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

Les équipements d’approvisionnement en eau privés et publics en milieu rural et dans les petites villes. Données archéologiques et historiques des périodes médiévale et post-médiévale aux Pays-Bas

Privat und gemeinschaftlich genutzte Wasserversorgung in den ländlichen Siedlungen und Kleinstädten der Niederlande während des Mittelalters und der Neuzeit. Aktueller Forschungsstand nach archäologischen und historischen Befunden

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Introduction

Water is a basic necessity of life. It is therefore hardly surprising that rivers, springs, wells, etc. have always been important throughout the world not only for existential reasons but also ritually and socially. The subject of this paper will be the spatial expression of day-to-day forms of water use a) on isolated farms, b) in rural villages, and c) in small towns. We will address issues like the position of wells and poncis relative to (farm-) houses and workplaces, and the elements that may have shaped these spatial relations. Geographical factors as well as social dimensions will be discussed. Strictly speaking the concept ‘hierarchies in rural settlements’ (the theme of the conference) is only relevant when several types of water supply, such as private and communal ones, are being used simultaneously at a local level. This is another issue that will be addressed. Furthermore, there is evidence for shared, private and specialized water facilities in Dutch villages and towns. When did shared and specialized water facilities first appear, and why? Which segments of the population constructed and used them? The final issue to be addressed is the remarkable role played by water facilities in the process of structuring (post-) medieval rural and village communities.

Wells on the move

Wells are relatively recent landscape elements in the Netherlands, with only a few dating to the pre-Roman period. During all prehistoric periods natural surface features seem to have been the main sources of drinking water – never very far away in a low-lying country like the Netherlands. Securing the water supply was an opportunistic process. The earliest artificial form of water supply is the unrevetted watering hole, found in low places where groundwater surfaces. Although wells occurred sporadically from the Middle Bronze Age onwards (Vasbinder – Fokkens 1987, among others) and increasingly in the Early Iron Age (Koolstra 2004, 9–10; Hermsen – Haverman 2009, 62–76, among others), watering holes were the dominant feature until the Roman period (Lascarts 2011, 51; Koolstra 2004, Appendix 1).

Since people generally prefer to settle on higher and drier locations, the lower areas and consequently any water features they contain tend to be situated on the periphery of settlements. This may explain why water features are rarely found in the course of archaeological excavations of prehistoric settlements. A good example is the site Raalte Jonge Raan, where several farmsteads dating from the period 500 BC – AD 100 were excavated, all situated on a low sandy ridge surrounded by lower grounds (Groenewoudt et al. 1998). The only water feature found was a simple well with wickerwork revetment, situated in the – only partially investigated – periphery of the settlement, ca. 50 m from the nearest farmhouse.

After the early Roman period an interesting phenomenon set in: wells ‘migrated’ towards the settlement. This process is archaeologically well documented, for example at the site Heeten near Raalte (Verlinden – Erdrich 1988; Van der Velde 2011, 86–97). Surprisingly, all the 2nd and 3rd-century wells were found near the houses. The same shift in location can be observed at the site Peelo, where the 3rd-century wells (period 3 in the chronology of the settlement) begin to move towards the farm yards before finally settling in a position alongside the houses (Kool 1994, 265–271).
At Peeloo and Heeten but also at other sites these were deep wells with a sturdy wooden construction, for the local groundwater table is several metres below the surface. This trend continued during the late Roman period, with the wells moving even closer towards the houses, and moreover their position relative to the house became more or less fixed. They were now to be found either directly in front of one of the short ends or alongside the house, and in the latter case usually not exactly in the middle but more towards a corner. Most medieval Dutch farmhouses were so-called long-houses, with byre and living area under one roof.

The majority of farms were oriented roughly east-west. This may be in response to the prevailing winds, which are mostly westerly (Mielke 2003, 340–341). By orienting the house east-west the structurally more robust short end would face the wind. Huijbers (2007) has drawn even more specific conclusions with regard to the location of the wells. Based on excavation data from the sites Someren and Dommelen she concluded that the well was often situated either directly behind the short: eastern end of the house, or beside the long south wall towards the eastern corner. The latter location, i.e. the south wall, was the preferred location between AD 900 and 1050 and also after AD 1125, while the former, the short east end, was favoured between AD 1125 and 1250 (Huijbers 2007, 232, 233). This may have been a local trend limited to Someren and Dommelen, for it is not present at the contemporary settlement at Bakel in the same region (Ufkes 2009, 66).

We may conclude that within a short period wells became detached from the natural topography, i.e. from natural depressions, and that a more or less random location was replaced by a highly structured one (Fig. 1). Wells became – literally and as a figure of speech – fixtures in a farmyard. This situation seems to have remained unchanged throughout the Middle Ages. Most wells are found in either of the two positions mentioned above and always near the farmhouse, the distance rarely exceeding 10 m. The available archaeological data clearly illustrates this, for example at the excavated settlements Alphen-Kerkakkers (4th–6th century AD; De Koninck 2005), Katwijk-Zanderij (6th–8th century AD; Van der Velde (ed.) 2008; Mülter – Van Doesburg 2008), Peeloo (4th century BC – 8th century AD; Kool 1994), Rijnsburg-Abdijterrein (7th–8th century AD; Dijkstra 2011, 114–133), Gasselte (9th–12th century AD; Waterbolk – Harsera 1979), Dalfsen-Gernermarke (10th–11th century AD; Blom et al. 2006), Doesburg-Beinum (10th–13th and 16th–19th century AD; Fermin – Van Straten 2010), Limmen-de Krocht (11th century AD; Dijkstra et al. 2006), Bakel–De Hof (12th–13th century AD; Ufkes 2010) and Kapel Averaath-Muggenborg (13th century AD; Van Renswoude 2011) (Fig. 2).

