p.234.

consisted of nested tiers of governing bodies. Each of Holland's eighteen major cities was represented within the States of Holland, along with one delegate of the nobility. In its turn, the States of Holland had a vote in the States General. In addition to these governing bodies, several institutions took on the responsibility for specific tasks. Probably the best-known example of the latter are the water boards, whose jurisdictions overlapped with those of landowners, cities and provinces.[6] Within the cities, guilds, neighbourhood organizations and – as we will see by looking at people's dealings with wastewater – other parties could rule their own domains, up to the point where interests clashed. Then the ultimate decision lay with the urban magistrates, who would weigh the interests of the various stakeholders.

Scholars studying polycentric governance tend to focus on constituted organizations, largely overlooking the role of non-formalized actors.[7] Although this is convenient from a researchers' point of view – formalized organizations are more likely to keep records than ad hoc associations – it leaves the impact of occasional partnerships all but unnoticed. Two researchers who dived deep into ad hoc collective action were Louise and Charles Tilly. However, they limited their scope to contentious movements.[8] The seventeenth-century urban residents appearing in this article show that they did not need belligerent behaviour to bring about change. On the contrary, we will see that there existed several rules and norms guiding peaceful behaviour within the urban community. In addition to the Tillys, both Elinor Ostrom and Tine De Moor were mindful of occasional alliances, in the sense that they allowed for the possibility that governance centres are not always officially established organizations. In the end neither of them explored the day-to-day practice of non-formalized associations in

6 M. van Tielhof, *Consensus en conflict: waterbeheer in de Nederlanden 1200–1800*, Hilversum 2021, pp.44–45.

7 See for instance E. Mostert, 'Water Management on the Island of IJsselmonde 1000 to 1953: Polycentric Governance, Adaptation, and Petrification' in: *Ecology and Society* 17.3 (2012), p.12; D.E. Garrick, 'Decentralisation and Drought Adaptation: Applying the Subsidiarity Principle in Transboundary River Basins', in: *International Journal of the Commons*, 12.1 (2018), pp.301–331; E. Baldwin, P. McCord, J. Dell'Angelo, and T. Evans, 'Collective Action in a Polycentric Water Governance System', in: *Environmental Policy and Governance* 28.4 (2018), pp.212–222.

8 L.A. Tilly and C. Tilly, *Class Conflict and Collective Action*, Beverly Hills and London 1981; C. Tilly, 'Speaking Your Mind Without Elections, Surveys, or Social Movements', in: *Public Opinion Quarterly* 47.4 (1983), pp.461–487, especially 463–465; C. Tilly, *The Contentious French*, Cambridge MA 1986.

depth.[9] Yet a look at wastewater treatment in early modern cities in Holland shows that self-organized collective action can be a substantial part of a polycentric governance system even if it takes place in alliances that are merely temporal and/or not officially founded, in contrast to established bodies such as guilds and neighbourhood organizations. During the seventeenth century, inhabitants of the major cities of Holland did not always need the help of formal bodies to make arrangements and settle conflicts concerning the treatment of wastewater. They organized themselves whenever they felt the need.

In this article, we will first outline how seventeenth-century city dwellers in Holland viewed water – and wastewater in particular. Then, we will use the treatment of wastewater as a lens to zoom in on early modern urban society as a polycentric governance system: which formal and informal communities existed, what decision-making powers did they assume, and how did people keep each other in check?

The perception of wastewater

Seventeenth-century notaries' archives, communications between citizens and urban authorities, and records kept by the municipal administration give us a glimpse into what went on in the cities on a day-to-day basis.[10] This is not to say that they show a perfect cross-section of society. Unskilled labourers, in particular, are grossly underrepresented. And although women and foreigners do appear in the records, they are underrepresented as well.[11] By and large, the records suggest that the seventeenth-century inhabitants of Holland saw water as a given. It was simply there to be used. They took it from streams and lakes or captured the rainwater fallen on their premises to exploit in any way they required. Once they had finished, they returned the residue to the natural watercourse, often mingled with other substances it had aggregated during the process of consumption, cleaning or production. The bare fact

9 E. Ostrom, 'Collective Action and the Evolution of Social Norms', in: *Journal of Economic Perspectives* 14.3 (2000), pp.137–158, especially p.149; T. De Moor, 'The Silent Revolution. A New Perspective on the Emergence of Commons, Guilds, and Other Forms of Corporate Collective Action in Western Europe', in: *International Review of Social History* 53, supplement S16 (2008), pp.179–212, especially p.179.

