

# Dealing with water scarcity in large urban households

Orphanages for the poor and the more prosperous in early modern Amsterdam

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# Fresh water: a scarce resource in early modern coastal cities

Places where fresh and salt water meet.  
Venice, Stockholm, London, St Petersburg,  
Amsterdam, Antwerp etc.

Problems: tidal movements, brackish surface  
and ground water, water pollution.

Despite urban policies (water works,  
regulation, coordination ...) clean, fresh  
water remained scarce



Venice 1735.  
Iconic city full of water, lacking fresh water

# Fresh water systems were highly variable



“**Water plurality**”: multiple systems co-existed for a very long time

Different technologies (wells, piped water systems)

Centralised and decentralised systems

Different forms of social organisation (urban authorities; enterprises; communal non-profit organisation)

Values and aims were seldom permanently linked to a particular type of technology

*(Janssens/Soens 2019 on the Southern Netherlands)*



*Het Waterhuis, part of a medieval piped water system in Bruges*



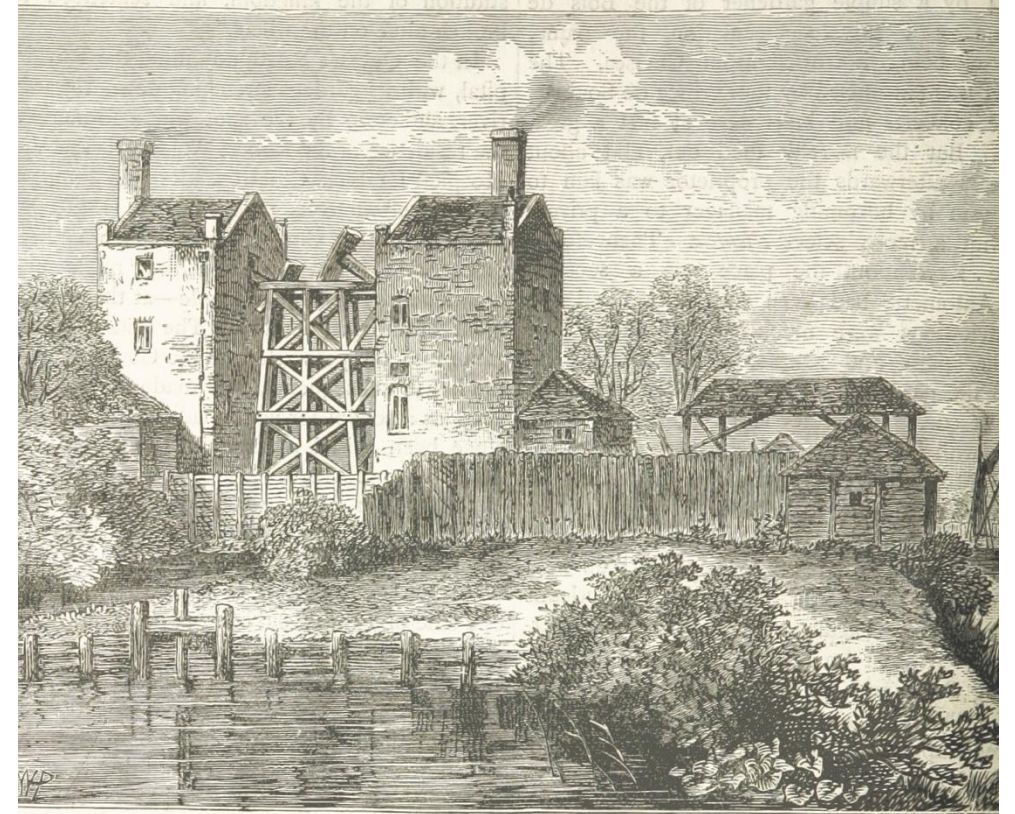
# Access to water and social inequality

Historiography often suggests unequal access to fresh water

But how water was used by households in daily life is an underexplored field

This case study adopts a **household perspective**, and compares two orphanages

*(cf. Tomory 2017 on London, Soly 1968 on Antwerp; Gentilcore 2021 on Venice)*



The Chelsea Waterworks Company, in 1750. It was created to serve the wealthy West End of London.