The process is more difficult to trace from the 13th century, as farms became archaeologically less visible as a result of changing foundation methods (moving towards above ground techniques, instead of subsurface; Zimmermann 1998; Verspy 2007; Doesburg – Groenewoudt, in press), making it difficult to assess the spatial relation between wells and farmhouses.
However, information from excavations where the location of the house could be accurately established seems to indicate that nothing changed in that respect after the 13th century. Examples are the sites Zutphen-Het Loo (15th–20th century; Groothedde 2008), Eindhoven – Tongelreep (15th–16th century; Bosman 2009, 37–41) and Woensel-Beekstraat (16th–19th century; Arts 2005).

These spatial trends only apply to wells, the form of water supply used mainly by humans. Unravetted watering holes for cattle remained predominantly situated in natural depressions in the landscape, although there are some exceptions. This statement has to be qualified somewhat, as the detachment of wells from the natural landscape did not proceed everywhere at the same speed or to the same extent. In some settled areas natural depressions and ponds were so common that this ‘detachment’ would make little difference and offer no practical advantages. This was especially the case in the southern Dutch sandy areas with their numerous blow-out depressions on large, settled sandy plateaus, where the houses are often to be found right next to a depression. At the site Someren-Waterdael (unpublished excavation data, Amsterdam University) some of the medieval wells were placed near the houses while others were still situated in depressions. Another example is the site Deurne-Groot Bottelsche Akker (Hiddink 2008), where the wells did not move out of the natural depressions until the 9th–10th century.

The site of Eersel-Kerkebogten, in the same area and containing settlement traces dating from the Iron Age until the Middle Ages, adjoined a stream valley (Lascaris 2011). Here, too, the spatial-chronological trend described above with regard to the wells location was not very pronounced. Water was always easily available in the proximity of the house, and all that can be observed is that the association between wells and houses intensified during the later Middle Ages.

**Longue-durée of a front-back dichotomy?**

The reasons for this ‘migration’ of the well towards the farmhouse are not yet clear. One contributing factor may be the observed decrease in mobility of farming settlements. With the settlement remaining on the same location for a long time, it would be worthwhile – and perhaps after a time also ideologically desirable – to invest time and effort in the construction of a sturdy, permanent well close to the house. A solid construction would be technically necessary if the well shaft had to be deep to reach the water table.

In the eastern Netherlands the transition towards fixed settlement locations did indeed coincide with the appearance of wells in settlements. In other Dutch

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**Fig. 2.** Early and high medieval examples of wells occupying a more or less standardized position relative to the house: a. Katwijk-Zanderveld (6th–8th century), b. Dalfsen-Gemener Marke (10th–11th century), c. Limmen-De Krogt (11th century), d/e. Gasseleite (11th–12th century), f. Zutphen (15th century). References in the text.
regions, however, settlement locations became fixed slightly earlier, during the Late Iron Age to early Roman period (Van Beek – Groenewoudt, in press). Whether or not wells already were a structural element in those settlements by then is not clear.

An interesting question is what happened during the brief increase in settlement mobility immediately after the collapse of the Roman Empire (Theuws – Hiddink 1996, 72–73, among others). Did the wells also lose their fixed position? The somewhat more flexible positioning of the wells at the site of Gennep (4th–5th century; Heidinga – Offenberg 1992) may hint at that.

Another mystery is that of the speed at which the fixation of the well’s location relative to the farmhouse was completed. According to Huijbers (2007), certainly in the settlements of Someren and Dommelen (AD 900–1250) a link can be observed between a well’s location and the sociospatial subdivision of the associated farmhouse. Archaeological evidence for this hypothesis must remain inconclusive, but certainly in the modern period a strict separation was observed in Dutch longhouses between the front (oor) and the back (achter) (Fig. 3). The back section was where the livestock lived and where other agricultural activities took place, or at least those involving ‘dirt’ and blood. This was the male domain. The ‘front’ was the female domain. It was the ‘clean’ section, where domestic tasks were carried out as well as dairy production. Outside, the ‘front’ was also the place where the kitchen garden (and later the ornamental garden) was to be found, and above all the well, as it had been since the middle Roman period. In early modern farms the well would be placed either directly opposite the front door (often connected via an indoor hallway to the stable section), or opposite a side entrance leading to the scullery. The fact that this relative position has remained more or less the same for almost two millennia suggests that it was indeed linked to a fundamental spatial subdivision – also a constant throughout the same period – of the longhouses in our research area. The spatial subdivision itself may, of course, go even further back. In east-west oriented longhouses the ‘front’ section could be either the west or the east end, as archaeological data as well as information from still extant farms shows.

