



## Storing grains during Ninevite 5 period in the Khabour basin: ways and methods used

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### ABSTRACT

Within about 3000 BC began the process of urbanization, shifting to build big cities, northeast Syria, in the beginning of the Early Bronze Age. The archaeologists were able to identify the above-mentioned urbanization process in different civilized criteria according to the region where it was established. For example, in the Upper Mesopotamia specifically from Nineveh, north of Iraq, to the Khabour Basin in the northeast Syria called the Ninevite 5 period. This period was characterized by several features the most important was the organization and functional specialization followed in the sites of the Khabour Basin, this organization was differs somewhat from previous periods, and characterized by the presence of storage facilities in the Middle Khabour Basin, it seems that these sites had shared the work among themselves to serve certain purposes, either internal or external like export and trade. Thus, these storage facilities remain one of the most special civilization characteristics till the end of the Ninevite 5 period, and then they have been disappeared. On the other hand, the settlement stopped in some areas while stayed as it is in others for some time before moving to the next period "Akkadian Empire".

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**KEYWORDS:** *Ninevite 5, Khabour basin, Syrian Jazireh, Mesopotamia, Early Bronze Age, Storage facilities, grains.*

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## 1. INTRODUCTION

The urbanization process, shifting to build big cities, in northeast Syria started at the beginning of the Early Bronze Age, 3000 BC. This process was obvious after the emergence of big sites like Habouba Kabira South, Tell Kanas and Tell Brak. Later on, the researchers were able to identify the above-mentioned urbanization process in different civilized criteria according to the region where it was established. For example, in the Upper Mesopotamia specifically from Nineveh, north of Iraq, to the Khabour Basin in the northeast Syria called the Ninevite 5 period "The first half of the Third millennium BC".

## 2. NINEVITE 5: THE NAME AND THE CHRONOLOGICAL ORDER

The name Ninevite 5 comes from the site of Nineveh city, located on the east bank of Tigris, which is a governorate in Iraq now, and Moussel is one of its most important cities. Nineveh was discovered in the 1930s where an archaeological expedition led by K.Thompson and his assistant M.Mallowan dug a sounding in Nineveh "Tell Kuyunjik" in 1930. The sounding reached a virgin soil where the original settlement was established on. That was the starting point to categorize the chronological order of five distinctive periods all named Ninevite, and they were as follows:

**Ninevite 1** which goes parallel with Hasouna Period (6500-5500 BC) where they found plain not-masterly-made pottery without any decorations.

**Ninevite 2** (5500-4500 BC) which had three distinctive phases, the oldest one was characterized by polished pottery with straight lines, the middle phase which is known as Samuraa phase and topped with the newest phase which is Halaf and characterized by the great painted pottery (Mallowan, 1987).

**Ninevite 3** which goes parallel with Obeid period (4500-3500 BC) where it included a good handmade potteries.

**Ninevite 4** (3500-3000 BC) where red potteries found as well as crimson pottery that bears the characteristics of Uruk and Jemdet Nasr period (Jemdet Nasr that parallel sometimes with Ninevite 5 period).

**Ninevite 5** (3000-2500 BC) the thickness of this layer was around 3,5 meters almost and provides refined and unique potteries never found anywhere else in that abundance and before this period (Madhloom, 1976).

The period was divided into three stages: Early, Middle, and Late according to the discovered potteries in many sites.

The three cultural stages were:

The Early stage (2900-2700 BC), where only the Painted Ware prevailed (as shown in Figure 1).

b) The Middle stage (2700-2600 BC), where the Incised Ware replaced the Painted Ware.

c) The Late stage (2600-2550 BC), where the Incised Ware and the Excised Ware co-existed (Wilkinson and Tucker, 1995) (as shown in Figure 2).

In addition to these main types have found the non-decorated Plain Ware, Plain Medium Ware, Fine Ware and the cooking wares with coarse types and different forms, as well as the Metallic Ware.