# Charity in the Dutch Republic

Charity in the Dutch Republic was legendary, according to contemporary sources

but it was socially unequal, depending on religion, age, place of residence and ownership of citizen rights

(McCants 1997, Spaans 1997, Kuijpers 2005, Heerma van Voss and Van Leeuwen 2012, etc)



Orphan girls having their meal, painting by Jan Victors, 1659-1660



Case study:

## Orphanage for the poor (A) and for the well-to-do (B)

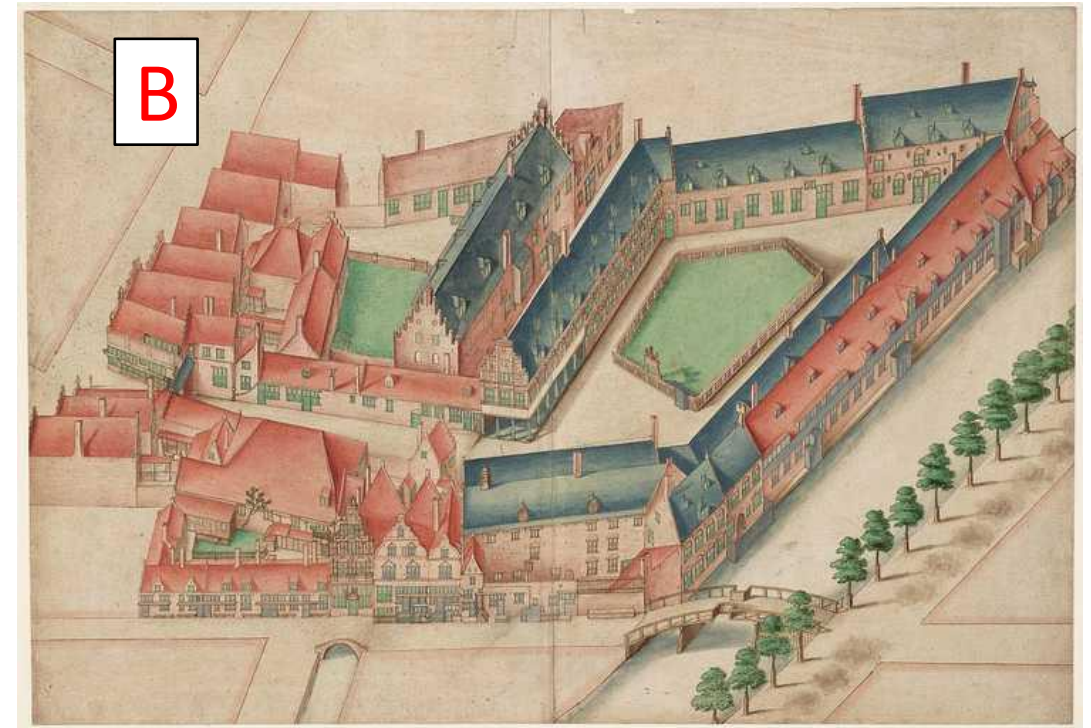


Main question: how did differences in access to fresh water act on the standard of living?

Period c. 1666-1786



Aalmoezeniersweeshuis for poor children, in 1758.  
The building opened in 1666.