10 See also B. Pierik, *Urban Life on the Move. Gender and Mobility in Early Modern Amsterdam*, Amsterdam 2022.

11 Pierik, *Urban Life* (n. 10), p.38; Foncke, *Water's Worth* (n. 2), pp.88–91.

that people had to drain their wastewater – even if it was filthy – was seldom disputed in itself. The exact place they used for drainage was sometimes a subject of debate. In 1639, rope maker Heertgen Aertsen from Alkmaar invited four female witnesses to testify that the alley behind his home had been used for draining water for over thirty years. There, the women had washed the dishes, done the laundry and emptied buckets after scrubbing the floors, sweeping wastewater from one end of the alley to the other. The gutter in the alley was also where the runoff from the water pump went. During those years, not a single neighbour had ever made a complaint – until recently it seems: something must have triggered the recording of these testimonies.[12] The example shows the townsfolk's ambiguous attitude towards wastewater. Disposing of tainted water was no problem in itself, until the substance became a threat to humans or their structures. Then it had the power to unite people.

Complaints started when a stretch of water was smelly, apparently not because of the pollutants it contained, but because it was stagnant. This principle applied on a small scale – shown by another citizen of Alkmaar who filled in a gutter because of its nasty smell[13] – as well as on a large scale – as evidenced by residents of Rotterdam who joined forces to appeal for measures to get the stinking water in the ring canal moving.[14] Since medieval times, people associated malodorous matter with *miasma* or bad air, which could cause diseases.[15] Hence, the banning of stinking substances was seen as an important preventive health measure. Indeed, the joint petitioners from Rotterdam mentioned the possible health threat of stinking, stagnant water explicitly. People also took joint action when the water quality was not good enough for the purpose they had in mind, as we have already seen in the example of Haarlem's yarn bleachers. In the same city, the brewers' guild had been guarding the water quality carefully since the sixteenth century.[16] In 1632, the guilds' officials and Haarlem's burgomasters undertook a joint inspection mission along the Brouwersvaart, which was the main artery between the dunes and the city. They recorded minutely which

12 Regionaal Archief Alkmaar (RAA), Notarieel archief Alkmaar (NotA), inv. nr. 114, fol. 94r-94v and 110r-110v.

13 RAA NotA, inv. nr. 114, fol. 122v.

14 Stadsarchief Rotterdam (SAR), Notarissen te Rotterdam en daarin opgegane gemeenten (ONA), inv. nr. 285, p.89.

15 G. Geltner, *Roads to Health. Infrastructure and Urban Wellbeing in Later Medieval Italy*, Philadelphia 2019, pp.2–3.

16 R. van Oosten, 'The Dutch Great Stink. The End of the Cesspit Era in the Pre-Industrial Towns of Leiden and Haarlem', in: *European Journal of Archaeology* 19.4 (2016), pp.704–727.

dunghills, garbage dumps and drain pipes might pose a threat to the water quality and subsequently ordered the culprits to remove these threats.[17]

Sometimes people treated water as wastewater immediately after it had reached their premises in the form of precipitation: they did not take it out of the natural hydrologic cycle, but merely channelled the runoff. The vast number of bilateral arrangements on the drainage of surplus water suggests that there was no shortage of usable water in seventeenth-century Holland. By that time, the petrification of Holland's cities was well underway. Mainly due to municipal legislation on fire prevention, a vast majority of permanent structures had been built in stone.[18] A side effect of the replacement of thatched roofs by tiles or slate was that it became easier to capture rainwater and lead it towards a cistern for storage, without accumulating too many impurities.[19] Archaeological evidence suggests that many urban houses had cisterns beneath their back yards. Adjacent to buildings with large roofs, such as churches and town halls, public water points in the form of wells or pumps were installed, drawing from vast rainwater tanks.[20] In addition to captured rainwater, people drew surface water for their daily chores, only complaining when they had to walk far to get it.[21] Apparently, they found the water quality good enough for regular use. Even the brewers of Rotterdam, who needed relatively pure water to obtain a potable product, used harbour water to rinse their barrels.[22] All in all, the average city dweller had enough usable water to perform their daily tasks. Records in which people claim the right to capture, store or use water at the expense of others are scarce. Conversely, arrangements on the obligation to capture rainwater fallen on the roof in gutters and make sure it drained away were common throughout Holland – and in other parts of

17 NHA SA, inv. nr. 4041.

18 I.J. Cleijne, A.M.J.H. Huijbers, A.D. Brand, and R.W.J.M. Gruben, *Huizenbouw en percelering in de late middeleeuwen en nieuwe tijd. Van hout(skelet)bouw naar baksteenbouw in tien steden*, Amersfoort 2017.

19 I. Vogelzang, *De drinkwatervoorziening van Nederland door de aanleg van de drinkwaterleidingen*, Gouda 1956, pp.41–43.

20 B. Groenewoudt and J. Benders, 'Private and Shared Water Facilities in Rural Settlements and Small Towns. Archaeological and Historical Evidence from the Netherlands from the Medieval and Post-Medieval Periods', in: Jan Klápšte (ed.), *Hierarchies in Rural Settlements*, Turnhout 2013, pp.245–262; R.M.R. van Oosten, 'The "Great Sanitary Awakening" Questioned: Is There a Solid Argument in Favour of the "Filthy Medieval City" Hypothesis?', in: *Medieval and Modern Matters* 5 (2014), pp.59–116.

