Drainage Systems of Mesopotamia & Syria

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Puzzle Pieces of ancient drainage

The elements that made up the drainage systems of the area under study were already catalogued by C. Hemker in her 1993 study.
This revealed that the drainage was carried out by means of stone and brick channels, pipes, gutters and soakaways. There has been no investigation to date as to whether particular contexts were associated with any of these puzzle pieces in particular.

Study of the Drainage of Palaces, Temples and Temple-Districts and Domestic Houses between the 3rd and 1st millennia B.C.

As an integral part of the design of ancient buildings, the various elements of drainage systems are only mentioned in passing in research and rarely analyzed. In my dissertation project, I investigate the nature and occurrence of drainage in palaces, temples and temple precincts, and residences of main cities in Mesopotamia between the 3rd and 1st millennia B.C. Were canals, pipes, gutters, and soakaways used equally for all building types, or can they be associated with specific contexts? What do they tell us about the function of the spaces they drained? To answer these questions, all drainage elements are carefully recorded and compared in their context. How soakaways functioned precisely and whether different modes of construction influenced ther capacities will additionally be explored by means of experimental archaeology. This will provide a more detailed picture of the function and occurrence of drainage systems in the different contexts.

Collecting - evaluating - interpreting

The thesis is based on the description of drainage elements in the original excavation reports. Channels, pipes, gutters and soakaways were only included in the study, if a description of the context and a clear date within an archaeological horizon are both available. Furthermore, the nature of the floor or the existence of other fixed installations directly related to the drainage, also recorded, are recorded in order to trace any patterns.