Shared and public facilities

Shared (artificial) ponds

So far we have only mentioned wells in the limited sense of private water facilities. There is also archaeological and historical-geographical evidence for the existence of shared facilities, both wells and ponds. Ponds are the oldest type of facility, and we will discuss them first. The shared use of natural pools undoubtedly has prehistoric roots. A good example is provided by the well-known medieval settlement near Kootwijk (c. AD 750 – 1000) which was situated near a natural pool in the Veluwe, an extensive dry area (Heidinga 1987) (Fig. 4). Initially Kootwijk had no wells, the pool supplying all the water. However, as the water table dropped wells were dug into the bottom of the pool from ca. AD 850 onwards (Heidinga 1987, 39). The inhabitants of the site of Midlaren in Groningen, situated near the Hunze valley, had a choice. Here the high water table made digging wells and ponds an easy task, but there was also a large natural pool. An interesting spatial differentiation in the use of the available water facilities can be observed at Midlaren during Phase 7b (c. 570–690; Nicolay 2008). The farmsteads close to the pool did not have wells (presumably using the pool instead), while those situated more than ca. 50 m away from the pool did (Fig. 5).

Artificial ponds (whether or not for shared use) have existed in the Netherlands since at least c. 1500 BC (Kooistra 2004, among others). Large ponds with a diameter in excess of 10 m and presumably shared by several households are known from the middle Roman period onwards. In the village of Emmen such large artificial ponds existed already in the 2nd–3rd century AD (De Wit 2003), in Midlaren the oldest date from ca. AD 500 (Nicolay 2008, 172). Morphologically these large ponds closely resemble the so-called dobben, or
large ponds which were dug in the historical period for the benefit of livestock in areas where no suitable natural water sources were available (various local names were used for them but we will here simplify the matter by only use the term dobben). There used to be many in the province of Drenthe (Werkgroep Brinken 1981), where each of the ca. 250 medieval brinkdorpen (an eastern Dutch nucleated settlement type with a village green) had one or more dobben (Houting 2002). The 19th-century local historian of Drenthe, Harm Tieting, believed that it was ‘highly likely that Dobben have very ancient roots’ (Edelman 1974), but there is no evidence that this is indeed the case. Likewise it is not known whether there is any direct link between early village watering holes such as those near Middelaren and Emmen, and the later post-medieval dobben.

The large, 8th to 10th-century depression called ‘Bal-loer Kuil’ near the village of Balloo is said to have been a dobbe (Hietkema 2010), but data obtained during its excavation make this seem unlikely. The appearance and/or expansion of larger watering holes such as dobben may well have been related to the well-documented, late medieval intensification of sheep farming. The phenomenon has on occasion been labelled ‘the late medieval transition’, the change from an introverted, autarkic agrarian economy towards a more extroverted, proto-capitalist market economy’ (definition Spek 2004, 981). In the Netherlands this transition took place between the 13th (south) and 15th (north) centuries, with marked regional differences (Theuws 1989; Spek 2004, 981–983; Vangheluwe – Spek 2008; Van Bavel 1999).

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Fig. 4. Kootwijk (AD 750–1000). Communal use of a natural pool. When the pool began to dry up wells were dug into it (after Sarfatij et al. 1981, based on Heidinga 1987).

Fig. 5. Middelaren-De Bloemert, Phase 7b, AD 570–690: spatial differentiation in the use of water facilities (after Nicollay (ed.) 2010). Explanation in the text.
Fig. 6. The position of artificial pools ('dobben'); a. Oosterheselen (1830) > central; b. Eext (1932) > access roads (after Werkgroep Brinen 1981).
**Dobben** were communal, multifunctional facilities. They were used not only to water livestock and horses but also to clean farm equipment, to soak timber and to trap run-off water. Occasionally they also provided water used to extinguish fires, in which case they were called – perhaps confusingly – *brandkuijen*, literally ‘fire pits’ (Werkgroep Brinken 1981). In Drenthe and probably also in other areas with nucleated settlements there were two possible locations for a *dobbe* (Fig. 6). Small villages had one central *dobbe* on the village green while larger settlements had several, placed along the roads leading to pasture land. It is important, however, to realise that the village greens, or *brinken*, were originally located on the periphery of villages and only obtained a more central position after they became surrounded by houses as the villages expanded from the 17th century onwards (Spek 2004).

Assuming that *dobben* already existed by then, the implication would be that the original location of the single *dobbe* of the smaller villages would also have been at the village edge.

Centrally-placed village *dobben* are also known outside Drenthe. In Laren (prov. of Gelderland) the *brandkolk* (fire pond) was to be found in the 19th century ‘in front, on the green’ (Heuvel 1927, 262). The *brandkuij* in Schijndel (prov. of Noord-Brabant) also ultimately occurred in the middle of the village, where it was little more than a simple large pond by 1780, with a fence and steps leading down to the water. Another *dobbe*, at Borne near Schijndel, was situated on the edge of the hamlet, while in the countryside around Schijndel fire ponds were often situated near crossroads (Beijers, red. 2003, 237–238). This may also have been the case in other areas with a dispersed settlement pattern.

