العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

A Review on Sanitary Models and Water Drainage Systems from Ancient Mesopotamia

Dr. Mohammad Sabri AbdulRaheem
Researcher-Archaeologist, The State Board of Antiquities and Heritage, Iraq
Email: sabrimohammadsabri@gmail.com

Prof. Raghad AbdulQadir Abbas
Department of History, College of Education, University of Al-Mustansiriyam, Iraq

ABSTRACT

Archaeological excavations provide us with a lot of information and evidence that guide us realize the facts, ideas and practices of various forms and patterns related to several aspects of human life such as: worship, industries, social relations and arts, where architecture is considered a kind of arts in which man excelled. It could be surprising to know that in some parts of the world people might have lacked such a service facility in human life until the eleventh century AD. Some archaeologists attribute complex and elaborate water drainage systems, discovered in some structural units of ancient Iraq, to the civilization of (Mohenjedaro) in the Indus Valley, while many archaeological sites abound with different models of them showed complex designs, came to us from periods preceded the Sumerian age (early third millennium BC) and continued to a late period of Mesopotamia history.

Keywords: Mesopotamia, Drainage System, Sewage, Akkadian Period, Old, Middle and Neo-Babylonian Ages, Excavations.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

INTRODUCTION

One of the most important and prominent examples of what is called in Arabic (Kunaifat) came from the Akkadian age, from the site of Tell Asmar specifically. Before reviewing it, we see the need to define the Akkadian age: The Akkadians descend from the Arabian Peninsula, since the beginning of the third millennium BC settled the upper part of Sumer in the western side of Mesopotamia, the first to establish their state (empire) is Sargon of Akkad [(1)] Their beginning was at the hands of this monarch, after residence in their new settlements, they began to practice a lot of work required by their daily lives, such as agriculture, animal husbandry and trade [(2)] they carried out many and distinct urban works, but unfortunately we know little about the architecture of the Akkadian age because of the lack of disclosure, so far, about the location of the capital confirmed, however, through the few architectural remains discovered in different areas of the ancient East, it was possible to know aspects of the features and data of architecture in the age [(3)] Among the vocabulary of architecture in this age, we see distinction in the construction of water drainage systems and the emergence of what the researcher believes to be proto-type of what is known as (Western-style facilities: the seat sanitary).

CASE STUDIES

Before entering into a discussion and review of the subject of sewage and the related importance it might reflects, we need first to provide an idea of the naming of water closets as stated in the dictionaries, the place called (Kunaif): It is the empty place that does not have a curtain [(4)] because the person intended to relieving oneself, the naming have varied depending on whereabouts (within the unit of the building), in Yemen and Mecca is called the toilet [(5)] The people of the Levant call it Mathhab The people of the city call it Khala' and the people of Egypt call it the house of Al-Hashn [(6)] The people of Kufa and Hijaz call it Kunaif [(7),] but the people of Basra have called it the Bait Altuhr [(8)] it has also been called by the people of Iraq as the ablution or rest house [(9)], as well as other names such as the Makhraj, Mubarraz and Marafiq[(10)] but when situated in the upper story it will then be named the KIRBAS [(11)] .

1- EARLIER MODELS

We would also see the need to address first the drainage sewers, as among the date of Akkadian architecture is the emergence of the drainage system that appeared for the first time in this age with such a new design, distinct sanitary facilities were also uncovered dating to the early dynastic period or before! [(12)]

Archaeological excavations proved that some of these sewers are those main with a height of about 1 m while their length is 50 m, including secondary sewers that are mostly located between the rooms, the height of some of them is much less than that made of pottery. [(13)]

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

Before the age mentioned above, no such elaborate drainage systems were found, large pits were found in the middle of the open yards of houses that were prepared to collect dirty water, while large palaces, especially Assyrian, included accurate and efficient water drainage systems, consisting of pottery channels buried under the floor of rooms and bathrooms in which water collected.

It is connected to each other to eventually lead outside the building, flow into the nearby valley or river, and that the final nozzle of the drain was blocked with a clamp to prevent animals from entering the interior [(14),] bitumen was used in plastering bathrooms and toilets to protect the floor and the lower section of the walls [(15),] Narrow drainage channels of bricks were used in the construction of the sewage network that was extended under the tiling in addition to the use of clay pipes covered with tar descending to a depth of 30 m below the level of the surface of the earth. The architect has designed these sewers skillfully and carefully so that the water of one of the rainstorms that occurred during the excavations undertaken by one of the exploration expeditions was drained within hours; That is, the sewage network was able to perform its function again, with high efficiency even after 4000 years of not using. [(16)] Dated to the ED period (2900-2370 BC) in one of the residential units, specifically at the Shmet site [(17)] a vertical annular duct whose nozzle is covered with a layer of bitumen was unearthed. [(18)] (Figure 1)

Figure (1) Annular sewer nozzle From the Schmit site of southern Mesopotamia, note the remains of bitumen.

From the same site, in another room dated to the ED period, another drainage was also uncovered, consisting of seven pottery vertical rings [(19)]. (Fig2)

.

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

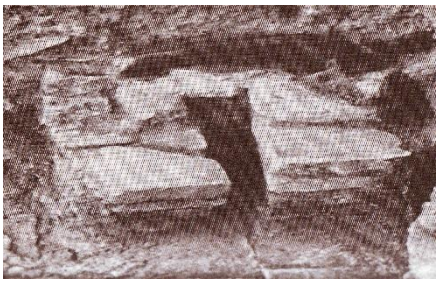


Figure (2) vertical annular ducts from Shmet site

From the Akkadian period (2371-2230 BC), in the houses of Tell Asmar [20]), dated to the end of the period, water pottery sewers were uncovered [21] with emphasis on the lack of any indication of public sewage. Administrative buildings had their own precise method of getting rid of sewage as found in a building dating to 2300 BC, believed to be a palace of Tell Asmar, on sanitary facilities and bathrooms connected to a reservoir of sewage leading to sewers covering the top with bricks [22]. (Fig. 3)

Figure (3) Seat facilities from Tel Asmar

2- OLD & MIDDLE BABYLONIAN MODEL -

In one of the houses dated the reign of Hammurabim from Babylon 1792- 1750 B.C.E. a sewage was unearthed, the lower part and the side walls of the drainage was paved with two courses of bricks, where the cover has been paved with a single course descending southwards, the opening of the drainage was set at the floor level of the structure. [23].

From the houses of the Kassite period of Babylon as well (1595 – 1162 BC) a different type of foundations of rain water and sewage along with ring drainage pipes were found, the archaeologists found the construction of small channels covered with bricks extending through the walls to the street, proved to be used as ceramic pipes for the sewers [24]. In one of the houses of the Kassite period as well, a drainage consisting of a number of jars familiar to this period was found, in (Figure 4) a drainage is seen with the place of its connection to the floor.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

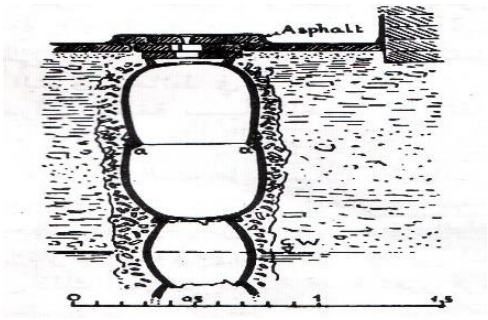


Figure (4) tractor sewers from the Kassite period.