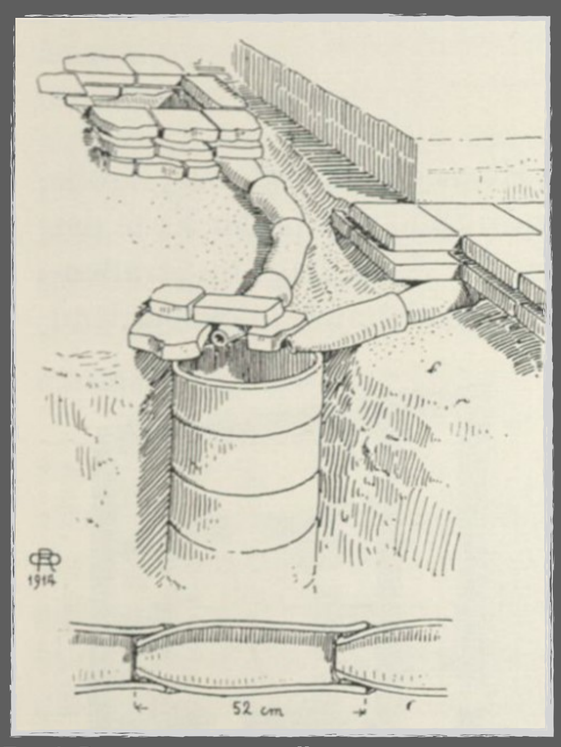

Fig. 1: Drainage in house II in Merkes

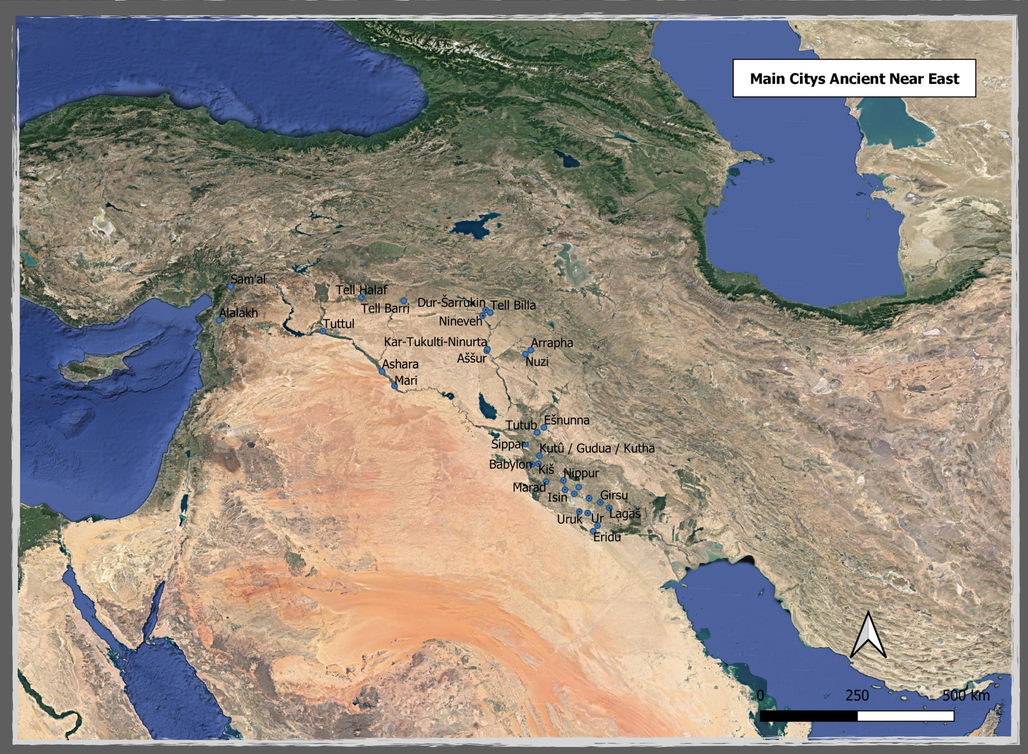

Fig. 3: Reconstructed soakaway with brick fill

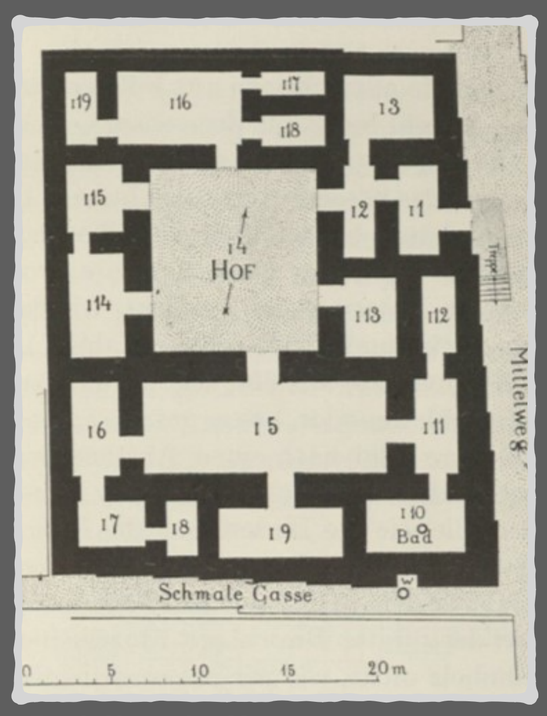

Fig. 2: House I in Merkes

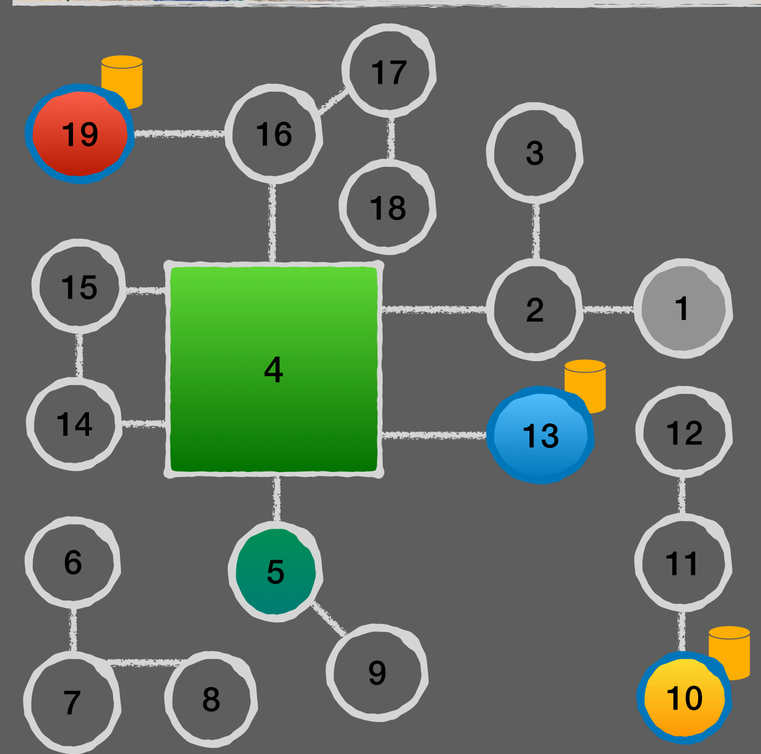

Fig. 5:Schematic floorplan of house I (Merkes); rooms classified after Reuther

Fig. 4: Reconstructed soakaway with soil fill

Experimental archaeology
How is a Soakaway working - and why?

An experiment is devoted to the soakaway focusing on the function of the seepage holes in the terracotta rings and the backfilling of the excavation pit. Why are there soakaways that were encased in ceramic sherds, while others were directly set into the soil ? To answer this question, a 40 cm high soakaway was replicated (Figs. 3 and 4) and the time needed for a fixed amount of water to percolate was stopped (Tab. 1). It turned out that the different backfilling of the pit influenced how quickly the water seeped away at the beginning. From this it can be deduced that a shaft with soil filling is only suitable for absorbing larger quantities of water to a small extent before overflowing. Accordingly, in a room with such a shaft, only a small amount of liquid was probably expected to accumulate at a time. This design was only servicable to a limited extent: either the wastewater had to be fed into the shaft gradually in a controlled manner to prevent overflowing, or the soakaway had to be built deeper than a shaft with ceramic filling. On the other hand, a soakaway encased in ceramics, was suitable in an environment where large and sometimes sudden quantities of water were to percolate.

Building pit	Amount of Water Immediately Absorbed when Filling In 30 l	10 l water	30 l water	Difference 10 l = 30 l
Construction Pit	Fill level: 3/4 Absorption ≈ 24 l	4 Min.	18 Min.	14 Min.
Soil	Fill level: 4/4 Absorption ≈ 22 l	12 Min.	24 Min.	12 Min.
Difference	2 l	8 Min.	6 Min.	

Tab. 1: Different drainage times depending on fill

Bibliography

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