21 SAR ONA, inv. nr. 258, p.89.

22 SAR ONA, inv. nr. 142, p.150; SAR ONA, inv. nr. 323, p.296.

Europe as well.[23] These deeds were typically bilateral affairs, drawn up by the owners of two neighbouring plots. When the local situation changed, a new set of rules or norms would have to be worked out. When one or more owners wanted to build their house higher, neighbours with buildings that remained low would have to cope with more rainwater dripping onto their structures. The common arrangement was that the owner who wanted to raise the house promised to construct a rain gutter and to bear the costs of its maintenance for a few years, or until the neighbours decided to raise their house as well. But the parties involved could also decide to split the cost differently: it was up to this tiny community to make an arrangement, even if this meant a deviation from the municipal bylaws.[24] As we will see, the formation of larger communities of interest followed the same principles as these bilateral ones.

Forming communities

A close inspection of accounts of ordinary activities can reveal a lot about the written and unwritten laws in society. Thus, observation of how inhabitants dealt with wastewater can tell us about the groups that had a certain amount of decision-making power within seventeenth-century urban Holland. The records show that people had unambiguous ideas about who belonged to the community that could exercise control over a certain matter: those who paid – in cash or in kind – could have a say. Neighbours recording their drainage agreements bilaterally, mentioned above, would both suffer losses by decay should rainwater be allowed to flow unchecked over their structures. A case recorded in Leiden makes the connection between payment and control even clearer. The acting chief of the Pryelgen neighbourhood filed a plea with Leiden's magistrates, pointing out that the inhabitants of his neighbourhood were the only ones who paid for the maintenance of the well in St. Peter's churchyard. Therefore, they should have the exclusive right to draw water from the well.[25] A group of citizens by the Spaarne River in Haarlem – including several rich brewers – successfully pleaded a case along

23 J. Coomans, *In Pursuit of a Healthy City. Sanitation and the Common Good in the Late Medieval Low Countries*, Amsterdam 2018, pp.142–146; Foncke, *Water's Worth* (n. 2), pp.93–96.

24 Coomans, *In Pursuit of a Healthy City* (n. 23), p.142–146; Foncke, *Water's Worth* (n. 2), p.73.

25 Erfgoed Leiden en Omstreken (ELO), Stadsarchief van Leiden (SA) II, inv. nr. 47, fol. 242v.

the same lines. The culvert running westward from the neighbouring streets, through an alley into the Spaarne had to be renewed. The Spaarne residents proposed to divert the culvert southward – distancing it from their premises – to discharge into the Oude Gracht instead. They promised to pay for the additional cost of the reconstruction and to help with its future upkeep, and were granted their wish.[26] The fact that particular people were involved in the maintenance of an area was widely recognized as a sign that they exercised property or occupancy rights. Reynier Aeryens, a brewer from Rotterdam, asked two fellow residents to testify on his behalf in 1602. First, a bricklayer declared that he had received his payment from Aeryens when he had reconstructed the quay of the Kipsloot some thirty years earlier. The housemaid of Aeryens' neighbour confirmed the bricklayer's statement and added that her employer had told her many times that the brewer could by right discharge his water through the quay, 'but that he was therefore obliged to maintain and repair the aforesaid quay in perpetuity.'[27]

Premise owners who shared facilities such as yards, alleyways, wells or drains formed small communities of interest. Together, they set the norms – and incidentally rules – about the use of the communal areas.[28] In a sense, membership of these communities was not voluntary, but rather an unavoidable consequence of ownership. That said, owners had the choice to exercise their community rights or not. As mentioned before, the early modern notaries' archives contain scores of agreements made by house owners who thought it prudent to have their bilateral arrangements recorded. Larger user communities were founded along the same lines. These occurred, for instance, when people had their premises around a shared yard or used a communal alley. This was probably the case in the Job Baltensteeg in Haarlem, where a series of records shows that every community member could invoke the right to have a say, even after months of silence. In February 1650, four 'impartial men' plus two 'super arbiters' were requested to mediate between two parties quarrelling about the communal area. Their complaints were manifold: from windows looking onto a private

26 NHA SA, inv. nr. 6739.

27 'maer dat hy des souden ghehouden wesen d'voorseyde caye altyt te onderhouden ende te repareeren', SAR ONA, inv. nr. 45, p.147.