The cracks between these jars were filled with bitumen, while the inner walls of the jars are painted with a thick layer of bitumen as well, the contact points of the tractor are fixed to each other by a block of durable material similar to cement, while the floor was covered with a layer of tar, the cover was made of a square piece of limestone measured about 33*33 cm, pierced in the middle and has a plug made from a piece brick, where and people had to raise this plug when the water was drained or for any other liquid .[25]

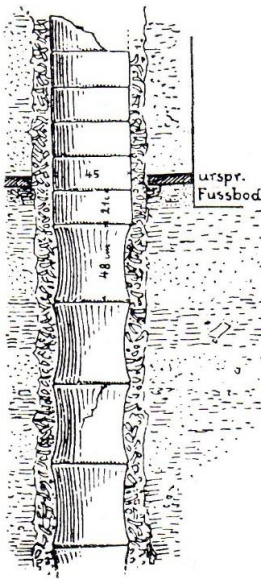


Figure (5) Annular ducts with drum-like rings

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

From the Middle Babylonian period (1595-1157 BC) Clay tubes were found in the form of overlapping rings. Some of them are treadmills, buried in the ground in addition to the type that looked flat consisted of rings 15-20 cm high, the inner diameter reached 45-65 cm, a unique drum-like type was found so that it looks concave at the centre (Figure 5) It is worth mentioning that these rings were not made by the pottery wheel, but thought to be made with mold, Figure (5) the mold was made of braided palm fronds in the form of a basket, these baskets are easy to flex and can be pulled out of the clay ring formed after drying without damaging the ring, all these rings were completely circular in shape, the baskets are stuffed with a cylinder made of a strong material that pulled from internal part of the basket once the clay ring acquires its desired shape, The horizontal sewers used to drain water from houses were constructed with small brick-lined canals or they were composed of pottery rings (vary in size from place to another).[26]

3- NEO-BABYLONIAN MODELS -

From the Neo-Babylonian period (726 – 539 BC) in Babylon, a bathroom and a sewage linked to sanitary facilities were found, located to the south of another bath, the bathroom with the number 12 shown in the plan below is a small room with dimensions of 340 × 180 cm, the floor was constructed with tiles and was raised twice and the layered tiling seems slopping strongly towards the center of the room that was also covered with a layer of bitumen, in the upper layer of this tiled drainage hole, we can realize that this slope in the floor confirms that the room was used as a washing place or the like, while we see that the floor in room 9 absence of bitumen and a difference in the slope that we observe in room 12 [27]. (Figure 6)

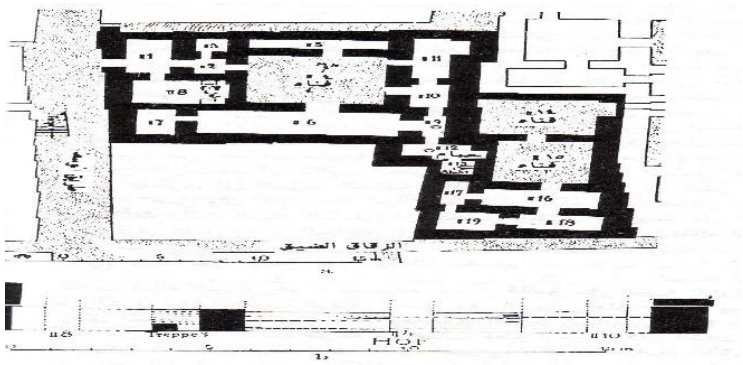


Figure (6) Diagram and section showing the position and composition of a sewage of water in the said house.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

It is the F layer in Ashur dated to the Old Babylonian period (2000 – 1500 BC) a pottery sewage and a basin, were found, these two forms probably form part of the arrangements of a simple bathroom [28]. (Fig. 7)

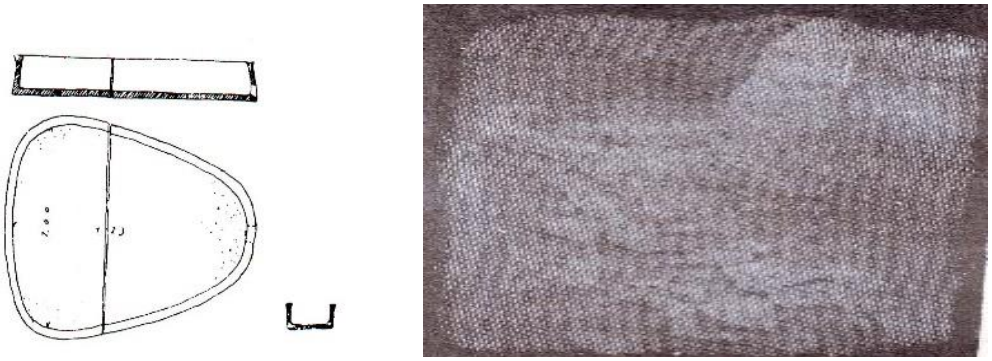


Figure (7) Right bath, left basin and pottery duct

4- MODELS from MIDDLE and NORTHERN MESOPOTAMIA-

From Tell al-Majnna, dated to the middle Assyrian period (1200-912 BC), near the site of Ashur in northern Mesopotamia [29], the excavations carried out by an under the floors of buildings similar to those from previous periods [30].

From the ancient city of Tarbisdu in Nineveh, the digging there unearthed a temple dedicated to the god Nergal as well as a palace rebuilt in the reign of Sennacherib (705-681 BC) the excavations undertaken at this site had shown a skillful and accuracy of Assyrian architecture, especially the systems of water drainage [31], Researchers interested in Assyrian architecture see integrated systems of water drainage has reached the width of the sewage tank where sometimes five feet covered end with a clamp to prevent the entry of thieves, these tanks were usually poured into the river [32]

As for the objective of this current study, the facilities related to such humanitarian needs, we have noticed the existence of some models of them, the most famous of which are those dated back to the Akkadian age, but here we prefer to discuss it chronologically, it is worth mentioning here to one of these samples uncovered in the site of Shmet in the residential unit eighth, that was consisting of several rooms of small size in regular shape, one of which contains tiling constructed of plano-convex bricks with a hole underneath the sink. We noticed that the excavations at the site didn't expose a similar example in this very site, in another layers or levels. [33]. (Figure 8)

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

Figure (8) Facilities from Schmidt site

As for the facilities that appeared in the Akkadian age, which is one of the important topics in this research, many of the models were found in the Akkadian palace in Tell Asmar (ancient Ashnuna) as well as in residential houses dating to the same age, in house No. 32 in the southeastern part of the B layer, a tiled bathroom containing sanitary facilities was shown and is located within the grid J-19.(34) (Figure 9A-B)

Figure (9A) Facilities in the corner of room 32 ...