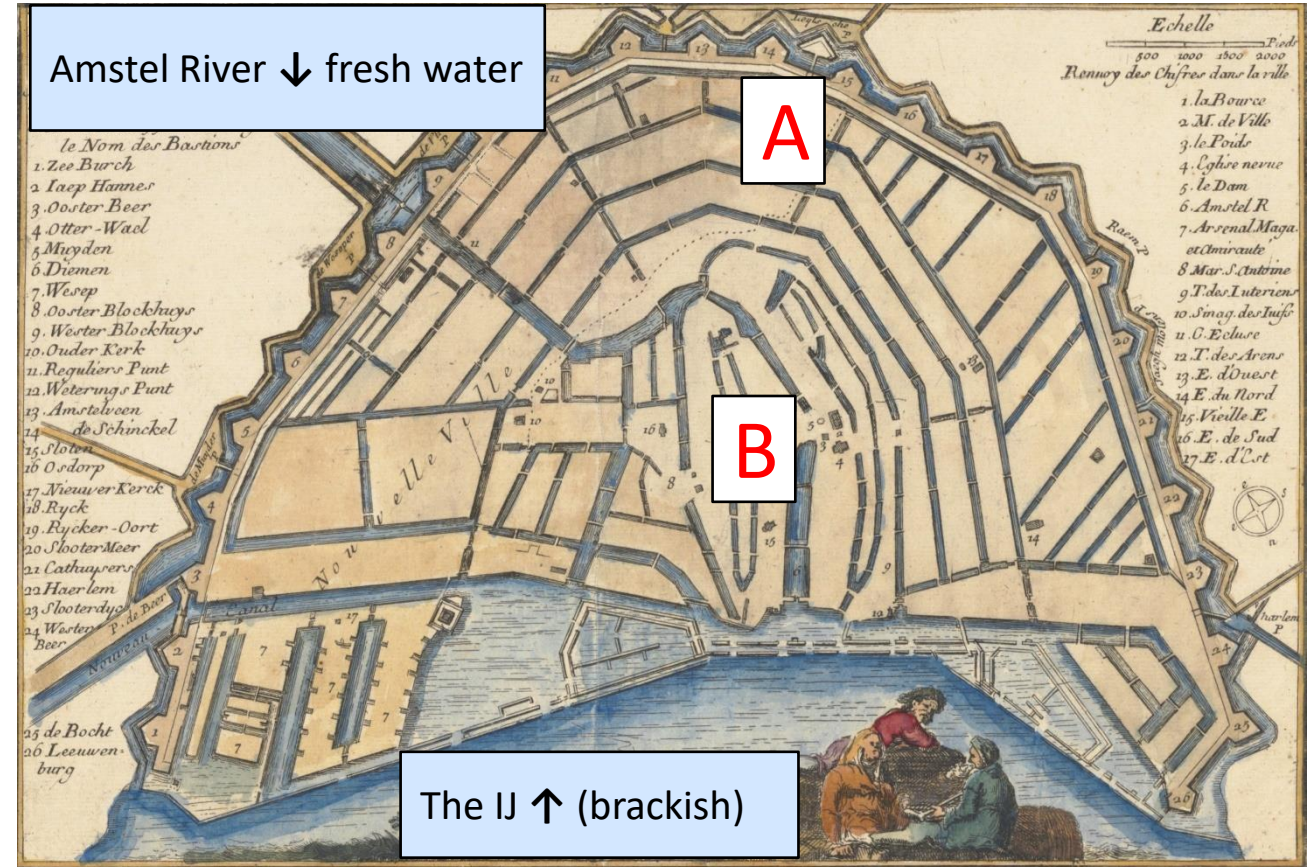


Burgerweeshuis for children whose parents had  
citizen rights , in 1631. This building opened 1580.

## Both orphanages had to deal with the bad waters of Amsterdam

Water in the town was brackish and polluted

Population Amsterdam (1670-1800) c. 200.000



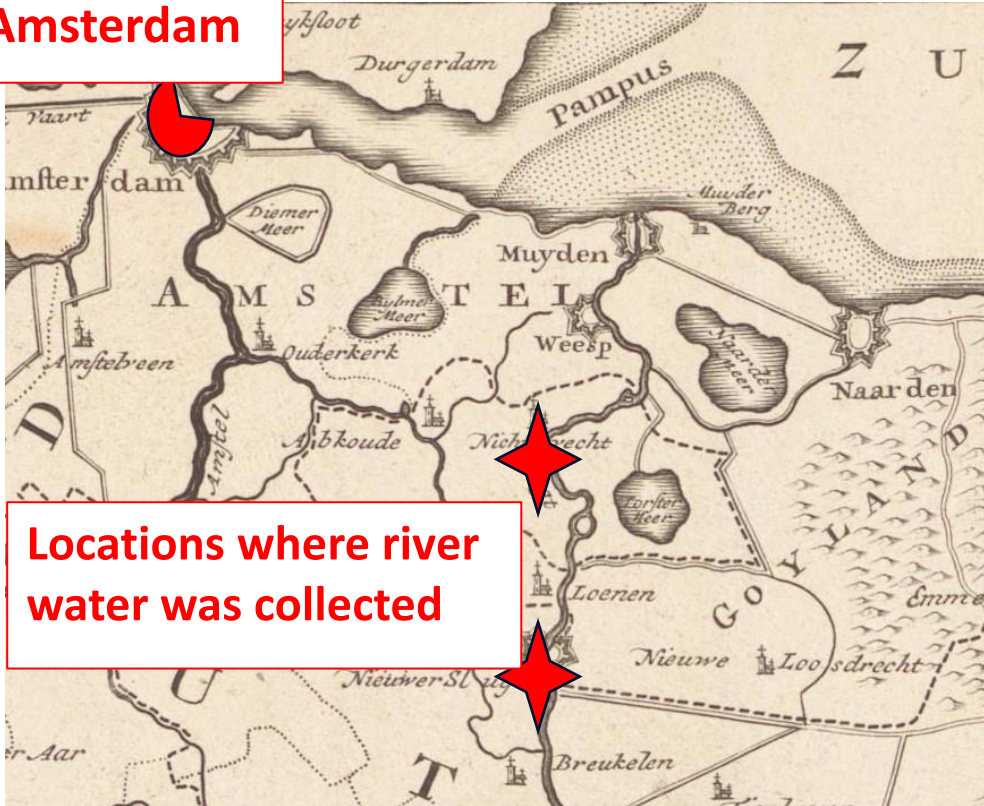
Amsterdam in 1693  
 North is at the bottom of this map