28 The word 'norm' in this article refers to the code of behaviour shared within a social group, which is enforced by self-discipline or peer pressure. Rules are defined as directives assigned with sanctions in case of non-compliance. See S. Crawford and E. Ostrom, 'A Grammar of Institutions', in: E. Ostrom, *Understanding Institutional Diversity*, Princeton 2006, pp.137–174; A. Schlüter and I. Theesfeld, 'The Grammar of Institutions. The Challenge of Distinguishing Between Strategies, Norms, and Rules', in: *Rationality and Society* 22.4 (2010), pp.445–475.

yard and an overhanging vine to the right to discharge rainwater and the demolition of a privy. When the impartial mediators – who were in fact put forward by the disputants – failed to reach an agreement, it was up to the super arbiters to issue a ruling. One of their judgements was that Jacob Jonas the cobbler and his successors should tolerate that rainwater dripped onto the yard from an adjacent roof. They also ordered the reconstruction of the demolished privy, with the explicit direction to make two seats and to mark on the doors which one was meant for women and which for men. In the final remarks, the arbitrators stated that with the issuance of the ruling, all issues and disputes would be nullified.[29] This, however, was not to be. Five months later, two men came forward, stating that they had 'as much ownership and communality of the joint Job Baltensteeg' as the formerly quarrelling parties and wished to reopen the case because they were displeased by the solution. At their request, all stakeholders now declared in unity that the newly constructed privy had to be relocated and that it would be commonly used by the property owners along the alley henceforth – thus setting the norm together.[30]

This is not to say that the vote of every member of such a community had the same weight. Usually, people who had more or larger properties counted for more. This is clearly demonstrated in the enquiry that the municipality of Rotterdam held among the inhabitants of the Nieuwe Vogelenzang to gauge their mood about a plan to raise the street to improve its drainage. Asked for his opinion, Errenst the brazier responded that he had nothing against the plan, but that he could speak only for the alley. In other words, the connection of his premises to the public street was so small, that he reckoned his voice counted for nearly nothing because small properties paid comparatively less of the shared costs. Treijntgen Fredricx, speaking for three houses, opposed the raising of the Nieuwe Vogelenzang. She stated that should the plan go ahead, she would have to pay her share of the cost for three houses, which would be difficult since she was already struggling to provide for her children.[31] The same principle applied in Haarlem, where surveyor Andries van de Walle minutely measured the streets and quays to be reconstructed in the mid-1600s. The costs of bricks and wages – including those of the surveyor himself – were allocated proportionally, according to the breadth of the

29 'onpartydige mannen' and 'superarbiters', NHA, Oud Notarieel Archief Haarlem (ONA), inv. nr. 225, fols. 21r-22r.

30 'so veel eygendom ofte gemeenschap aen de gemene Jop balten stege hebben', NHA ONA, inv. nr. 225, fol. 119r.

31 SAR, Oud Archief van de Stad Rotterdam (OSA), inv. nr. 2626.

premises where these faced the street.[32] As often as not, the municipality proved to be the largest owner of all. Bridges, cross streets and public buildings such as municipal hospitals were chargeable to the community of all inhabitants, while the adjacent residents also paid their share – and thus could have their say. This means that technically, the urban administration was both a member of several communities of interest within the city, as well as the implementing party of the rules set by the magistrates and city council who represented the urban community as a whole.

An important difference between communities like the one in the Job Baltensteeg – which was in fact a private area shared by several households – and those of people who had private interests in a public area was that the latter could not set the norms and rules on their own. In the public space, there were more interests to consider, which was a task allocated to the urban government. The private stakeholders could merely ask, not determine. Nevertheless, their collective action did shape the norms and rules within the cities. There are plenty of seventeenth-century examples of citizens entering into negotiation with the urban authorities about the division of the costs for construction works. In Amsterdam, groups of residents who pleaded for the construction of bridges, locks or paved streets were granted their wish under the condition that they replaced the wooden quays in front of their houses with stone ones – in addition to paying a fair share of the works they desired.[33] Owners of premises east of the Spui canal in The Hague made a request to the magistrates to repair the street in front of their homes. The authorities pledged one sixth of the bricks needed, but also demanded that the requesters increase the depth of the Spui, mend its quays and repair a nearby wooden bridge.[34]

The role of the government and formal organizations

The latter example gives us an insight into the recognition of these non-institutionalized forms of collective action and their place in the seventeenth-century governance system of Holland. The owners east of the Spui had joined forces to make their request to the magistrates. They knew pretty well that the urban authorities had the ultimate

32 NHA SA, inv. nr. 6742.

33 J.E. Abrahamse, *De grote uitleg van Amsterdam. Stadsontwikkeling in de zeventiende eeuw*, Amsterdam 2010, pp.279–280.

34 Haags Gemeentearchief (HGA), Oud Archief van de gemeente 's-Gravenhage (OA), inv. nr. 125, fol. 32v.

decision in the matter, while both the Spui canal and the streets along both sides of it were important thoroughfares as well as drainage facilities, thus belonging to the entire community of citizens that were represented by the magistrates and the municipal council.[35] Nevertheless, the magistrates recognized the community of stakeholders in their own right, considering the plea seriously. This also meant that the urban government had to weigh conflicting interests. In other words, the responsibility that the inhabitants felt for their immediate environment was part of a decision-making process in different tiers, with the ultimate power resting on municipal level.