The location of the facilities was chosen in a narrow entrance that was truncated in the walls at the south corner of the room, we can see that this matter may reflect the tradition of building inputs around utilities found on the main residential floor of the North Palace. It looks possible that this location was imposed by the presence of previous sewers older than those had to be contacted by newer facilities despite the lack of an evidence indicating the existence of the older drainage, the construction of the facilities here are very similar to those found in the north palace.

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

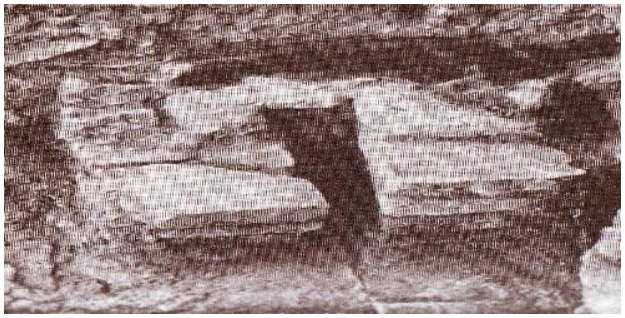


Figure (9B) Facilities for two residential floors.

The seat is constructed of baked bricks with a height of five rows, the size of the bricks here is 37.5×37.5×7.5 cm, the opening was 10 cm wide at the middle of the seat. (Fig. 10)

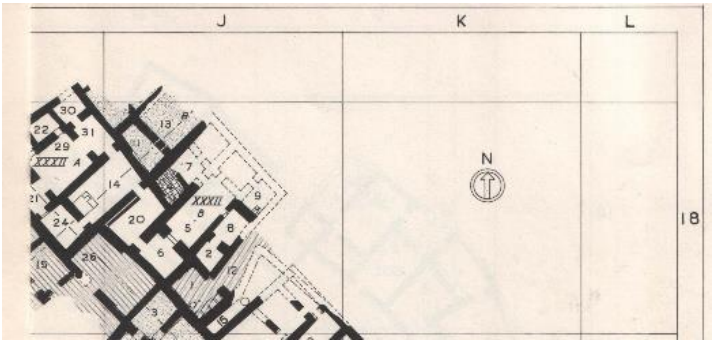


Figure (10) the plan showing the position of the seat

Beneath the hole, in the tiled floor, there was another square hole measuring a 12 cm each side, directly underneath, a carefully Installed pipe of burnt bricks with a pipe 12 cm diameter, the link between the mouth of the pipe and the bricks that surround the square hole referred to above was glued with bitumen fixing the pipe in a hole located in the tiling superstructure in the drainage made of burnt bricks that was found under the facilities, the diameter of the drain was about 57 cm, the length of each of the sides is 32 cm and thus could be considered one of the rare models, where the upper part of the seat was covered with bitumen and the back and sides were protected with a layer of bitumen as well to a certain heigh. Another toilet is similar to the one mentioned above, except that it had a vertical drain constructed of burnt clay found in the grid J18-9. (Fig. 11)

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

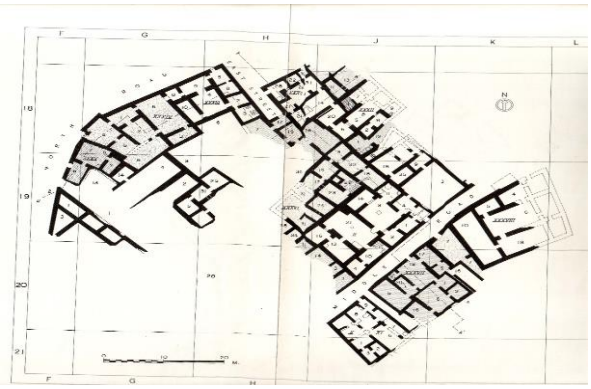


Figure (11) Diagram showing the location of the room in the grid box J18:9.

In some other houses of Tell Asmar, a small ladle and pottery tools to preserve clean water ware were found, perhaps suggesting they were used for cleaning purposes, a method common in Iraq and suitable for its climate. (35)

As for the North Palace, room E15:2 is thought to be of particular importance, as its walls appeared like some other rooms with sanitary facilities covered with a six-row height Izara (the base board of the wall), it is possible that the total space of the floor in this room has been paved with bricks during the first period of habitation, at the middle of the room, a hole made below the floor level, where the upper part of the drain was made of baked bricks, connected to the facilities in the next room E15:1 and then to the main drain located in the street. (36) In the southern part of room E15:2an other facilities similar to those in places of the north palace were unearthed other, specifically in rooms (E14:5 E15:4 E15:3 F16:7 F17:10) all these rooms except for the room E15:4 Utilities were constructed in the eastern part of construction except those two located in the south wing (F16:7 F17:10), it was connected to sewers running under the wall in the direction of the drain on the outer street. As for the two facilities located on the south wing, there are horizontal sewers made of burnt bricks topped by a seat constructed of burnt brocks too to a height of about 50 cm and has a hole 10-15 cm wide (Fig. 12).

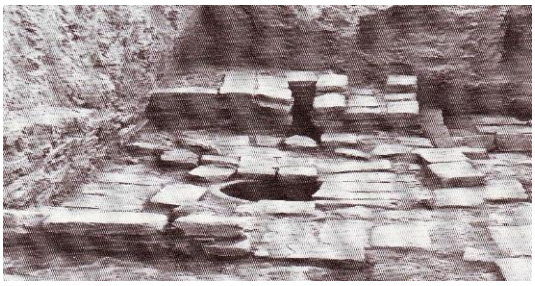


Figure (12) Top Facilities in room 17:10 , bottom Room facilities 16:7

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

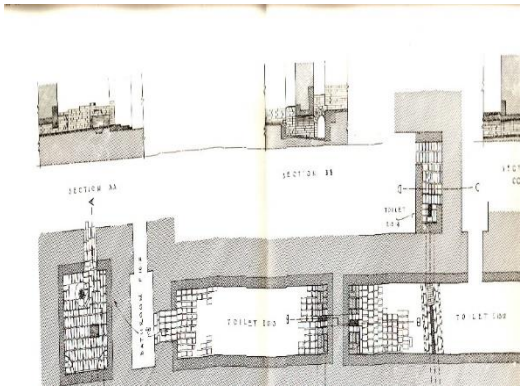
Figure (13a) Managed facilities in E15:2 E15:3.

