## Performance

Depending on the size of the water tank, which has since disappeared without trace, the Lenbrunnen well would have had a capacity to hold more than 15,000 litres of water. In the mid-13<sup>th</sup> century Berne extended from the Nydegg area to the Zeitglockenturm tower and had some 3000 inhabitants. Assuming that each person consumed 3-5 litres of water per day, the Lenbrunnen well would have been able to supply the entire population.

Some current figures are quite thought-provoking: in 2013 some 138,000 people lived in the City of Berne, 4250 in the medieval part of the city. Their daily water consumption in 2013 was 350 litres, which amounts to more than 48 mill. litres in total and around 1.5 mill. litres in the old part of the city alone. Moreover, considering the fact that we only use the one type of water today, drinking water, these figures, as seen from a global perspective, provide food for thought.

> Model of the Lenbrunnen well as seen from the northeast with its water basin and overflow, room for drawing water, guardroom and attic.





Construction of the mikveh in Limburg a. d. Lahn (Ger.).

Water basin of the mikveh in Speyer, built around 1120 (Ger.).



### **Appraisal and importance**

While the church cared for people's spiritual lives, the market and the wells looked after their earthly lives and the town hall and judgement seat ensured a peaceful coexistence for the population. These were the main pillars upon which the medieval city rested: religion (church), law (town hall), food (market) and drink (wells). The Lenbrunnen well in Berne is a groundwater cistern well. The technological development of these tower wells, dug deep into the ground, had its roots in the Jewish tradition. As the preserved examples of 12<sup>th</sup> century mikvehs from Speyer and Limburg a. d. Lahn illustrate, tower-like constructions were dug down into layers that contained pure water for ritual cleansing.

Other similar constructions were the well-houses of Siena and Massa Marittima, which were built almost at groundlevel with the water rising invisibly as far as a first basin (drinking water) from where it overflowed into a larger basin (water for domestic use). Tower-like cistern constructions have also been found in Bautzen on the Spree River, in Trivels near Annweiler and in Regensburg. The Lenbrunnen well in Berne is one of only a few preserved examples of cultural heritage of this kind in Europe.

### Erziehungsdirektion des Kantons Bern Direction de l'instruction publique du canton de Berne

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**Useful information:** As an archaeological site the Lenbrunnen well is accessible to the public by telephone appointment made during chancellery office hours (tel 031 633 75 11). Guided group tours are provided by Berne Tourism (tel 031 328 12 12 or city-tours@bern.com).

**Concept:** Archaeological Service of Canton Berne (Dr. Daniel Gutscher). Realisation: Werkgruppe Bern, Kurt Gossenreiter (architecture), Push'n'Pull, Berne, Jürg Zysset (graphic design), Urs Huber, designer/ model maker, Kehrsatz (models).

Literature: Vom Lenbrunnen und anderen "nützlichen Wassern" in Bern. In: Schulpraxis 4/1998 (out of print, pdf at: www.erz.be/archaeologie/ publikationen); Armand Baeriswyl, Stadtbach, Brunnen und Gewerbekanal. Wasser als städtisches Lebenselement. In: Berns grosse Zeit. Das 15. Jahrhundert neu entdeckt. Berner Zeiten. Eds. Ellen J. Beer, Norberto Gramaccini, Charlotte Gutscher-Schmid and Rainer Schwinges. Berne 1999, 54–63; Lukas Hartmann, Schichten und Geschichten. In: Bern. Gesichter, Geschichten. Berne 2004, 6–13.

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# BERNE The Lenbrunnen well

Archäologischer Dienst des Kantons Bern Service archéologique du canton de Berne



The Lenbrunnen groundwater well – by its nature a secure supply of drinking water – is situated in a deeply symbolic location. Where citizens today receive Bernese edicts from the chancellery that contain the plain truth, people in the Middle Ages got their pure water from the well.

A model and information panels in the entrance hall illustrate what the well tower would have looked like and how it worked.



# Oldest dated construction in the medieval city

Since 1983 Berne has been a UNESCO world heritage site based on its medieval structure which was established at the time of Duke Bertold V of Zähringen and had seen only moderate changes in subsequent centuries to fulfil an everincreasing number of functions. However, visitors today can see very little medieval substance. Besides the Cathedral, Berne today has the appearance of a Baroque city. In 1992 the authorities decided to renovate the chancellery at Postgasse 68/70 and add a basement beneath the building. In advance of the construction work the Archaeological Service of Canton Berne examined the property and discovered a tower-like well and the Lenbrunnengässli alleyway leading to it. Concealed within later constructions, both the well and the alleyway had long been forgotten. There are several historical references to the Lenbrunnen well, which was constructed around 1252. It is the oldest substantially preserved architectural monument in Berne. With assistance from the Canton Berne Lottery Fund the well was conserved and made publicly accessible. Information points outline the importance of securing an urban water supply both now and in the past, a model at a scale of 1:20 on the ground floor shows what it would have looked like at the time and a hydrological model in the basement demonstrates how the water inflow worked



Hans Rudolf Manuel, Berne as seen from the north, 1549, with the Lenbrunnen well and overflow towards the Aar River.

# Appearance and operation

The Lenbrunnen well was a tower standing on a  $7 \times 7$  m ground-plan and, incorporated into the existing building stock, it still rises a good seven metres above the terrain. The construction once had three storeys and was accessed via a round-arched portal on the middle floor (timber lintel tree ring-dated to around 1252). There was an interior wooden floor at this level. The basement contained a well chamber, where the water was drawn from. A guardroom was located on the top floor.

How did the well work? The subsoil beneath the City of Berne is composed of loose rock of the Aar glacier moraine, which was compressed to varying degrees by the weight of the ice that was up to several hundred metres thick in places. While water seeps away in the looser layers it accumulates in the more compressed areas. The Lenbrunnen well was dug in to such a layer. Over time, however, many more cellars were constructed which led to the water seeping into deeper

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Postgasse, Lenbrunnengässli alleyway and the Lenbrunnen well with the excavated features: post holes, wall beams and loam floors of medieval commercial timber buildings.

### ►

Map showing the oldest wells in the City of Berne. Remarkably, they were all located on the northern edge above a subterranean water course.

- 1 Lenbrunnen well
- Stettbrunnen well
- 3 Well at Badstubengraben
- 4 Schegkenbrunnen well



layers and the well gradually becoming deprived of water. After 1618 it eventually faded into complete obscurity.

# **Berne's medieval wells**

Besides facilities such as the market, town hall, judgement seat and the church, wells were also pivotal to a medieval city and carefully looked after. In Berne the water was obtained from different sources from the very beginning. Four types of water existed: drinking water was sourced from springs and groundwater wells, for instance the Lenbrunnen and Stettbrunnen and later the well at Badstubengraben and also the Schegkenbrunnen well. Raw water for the livestock and for domestic use, and for fighting fires was taken from the city stream. Water from the city stream was and is still being channelled off today to clean the narrow waste water channels between the houses. Lastly, the water power of the Aar River was harnessed for trade and industry.