It was, however, not always necessary to involve the urban authorities in every single decision. City dwellers could exercise their own – small – jurisdiction, even though they did not form an officially established institution. In 1643, fifteen residents from Rotterdam complained that they had been swindled by a group of contractors. The latter had promised to clean and deepen the ditch running along the residents' yards. When they were halfway through, the contractors collected the payment for the entire job and were never seen again. As a result, the water in the ditch remained stagnant, causing a pungent smell that spurred the neighbours to take preventive health measures. When the residents requested the services of some municipal labourers to finish the job, no one complained that they had started the job on their own initiative. Apparently, this was something they could initiate on their own account.[36] In the same vein, two city dwellers agreed that one of them could build a bridge resting on the other's quay for an annual rent. They concurred that the bridge could remain there as long as the initiator and his descendants wished, unless or until the city magistrates condemned the structure.[37] Evidently, the jurisdictions of these premise owners and the municipality overlapped, but the former did not feel the need to seek the magistrates' authorization.

Projects concerning public thoroughfares definitely did need the authorization of the government, which is shown by the number of requests presented by people who wanted to construct drains or cisterns under the surface of public streets. Typically, the urban authorities allowed these requests, stipulating that the construction work in the public area would be done as quickly as possible, that existing (private) sub-surface structures would not be harmed and that the pavement had to be restored

35 Foncke, *Water's Worth* (n. 2), p.125.
36 SAR ONA, inv. nr. 125, pp.142–153.
37 SAR ONA, inv. nr. 63, pp.520–522.

to a condition sturdy enough to bear the weight of a dray wagon.[38] Apart from bearing responsibility for public streets and waterways, the authorities were expected to guard the greater good by taking care of what we would nowadays call health and environmental issues.[39] In 1635 – a year when the plague was rampant throughout the Netherlands – the owners of houses and yards at the Schiedamsedijk in Rotterdam drafted a letter to the urban magistrates. In it, they pointed out that a large number of households had to walk far and wide to draw fresh water, since the canals and ditches at the west end of the city were stagnant. Moreover, in summer the stench of the streams was 'unbearable, and might be the cause of the great pestilence.' The authors of the letter wanted the magistrates to make a breach in the Schiedamsedijk, making a connection to the city's ring canal that would enable the influx of fresh water.[40]

A similar case was recorded five years earlier in The Hague, where an assembly of people living near the Beek (literally: brook) urged the urban authorities to do something about the pollution of the brook. Like the complainants from Rotterdam, the residents in The Hague referred to the possibility of contagion by the unhealthy odours. They had also worked out a solution, proposing to apply a paddlewheel designed by the inventor Cornelis Eeuwoutz Proot (d. 1641) to keep the brook flowing. In uncommonly strong terms, they reminded the bailiff, burgomasters and regents that the neighbourhood had complained several times already, but that the magistrates had taken no action.[41] In other cities in Holland the municipal administration took the initiative to improve the water quality by applying paddlewheels. At the end of the sixteenth century, Leiden's city secretary Jan van Hout ordered the construction of dirty water mills as part of a much larger plan.[42] In 1653, his Amsterdam colleague Daniel Stalpaert published a water improvement plan along the same lines.[43] Along with considering the interests of the entire urban community, ensuring a healthy environment was clearly something city dwellers expected from the authorities.

38 See for instance HGA OA, inv. nr. 122 pp.164–165; inv. nr. 123, p.110; inv. nr. 125, fol. 7r.

39 Coomans, *In Pursuit of a Healthy City* (n. 23), pp.92–93 and 124–125.

40 'dat het selve niet te verdragen en is, ende oorsaecke soude conne zijn van de groote peste', SAR ONA, inv. nr. 258, p.89.

41 HGA OA, inv. nr. 5345.

42 C. Smit, *Leiden met een luchtje. Straten, water groen en afval in een Hollandse stad, 1200–2000*, Leiden 2001, pp.57–59.

43 D. Stalpaert, *Voorslagh tot 't reynigen soo der verslijmde gronden als vervuylde stinckende wateren deser Stede Amsterdam, en de nuttigheyt die by gevolgh daer van te verwachten staet*, s.l. 1653.