There was a low doorstep at the front facilities, in all cases with regard to utilities in E15:2 it looked different a bit where the seat level accords with the constructed floor built with burnt bricks and linked to it, the ends of the seat was built of mud bricks and reached the width of the drain that was about 35 cm under the walls between E15:2 and E15:3 where The facilities here worked in a contrived way. (Fig. 13a)

When we preview the structure below E15:3B we see it connected with the earth drain whose upper part is arched in the form of a volt (Fig. 13b), which runs east under the outer wall of the palace to finally connect by the main drain. In E15:3 also the Izara constructed of burnt bricks made from nine rows 70 cm high, there was a step of 15 cm height at the front side of the toilet, the seat is about 50 cm above ground level with an opening measures 12×45 cm, where the Izara rises to four rows from the seat. (37)

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080



The structural arrangement in E15:4 looked a little different, the facilities here seem to be added in a later period, as it was built in a separate annex from the northern building in E15:5, this structural part was tiled and built with brick in its eastern and western walls, an offset drainage outlet was made for it on the eastern side, which consequently led to the creation of a niche for utilities similar to what we talked about earlier. It was found that there was a 50 cm wide duct running under the eastern wall of the room, continues under room E 15:2 of the east wall of the palace until it meets the main drain outside. Fig. 13b

The other facilities are in room E14:5, which is part of the servants building at the northeast corner of the building, this facility is similar to the rest of the facilities except that the room in which is very narrow, did not allow any structural additions to the niche. Under the eastern wall there is a arched drain connected to the main one, but no evidence indicating the tiling of this room at the time of the first settlement, an access to the place was made through a ladder consisting of three steps.

In addition to the above, excavations have proven the existence of two facilities in the women's wing (harem wing), at the southeast corner of the building, potentially they were above the level of the four brick rows that reached 35 cm. height The eastern side of the building seems to contain five-row burnt brick Izara. The southern wall appears to have been constructed of burnt bricks as well reaching the front of the facilities where the toilet niche is. (Fig. 14) [38]

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

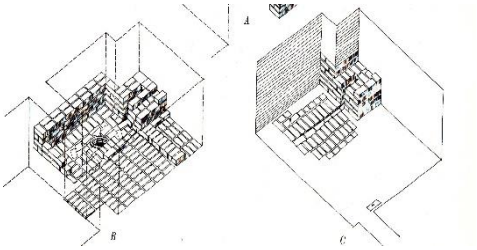


Figure (14) model of facilities in the harem suite

Under the seat there is a 50 cm diameter horizontal drainn made of burnt bricks, directly in front of the seat there is a non-shaped tiling rises slightly above the level of tiling and duct eventually leads to a jar with a 50 cm diameter nozzle under these remains.

Facilities in E17:10 (Fig. 15ab) in the southeastern corner of the south wing is considered the best model uncovered. Construction of the southeast corner of the room above the seat which is about 40 cm from the level of the opening, we can also see a three-row narrow wall built here at the western corner to complete the entrance and an elaborate tiling was made in front of the seat where descending in the direction of a channel fixed in the middle, which flows towards the drain horizontally under the utilities found next to the facilities on the fracture a large pottery jar was found (Fig. 15b).[39] Fig. (15A) accompanying E17:10. Figure (15b), note the presence of pottery fractures near the stream.

Although the buildings of facilities dated to the Akkadian age from Tell Asmar were few in number as well, the case with the buildings of the period after the Akkadian age, they gave us a fairly good perception of them, the buildings here from this period were more than those dated to the ED period, (It seems that the construction of toilet facilities separately would not have been considered a necessary appearance even in residential buildings of a special nature).[40]

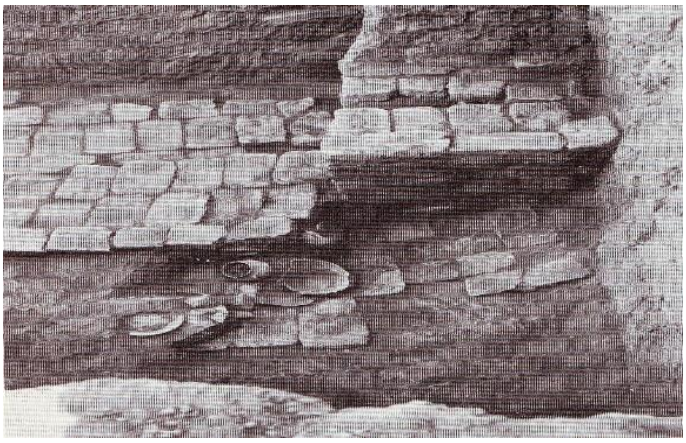
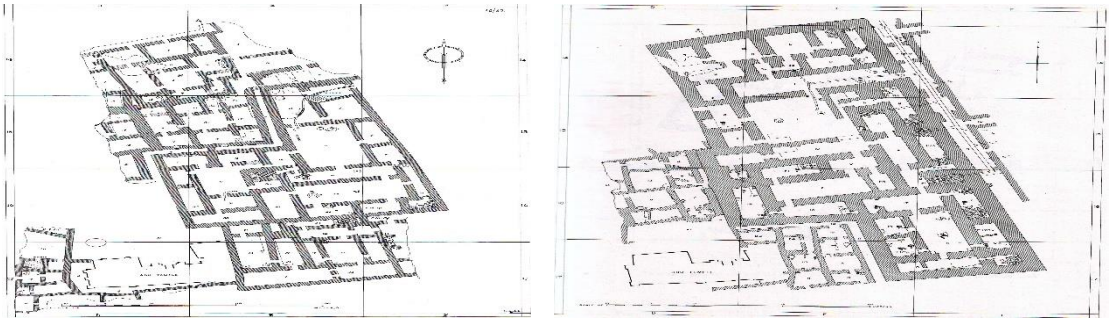


Fig. 15b

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

Figure (16) plan showing the distribution of sewers and utilities in the North Palace.



Rooms E16:30 and F16:9 contain facilities placed in positions accessible to all sections of the building, the remains in E16:30 were unfortunately demolished, but it was possible to distinguish that this utility is of a seat model as it is connected to a vertical drain consisting of a number of rings or barrel sections installed on top of each other, the seat has a narrow opening similar to the facilities in the palace, where the seat has a narrow opening above the drain, the facilities in F16:9 were placed at the southeast corner of the building where the bitumen covered part of the floor of the room.(41)

In room D17:18, the floor is covered with bitumen, a toilet with a seat rising about 30 cm from the floor level was also uncovered here, in front of the seat there is a 10 cm. height step, the duct consisted of a number of rings fixed on top of each other, with a bell-shaped ring provided with a small opening. In room E15:2, whose walls contain a 6-row high brick slate, there were also bathing facilities, the floor is completely covered with bitumen. (42)

Delogaz quoting (Lloyd), saying that the latter stood confused in front of the issue of leaving the facilities, ablution places and elaborate drainage systems that run under the street F15:9, where Lloyd indicates that while he was digging in the eastern part of the northern palace, dated to the Akkadian era and residential houses as well, he found a seal of the model related to (Mohongdaro)(43) besides other things that have demonstrated a kind of connection with the civilization of the Indian Valley, among these similar qualities there is an unusual correspondence in the making of water and sewage systems with the Mohngdaro models, even if they are here on a larger scale and in number, thus Delogaz advocated at the time to adopt the idea that the abundance of utilities and the mastery of the water sewage systems in Tel Asmar is a kind of exaggeration of a cultural appearance that is often associated with innovations that came from or happened elsewhere, which is an opinion that we see a kind of injustice in attributing this architectural mastery to another civilization with respect for all human effort in various parts of the earth.

