

Modes of Storage and the Development of Economic Systems in the Early Jezireh-Period

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Introduction

Intensive excavations of archaeological sites along the valley of the Middle Khabur during the construction of a dam have revealed a series of settlements dating to the periods Early Jezireh I, II, IIIa and IIIb. Tell Bderi is one of the few settlements which continue down into Early Jezireh IV, contemporary with the Akkadian period. Recent studies of stratified pottery from Bderi by Heike Dohmann-Pfälzner show that the latest Early Bronze Age levels at the site (strata 8 to 6) date to Early Jezireh IV. This modified dating of the Bderi-sequence was discussed and developed during a workshop in February 2000 in Tübingen entitled 'Pottery Sequences and Comparative Chronology of the 3rd Millennium BC Syrian Jezireh' (Fig. 1). Joan and David Oates, Marilyn Kelly-Buccellati and Alexander Pruß attended the workshop. (A publication of the workshop results entitled 'Pottery Sequences and Comparative Chronology of the 3rd Millennium BC Syrian Jezireh' is in preparation. For a similar, only slightly different, chronology of the Syrian Jezireh see Lebeau, Pruß, Roaf and Rova, in press). During the Early Jezireh IV period, c. 2200 BC, Tell Bderi was abandoned, at the same time as, or shortly after, the abandonment of Tell Melebiye (Lebeau 1993). These two sites were the last surviving settlements of the Early Bronze Age along the Middle Khabur.

The Early Jezireh occupation of the Middle Khabur area existed for some 800 years. The excavated structures and remains indicate that this period was not a static cultural entity but was characterised by continuous cultural change. These changes can be explained by the political, social and economic dynamics active in the Middle Khabur area; some may have been imposed from outside while others may have originated from within the region. The development of urban structures and of domestic architecture is the most significant evidence for these dynamics (Pfälzner 1997). In light of the modified Early Jezireh chronology presented below (Fig. 1), the urban processes described in Pfälzner 1997 can now be presented in a revised chronological chart (Fig. 2). In the meantime, new material from different excavations has accumulated that also modifies the overall picture slightly.

In summary, the urban processes of the Middle Khabur, and indeed the Western Jezireh region as a whole, can be described as follows: in Early Jezireh I, a pre-urban settlement system existed with grill-plan structures as found at Tell Raqa'i (Schwartz and Curvers 1992) and Tell Ziyade (Hole 1999). Extended storage structures, like the oval building at Tell Raqa'i, first appear in this period. In Early Jezireh II small sites with single-room houses (Pfälzner 2001) and extended storage structures flourished in the valley of the Middle Khabur. Tell Raqa'i (Curvers and Schwartz 1990; Schwartz and Curvers 1992) and Tell Atij (Fortin 1988; 1989; 1990) are the best known examples. At the same time urban sites with fortification walls like Tell Bderi, only a short distance from Raqa'i and Atij, were built. Further analysis of the stratigraphic position of the fortification walls of Tell Bderi proves that the wall and the

Early-Jezireh	Bdēri		Raqā'ī	Chuēra	Brak	Mozan	Lailān	Southern Mesopotamia	Absolute Dating
V				I E	N (Ur III)	AA-3 C-6b		Ur III	2100 - 2000
IV	IV	8 - 6		I D-late	M (Akkad)	AA-2 C-7		Akkad	2250 - 2100
III b	IIIb	13 - 9		I D-early	L	C-8	II b	ED IIIb/ early-Akkad	2500/2400 - 2250
III a	IIIa	20 - 14	2	I C	L		II a	ED IIIa / II	2700/2600 - 2500/2400
II	II	27 - 21	3	I B	K	BS-5	III d	ED II	2850/2750 - 2700/2600
I	I	28	4 5 - 7		J		III c III b III a	ED II / I	3000/2900 - 2850/2750
0					H			Jamdat-Nasr - ED I	3100- 3000/2900

März 2001

Fig. 1

EARLY-JEZIREH	Bdēri		Chuēra	URBAN PROCESSES	HOUSE CONCEPTS
V			I E	Only single urban sites in existence	Dispersed urban dwellings
IV	IV	8 - 6	I D-late	Large scale abandonment of urban settlements	Variety of house concepts
III b	IIIb	13 - 9	I D-early	Reduced intensity of intraurban planning	
III a	IIIa	20 - 14	I C	High intensity of intraurban planning; Abandonment of village sites	Allotment houses; Distribution of house plots
II	II	27 - 21	I B	Abundance of village sites; Foundation of urban settlements; Erection of fortification walls	Single-room houses
I	I	28		Pre-urban settlements	Grill-plan-architecture

Fig. 2

Fig. 1. Comparative chronological chart of Early Jezireh periodisation; modifications based on Tübingen workshop 2000.

Fig. 2. Chart of chronological appearances of Early Jezireh urban processes and house concepts.

gate (Pfälzner 1989/90; 1997) were constructed in level 27, a relatively early point in its Early Jezireh II sequence. The foundation of Tell Chuera as a major urban centre (Tell Chuera 1B) must have taken place in the same period (Dohmann-Pfälzner and Pfälzner, in press).