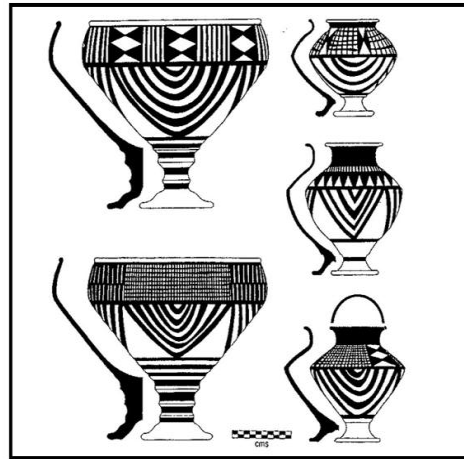


Figure 1. The Painted Ware of Ninevite 5 at at Tell Leilan

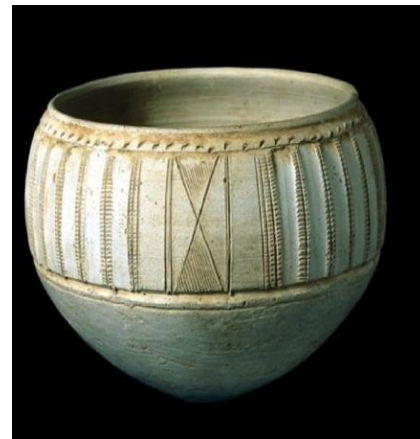


Figure 2. The typical pottery of Ninevite 5 period "Incised and Excised Ware"

## 3. GEOGRAPHICAL BACKGROUND AND RANGE

At the beginning of the Third millennium BC two geographical areas were identified which carried characteristics of civilization in Jazireh region. An area extended west of the Khabour River to the Balikh River on the Euphrates called Kranzhügel civilization and to the east of the Khabour River the civilization of Ninevite 5 (Schwartz and Akkermans, 2003).

The Khabour Basin area in northeast of Asia, and thanks to the area fertility, had been an important population center and the cradle of many sites on the banks of Khabour Basin (as shown in Figure 3). The Khabour River divided into three main sectors, the Upper sector which stretches from its source to the city of Hassake, the Middle sector which extends from Hassake to Tell Mashnaqa, and the Lower sector which runs from Tell Mashnaqa to its confluence with the Euphrates River at the town of Bsireh (Abdel Salam, 1973).

The geographical range for the period of Ninevite 5, which is usually determined by tracking its pottery, stretches from Jazireh Plain in Iraq to the farthest east to reach Rania Plains at Tell Baradasti, and to the farthest west to reach the Zarqan Valley, which is the seasonal tributary of the Khabour River. Moreover, the Sinjar Mountain and Jabal Abdul Aziz form the southern border of this civilization, and it is noticed, as we move west, the Ninevite 5 effect is weakened until it disappears entirely. In addition the sites of Balikh River do not give any evidence for the presence of the Ninevite 5 period in this region (Wilkinson, 2004).

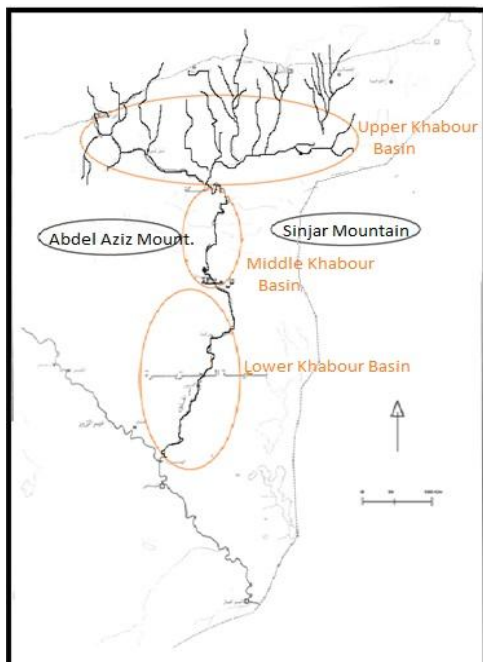


Figure 3. The Upper, Middle and Lower sector of the Khabour Basin

#### 4. THE SETTLEMENT PATTERN AND THE ECONOMIC AND ADMINISTRATION SITUATION

The research work for Ninevite 5 period began in Syria in 1980s in the Khabour Basin.