In the hall numbered E14:1 and E15:1 and the room attached to them, we see some of these rooms, which Lloyd defined as the main residential wing, the fact that the

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

majority of these rooms are tiled with burnt bricks and that they contain building partly representing modern oriental facilities, those may naturally indicate that they were initially sanitary facilities or places dedicated to ablution uses. (44)

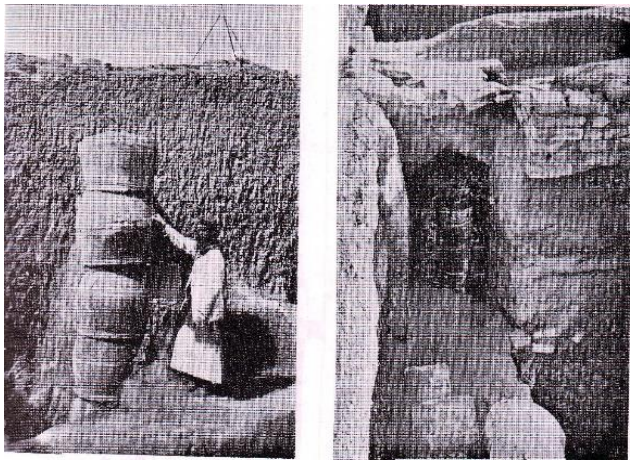


Figure (17) annular ducts from the early Kashiyah period.

One of the late models that the researcher would like to refer to, and back to the Kassite period (1595-1157 BC), in one of the houses of the early Kassite layer (Fig. 17) on a sewer or maybe a toilet in the form of a circular hole that becomes wider a little downwards, its upper part was lined with three ceramic rings with a diameter of 48 cm each, connected to each other. Some of the holes were filled with lime with a broken mouth (45).

In one of the houses dated to the Neo-Babylonian era in house number 2 in Babylon, a bathroom was found, to the south of which is a chamber that may correspond with the rules of sanitary buildings in a house, is the toilet which is similar in its construction sanitary facilities at present (Fig. 18)

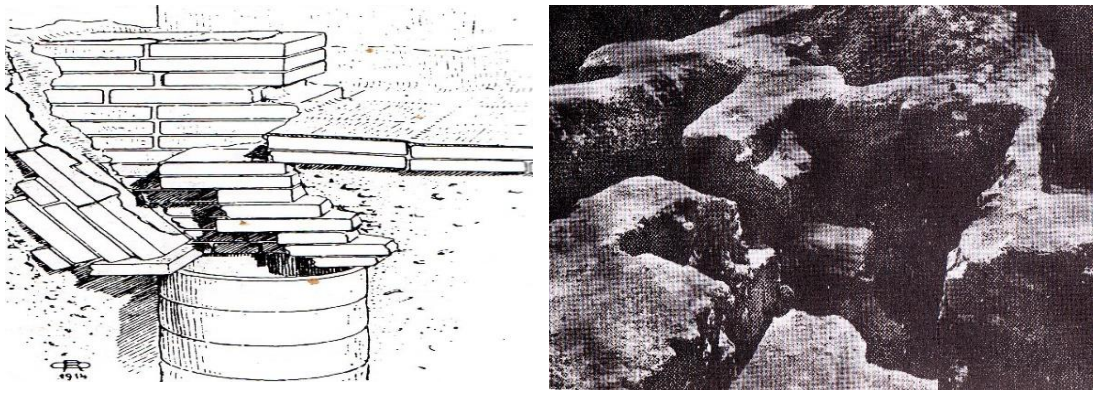


Figure (18) The toilet in the house No. 2 is planned and pictured.

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

In the eastern side, the facilities consist of two plaster-coated walls, their height is one row of bricks bordering a crevice 18 cm wide, forming a cantilever platform 50 cm above the bitumen-coated floor, a toilet user needs to squatting over the platform to relieve himself, the cut of the toilet at the eastern wall is lined in its upper part with bricks fixed vertically to it slight downward tilt with toilet drain steep, in front of the slit that is consisting of multiple brick courses so that a slit hole at the bottom becomes square and pours into a tube consists of clay rings. It seems that the bitumen coating of the floor extends to a certain height on the walls and that this room was often washed.

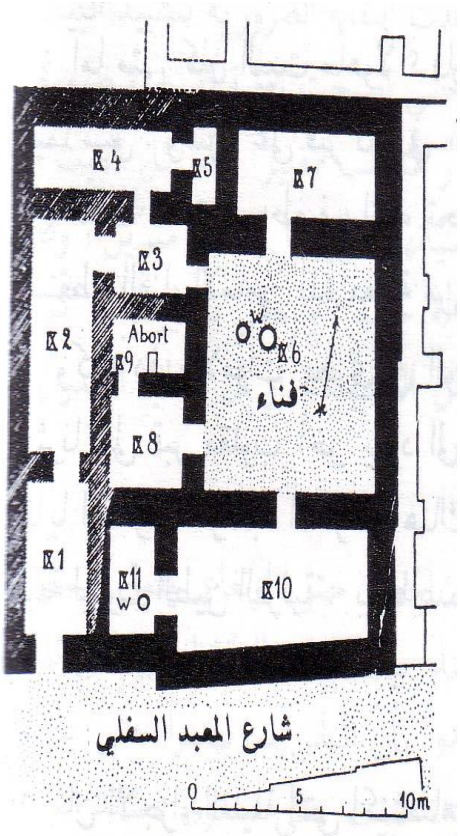


figure (19) of the plan of house No. 9 in Babylon.

The bathroom and or toilets can be seen as annexes to the northern house in Babylon, occupying part of the south house, but the bathroom and toilet originally attributed to the northern house, the part that a family lived in before the house was divided into two parts, so there was no need to follow the rules of sanitary perfection in the southern section of the house, thus it can be concluded that this section was not important in the general organization of the house. (46)

In House No. 9 dated to the Neo-Babylonian period (Fig. 19), based on its foundations, room No. 9 was considered a toilet linked (to the laundry room, which bears the number 8), the shape of the facilities here is identical to the facilities in the previous house (47), despite the above references, researchers have noticed the existence of bathrooms with a scarcity of toilets in the residences (Figure 20) It seems that the facilities were built outside the houses in the street, it may be explained either because of the lack of availability of a place inside the dwelling or to keep unpleasant odors away (48).