Early Jezireh IIIa was characterised by intensive urban planning. The concept of the so-called 'allotment houses' (Pfälzner 2001; and Pfälzner in press a) was introduced. This hints at an institutionally organised distribution of urban house plots. During this time the smaller village sites on the Middle Khabur were progressively abandoned. In contrast Early Jezireh IIIb houses were built with a variety of plans and gradually replaced the standardised allotment houses. This may have reflected a decreased level of centralised planning. All urban sites (and villages) on the Middle Khabur were abandoned in Early Jezireh IV, contemporary with the Akkadian period. As a consequence the Khabur River valley was devoid of

permanent settlement during the Early Jezireh V, contemporary with Ur III in southern Mesopotamia. Only in the Northern part of the Jezireh did the formerly important urban centres of Tell Chuera, Tell Brak and Tell Mozan continue to exist. Only scattered buildings appear to have existed at Tell Chuera during this phase, Chuera IE (Pfälzner 1997). Research at Tell Mozan in 2000 indicated that during this period a large building was erected in the area of an Akkadian dwelling quarter in the central upper city. This building was probably integrated into a network of newly established house plots (Dohmann-Pfälzner and Pfälzner 2001). What this indicates for the general picture of urban processes in third-millennium Northern Mesopotamia remains to be formulated after the structures have been completely cleared. (For preliminary reports on the excavation of the domestic quarter in the Central Upper City of Tell Mozan/Urkesh, see Dohmann-Pfälzner 1999; 2000).

There has been a long debate by a number of scholars on the economic function and socio-political implications of storage structures from Early Jezireh I and II in the small village sites on the Middle Khabur. Scholars have formulated two important, contradictory hypotheses regarding these extended structures. (See Hole 1999 for an extended discussion and a summary listing of arguments of the two hypotheses.) The 'export theory' tries to explain the Middle Khabur storage facilities as places for centralised storage of agricultural surplus intended to support the food supply of the important urban centre of Mari on the Euphrates (Curvers and Schwartz 1990; Schwartz and Curvers 1992; Fortin 1989; Margueron 1991; 2000). The Northern Khabur Plains around urban centres such as Tell Leilan are suggested as the source of the stored products (Schwartz 1994a). An alternative, 'local use theory' argues that the stored agricultural products were intended to support the needs of local inhabitants as well as nomadic or semi-nomadic herders in the steppe zone mainly to the west of the Khabur Valley (Hole 1991; 1999; Kouchoukos 1998; McCorrison 1998).

Neither theory presumes the existence of a large settled population in the valley of the Middle Khabur. Also, the chronological aspects of settlement patterns within the Khabur Valley, and particularly the chronological development of storage facilities during the Early Jezireh sequence, have not been a major concern of the antagonists of the two alternative theories. These are both important factors in understanding the economic and socio-political role of Early Jezireh II storage facilities. This paper will discuss them in detail.

In order better to understand the economic function of Early Jezireh storage facilities in the Middle Khabur area, a general model will be presented that describes different modes of storage on the basis of ethnographical and historical considerations (leaving aside the great variety of different features, means and objects of storage).

Modes of storage

Redistributive storage

The mode of redistributive storage is part of a complex economic system, based on the gathering of agrarian or other economic products through a political or religious institution and the storing of these products in one central storehouse or a system of storehouses. The stored goods are used by the central institution as seed-grain, as payment for workers, as trading goods or as a means of supplying other central institutions of the system. The central institutions responsible for the storage can be political or religious institutions and in both cases are a fundamental part of a centralised administrative system (Polanyi 1971a; 1971b).

Examples of redistributive storage are abundant in the ancient Near East: the so-called 'Sumerian temple city system' with the temples as central institutions for storage of agricultural products (Deimel 1931; Falkenstein 1954; 1974), the central storage function of Hittite temples with their extended temple magazines (Bittel 1976, 125–33), or the Urartian palaces of the first millennium BC with their vast complexes of storehouses (Zimansky 1985).

Community storage

Community storage is non-centralised and local. The agrarian products of a community of a number of households are stored in common, collective storehouses. The community storehouses can be erected, administrated and protected collectively. No central administrative institution is necessary for them to function.

There are many ethnographic examples for this mode of storage. A good example of this mode are the huge collective storehouses of the Berbers in the High Atlas and the Anti Atlas of Morocco (Striedter 1990, 161 f., fig. 1; pls. 2–7; Jacques-Meunié 1951). They are called *Agadir* in their larger variant or *Irherm* in a smaller version. The *Irherm* are impressive, fortress-like buildings, mostly square in shape with sides of 10 to 12 metres. Inside the building, in a number of chambers arranged around a *patio* or a central corridor, the food stores of an extended family, a lineage or a clan are kept (Figs. 3 and 4). The building is constructed and maintained by the whole social group participating in the common storage activities. The main function of an *Agadir* or an *Irherm* is the protection of food stores against enemies.

Another system of community storage is known from Libyan Cyrenaica (Hallaq 1994a, 377 f., fig. 3). Here, the collective storage facilities consist of a number of mud-brick

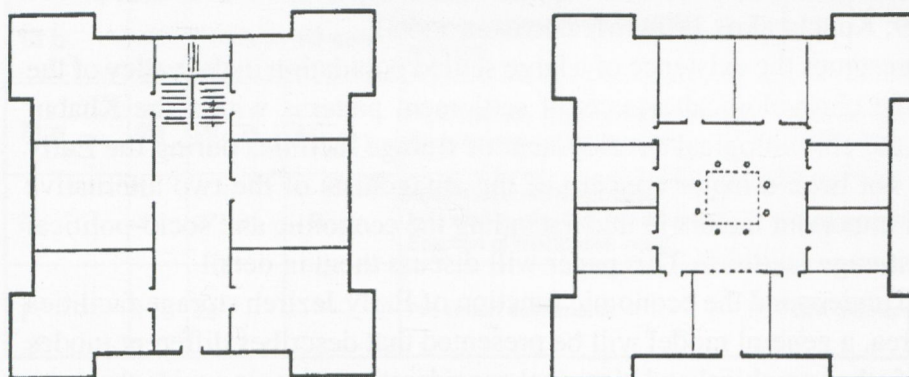


Fig. 3. Plan of Irherm community storehouses in the High Atlas of Morocco; left: type of Irherm with a central corridor; right: type of Irherm with a central courtyard (after: Striedter 1990, fig. 1).