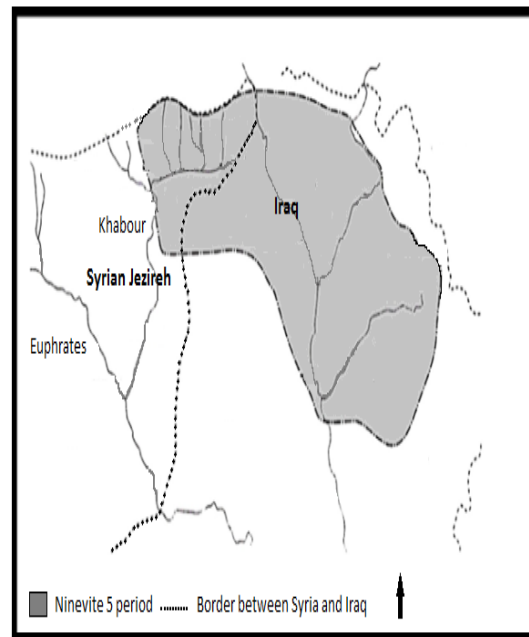


Figure 4. The areas which the civilization of Ninevite 5 that had spread on

That research provided new information about the existence of this period in several sites of the Khabour Basin. For example, Tell Leilan which provides the most integrated chronological sequence about the Ninevite 5 period, Tell Mozan, which contains graves, included pottery from Ninevite 5 period. Tell Barri, which provides evidence for the existence of this period through the discovery of two shrines. Tell Arbid, which reveals an important structure that might be the administrative building of this area. In addition to other buildings discovered at Tell Chagar Bazar and in Tell Khazna where a circular large structure was found, which the excavators believe it was Ziggurat Temple, a big structure built on circular terraces and resembles the temples which were built in Iraq. As well as a number of residences found in several sites. In the Middle Khabour Basin several sites were discovered which, by their relatively small sizes, and by their architecture, walls and equipment, indicate that they used for certain functions like the treating, cleaning and storing the grains in private places (Al Quntar, 2008), as in Tell Gudeda, Tell Raqai, Tell Atij and Tell Ziyadeh.

This organization in settlement in terms of the existence of large sites in the Upper Khabour with residential, religious and administrative structure as well as the existence of smaller sites in the Middle Khabour with specialized functions, clearly suggests that there was a kind of authority which organized and ruled that region.

In spite of the functional specialization, the distribution of work among the sites, the separation of large sites in the north, and the smaller sites in the south, the settlement during this period was of rural pattern. The sites were small to medium-sized compared with other periods that settled in the region. Furthermore, there was no significant wealth in the settlements because they depended on the rural chiefdoms system in their administration.

## 5. THE STORAGE FACILITIES AND THE REASON OF STORAGE

The prevailed pattern in these sites was primarily rural and the common activity among them was agriculture, storage of agricultural products, and the treatment of these products. What made us reach this conclusion was the type of architecture and equipment found there. The excavation showed a network of storage facilities back to the beginning of the third millennium BC which appeared in abundance in the early stage of the Ninevite 5 period. These storage facilities were of grid structure with reed mat floors used as grain silos (Ristvet, 2005). At Tell Ziyadeh (as shown in Figure 5).



Figure 5. The grid building and the big jars of storage at Tell Ziyadeh

For example, a building that consists of several terraces of clay which form separate parallel rows, and in each row big jars containing grains was found. This pattern was repeated in other sites like Tell Kneidej where several rooms at levels 5-17 with a grid pattern that do not contain doors were located, and the entrance often was from a hole in the roof. These patterns existed also at Tell Raqai in levels 5-6-7 of the circular structure where several rooms with a grid pattern were discovered and bore the function of storing grains (as shown in Figure 6).