DOI: https://doi.org/10.33193/AJHASS.68

المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
العدد (7)
يناير 2026
Volume (7)
January
2026
ISSN online: 3079-4099
ISSN print: 3079-4080

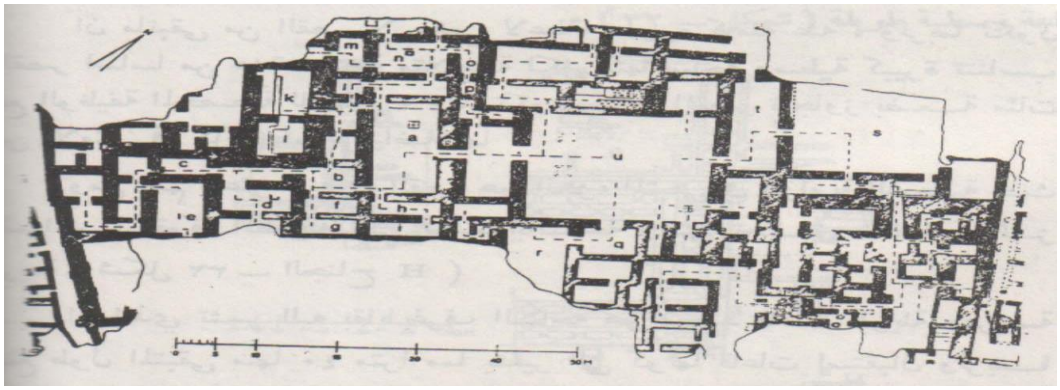


figure (20), the plan of the house 12.

Dated to the neo-Assyrian period (900-612 BC), within the houses near The Ishtar temple in Babylon, a large number of clay composite tubes rings were unearthed, their points of contact with each other seemed to be in good shape, after careful study of these formations, there is a possibility that they are part of the sanitary facilities of the place, the reason they were gathered near the temple may be explained that a lot of people used to come to perform religious rituals, this is still a common custom in the present days.(49)

In the Nuzi Palace dated to the Neo-Assyrian period as well, excavations also revealed a bathroom equipped with complete sanitary facilities (Figure 21).(50)

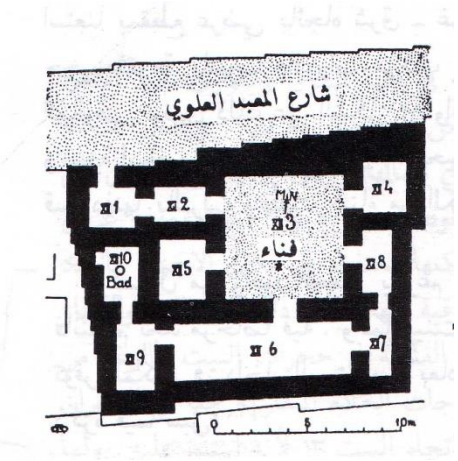


Figure (21) Plan of the palace in Nuzi.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

In Tell al-Majna, dated to the neo-Assyrian age, the excavations that have recently been undertaken, revealed that several small places (rooms) were used as toilets, these rooms designated for this purpose, they ranged between 25.1 ×2 m or 50.2 ×2 m, they were two terraces built on the floor, confined a rectangular opening between them. The length of this feature ranging 60 to 80 cm, linked to a drainage transports waste to special tanks located outside the building, which are the sewers that these drainages were often connected, the other sewers has been unearthed under the floors of the rooms and halls that were oriented east where the Tigris is, the purpose of not connecting these two types of sewers to each other is probably to prevent contamination of river water with drainage water, these sanitary facilities and associated buildings are dated back to the second layer of the Neo-Assyrian age (912-612 BC).(51)

CONCLUSIONS

In conclusion, it can be said that there are accurate drainage systems designated to eliminate the heavy water, in addition to the presence of other simple methods that were consisted of pits used to collect dirty water, this matter may be clearly illustrated in the research, which is a small part of those models of drainage systems and well-built facilities in Tell Asmar and other sites, as we've seen in the different periods of the Neo-Assyrian age a the development of this efficient and accurate system in the palaces. They were systems composed of a number of pottery channels buried under the floors to drain the liquid waste and heavy water and clog its end with a clamp to prevent animals from entering. As for the facilities, a good number of them have been found in many sites, the most important of which is Tal Asmar, most of these facilities were constructed outside the houses on the street, either because of the lack of the right place inside the house or as we mentioned to keep away unpleasant odors, most of which are close to temples, perhaps for the need of washing or ablution to perform religious rituals, which is a common ritual nowadays, in most of these facilities ladles and pottery were found to keep clean water and wash with it after using the facilities.

Margins

1. Hyma, Albert., Ancient History, N.Y., 1940, p 14.
   Lucas, Henry S., A Short History of Civilizations, York, 1943, p 64.
Daniel, Klein., Encyclopedia of Archaeology, translated by Leon Youssef, part 1, Baghdad, Dar Al-Mamoun for Translation and Publishing, 1990, pp. 58-59.
Edwards & Gadd & Hammond., The Cambridge Ancient History, Vol 1
Part 2, 1971, p 647.
Mohango – Daro is one of the important sites in the Indus civilization in Pakistan, the flowering period of the site was in about 2300 1700 BC. to the right of the Indus River, a large castle was found at the site in its part northern bath built of brick to perform ablution rituals.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

See: Daniel, Klein, Encyclopedia of Archaeology, vol. 2, Dar Al-Ilam, Baghdad, 1990, pp. 537-538.

2. Breasted, James Henry., Survey of the Ancient World , Boston , 1919, P 56, 57 .

Abdul Qadir Abbas, Raghad., The Akkadian Era: Civilizational and Artistic Data (Master's Thesis, University of Baghdad / College of Arts / Department of Archeology, 1996), pp. 9-10. (In Arabic)

3. Fliotcher, Banster., A History of Architecture of the Comparative Method, London University, 1963, P 61.

4. Al-Razi, Muhammad ibn Abi Bakr, Mukhtar al-Sahih, Egypt, 1320 AH, p. 497.

5. Al-Askari, Abu Hilal, Summary in Knowing the Names of Things, vol. Damascus, 1969, p. 262.

6. Al-Jahiz, Omar bin Bahar., Five selected letters from the Book of Statement and Clarification - the fourth message, Constantinople, 1301 AH, p. 256. (In Arabic)

7. Al-Hariri, Muhammad ibn 'Uthman, Kitab al-Maqamat al-Adabi, Egypt, 132AH, pp. 586-587. (In Arabic)

8. Al-Qazwini, Zakaria bin Muhammad bin Mahmoud, Antiquities of the country and news of the people, Beirut, 1960, p. 311. (In Arabic)

9. Al-Isfahani, Abu al-Faraj, al-Aghani, vol. 6, Comasantus Press, no date, p. 326. (In Arabic)

10. Al-Jahiz, 'Umar ibn Bahar, al-Animal, vol. 5, Egypt, 1324 AH, p. 915. (In Arabic)

11. Al-Askari, Abu Hilal, Summary in Knowing the Names of Things, vol.1, Damascus, 1969, p. 263. (In Arabic)

12. Abdul Qadir Abbas, Raghad, Op. Cit., 1996, p. 130.

13. Ibid., p. 116.

14. Suleiman, Amer., (Social life and services in Iraqi cities), city and civil life , vol. 1, Baghdad, 1988, Dar Al-Hurriya Printing, p. 207. (In Arabic)

15. Roux, George., Ancient Iraq, translated by Hussein Alwan, House of General Cultural Affairs, Edition II, 1986, p. 294.