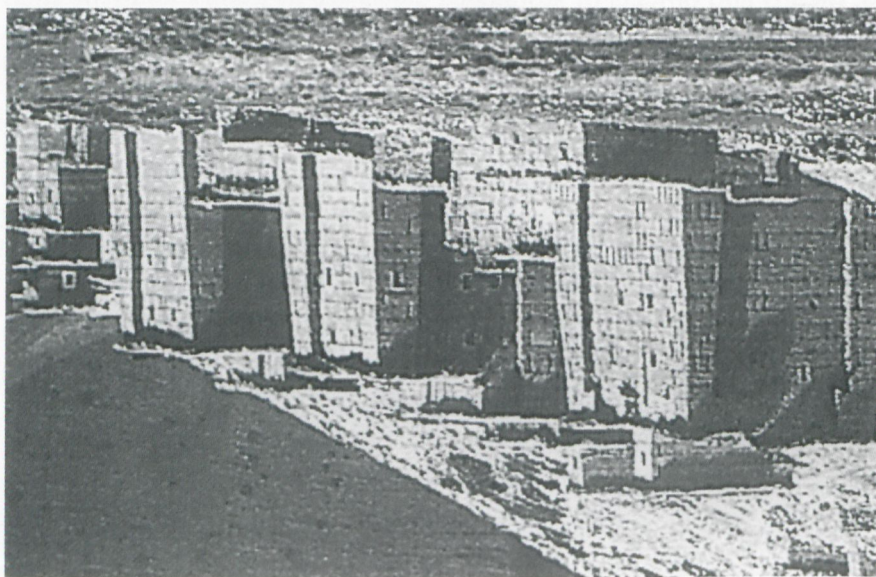


Fig. 4. A group of Irherm-storehouses in the village of Ait Bou Gueméze (High Atlas, Morocco) (after: Striedter 1990, pl. 3).

chambers or rock pits, either within a cave or rock shelter (*Awshaz*) (Fig. 5). A guard is elected by the users of the storehouse. Another example of community storage exists in the Al-Fashi oasis in the Southern Sahara, Republic of Niger. Each oasis household owns a silo within the central storage fortress (Gardi 1973, 166 fig.).

In most cases security is the main reason for establishing community storehouses. The stored goods can be guarded by a single person or kept safe through the fortification-like character of the storehouse. An interesting variation on communal food storage is used by the Lela, a Gurunsi subgroup, who live in the western central part of Burkina Faso (West Africa). Their large compounds are inhabited by a number of nuclear families belonging to one big extended family forming a kind of small community (Bourdier and Minh-Ha 1985, 32–49). The compound is marked by a circular arrangement of huts belonging to different nuclear families. A single gate within the architecturally completely closed circle of rooms gives access to the inside of the compound and to the single 'houses'. In the centre of the enclosed circle, surrounded by the huts and thus well-protected from the outside, similar units stand close to each other forming architecturally distinguished groups (Figs. 6 and 7).

Figure 6 shows a very large Lela compound in the village of Zillivolé (Burkina Faso): the outer circle contains houses (room clusters) of a large number of different nuclear families.

The interior of the compound holds larger houses for the head of the compound and the families of his sons and nephews; the centre of the compound, as well as the area to the left of the house of the head of the compound, holds the storehouses for all nuclear families of the compound. These are square in shape and arranged in rows. In this compound there are more than fifty granaries, all belonging to a 'community' of one extended family.

This type of storehouse arrangement is on an organisational level between community storage and domestic storage. The group of storehouses all belong to one extended family, but the compound itself is architecturally, economically and politically a kind of independent community and is not part of a larger, contiguous village. The individual food stores are protected collectively by the architecture of the compound and by the authority of the head of the compound.

The Nuna, another subgroup of the Gurunsi people in Burkina Faso, concentrate all granaries of a village in a large communal court in