Watering holes on the edge of villages, close to pasture land, also occur outside Drenthe. An example is the so-called ‘Diesenplas’ near Holten (prov. of Overijssel). In the southernmost Dutch province of Limburg *dobben* could be situated beside farms as well as in villages (as at Berg and Tertblijt), and in hamlets more or less in a central position. These *dobben* also combined the functions of being a watering hole for livestock and a wash place for farm equipment. Often they were roughly triangular in shape, with livestock being herded towards the long side so that all animals could drink at the same time (Krikke 2001).

The position of the fire pond in the hamlet of Rosveld near Weert (Hiddink 2005, 128–129) indicates that some fire ponds at least may have originated as natural depressions or were dug into one.

A large artificial pond near the North Brabant village of Sterksel was archaeologically excavated. It was situated directly behind two farmsteads, placed parallel with each other and built in the 11th–12th century (Van Dijk 2011, 260–264, 328–234). A small watering hole was dug in the first half of the 14th century, to be succeeded around 1350 by a large pond measuring c. 26 by 17 m in size and c. 2.2 m deep, which functioned until ca. 1675–1700. One of its edges had a straight embankment of sods, probably in order to make it more easily accessible to humans, and a section of the pond was fenced in. It was probably used by both households, each of which also had a private water facility in the form of a well. This combination was also common in other areas, which confirms that the function of *dobben* as a form of water supply for human consumption was at best subsidiary.

In the German-Dutch coastal salt marshes, before the construction of dikes, rainwater for animal and human consumption was ingeniously trapped in *dobben* (locally called *feething, fait* or *vote*), situated on artificially raised dwelling mounds (*terpen, wierden, weeren, wurtten*) and in Germany also on *Holligen*, which were small islands (Schütte 1939; Bantelmann 1975; Nicolay 2010). Usually one side of the *dobbe* was embanked with stacked sods, as had been the – inland – *dobbe* near Sterksel (see above). On the German wurtten such artificial watering holes existed from the Roman period or before. Haarnagel (1979, 169–172) described the small *fethingen* (maximum diameter 10 m) on Federsen Wierde, while comparable but early medieval as well as slightly later specimens have been documented in the Dutch province of Friesland (Nicolay 2010). A specimen found on the *terp* Wijnaldum has been dated to the 6th–7th century (Besteman et al. 1999); this particular *dobbe* probably *functioned exclusively* as a watering hole for livestock, since there were also several wells close to the houses.

Freshwater reservoirs also existed in the salt marsh areas outside the dikes, at least during the late Middle Ages. These were necessary to make intensive grazing possible. In order to protect both the freshwater supply and the livestock from floods these watering holes were surrounded by a dike. Such *stelbergen, hollestel- len* or *rondewerken* existed from at least the 14th century. Sometimes the shepherds or cowherds had dwellings on top of these ring dikes (Delahaye et al. 1972, 18–22).

Some smaller towns as well as villages with some urban functions also had communal watering holes. In several villages and towns in the province of Zeeland historically known as *vaten*. They are characterized by a central position and an association with local fairs. One of the two *vaten* in Goes already existed by the late 14th century (De Klerk 1969). In Amersfoort (province of Utrecht) a roughly square watering hole, measuring ca. 10 x 10 m, served between 1300 and 1375 to water the livestock that was being traded on the important local cattle market. Some time before 1350 it was made exactly square and on three sides was surrounded by
a wall (Krauwer – Sniecier eds. 1994). It represents an example of the ‘urbanization’ of an originally rural phenomenon in the context of the transformation of an initially largely rural settlement into a true town. Another walled waterbak or trough existed in 15th-century Goes (Zeeland). It was being used as a watering place but also by local fullers who rinsed their cloth there (Noordegraaf 1985, 162).

**Shared and public wells and other water facilities**

Early indications for the sharing of wells by multiple households are harder to see. The total number of wells in excavated medieval settlements is sometimes significantly lower or higher than the number of contemporary farmsteads. When the number of households far exceeds the number of wells, one of the possible explanations is that several households shared a well. A case in point is the site of Putten-Hussserveld (AD 750–1250), where only half of the 23 houses could be linked to a particular well (Blom et al. 2005). There are also examples of the reverse situation. The 39 houses excavated at the site of L름men-De Krogt (AD 825–1250) were accompanied by no fewer than 70 wells (Dijkstra et al. 2005). In this specific case the reason seems to have been that the life-span of a house far exceeded that of a well.

Occasionally the spatial structure of a settlement contains clues that there may have been a communal well, a good example being the settlement site Zelhem-Soerlant (8th–9th century; Van der Velde – Kenemans 2002). Besides containing two houses each with their own well, the settlement also included a cluster of houses grouped around a central open space with one well in it, which was presumably being used by all the households within the cluster. This was also the case at Someren-Waterdael (also 8th–9th century; unpublished excavation data Amsterdam University), where one house with a private well was situated alongside a cluster of houses around an open space with two adjacent (successive?) wells, presumably for communal use. These two early medieval cases (Fig. 7) are perhaps related to the introduction of manorialism during the Carolingian period. They may represent manorial demesnes where the serfs (probably villeins) shared certain facilities. In the Netherlands manorialism collapsed in the 13th century (see contribution Van Doesburg, this volume), but communal features may have fallen out of use before that, since there has been found no evidence so far that they still existed after the 9th century.