In general, the role that formalized institutions such as guilds and neighbourhood organizations played within the urban environment was no different than that of other stakeholders. Every now and then, they made an appearance as property owners making arrangements with their neighbours, for instance in a case about the drainage of the skippers' guildhall in Rotterdam.[44] When they did behave differently from individual citizens and informal associations, their actions can be linked directly to their official tasks. The inspection that Haarlem's mighty brewers' guild undertook in conjunction with the urban authorities, mentioned before, was a matter of quality control.[45] As we will see, neighbourhood organizations sometimes had a role to play in reconciling quarrelling neighbours. The duty of overseeing that the residents lived 'peacefully and in civil unity' was explicitly mentioned in the rules for neighbourhood organizations that were laid down in 1649 in Haarlem. Should any strife occur between two or more residents, the neighbourhood officials should do their utmost to appease them. Should even one of the contenders refuse to behave amicably, the culprit would be fined two guilders – about a day's wages for a skilled labourer – payable to the neighbourhood organization. Moreover, disputants could not bring a civil case to court in Haarlem before they had tried mediation first.[46] The scarce remaining evidence of neighbourhood organizations in Rotterdam indicates that they had an official arbitrating task, too. According to a notarial deed, two quarrelling parties had brought their dispute to the neighbourhood's officials, as stipulated in article 17 of the ordinance of the Meloxe in the Nieuwpoort neighbourhood organization.[47] The Hoogeveen neighbourhood, also in Rotterdam, even had a dedicated court for the execution of the neighbourhood charters, consisting of six men.[48]

Looking through the prism of polycentricity, we observe that guilds and neighbourhood organizations had their specific charges, such as quality control and peacekeeping. Some of their endeavours overlapped: both types of organizations had responsibilities

44 SAR ONA inv. nr. 143, p.158.

45 NHA SA, inv. nr. 4041.

46 'in goeder vreeden ende borgerlijcke eenicheijt', NHA SA, inv. nr. 5134.

47 SAR ONA, inv. nr. 459, p.334.

48 'omme proces, ende alle vordere moijten, oneenicheijt, ende rechtelijcke costen te schouwen', SAR ONA, inv. nr. 50, pp.165–166.

to prevent impoverishment of community members, for example.[49] To all appearances they stuck to these tasks. They did not try to assume power, nor to utilize organizational advantages for the benefit of individual members. Rotterdam's shipwrights' guild could have stepped in, for instance, when the urban administration decided to make changes to the Scheepmakershaven that would have hindered the passage of the ships built in that particular harbour. Yet they did not use their prominence in the city to defend the interests of their members. Instead, an assembly of local master shipwrights and merchants signed the petition.[50] In Leiden, the chief of the St. Jacobsgracht neighbourhood sought authorization to gather under the aegis of the neighbourhood organization to assess the support for a certain plan, in order to decide if it was worthwhile to send an appeal to the urban government.[51] In other words, he asked permission to use the organizational structure of the neighbourhood organization, without deploying the neighbourhood organization as a kind of lobby group or trying to seize power in another way. As a rule, formal and informal confederations kept to their own domains.

Keeping unwritten laws

When people form communities to get something done, they do not only establish rules and norms, but also mechanisms to keep each other in check and to correct unacceptable behaviour. According to Elinor Ostrom, the occurrence of graduated sanctioning – that is, imposing sanctions that become more severe with every offence – is one of the hallmarks of successful institutions of collective action.[52] However, investing and maintaining sanctions is a costly affair, as De Moor et al. have demonstrated, and therefore was not always the first choice to reform wrongdoers.[53] This is particularly true for ad hoc alliances, since these rarely upheld formalized rules.

49 K. Walle, *Buurthouden. De geschiedenis van burengebruiken en buurtorganisaties in Leiden (14e-19e eeuw)*, Leiden 2005, p.41; M.H.D. van Leeuwen, 'Guilds and Middle-Class Welfare, 1550–1800: Provisions for Burial, Sickness, Old Age, and Widowhood', in: *The Economic History Review* 65.1 (2012), pp.61–90.

50 SAR ONA inv. nr. 353, p.487.

51 ELO SA II, inv. nr. 53, fols. 43v-44v.

52 E. Ostrom, *Governing the Commons. The Evolution of Institutions for Collective Action*, Cambridge 1990, p.90.

53 T. De Moor et al., 'Taking Sanctioning Seriously. The Impact of Sanctions on the Resilience of Historical Commons in Europe', in: *Journal of Rural Studies* 87 (2021), pp.181–188, especially 181–182.

They did have norms, though, and ignoring them could certainly have consequences. Peer pressure, entailing the threat of being shamed in public, could be brought to bear. So, even though in a strict sense no graduated sanctioning came to pass in Holland's non-formalized associations, we will see that there was a mechanism in place we could call graduated coercion.

One of the norms that applied in smaller and larger communities in early modern cities was that every group member had the right to be heard. We have seen this already in the case of the Job Baltensteeg in Haarlem, where stakeholders demanded to be heard five months after a decision had been taken. In Rotterdam, inhabitants from the Keizerstraat joined forces in 1643, remarking indignantly that a group of fellow residents had made an appeal to raise the streets and reconstruct the drains 'over everyone's head', suggesting that consultation of all stakeholders would have been the proper procedure.[54] We do not know how the authorities reacted to the conflicting appeals from the Keizerstraat. In a similar case in the Nieuwe Vogelenzang, however, the magistrates took their role as the guardian of the common good seriously. They started an inquiry to gauge the mood of all property owners who had an interest in the matter.[55] All interested parties of the Nieuwe Vogelenzang had the right to have their say. Whether they were part of an official institution or not was of no account within Holland's polycentric governance system.