# The Amsterdam fresh water system ca 1550-1786: water from the Vecht River in Utrecht was routinely imported



Amsterdam



Locations where river water was collected

Locations at 20-30 km distance from Amsterdam, along the Vecht in the province of Utrecht

Organised by the brewers and mostly used for brewing and other crafts  
A communal initiative



Barge of the brewers (*waterschuit*)



Retail distribution by female sellers in Amsterdam



# Households predominantly relied on rainwater harvesting



A phenomenon disappeared from collective memory: capturing and storing rainwater

Many hundreds or even thousands of cisterns were built underneath charitable institutions, churches, breweries, private houses and almshouses in the 16th-19th centuries

Dozens of large public cisterns built by the city government 1780-1830

*(Gawronski en Veerkamp 2007, Van Roosbroeck 2019, Levering 2019)*



Cistern under a patrician house in the old centre of Amsterdam, discovered in 2021, built c. 1730  
(Nieuwezijds Voorburgwal 282)  
(Foto Stadsherstel Amsterdam/J.R. van der Vliet)



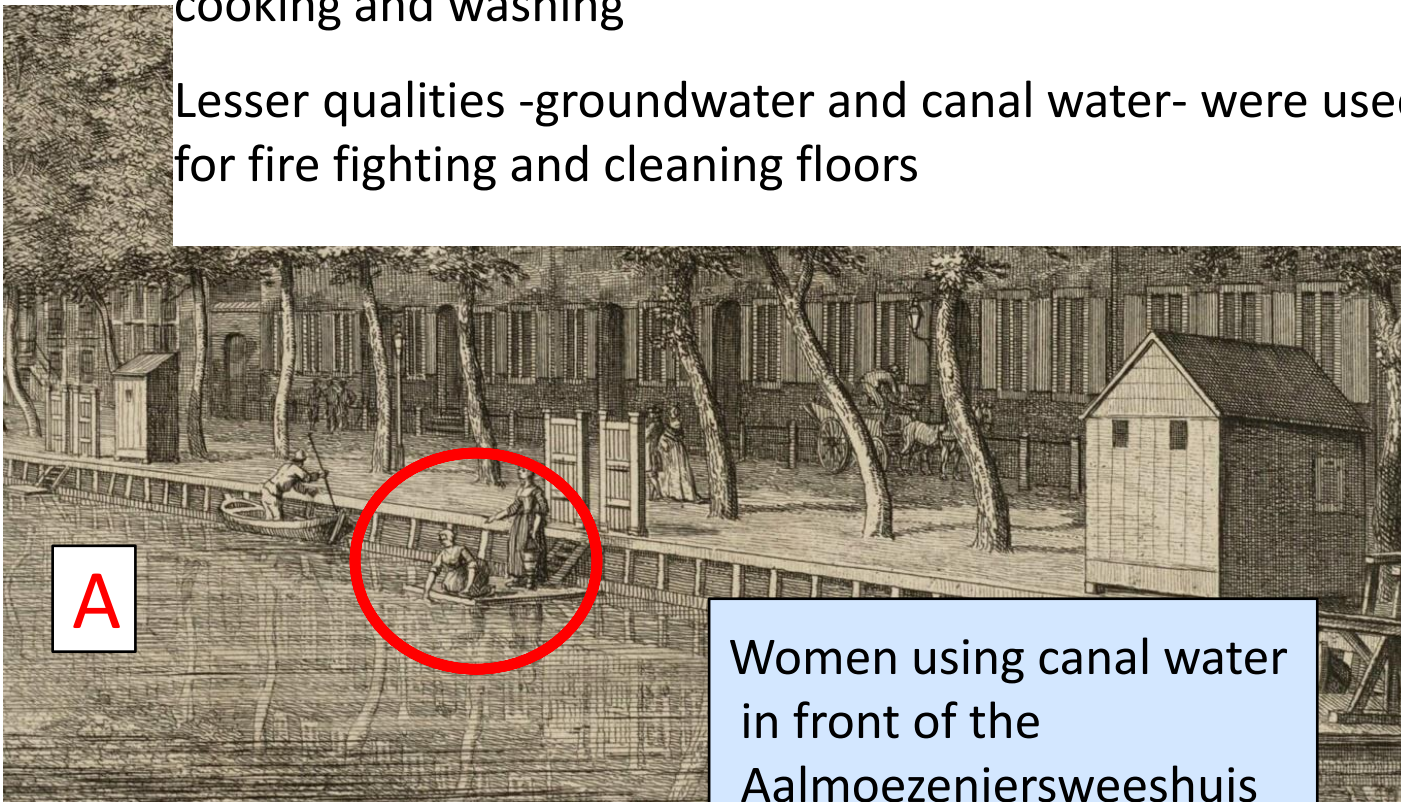
# Water in the two orphanages: similarities in water use