Communal wells may have existed before the 8th–9th century. In Alphen-Kerkakkers (De Konings 2005) one well (placed in a natural depression) seems to have served more than one 5th century farm. In Wi
tenborn (Northern Germany) in the centre of a 4th–6th century settlement an area of 13–15 m was deepened a few decimetres. A number of wells (or Cisterns) was dug into the bottom of the artificial depression (Lütjen 2011). Here the water site itself was clearly communal. Whether or not the wells were communal or belonged to individual farms is uncertain (Fig. 8).

From the 16th century onwards there is more and more historical evidence available for the shared use of wells in villages. There is a reference from 1570, for example, to an entire neighbourhood in Noordwijk being washed away in a flood, including all its houses and

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**Fig. 7.** a. Zelhem-Soerlant (V.d.Velde – Kenemans 2002) and b. Someren-Waterdael (unpublished excavation data; courtesy Henk Hiddink, University of Amsterdam), both 8th–9th century. Simultaneous use of private and shared wells: manorial estates?
a communal well (Meier 1992, 69), and a source from 1785 mentions a shared well next to the church, as well as private wells, in the densely populated village of Amerongen. Twenty households used this well and were also responsible for its maintenance. This public well is also known from a mid-18th century drawing (Van Groningen 2000, fig. 46). In 1706 the small village of Doorn had only one well, on the village square near the church. By 1858 Doorn had expanded to the point where a second water facility was required, this time a pump (Demoed 1971). Many other villages had a communal well on the village square, which was usually replaced by a pump in the course of the 19th century, as it was in Cothen in 1859 (Demoed 1971). Vogelzang (1956, 175–179) observed that communal wells in the 20th century were mainly found in villages with a clearly defined nucleus, and only rarely in more loosely structured, rural communities. This distinction between nucleated and dispersed settlement with regard to the water supply is probably also valid for the medieval period.

Both in towns and in rural areas communal wells and the later pumps were situated in easily accessible locations, such as squares and wide roads. Private wells, on the other hand, were to be found in the backyards or indoors. Historical and archaeological sources show that a fairly small town like Zutphen already in the 15th century possessed 17 to 21 communal wells, the oldest dating from the 13th century (Benders 2007; Fermin – Grootedde 2006; Fermin 2009). In Zutphen these wells clustered in the town’s most densely built-up areas, although only a few of them were to be found in the wealthier parts of the town centre, where private wells were more common (Benders 2007). Very few communal wells were situated in the medieval town extensions of Zutphen, which never became completely built over and consequently perhaps they were hardly needed, as the population density remained low and there was still plenty of room for private wells. In the 19th century the town of Almelo had at least 25 communal, municipal pumps, some of which have been excavated and could be dated to 1785 or even earlier; and there were also numerous private wells and pumps (Kampman 1987). The small 14th-century town of Terborg had no wells at all, either private or public, until the 16th century (Weiss-König 2011). Until then the town moat, which bordered on the backyards, probably supplied the households with water. Until the early 20th century this was a common phenomenon in those parts of the Netherlands where surface water in the form of rivers, canals and moats was abundant (Wijntjes 1982; Vogelzang 1956).

Sometimes communal water facilities were used for specific purposes, mostly by crafts and trades that re-
quired clean water in large quantities, such as brewing and fulling. Whether such facilities were originally constructed with those purposes in mind is in most cases unknown. In the town of Wageningen in the post-medieval period, for example, several brewers shared one well which supplied exceptionally clear water (Zeven 2003). In the city of Deventer a group of brewers also shared one well; some of these breweries doubled as inns (Koch 1988, 146, 147). Finally, in Amsterdam a special water barge was deployed in 1480 to provide the local brewers with clean water (Wijntjes 1982). The communal use of a walled water tank by fullers in 15th-century Goes was discussed above (Noordegraaf 1985, 162).

A communal facility linked to laundry (and later also textile industry) in villages was the ‘bleek’ or ‘bleekveld’ (bleachfield), a piece of lawn where linen was spread out to bleach in the sun. Several Dutch painters chose bleachfields as their subject, among them Joos de Momper and Jan Breugel (Fig. 9). On his painting ‘Village Bleachfield’ we see women on the edge of a field bordered by a moat or ditch, busy with their laundry beside a large communal well. The scene illustrates the physical proximity of water facilities and wells that was quite common. Bleachfields were often situated along a stream or a wide moat or ditch. A good example is a – now reconstructed – bleachfield in Driepeheim (province of Overijssel), which had a wooden platform on the water’s edge for the benefit of the washerwomen. Isolated farms often had their own bleachfield, usually also near open water. Heuvel (1927) describes a late-19th-century scene with linen spread out around a ‘bleekkolk’ (bleachpond; Heuvel 1927, 146).