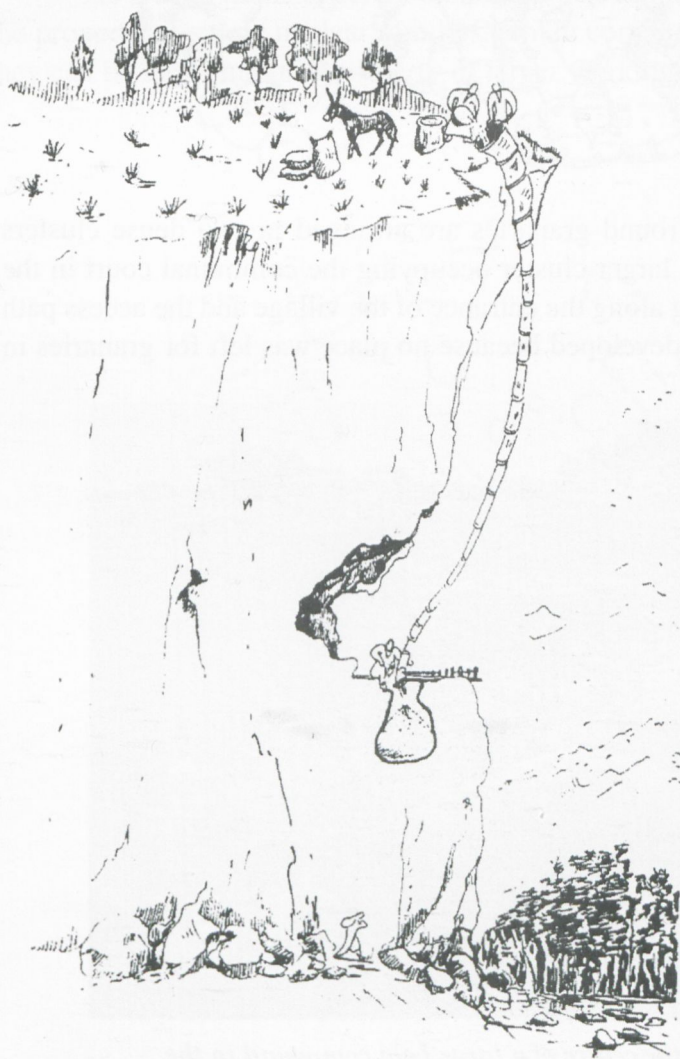
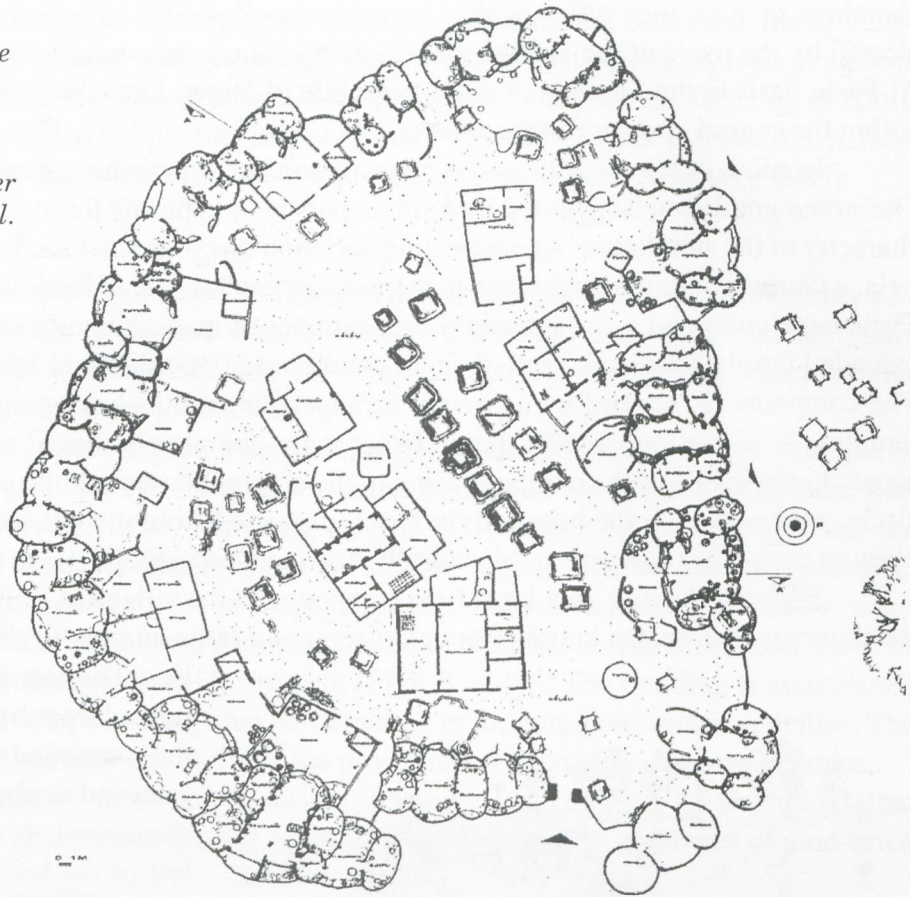


Fig. 5. *Awshaz* community storehouse in Libyan Cyrenaica (after Hallaq 1994a, fig. 3).

Fig. 6. Plan of a large Lela compound in the village of Zillivolé (Burkina Faso, West Africa) (after: Bourdier and Minh-Ha 1985, pl. D3).



the centre of the village. Over eighty round granaries are arranged in two dense clusters within the village of Valio (Fig. 9), the larger cluster occupying the communal court in the centre of the village, the other stretching along the entrance of the village and the access path towards the centre. The second cluster developed because no place was left for granaries in



Fig. 7. Group of storehouses in the centre of a large Lela compound in the village of Zillivolé; to the left and in the foreground, habitation units for nuclear families; to the right, a cluster of community granaries (Burkina Faso, West Africa) (Photo: P. Pfälzner).



Fig. 8. Cluster of community granaries in the centre of a large Lela compound in the village of Zillivolé (Burkina Faso, West Africa) (Photo: P. Pfälzner).

the central village space. The village had 138 inhabitants at the time of the study, four generations of descendants from the same male ancestor (Bourdier and Minh-Ha 1985, 64–67).

As is seen in the different ethnographic examples, stored food products can either be the property of single nuclear families, which communally store and protect their goods, or they can be the communal property of larger working groups or extended families.