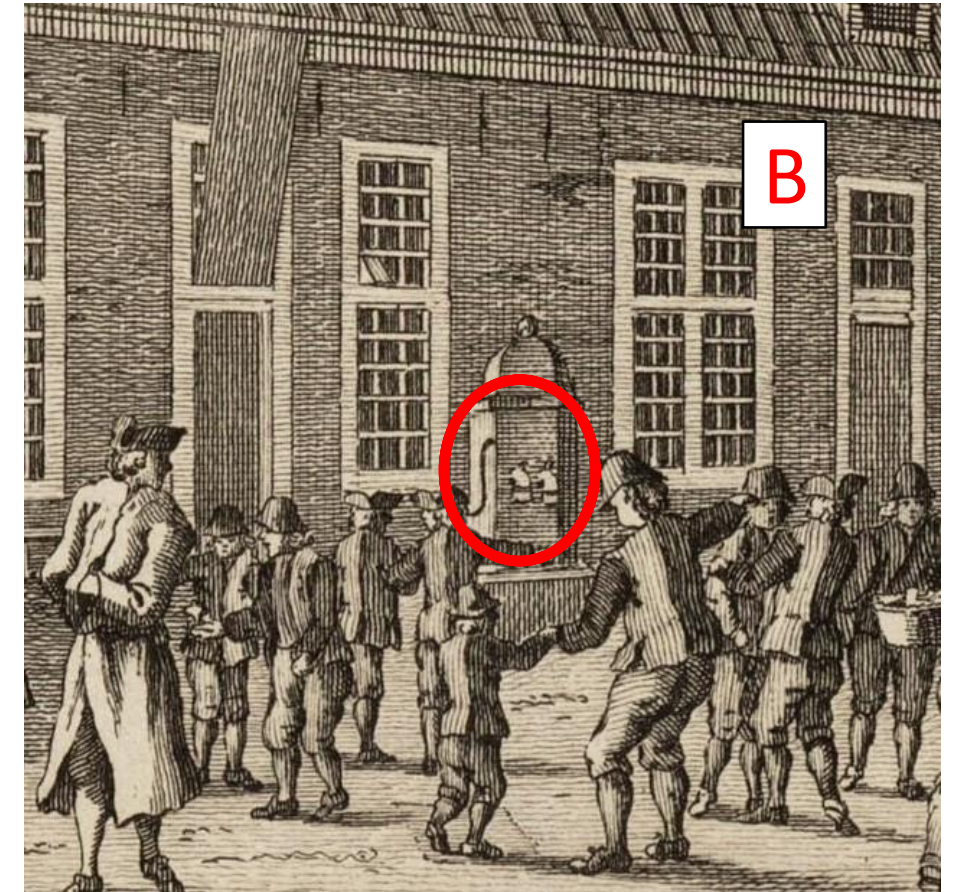
Both used water consciously and sparingly, distinguishing **4 sorts of water**

The good qualities – rain- and riverwater- were used for cooking and washing

Lesser qualities -groundwater and canal water- were used for fire fighting and cleaning floors



Women using canal water in front of the Aalmoezeniersweeshuis



Pump with 2 taps in Burgerweeshuis: 1 for groundwater, 1 for rainwater





# Differences between the orphanages

Burgerweeshuis, although housing less children and sending laundry out of town, could store more rainwater. It bought river water only occasionally.