In the Middle and Late stage of the Ninevite 5 period the size of these storage facilities and silos increased and vaulted building came into existence as well as the semi-vaulted ones besides the grid struc-

tures. Some of these structures were surrounded by walls to protect them which indicated the important role they played in this area during this period.



Figure 6. The grid storage structure at Tell Raqai, levels 5-7

At Tell Atij two types of storage facilities, the grid building and the vaulted and semi-vaulted silos were discovered (as shown in Figures 7-8) to the north of that Tell all the interior walls were plastered and many of the vaulted silos were accessed from a hole in the roof through the ups on a huge terrace built around and near of the structures. One explanation of having the access from the roof is that to protect the grains from humidity. In the middle part of the Tell rectangular grid structures built of mud and coated on the inside with plaster were found, inside this rectangular buildings an in situ set of large jars containing some grains were discovered. And all structures in this Tell surrounded by walls served as protection.

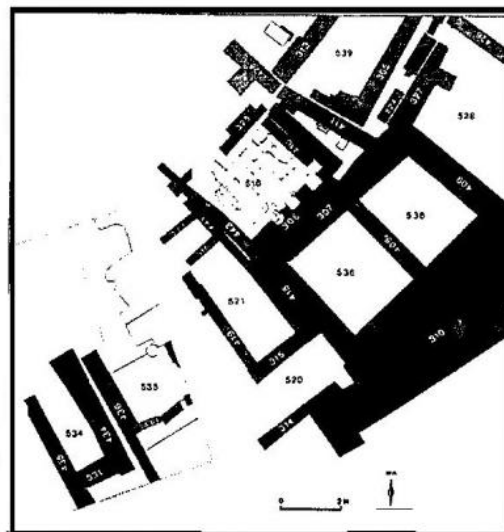


Figure 7. The storage structure at Tell Atij during the Ninevite 5 period

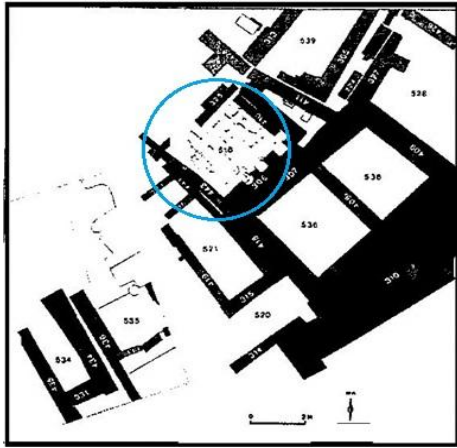


Figure 8. The location of the vaulted silos at Tell Atij

At the fourth level of the circular structure in Tell Raqai, several rooms were discovered; some of them served as administrative purposes according to the mural which it was a piece of plastering above the clay located in one of the room and which depicts a man standing up wearing a short skirt and carrying something in his hand, in addition to a few broken prints of clay seals and parts of the animal figurines. Some other rooms used for storing where some big storage jars were found in the vaulted silos (as shown in Figure 9) (Ristvet, 2005).

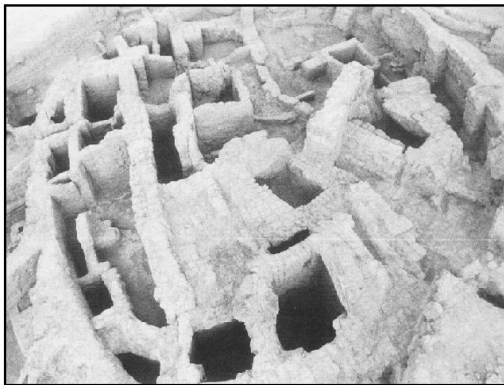


Figure 9. The circular building at Tell Raqai, level 4

Storage was not the sole function of these sites in the Middle Khabour Basin. For example, there were some sites specialized in grain processing like Tell Gudeda and Tell Raqai. In Tell Gudeda, a structure "structure 500" (as shown in Figure 10) was found containing an internal area with plastered walls and a group of plastered basins used for washing and preparing the grains before storing them. Moreover, a few ovens (as shown in Figure 11) were located near the above-mentioned structure where burned grains were found near them. That indicates that there was a roasting and grilling process before