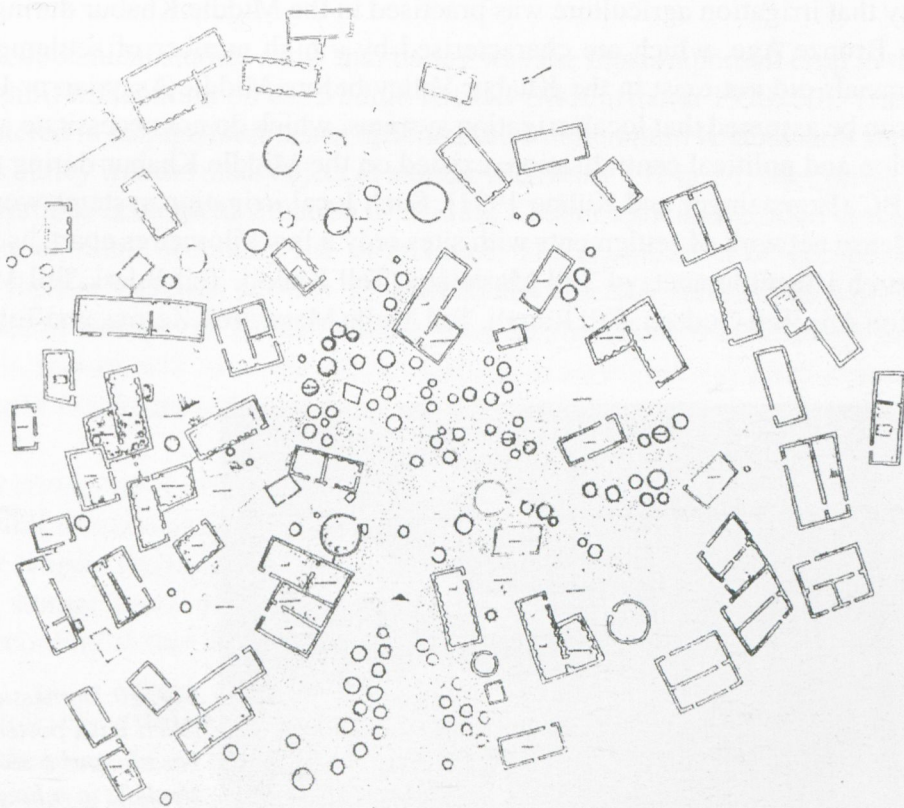


Fig. 9. Nuna village of Valiou in Burkina Faso (West Africa) showing two clusters of granaries in the large communal court in the centre and at the entrance to the village (after Bourdier and Minh-Ha 1985, pl. D9).

Domestic storage

Domestic storage is organised on the level of the single household. The food is kept within or very near the individual house in private storerooms or other domestic storage facilities (Dalman 1964; Gardi 1973; Peters 1979). Within a house storage may be in bins (sometimes taking up whole rooms) or pottery. A photograph taken in houses of the Guin, an ethnic group in the Southwest of Burkina Faso, shows a domestic storeroom filled with storage vessels of different size and function (Fig. 10).

This mode of domestic storage indicates clearly that the household possesses the agricultural products and is responsible for their storage, intra-household distribution and consumption. Domestic storage may also imply that the household was responsible for the production of food stuffs. Therefore, domestic storage is powerful archaeological evidence for the reconstruction of economically independent households. When considering the general economic system of a culture, it has to be remembered that households may have been partly independent in the production and storage of food but may also have been integrated into a redistributive system.

Early Jezireh modes of storage on the Middle Khabur*Ecological conditions and agriculture on the Middle Khabur*

The annual rainfall for the region of the Middle Khabur lies between 200 and 250 mm. This situation would not have been substantially different during the third millennium BC, as is shown by palynological analyses (Gremmen and Bottema 1991). Therefore in the Early Bronze Age rainfall agriculture was just as risky as it is today. For this reason one has to consider the possibility that irrigation agriculture was practised in the Middle Khabur during periods like the Early Bronze Age, which are characterised by a high number of settlements. Because regional canals did not exist in the Khabur Valley before Middle Assyrian or Late Assyrian times, it can be assumed that local irrigation systems, which do not necessitate a high level of organisation and political centralisation, existed on the Middle Khabur during the third millennium BC (Ergenzinger and Kühne 1991). Such local irrigation systems would have sustained a dense network of settlements with sites only a few kilometres apart, as is true for the Early Jezireh I/II settlements of Tell Mashnaqa, Tell Knedij, Tell Bderi, Tell Melebiya, Tell Ziyade, Tell Atij, Tell Gudeda, Tell Raqa'i, Tell Mulla Matar, Tell Kerma, and Tell Rad Shaqra.



Fig. 10. Domestic storeroom, filled with pottery storage vessels and a storage bin to the left, in a house of the ethnic group of Guin, village of Gouindougouba (Burkina Faso, West Africa) (Photo: P. Pfälzner)