Wealthier households invested in their own sources of clean water. Besides building private wells and pumps they also sometimes constructed ‘regenwater-bakken’, ‘regenbakken’ or ‘waterkelders’, underground vaulted cisterns in masonry to catch and store rainwater (Vogelzang 1956, 34–43). Building one was a considerable investment, which explains why they are found mainly in the more prosperous communities. Less prosperous villages had to make do with water butts, ‘which bred numerous mosquito larvae and could hold but little water’ (Vogelzang 1956, 34). Cisterns were especially common along the coast, as the groundwater there was brackish and of poor quality (compare the ‘jethinge’); coastal areas where rainwater was the only source of fresh water (with the exception of the dunes) form one of the Dutch drinkwaterlandschappen, freshwater landscapes as defined by social geographer Vogelzang (1956). Cisterns seem to have appeared particularly after the Middle Ages, perhaps because this method of collecting rainwater requires the presence of ‘solid’ roofs and gutters, as well as a specific total roof surface (Vogelzang 1956, 52). Indeed several cisterns were built in Deventer between 1594 and 1603 (Deventer Chapter Accounts 1591–1609), and in 1505 the Amsterdam city council expanded the supply of pure drinking water by having nine rainwater tanks installed on several locations in the city (Wijntjes 1982, 193); these were all public facilities.

According to Vogelzang (1956, 34), by ca. 1900 virtually all the inhabitants of the province of Zeeland used cisterns, in the towns and in the rural areas. Shared use was quite common; in the village of Bruinisse ca. 17% of all households depended on water from a cistern which was shared with one or more other households, while an 18th-century cistern in Almelo was found straddling the boundary of two adjacent plots (Bloemink – Hemmes 2009). In coastal areas cisterns remained in use until c. 1950, when the last villages were connected to the underground water supply network.
Occasionally shared use was a necessity, for instance when the groundwater table was so low that digging wells exceeded the capacity of an individual household. This was the case in those central Dutch areas that were characterized by high ice-pushed ridges. In the hamlet of Hoog Soeren, for instance, in the early 1900s all 60 dispersed households shared only two very deep wells (Vogelzang 1956, 179). It is highly likely that the medieval situation here and in other, comparable areas was very similar.

Health care

The introduction of public wells in towns and villages is a physical manifestation of the increased interference by local authorities in public space and public interests. With respect to the public water supply in Dutch towns this interference dates back to at least the 13th–14th century. In the villages it tended to be a post-medieval phenomenon, with the exception of the early medieval cases mentioned earlier. The increase in the number of public wells in villages was the result of a growing awareness that clean water was essential for good health. Several medical doctors, the so-called 'hygienists', played an important role after 1850 in the process of establishing a national and local system of public healthcare in the Netherlands. They acted out of concern about the growing impoverishment of the urban proletariat, after several outbreaks of cholera had occurred (Vogelzang 1956, 226–249; Houwaart 1991; Van der Woud 2010, Ch. 2). Special committees inspected the rural areas (Vogelzang 1956) and in many villages encountered highly unsanitary conditions, with dung heaps, cess-pits and garbage dumps located right next to wells and water pumps. This was the case for instance in Wijhe (Van Zon 2011), Rijssen (Bouwhuis 2001), Almelo (Kampman 1987) and Rijnsburg (Vogelzang 1956, 71). In 1903 only two of the six public pumps in the rural town of Rijssen produced clean water, and most inhabitants still depended on the highly polluted water from private wells (Bouwhuis 2001). The water butts and cisterns in the coastal areas were also prone to pollution, in part because they were being used for various purposes besides supplying drinking water (Vogelzang 1956, 53). The situation worsened during dry periods, when the supply ran out and people were forced to use brackish ditch water instead (VNCGS 1779, 209).

Major problems occurred in compactly built, densely populated villages and towns where agricultural and industrial activities occupied the same space and poverty was rife. Dwellings were packed close together and bordered directly on the public road, so that the traditional distinction between 'front' and 'back' could not be observed from a hygienic perspective. With the introduction of the Health Care Act of 1901 the supply of drinking water increasingly became the responsibility of the local and national authorities. In the early 1900s new publicly-funded wells and pumps were constructed in many villages and towns (Fig. 10), but these were to become obsolete after the introduction of an underground public water supply network (Vogelzang 1956).

![Fig. 10. The village pump of Rosmalen. Early in the 20th century many new communal wells and pumps were built in order to improve public health-care.](image-url)
The social dimension

Water facilities encompassed more social aspects. They brought people together, sometimes quite literally as when a pond or well had to be dug in a rural area. If the groundwater table was low this might require a considerable effort by the entire neighbourhood, or at least it did in the early modern period (Weyns 1960, 48; Ast 1977, 41). How much labour would be needed can be calculated, but there is also some historical documentation on the subject. In 1906, for example, digging a 16 m-deep well by hand on the farmstead of Juylke near Holten took 100 half-days and required the assistance of up to 30 men – i.e. probably almost the entire adult male population of the sparsely populated hamlet of Beuseberg – who each received two glasses of gin per day.