How the rumours about an appeal had reached the ears of the adversaries in both the Keizerstraat and the Nieuwe Vogelenzang is unknown. Nor do we know how the yarn boilers in the vicinity of Haarlem, mentioned at the beginning of this article, learned of the plans to set up a fulling mill near the brook they used. But in general, Holland's city dwellers watched each other closely. People who did not adhere to the norms were impelled to change their ways. In March 1649, bricklayer Doede Maertens van Deurslagh was sent by his client to the house of alderman Splinter of The Hague. He had to invite the alderman or his wife to come and see the mess at the spot where their private drain connected to a communal sewer – but due to their absence, he could only leave a message with the housemaid. Ten or eleven months earlier, the bricklayer had opened the sewer for the first time in search of a blockage. He had found it behind Splinter's house, where a pile of old rags, floor cloths, brushes, and other filth cluttered the sewer. After he had cleaned it up, he had placed a grid in

54 'buyten allen versocht hebben', SAR ONA, inv. nr. 185, p.453.

55 SAR OSA, inv. nr. 2626.

front of Splinter's drain, to prevent future mucking. However, now that the sewer was clogged again, he found upon inspection that the grid had been dislocated by force.[56]

The oral notification that Doede Maertens van Deurslagh tried to deliver to Splinter or his wife was undoubtedly the first and foremost instance of the range of corrective mechanisms available to the seventeenth-century inhabitants of Holland. The recording of the complaint – which is how we know of the impertinent behaviour of alderman Splinter – was one of the next steps, although there may have been one or more steps, unknown to us, in between. Whereas in Splinter's case there was just a single witness involved, usually several attestors were called upon. This probably meant that the social misconduct was already out in the open, being discussed among a group of peers. Apart from events that people had actually witnessed, hearsay was also accepted as a part of testimonies. Thus, we see the gossip of the town at work in the notaries' archives. In 1649, a witness in Haarlem declared that he had listened to the tale oftentimes that one Eefge Cornelis had been warned time and again to remove the sink from her alley, 'through which the sludge and other nastiness were poured against the wall' of a neighbouring house.[57] The talk of the town can also be seen in a similar case that was recorded in the course of nearly a year in Rotterdam. In it, six witnesses declared to know for sure that the tenant's right to drain was granted only until the landlord revoked his permission. Conversely, five attestors called upon by the tenant avowed that to their best knowledge the drainage rights were permanent.[58] During the year that it took, the case must have been discussed extensively in the streets of Rotterdam, showing both the landlord and the tenant in bad light.

While making complaints and discrediting people through gossip could be done free of charge, the recording of attestations had to be paid for. Nonetheless, engaging a notary was a relatively low-key form of coercion, compared to starting a lawsuit. Moreover, notarial deeds were probably a prerequisite for a successful civil case in premodern times.[59] Legal procedures were costly affairs, for both parties involved. Notaries had to make copies of earlier statements, witnesses were called by an official messenger, the efforts of judges and clerks had to be remunerated and if they decided to make an on-site inspection, their expenses for food and drink were usually paid by

56 HGA, Notarieel Archief Den Haag (NotA), inv. nr. 189, fol. 147r-147v.

57 'door dewelcke de spijs ende andere vuijlicheijden werden gegoten tegens de muijer', NHA ONA, inv. nr. 150, fols. 340v-342r.

58 SAR ONA, inv. nr. 94, p.48, inv. nr. 142, p.168, inv. nr. 258, pp.102–103, 106–108, 111–112.

59 D.L. Smail, *The Consumption of Justice. Emotions, Publicity, and Legal Culture in Marseille, 1264–1423*, Ithaca 2003, pp.52–53.

the litigants. On top of that, there was always the chance that the judges would decide against one and impose an expensive penalty. Because lawsuits were so costly in both time and money, it is reasonable to assume that quarrelling parties used the recording of notarial deeds as a means of pressure. After all, the fact that an event had been written down officially contained the veiled threat that the preparations for a costly civil suit had started.

There was yet another route available for seventeenth-century city dwellers in disagreement, which was quite accessible: arbitration. Peacekeeping certainly was a task of neighbourhood organizations in several cities, but was at the same time the responsibility of every member of the urban community. Within the polycentric system, an arbitration process could be initiated at every governance level. Considering that guarding the peace was a task explicitly allocated to neighbourhood organizations, it is hardly surprising that several inhabitants of the Papestraat in The Hague teamed up and reported to the officials of a neighbourhood organization. The cesspit of one of the residents was overflowing onto another's yard. Not only did the muck cause an unbearable stench, it also blocked the communal gutter through which people used to drain their wastewater. The situation escalated when one of the neighbours decided to scoop some buckets of filth out of the gutter into the culprit's alley – and was insulted in return. The officials went to see the situation for themselves. Afterwards, they sent the neighbourhood's messenger several times to the polluter to request his attendance. Yet the offender dismissed the messenger time and again, even threatening to strike him.[60] Unfortunately, it is no longer known whether the malefactor was fined.