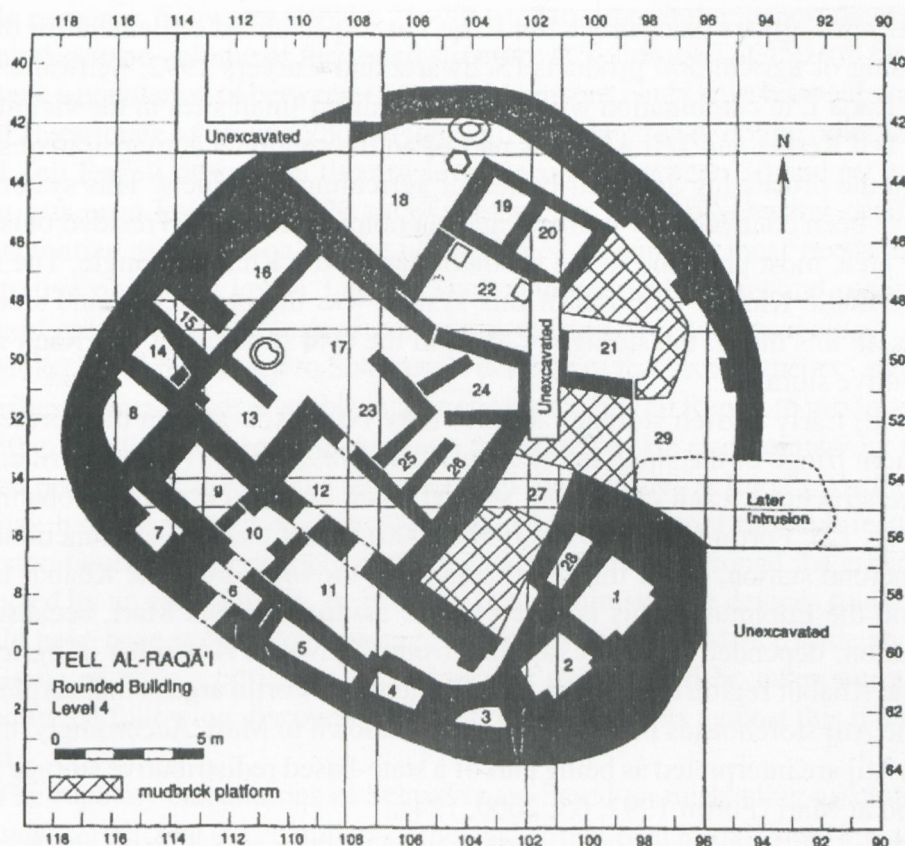


Fig. 11. The Early Jezireh I period oval storage building at Tell Raqa'i, level 4 (after Schwartz and Curvers 1992, fig. 10).

Archaeobotanical studies show that barley was the most important crop in the settlements of the third millennium on the Middle Khabur (McCorriston 1998, 50). The food remains encountered in storage facilities at different third millennium Khabur sites support this conclusion, as barley was the main object of storage (Schwartz 1994a, 31; McCorriston 1998). Given the hazardous ecological situation of Middle Khabur agriculture, food storage was a major requisite of stable sedentary life in this area. The organisation of storage, however, varied during the Early Jezireh periods. In order to describe this variation through time, the different modes of storage on Middle Khabur sites during the third millennium have to be described. This, in turn, will let us attempt to distinguish economic and socio-political structures in the Early Jezireh period.

Redistributive storage in the Early Jezireh period on the Middle Khabur

The architectural remains in levels 3 and 4 at Tell Raqa'i are the most prominent features supporting the 'export theory', which states that the storage structures on the Middle Khabur functioned as storage bases within an interregional system of food supply for Mari on the Euphrates. According to this line of argument, they were part of a centralised, redistributive system.

In both levels at Tell Raqa'i a large, oval structure with a maximum diameter of 23 metres forms the centre of the settlement (Curvers and Schwartz 1990; Schwartz and Curvers 1992). It comprises a large number of tiny chambers, some extremely small. In level 4 there are 29 such chambers in the oval structure. Their arrangement is irregular and their size varies considerably (Fig. 11). In view of the building layout and interior arrangements, there can be no doubt that it was used for storage purposes (Schwartz and Curvers 1990, 406–10).

Schwartz and Curvers reconstruct Tell Raqa'i as a specialised settlement for the storage and processing of agricultural products (Schwartz and Curvers 1992; Schwartz 1994). They think that Raqa'i, in combination with other specialised small sites in the vicinity such as Tell Ziyade, Tell Kerma and Tell Atij, was part of an interregional administrative system, which organised the processing and distribution of agricultural products. This system, they argue, could have been controlled by political and economical elites who resided outside the Middle Khabur area, most probably in the northern part of the Khabur triangle. The special purpose of the Middle Khabur outposts of this system was the production and storage of agrarian surplus. In this model the storage of grain in the oval structure at Tell Raqa'i represented redistributive storage.

At Tell Atij Early Jezireh storage facilities have been excavated in the northern part and at the southern fringe of the small tell (Fortin 1988; 1989; 1990). The northern complex consists of three structures, each containing several small chambers, which probably were used as silos (Fig. 12). Fortin (1989; 1997; 1998; 2000) thinks that the site functioned as a *relais*, or commercial station, in the third millennium on the route from the Khabur triangle down to Mari on the Euphrates. This is based on the assumption that Mari, because of its ecological situation, depended on grain supplies from the North. A surplus of agricultural production in the Khabur region could have met this demand. Fortin argues that surplus grain was stored in the Atij storehouses before being shipped down to Mari. Accordingly, the storage activities at Atij are interpreted as being part of a state-based redistributive storage system probably centred at Mari (Fortin 1997, 65; 2000, 124).

Frank Hole (1991) was the first to challenge the theories of Schwartz and Fortin. He argued that the capacity of the granaries at Tell Atij and at Tell Raqa'i would not allow them to be identified as storehouses for agrarian surplus within an interregional exchange system. Hole calculated, for example, that the four chambers in the northernmost entity of the storage building in the northern part of Tell Atij (see Fig. 12), which have a volume of 4.5 cubic metres each and could hold eight tons of grain altogether, would only suffice to store the annual grain needs of eight families (consisting of five persons each). Hole concluded that these and other silos in sites on the Middle Khabur could only have been used for local storage needs. He interprets the structures as storehouses of a semi-nomadic or nomadic population in the Khabur valley and the adjacent steppe (Hole 1991).