Communal water facilities in towns and in rural areas, in particular wells and pumps and the washplaces on bleachfields, were important meeting points where people fetched water, did their laundry, exchanged news and of course gossiped (Krikke 2001, among others). In Dutch de dorpspomp – ‘the village pump’, is still the standard equivalent term for the English ‘the grapevine’, and the Groningen dialect expression, Hai het oet dob dronken – ‘he has drunk from the dobbe’, is used for someone who is well informed. In narrow streets such cosy gatherings around the well sometimes caused problems (noise, litter, obstruction), which is why in 1423 the Deventer city council decreed that people should limit their time spent at the well to a minimum (Koch 1988, 146).

Before the water supply became a government responsibility, prominent citizens or aristocratic landowners would sometimes finance a new well or pump, as a means to confirm and strengthen their social position. In the village of Cothen in 1859 the local landlord, who was also churchwarden, presented the community with a new – and fashionable – cast-iron pump, to replace the old well on the green (Demoed 1971). Often such monumental superstructures were secondary additions to an existing well. Occasionally monasteries took care of the water supply, as when in 1906 the island of Zuid-Beveland was flooded, with the result that all the water stored in cisterns was spoiled. The monks of Rilland Bath, whose water tank was particularly large and had remained unaffected, lent a helping hand (Vogelsang 1956, 52).

In largely built-up areas such as at the Zutphen town centre many wealthy citizens owned private wells, the monumentality of which suggests that these, too, were objects of prestige (Benders 2007). The shaft of a private well from c. 1350–1450 excavated in the Rodoterenstraat in Zutphen had been built in trachyte, an expensive stone rarely used for this purpose (Fermin 2008). In the Deventer Polstraat such elite private wells in stone existed already in the 11th–12th century (Mittendorf 2007).

In the towns the symbolical meaning of wells sometimes extended beyond that of an individual expression of wealth and status. Urban authorities invested in wells to promote the glory and pride of the entire community. In ’s-Hertogenbosch and Amersfoort in the 14th century prestigious public wells were proudly placed right at the centre of the most important market square (Janssen ed. 1983; Krauwer – Snieders 1994). Also in Zutphen some public wells were quite monumental and richly decorated, as was the 17th-century well on the Houtmarkt in Zutphen (Fermin – Groothedde 2006). An even more impressive example of a well that served as a prestige object is the late-14th-century Schönern Brunnen in Nuremberg, Germany. It was an impressive landmark on the medieval main market square, and also a characteristic expression of the city’s wealth and power ‘[the well] war ein eindrucksvoller Blickfang auf dem mittelalterlichen Hauptmarkt und dabei repräsentativer Ausdruck von Reichtum und Macht dieser Stadt’ (Greve 1991, 59).

Function had become subsidiary to form. The next logical step was the fountain: ‘[a] city enjoyed considerable more prestige if it owned ‘springing’ fountains’ (Wijnjtes 1982, 194).

Besides practical and social functions there has always also been a ritual element to water and wells (for the Netherlands see Schuyf 1995, among others). The presence of numerous ‘holy wells’ throughout Europe and the crucial role played by water in the Christian ritual of baptism illustrate this. Many old Dutch wells were associated with the veneration of a specific Christian saint. There are some early examples from the Dutch coastal areas (see for example Buddingh 1844), such as the St. Boniface well in Dokkum, or the St. Willibrord well in Hello (Halberstis 1967), both associated with a saint who played a crucial role in the Christianization of these areas. The veneration of St. Willibrord in Hello supposedly goes back to the early 8th century but there is no evidence to support that claim, and the earliest references to pilgrimages to the – supposedly medicinal – well date from the 17th century. The earliest reference to the well itself dates from 1346 (data bank of the Meertens Institute; Bruch 1973). In the southern part of the Netherlands, which remained largely Roman Catholic even after the Reformation, the visible connection between saints and wells in the public domain continued. All the wells in the city of Roermond from the 14th century onwards were dedicated to a saint, whose statue would be placed beside the well, and the well’s users would on the name-day of their saint bring a candle, the ‘well candle’, to a specific chapel.
Well communities

Wells fulfilled an important function in the social structure of various small medieval towns and larger villages. They formed the heart and soul of the so-called 'well communities' (Germ.: Brunnergemeinden), sub-sections of the population of a village or neighbourhood who shared a specific well and also in other contexts manifested themselves as a separate, cohesive unit. To some extent such strong social ties were comparable to the noaberschap of the eastern Dutch and adjacent German rural areas, also a formalized system of neighbourhood ties and mutual obligations (Benders 2007). While digging the wells was usually the responsibility of the municipal authorities, the well community took care of maintenance and repairs, for which a tax was levied on all its members, the putgeld or ‘well money’ (Germ. Brunnergeld), under the supervision of a putmeester, or ‘well master’ (Germ.: Brunnenmeister). In Zutphen (Fig. 11) the system functioned from the early 15th century onwards (Galema – Hermans 1995) but its roots were even further back to c. 1300 (Benders 2007). In Roermond the well communities (Putten) played an important social role from the mid-17th century onwards. At special events such as a wedding, an inheritance or an ordination the family concerned was expected to donate a few barrels of beer to its fellow community members, which of course gave rise to lively 'well feasts', such as those held at Margraten (Krikke 2001). In Roermond the well communities have developed into something resembling the modern residents’ organisations and still organise various festivities. Also in Roermond, the local magistrates' decrees used to be announced at the wells. Other towns with well communities were Rhenen and Wageningen (Deys 1998; Zeven 2002).