Sometimes, the quarrelling parties decided themselves that they needed the help of an impartial mediator. This was the case in a dispute about the ditch between two gardens within the jurisdiction of Rotterdam. The two opponents, one of whom was an alderman, took their case to the bailiff and aldermen of the city to ask their judgement. In their turn, they appointed two impartial men to make an assessment.[61] Quite an extraordinary case was recorded in 1625, in which two disputants from Haarlem initiated a mediation process. To settle their disagreement about the relocation of a gutter, they sent an official messenger to summon three arbitrators. These installed themselves in the Pelican Inn, to hear the complaints on both sides. Although it was common practice that both pleaders swore to submit themselves to the verdict, one of the litigants did not accept the outcome of the arbitrators. Hence, the latter gathered

60 HGA NotA, inv. nr. 80, fol. 139r-139v.

61 SAR ONA, inv. nr. 182, pp.152–153.

in the inn again after five days, and made an attempt to bring the parties together. They failed in their mission, which was undoubtedly why the process was described in great detail.[62]

A mediation process could also be initiated by the urban authorities. Mayor Jan Corneliss van de Nijenburgh from Alkmaar summoned two fellow citizens and made them declare that they would no longer 'injure or do something harmful to each other by words or deeds' because of their quarrel about a gutter. If they failed to start living in friendship and unity as good neighbours should, the mayor threatened, he would punish them after a proper arbitration process.[63] Likewise, the aldermen of Haarlem tried to settle a discussion between an advocate and a linen merchant, on one side, and a poet, on the other. They inspected the communal alley, drain and privy that had caused an argument, but also appointed five arbitrators who were to advise them in the matter.[64] The aldermen had initiated the mediation process to prevent 'further trouble and processes and costs and harassment.'[65] The word harassment implies that peace-keeping was one of their motives. At the same time, they tried to save the disputants the time and money involved in a full-scale juridical process – which was the final step on the escalation ladder.

Even if it saved a lot of effort and costs compared to a lawsuit, arbitration was not free of charge. In the case about the windows, the vine, a drainage and the demolished privy in Haarlem that was mentioned above, the parties who had brought up the case were simply told to settle the arbitration costs.[66] One gets an impression of the scope of these costs from a deed recorded in 1635 in Rotterdam. When a carpenter and a cooper disagreed on the right to drip from the roof of the former onto the yard of the latter, they presented their case to the municipal 'lords peacemakers'. The four arbitrators inspected the disputed dripping zone and proclaimed that the carpenter had a right to dispose of rainwater fallen on his roof over the western wall of his premises. They charged the sum of seven guilders and two stuivers for the efforts of the arbitrators

62 NHA, Oud Notarieel Archief (ONA), inv. nr. 126, fols. 49v-50v.

63 'den een den anderen nijet en sullen injurieren ofte eenige smaetheijt aendoen met woorden ofte wercken', Regionaal Archief Alkmaar, 0878 Notarieel archief Alkmaar 1550–1925, inv. nr. 288, fol. 17r-17v.

64 NHA ONA, inv. nr. 142.

65 'meerder moeijte ende processe ende costen ende onluste', NHA ONA, inv. nr. 142.

66 NHA ONA, inv. nr. 225, fol. 22r.

and clerks, plus remuneration of their inn expenses. The litigants were ordered each to pay half of the costs.[67]

Conclusion

Without much consideration, the early modern city dwellers of Holland made use of the natural hydrologic cycle. They withdrew water that had rained down or flowed into the city and put it to use for their own benefit. They entered mini hydrologic cycles of their own, utilizing the water for consumption, production, as a cleansing agent, and for a score of other tasks. Once it was no longer needed, they returned the water to the natural flow – albeit often mixed with other substances. When there was an overabundance of water – excess precipitation or floods – people did not always capture it, but merely controlled its flow to prevent the decay of vulnerable structures. To ensure that there was enough water of the right quality available, and not too much in places where it could do harm, people were forced to act together, to set rules and norms, and to make sure that fellow-stakeholders complied with the norms, applying graduated coercion methods. Although at first sight the governance of early modern cities in Holland may resemble a jumble of responsibilities, city dwellers evidently had a clear idea of where the responsibilities lay, whether these obligations were laid down in rules or not. They could organize themselves and create their own small jurisdictions, which were respected and sometimes even supported by governments and formal organizations. Occasional alliances were a factor to be reckoned with.

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67 'heeren vredemaeckers', SAR ONA, inv. nr. 348, pp.203–205.