transferring and storing the grains in other sites like Tell Bderi, Tell Mulla matar, Tell Mashnaqa and Tell Melebyie. In other areas of the Tell, some ruins were found consisting of square rooms "2 2m" aligned to an east-west axis. One of the small rooms is open into a courtyard equipped with ovens and a plastered basin (Sanchez, 2011). What makes Tell Gudeda distinctive is the long plastered canal that might be used for emptying these plastered basins from the liquid starting from the upper basin to the lower one. All that suggests large-scale economic activities.

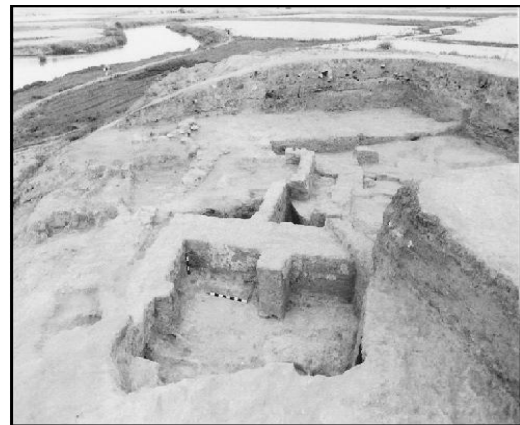


Figure 10. The 500 structure at Tell Gudeda



Figure 11. The ovens which used to roast and grill the grains at Tell Gudeda

Also, in Tell Raqai, some places that equipped with ovens and plastered basins were found next to storage areas and administrative rooms where they seem to be used for processing the grains before storing them (Weiss, 1994).

The Middle Khabour Basin during the Ninevite 5 period was a cluster of small-sized sites, the distance between them was a few kilometers, where they seem to form a co-operative network to do business.

Some processed and stored the grains and the others sold them. Archaeological evidence about processing and storing grains at the beginning of the third millennium BC has stirred the researchers interest where several explanations and questions have been arisen regarding the reasons behind founding those villages in a marginal area in the south regarding agriculture, whereas in the northern plains that enjoys moderate climate appeared other patterns of structures with different functions (as shown in Table I).

All that led to pose questions and most importantly were: why were those storage facilities built? What was the purpose of storing the grains? But due to the lack of research and studies regarding this period and this subject, a lot of theories and opinions take the lead.

The first suggests that those storage structures were built to store the grains planted in the northern areas and transferred to the south to be placed in special buildings and then to be exported through the Khabour River after being processed. Schwartz and Fortin (Fortin, 1998) see that the sites of the Middle Khabour Basin simply served as stations to ship the grains produced in the north through the Euphrates to the south. Moreover, Schwartz (Schwartz, 1994) indicates that the vaulted silos and the grid structures were able to accommodate a great amount of grains that way exceeds the local consumption. Margueron affirms that the written tablets discovered in Mary dated back to the beginning of the second millennium BC show that local residents had imported grains from the Khabour Basin (Margueron, 2000).

The second theory, according to McCriston, suggests that those storage facilities were built for local consumption and the grains were used as food for local residents, nomads, and as fodder for the livestock (Hole, 1999).

## 6. CONCLUSION

After presenting some theories and inquiries related to the Middle Khabour sites, the logical explanation to building them at the beginning of the third millennium BC during the Ninevite 5 period is to serve a storing function in the first place. In order to protect the structures, walls and soil shields were built around them and this explains the important job which was carried out. Moreover, the sites were not necessarily residential since the local residents roamed in the areas and hills that formed a network on the road that connects the area of the Upper Jazireh with the sites of the Euphrates River like Mary.