The Aalmoezeniersweeshuis, doing their own laundry, had to buy dozens of barge loads of river water yearly.

The strong dependency on river water made the Aalmoezeniersweeshuis vulnerable for interruptions of deliveries during droughts and prolonged frosts. In 1755, the orphanage was experiencing a water crisis.

|                                  | Aalmoezeniersweeshuis | Burgerweeshuis        |
|----------------------------------|-----------------------|-----------------------|
| Cisterns                         | 10                    | 14                    |
| Capacity                         | c. 2800 tons of water | c. 3600 tons of water |
| Children (middle of the 18th c.) | 1100-1300             | 400-450               |

Number of cisterns and total capacity mentioned during an inquiry, 1755.



# How did differences in access to fresh water act on the standard of living?

Water crises sometimes necessitated **A** to postpone washing (like February 1755)

Structural water scarcity in **A** resulted in a somewhat lower frequency of changing clothes and bed linnen (orphans over 10 years of age had their bed linnen only changed once in every fortnight, while in **B** this happened every week)

Caveats: other aspects of the standard of living related to water remain unknown. E.g. data on health and mortality in **A** and **B** are not comparable



*Het kleden der wezen* (clothing the orphans).  
Painting by Jan Victors, 1659-1660.

# Concluding remarks



Orphan boys from the  
Aalmoezeniersweeshuis

Both poor and well-to-do households treated water as a precious and scarce resource.

Only the Aalmoezeniersweeshuis, however, was at risk to experience acute and serious water shortage, especially in extreme weather circumstances.

It is worthwhile to study the history of urban fresh water from the perspective of households, because of their different micro water infrastructure, refined water culture and strategies to cope with scarcity.



Orphan girls from the  
Burgerweeshuis



# Thanks for your attention



Orphan boys and girls in front  
of the Aalmoezeniersweeshuis

Het Huygens Instituut is onderdeel van de KNAW.

## Illustrations from:

### **Amsterdam Museum:**

Orphan girls having their meal, and Orphan girls receiving cloths: oil-paintings by Jan Victors, 1659-1660, loans from Protestantse Diaconie Amsterdam; Orphan girls ifrom the Burgerweeshuis, painting by Nicolaas van der Waay, c. 1900

### **Rijksmuseum Amsterdam:**

Bird's eye-view of Venice, anonymous, c. 1735; Water barge of the brewers, engraving by Reinier Nooms, 1652-1654; Map of Holland and Utrecht, 1747

### **Stadsarchief Amsterdam:**

Front of the Aalmoezeniersweeshuis by J. Punt, C. Pronk and J. de Wit, 1758; Bird's eye view of the Burgerweeshuis, painting by Balthasar Florisz van Berckenrode, 1631; Map of Amsterdam by Nicolas de Fer, 1693; retail distribution in Amsterdam, at Nieuwezijds Voorburgwal, drawing by Augustus Wijnantz, 1835; Women using water from the canal in front of the Aalmoezeniersweeshuis, engraving by H.P. Schouten, 1783; Pump with two taps, detail from an engraving of the courtyard of the Burgerweeshuis by E. Maaskamp, 1780-1783; Plan of the Aalmoezeniersweeshuis by Jan de Greef, 1825; Orphan boys from the Aalmoezeniersweeshuis, detail from View on Leidseplein, drawing by H.P. Schouten, 1779; Orphan boys and girls in front of the orphanage, detail from an engraving of the Aalmoezeniersweeshuis by Hendrik Spilman, 1765

### **Stadsherstel Amsterdam/J.R. van der Vliet:**

Interior of newly discovered cistern, c. 1730, Nieuwezijds Voorburgwal 282

### **Wikimedia Commons:**

Het Waterhuis in Bruges (Vestingswal Boeveriepoort), by Humphrey56; The Chelsea Waterworks Company in 1750 by William H. Prior, 1873



## Literature mentioned

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- H. Soly, 'De brouwerijenonderneming van G. van Schoonbeke (1552-1562)', *Belgisch Tijdschrift voor Filologie en Geschiedenis* 46 (1968) 337-392 en 1166-1204.
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