Bitumen: In addition to the burnt bricks and limestone, bitumen was one of the most available materials in the ancient Mesopotamia, known in Sumerian (ESIR) and in Akkadian is known as (Qiru), for more information see: T. Potts, Daniel. Mesopotamian Civilization: Material Foundations - translated by Kazem Saad Al-Din - reviewed by Ismail Hussein Hajjara, Baghdad, 2006, Al-Saja Press, 1st Edition, p. 158. (In Arabic)

16. Rowe, George, op. cit., 1986, p. 295.

17. T. Potts, Daniel, op. cit., 2006, p. 79.

Shmet: An archaeological site administratively affiliated to the Fajr district / Dhi Qar Governorate, an estimated distance from Baghdad is 300 km south and about 43 km southeast from the Fajir subdistrict, Shmet is a local name for the sitethat hasn't been mentioned in this form in the archaic inscriptions and writings, the site is location is near some other ancient sites in the course of events of historical sites of the region such as the sites of Jokha (Uma), um al-Aqrab, Bazikh (Zabalam) and Bismayah (Adab)

Abdul Rahim, Muhammad Sabri., The final Report of the Excavations at the Shmet site: the first season 2001, Published Report (SBAH/ Baghdad), 2001, p. 4.

See also: the second season report for the year 2002, p. 1. (In Arabic)

T. Potts, Daniel, op. cit., 2006, p. 79.

18. Abdul Rahim, Muhammad Sabri., The final report of the excavations at the Shmet site: the first season 2001, Published Report (SBAH / Baghdad), 2001, pp. 11,15. (In Arabic)

19. Ibid., p. 28.

20. Tell Asmar: It is the site of Ashnona, which was ruled by a dynasty at the beginning of the second millennium BC, in which ruins of different stages were uncovered, the tell is

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

located near the Diyala river at a distance of 30 km northeastern Baghdad, see: Abdul Qadir Abbas, Raghad, previous source, 1996, p. 111.

Daniel, Klein, op. cit., 1990, p. 202.

Baqer, Taha and Ali, Fadel Abd Al-Wahid and Suleiman, Amer., History of Ancient Iraq, Part 1, Baghdad University Press, 1980 ،p. 34 , 175 . (In Arabic)

21. Saeed, Muayyad., ((Architecture from the era of the dawn of dynasties to the Neo-Babylonian era)) The civilization of Iraq, Vol. 3, Dar Al-Hurriya Printing, Baghdad, 1986, p. 127. (In Arabic)

Lloyd, Setton., Antiquities of Mesopotamia, translated by Sami Saeed Al-Ahmad, Dar Al-Rashid Publishing, Baghdad, 1980, p. 166. (In Arabic)

22. Sacks, Harry, The Greatness That Was Babylon, translated by Amer Suleiman, Baghdad, 1979, p. 204. (In Arabic)

23. Roetz - Oscar Babylon the inner city (center) - translated by Nawal Khurshid Saeed - and Ali Yahya Mansour, printed in Mosul University Press, 1985, p. 54. (In Arabic)

Baqer, Taha., Introduction to the History of Ancient Civilizations, vol. 1, Baghdad, 1973, p. 84. (In Arabic)

24. Reutz, Oscar., op. cit., 1985, p. 48.

Kassites: One of the Indo-European peoples, entered Mesopotamia and attacked it twice during the reign of Kings Samsu Ilona (1749-1712 BC) and Abbe - ishoch (1711-1684 BC). Then they penetrated and worked as laborers and professionals in Babylon, originally, they descended from the central region of the Zagros Mountain range, currently known as Lorestan, south of Hamadan, their reign (1595-1157 BC), despite its length, is one of the most ambiguous periods of Babylonian history due to the lack of sources written about them.

Al-Ahmad, Sami Saeed, The Modern Dynasty of Babylon ((Iraq in History)), Dar Al-Hurriya Printing, Baghdad, 1983, p. 103. (In Arabic), Roux, George, op. cit., 1986, p. 332.Baqer, Taha and Ali, Fadel Abdul Wahid and Suleiman, Amer., Ibid., 1980, p. 188.

25. Roetz, Oscar., op. cit., 1985, p. 61.

26. Roetz, Oscar., ibid., p. 70.

27. Reutz, Oscar., ibid., p. 98. Baqer, Taha and Ali, Fadel Abdul Wahed and Suleiman, Amer, op. cit., 1980, p. 163.

28. Andre, Walter., Ancient Temples of Ishtar in Assyria, translated by Abd al-Razzaq Kamel al-Hasan and reviewed by Nawal Khurshid Saeed, Mosul University Press, 1986, p. 120. (In Arabic)

29. Tell al-Majna: One of the important mounds in the ancient city of Ashur was called al-Majna because it was used as a cemetery by the inhabitants of the villages adjacent to Ashur or the Arab villagers living in that area, so the German expedition was not able to dig despite the belief that the site contained buildings, important and precious Assyrian monuments. Excavations carried out after that by Iraqi missions exclusively starting in 1999 to 2002 for four consecutive seasons. Encounter with Sayyid Qais Hussein Rashid, who was one of the members of the mission, see also: Safar, Fouad, Ashur, Government Press, 1960, p. 10. (In Arabic)

30. The information about this site was taken from Mr. Qais Hussein Rashid who was a member of the excavation mission that worked at the site (personal meeting with Mr. Qais Hussein).

31. Suleiman, Amer, op. cit., 1980, p. 157.

Sennacherib (704-681 BC) was the son of the Assyrian king Sargon II (721-705 BC). He ruled for 24 years and has settled in Nineveh, for more information See: Saleh, Qahtan Rashid., Archaeological Atlas (Kashaf) in Iraq, Dar Al-Kutub for Printing and publishing Baghdad, 1987, p. 22. (In Arabic)