In 1685 the village of Amerongen had seven functioning wells, on average one for every ten households with the exception of the well on the central square, which served twenty. Each well had its own well community and two appointed well masters, and the members of each community were expected to pay for the maintenance of their well. Because more and more households in the early 19th century began to install their own private pumps and to neglect their financial obligations to the well community, the Amerongen council in 1854 decided to end (its supervision of) the maintenance of the communal wells (De Moed 1971).

Fig. 11. Public wells in the town of Zutphen 'black dots: 15th century or earlier, white dots: post AD 1500) (after Benders 2007, unpublished paper). Projected on a town plan by Jacob van Deventer (c. 1565)
In the German region of Westfalen Brunnengemeinden remained active until the first half of the 20th century, especially in poorer neighbourhoods. A study by Sauermann (1985) demonstrated the multi-functional nature of the Gemeinden, important aspects of which were to ensure local safety and social security. Functions mentioned by Sauermann include, besides taking care of the water supply: fire prevention and assistance in other emergencies, looking after community interests, mediating internal disputes and — again — organising feasts.

Summary

- Wells as water facilities were a part of the Dutch settlement landscape only since the Roman period.
- At the same time water facilities, or at least those for human use, became largely detached from the local topography. The position of a well within a settlement was determined by that of its associated house, and its position relative to the house became more or less fixed.
- From the middle Roman period until the 19th century this position reflected the sociospatial subdivision of the farmhouse, and specifically the longhouse, into two fundamentally distinct sections: ‘front’ and ‘back’.
- There is evidence from some early medieval sites (8th–9th century) for the expression of social differentiation by the simultaneous use of both private and shared wells; possibly these sites were early manorial estates.
- Communal wells first appeared in towns around the 13th or 14th century, but in rural areas probably not until the 16th century.
- In general communal water facilities seem to have been associated with nucleated settlements, and they always existed alongside private facilities.
- The introduction and spread of large, communal watering holes (dobben) may have been related to the so-called ‘late-medieval transition’ (see section ‘Shared and public facilities’).
- The introduction of public wells in villages and towns reflects the increasing concern of local authorities for public space and public interests, including health care.
- Public water facilities tended to be located in central places such as squares, wide roads, near a church or close to watering holes for livestock. Private facilities were mostly located directly in front of or beside the house.
- Communal water facilities such as dobben, wells and pumps fulfilled an important social function as meeting places.

- In some towns and villages the presence of such communal facilities also structured the user community, as they became physical manifestations of so-called ‘well communities’ (in German Brunnengemeinden), similar to the rural noaerschappen, the functions of which usually far exceeded the basic requirements of maintenance.

Résumé

- Les puits à eau ne sont apparus dans les campagnes hollandaises qu’à l’époque romaine.
- À la même époque, ces installations, du moins celles à usage domestique, se sont imposées dans la topographie locale. L’emplacement d’un puits dans une exploitation était déterminé par l’habitat et est devenu un ou moins fixe.
- De la période romaine jusqu’au milieu du 19e siècle, cette position a reflété la subdivision socio-spatiale de la ferme, et en particulier de la maison longue, en deux sections fondamentalement distinctes: l’avant et l’arrière.
- Des exemples de sites médiévaux du Haut Moyen Âge (8ème–9ème siècle) témoignent de cette différenciation sociale par l’utilisation simultanée de deux puits, l’un privé et l’autre à usage collectif; il s’agit peut-être de domaines seigneuriaux précoces.
- Le puits banal est apparu dans les villes aux 13e–14e siècles, mais dans les zones rurales sans doute pas avant le 16e siècle.
- En général, les équipements banaux semblent associés à des habitats groupés et ont toujours coexistant avec des équipements privés.
- L’apparition et la diffusion du grand abreuvoir communal (dobben) pourraient être liées à la loi-disant «transition du Moyen Âge tardif» (voir le chapitre Shared and public facilities, équipements partagés et publics).
- L’apparition de puits publics dans les villages et les villes reflète le souci croissant des autorités locales vis-à-vis des espaces publics et de la population, y compris sa santé.
- Les équipements publics ont eu tendance à s’installer dans des endroits centraux tels que des places, des larges routes, près de l’église ou près de l’abreuvoir pour le bétail. Les équipements privés ont été le plus souvent placés en face ou à côté de la maison.
- Les installations communales telles que dobben, puits et pompes ont rempli la fonction sociale importante de lieux de rencontre.
- Dans certaines villes et villages, la présence de ces équipements communaux a également structuré la communauté au point qu’ils donnèrent lieu à des ma-
nfestations collectives des usagers dites *communautés du puits* (en allemand *Brunnengemeinden*), similaires à la *naoberschappen* rurale, dont les fonctions dépassaient en général de loin les exigences du simple entretien.

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