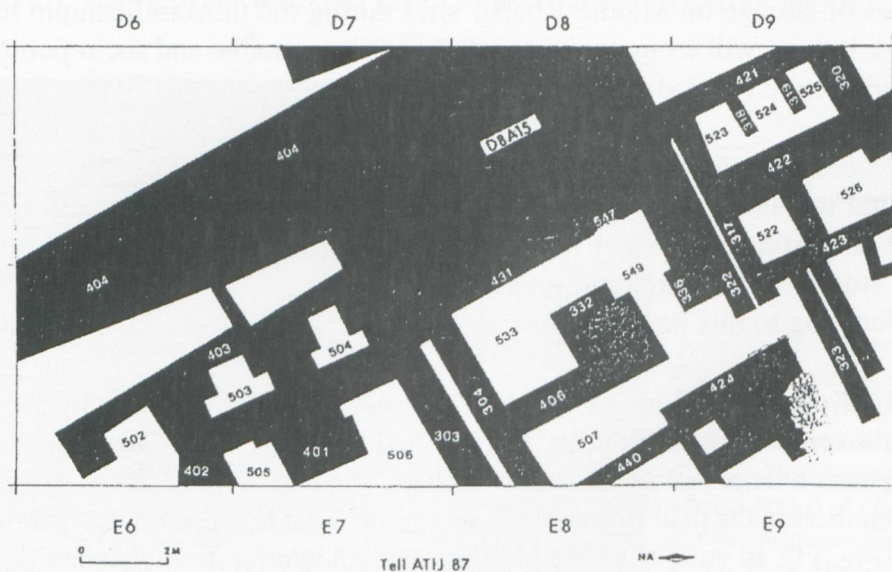


Fig. 12. Early Jezireh I/II granary at Tell Atij (after Fortin 1989, fig. 7).

In response, Schwartz (1994a, 25–28) tried to support the ‘export theory’ by calculating the total storage volume of the round structure at Tell Raqa’i at 150 m³. On this basis, he then argued, a population of between 154 and 524 persons could have been supported. Schwartz favoured an estimate of around 280 persons and calculated that, on the other hand, the population of Tell Raqa’i during the time of level 4 ranged between 30 and 60 persons, during level 3 it was even less, around 20 to 30 persons. As a result Schwartz concluded that the storage activities at Tell Raqa’i were not designed to support local needs. He interpreted administrative objects in levels 3 and 4, such as numerical tablets and sealings, as further evidence of redistributive storage of grain co-ordinated by a non-local elite.

Hole (1999) responded to Schwartz’s defence of the ‘export theory’ arguing that there was insufficient manpower or arable land in the region of Tell Raqa’i to produce enough grain to fill 150 m³ of storage volume in the Raqa’i storehouse. He also pointed out that there may have been people dwelling off the site who used the facilities at Raqa’i. Furthermore, stored grains may have been used as animal fodder. Hole considered the architecture of Middle Khabur storehouses not very sophisticated, and therefore questioned the argument that they were erected by an elite. Finally, he believed that administrative devices found at Raqa’i and Atij could have been used in local storage as well as in long-distance trade and tribute.

Some of Hole’s criticisms of the ‘export theory’ will be taken up, elaborated and expanded in the following discourse, while further arguments against this interpretation will be added.

The capacity calculations of Schwartz are based on misleading assumptions. First, it is by no way certain that the chambers of the oval structure at Raqa’i were intended to be used as mere bins to be filled completely from floor to roof (minimally 2 m) with grain, as has been assumed by Schwartz (1994a, table 1). This ignores the possibility that the grain could have been stored in bags within the chambers or that space could have been left open deliberately to ventilate the stored materials or for easier access into the chambers during filling and emptying. Furthermore, it must not be presumed that every chamber contained the same goods or that all chambers were used at the same time. The species identified at Raqa’i on the basis of botanical analyses comprise not only barley, wheat, emmer and macaroni wheat, but also lentils and peas (Schwartz 1994a, 31; McCorrison 1998, 47–50). Furthermore, materials such as straw (as fodder), building wood, fuel, wool, textiles and (conserved) meat are possible candidates for storage, so that it is quite possible that different chambers of the storehouse were used for different products. Stored products were not preserved in their original context within the Tell Raqa’i oval building (Curvers and Schwartz 1999; Schwartz and Curvers 1992).

Given the limitations in our understanding of how the chambers were actually used, it becomes clear that the absolute room volume of 150 cubic metres, filled to capacity by grain in the whole building, is a theoretical value, which may have nothing to do with the actual storage activities. If, for example, one assumes that the chambers were, for practical reasons, only filled to half their height and that only every second chamber was reserved for grain, then the volume for grain storage is reduced to 37.5 cubic metres. In many years of ethnographic fieldwork in West African villages the author rarely saw a storehouse or granary filled completely up to the roof with grain! In any semi-arid region storerooms would be full only in exceptional years with extraordinarily rich harvests.

It is equally difficult to estimate the number of inhabitants at a place such as Tell Raqa’i. Schwartz’s figures are based on the assumption that the population density at Raqa’i was comparable to modern villages in the Near East (Kramer 1980). The validity of this analogy can be tested if one tries to calculate the number of houses within one phase of the

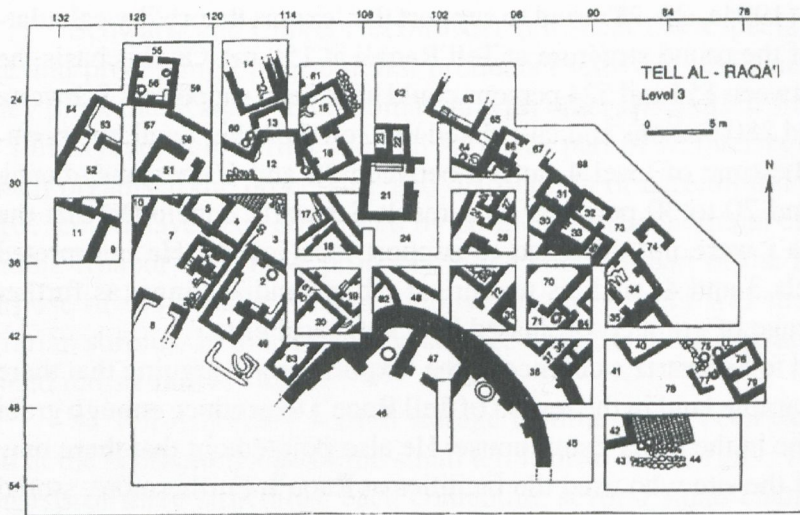


Fig. 13. Plan of the Early Jezireh II settlement at Tall Raqa'i, level 3 (after Schwartz and Curvers 1992, fig. 8).