Those storage facilities were used as warehouses to store the grains that might come from the agricultural rain-fed areas of the north to be used by locals in the sites of the Upper Khabour and to export the surplus later on to other places like Mary.

The organization of those activities among the places regarding processing, preparing, storing and then shipping the grains through the Khabour River to other places dictates the presence of an administrative authority often located in the sites of the Upper Khabour in the north. The types of storage structures had developed from grid buildings or small boxes inside the grid buildings in the early stage of Ninevite 5 period into semi-vaulted and vaulted buildings in the middle and late stage of Ninevite 5 period. The storage structures had disappeared and the villages in the Middle Khabour Basin were abandoned in the period following Ninevite 5, where settlement had ceased in some sites in the Middle Khabour Basin, whereas it continued for a short period in other sites like Tell Bderi. In the Upper Khabour Basin, the size of sites increased compared with the Ninevite 5 period and an urban-civilized state prevailed contrary to the rural state during the same period.

**Table I. A demonstration of storage structures and silos discovered during the Ninevite 5 period in the sites of Upper and Middle Khabour basin**

Tell Arbid	A mud-brick silo was found in sector D paved in mud-brick floor covered with mud to protect the grain from humidity. Also small rooms and basin used to process the grains before storing them.
Tell Leilan	A number of small rectangular rooms was discovered in sounding "1" used to store grains.
Tell Mohammad Diab	A mud-brick oval wall found in sector A, stage MDXIII; inside it were rectangular rooms that might be served as storage warehouses, in addition to small vaulted rooms.
Tell Abu Hjeira	Four complete buildings divided into chambers were located in sector B, layers 4-6 inside them were storage jars, platforms, containers, and pottery wares.
Tell Jasaa al Gharbi	In the third layer of the Tell was a wall found with small buildings inside containing storing jars.
Tell Khazna 1	Several pottery jars for storage were found in tower "110" inside the Ziggurat Temple.
Tell Brak	A courtyard containing several rectangular storage rooms were located in HS4 temple.
Tell Beydar	A large storage structure containing big pottery jars for grains was discovered in sector "1".
Tell Rad Shaqra	A storage building containing 15 big pottery jars was found inside the wall in sector A beside an area especially for basins and small square rooms that might be used to process the grains.
Tell Karma	Rectangular rooms used for storing grains were located in the north and southwest side. In the east side, a work-

	shop for processing the grains was found as well as rectangular storage structures with plastered walls.
Tell Raqai	A big circular structure (as shown in Figure 10) surrounded by different patterns of buildings and rooms was discovered where storage chambers dug into the ground were located on the third level of the building, whereas the third level of it hosted vaulted silos. As for the 5 <sup>th</sup> , 6 <sup>th</sup> and 7 <sup>th</sup> levels, a grid structure for storage was found. Besides, some equipment like ovens and basins were found to process the grains.
Tell Atij	Several vaulted silos accessed through a hole in the roof were discovered in the Northern sector. In the middle section of the Tell, a rectangular storage structure was found as well as trapezoidal silos (as shown in Figures 8-9).
Tell Gudeda	This Tell functioned as processing the grains stored in other sites because all the buildings and rooms were equipped with basins, ovens, canals and tools used to process and roast the grains before storing them like structure number 500 (as shown in Figures 11-12).
Tell Ziyadeh	A rectangular grid structure comprises several storage areas was discovered in the northern section of the Tell (as shown in Figure 5).
Tell Melebyie	A number of small rooms shaped like basins were found in the northeast side of it dug into the ground that might serve as storage structure.
Tell Mashnaqa	A circular structure was located inside a grid of squares in the south eastern and southern side of the Tell. Inside that structure, a big pattern jar used to store the grains was found as well as different types of chambers equipped with shelves. Another building was found that resembles the grid one in Tell Ziyadeh.
Tell Kneidej	Doorless rooms were located in the upper levels of 7-15 layers that might be accessed through a hole in the roof and were used for storage.

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