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

Roux, George, op. Cit., 1986, p. 426 427.
Lloyd, Setton., Ancient Near Eastern Art, translated by Muhammad Darwish, Dar Al-Mamoun for Translation and Publishing, Baghdad, 1980, p. 209. (In Arabic)
Najafi, Hassan., Dictionary of Terms and Names in Ancient Iraq, printed by the Arab House, first edition, 1982, p. 185. (In Arabic)
32. Sacks, Harry., op. cit., 1979, p. 204.
33. Abdul Rahim, Muhammad Sabri and Abboud, Bassem Kazim., Final Report of the Excavations at the Shmet Site, the second season 2002, published report ((General Authority for Antiquities and Heritage)) Baghdad, 2002, p7. .
34. Delougaz., Pinhas, Hill Harold D. and Lloyd Seton., Private Houses and Graves in the Diyala Region, OIP Vol 88, University of Chicago 1967, P 175.
35. Ibid, P 176.
Sacks, Harry., op. cit., 1979, p. 204.
Suleiman, Amer., ((Social Life and Services in Iraqi Cities)), The City and Civil Life, Part 1, Baghdad, 1988, Dar Al-Mamoun Printing, p. 207. (In Arabic)
36. Delougaz, P, etal., Op Cit, 1967, P 187.
Abdul Qadir Abbas, Raghad, Op. Cit., 1996, pp. 113, 116.
37. Delougaz, P., etal, Op Cit, 1967, P 188.
Sacks, Harry, op. cit., 1979, p. 204.
38. Delougaz, P., etal, Op Cit, 1967, P 188.
39. Ibid, P 189.
40. Ibid,P 278 .
41. Ibid, PP 183–184.
42. Ibid, P 186.
43. Daniel, Klein, op. cit., 1990, pp. 537-538.
44. Delougaz, P., etal, Op Cit, 1967, PP 196-197.
45. Ruetz, Oscar., op. cit., 1985, p. 60.
46. Roetz, Oscar., ibid., p. 98.
47. Roetz, Oscar., ibid., p. 114.
48. Roetz, Oscar., ibid., p. 120.
49. Roetz, Oscar., ibid., p. 141.
50. Nozi: Located 22 km southeast of Kirkuk, the site is now called (Jürgan Tepe): It is a vast city during the reign of the Hurrians in the middle of the second millennium BC, continued to live from the Sumerian and Akkadian ages until the Assyrian age, for more information. see:
Saleh, Qahtan Rashid, Archaeological Atlas, p. 89. Daniel, Klein., Encyclopedia of Archaeology, p. 560. (In Arabic) Frankfurt, Henry, Mesopotamian Archaeology, p. 206.
51. Interview with Mr. Qais Hussein Rashid, member of the excavation Expedition of the site.

References

1. Al-Ahmad, Sami Saeed., ((The Modern Babylonian Dynasty)) Iraq in History, Dar Al-Hurriya Printing, Baghdad, 1983.
2. Al-Isfahani, Abu Faraj, Al-Aghani, vol. 6, Comasantos Press, No date.
3. Al-Jahiz, Omar bin Bahar, Five Selected Letters from the Book of AlBayan WalTabyeen, the fourth letter, Constantinople, 1301 AH.
4. Al-Jahiz, Omar bin Bahar, Al-Haywaan, vol. 5, 1324 AH.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

5. Al-Hariri, Muhammad bin Othman, AlMaqamaat AlAdabiyya, Egypt, 1326 AH.
6. Al-Razi, Muhammad ibn Abi Bakr, Mukhtar al-Sahih, Egypt, 1320 AH.
7. Al-Askari, Abu Hilal, Summary of Knowing the Names of Things, vol. 1, Damascus, 1969.
8. Al-Qazwini, Zakaria bin Muhammad bin Mahmoud, Antiquities of the country and the news of the people, Beirut, 1960.
9. Najafi, Hassan, Dictionary of Terms and Flags in Ancient Iraq, printed by the Arab House, first edition, Baghdad, 1982.
10. Andre, Walter, Ancient Temples of Ishtar in Assyria, translated by Abd al-Razzaq Kamel al-Hassan, reviewed by Nawal Khurshid Saeed, Mosul University Press, 1986.
11. Baqer, Taha., Introduction to the History of Ancient Civilizations, Part 1, Baghdad, 1st Edition, 1973.
12. Baqer, Taha and Ali, Fadel Abdul Wahid and Suleiman, Amer., History of Ancient Iraq, Part 1, Baghdad University Press, 1980.
13. T. Potts, Daniel., Mesopotamian Civilization Material Foundations, translated by Kazem Saad Al-Din, reviewed by Ismail Hussein Hajjara, Baghdad, 2006.
14. Daniel, Klein, Encyclopedia of Archaeology, vol. 1, translated by Leon Youssef, Dar Al-Mamoun for Translation and Publishing, Baghdad, 1990.
15. Daniel, Klein, Encyclopedia of Archaeology, vol. 2, translated by Leon Youssef, Dar Al-Mamoun for Translation and Publishing, Baghdad, 1991.
16. Rowe, George, Ancient Iraq, translated by Hussein Alwan Hussein, House of General Cultural Affairs, Baghdad, 2nd Edition, 1986.
17. Reutz, Oscar., Babylon: The Inner-City Center, translated by Nawal Khurshid Said and Ali Yahya Mansour, printed in Mosul University Press, 1985.
18. Sacks, Harry, The Greatness That Was Babylon, translated by Amer Suleiman, Baghdad, Dar Al-Kutub for Printing and Publishing, 1979.
19. Saeed, Muayad, ((Architecture from the ED Period to the Neo-Babylonian Era)) Iraq Civilization, Part 3, Hurriya House for Printing, Baghdad, 1986.
20. Safar, Fouad, Ashur, Government Press, Baghdad, 1960.
21. Suleiman, Amer., ((Social Life and Services in Iraqi Cities)), The City and Civil Life, Part 1, Dar Al-Hurriya Printing, Baghdad, 1988.
22. Saleh, Qahtan Rashid, Archaeological Atlas (Kashaf) in Iraq, Dar Al-Kutub for Printing and Publishing, Baghdad, 1987.
23. Abbas, Raghad Abdul Qadir., The Akkadian Age: Its Cultural and Artistic Data, Unpublished Master's Thesis, University of Baghdad / College of Arts / Department of Archeology, Baghdad, 1996.
24. Abdul Rahim, Muhammad Sabri., Final Report of the Excavations at the Schmidt Site, First Season, 2001, General Authority for Antiquities and Heritage, Baghdad, 2001.
25. Abdul Rahim, Muhammad Sabri and Abboud, Bassem Kadhim., Final Report of the Excavations at the Shmet Site, Second Season, 2002, SBAH, Baghdad, 2002.
26. Lloyd, Seton., Antiquities of Mesopotamia, translated by Sami Saeed Al-Ahmad, Dar Al-Rashid Publishing, Baghdad, 1980.

DOI: https://doi.org/10.33193/AJHASS.68

العدد (7)
يناير 2026
Volume (7)
January
2026
المجلة العربية
للدراسات الانسانية والاجتماعية
Arab Journal of Humanities and Social Studies
ISSN online: 3079-4099
ISSN print: 3079-4080

27. Lloyd, Setton, The Art of the Ancient Near East, translated by Muhammad Darwish, Dar Al-Mamoun for Translation and Publishing, Baghdad, 1988.
28. Breased , James Henry ., Survey of the Ancient World , Boston, 1919.
29. Delougaz, P., Hill Harold D. and Lloyd Seton., Private Houses and Graves in the Diyala Region, OIP, Vol 88, University of Chicago, 1967.
30. Edwards, Gadd and Hammond., The Cambridge Ancient, Vol 1, Part 2 , 1971 .
31. Fliotcher , Banister ., A History of Architecture of the Comparative Method , London University , 1963 .
32. Hyma, Albert., Ancient History, N.Y., 1940.
33. Lucas, Henry S., A Short History of Civilization, York, 1943.

DOI: https://doi.org/10.33193/AJHASS.68