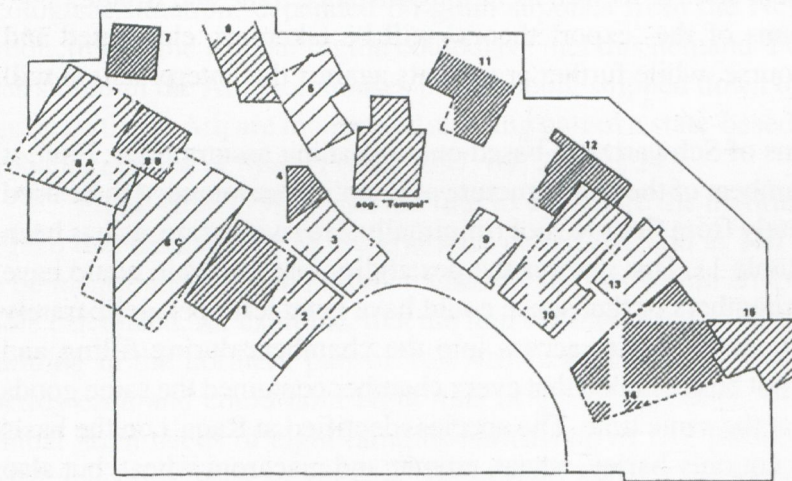


Fig. 14. The reconstructed partitioning of house plots within the settlement of level 3 at Tell Raqa'i (after: Pfälzner 2001, pl. 29b).

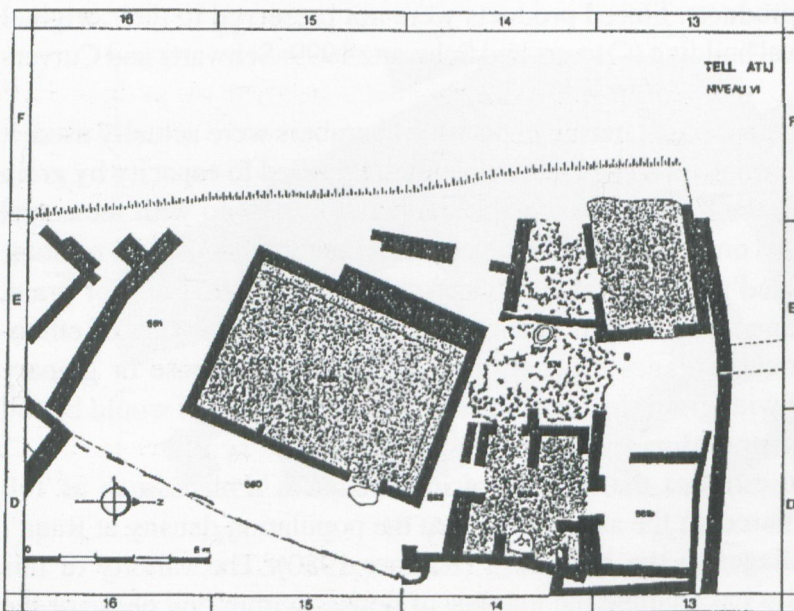


Fig. 15. House architecture in the central part of Tell Atij (after: Fortin 1993, fig. 3).

settlement. In level 3 at Tell Raqa'i (Fig. 13) 17 houses can be distinguished (Nieuwenhuyse 1992; Pfälzner 2001, 305–310, Pl. 29–31). Grinding tables and other domestic installations within the houses clearly indicate that the single houses were the homesteads of individual households (Fig. 14). As the houses are small, they probably housed nuclear families. With a cross-culturally constant medium size of 5–6 persons per nuclear family (Pfälzner 2001, 28–34), the settlement of Tell Raqa'i level 3 would have contained 85 to 102 inhabitants. A look at the village plan reveals that the whole southern part of the original settlement has eroded away. Taking this into account, the number of houses and thus of inhabitants must have been far larger than the number calculated above. An estimate almost double the above-mentioned number, i.e. 170 to 200 persons, seems possible.

Consequently, we calculate the original population to be between 85 and 200 for Tell Raqa'i level 3. The storage facilities were adequate for 150 to 500 people if the rooms were filled up completely with stored grain, or 38 to 125 people under the more realistic assumption of a modest and diversified use of storage rooms. These calculations demonstrate clearly that the inhabitants of Tell Raqa'i could have used the storage facilities of the round structure exclusively for their own, local demand. It is by no means necessary to postulate foreign consumers for the agrarian products stored at Tell Raqa'i. Furthermore, the estimates indicate that there are many variables involved if one tries to correlate inhabitants and storage volumes directly. Therefore such results should not be used to argue for the reconstruction of non-local consumer groups for the Raqa'i food supplies.

The oval structure at Tell Raqa'i level 4 reveals an irregular layout of rooms (Fig. 11). The chambers are not arranged in linear rows or aligned along regular partitioning walls, but seem to have been inserted randomly and successively. No overall planning is visible in the construction of the building. Therefore, the building does not at all give the impression of being constructed, as Fortin and Schwartz believe, by a non-local political elite. The oval building at Raqa'i is unplanned, local architecture. There is consequently no reason to connect the storage structures of Tell Raqa'i with a non-local redistributive system.

The functional study of architecture at Tell Atij leads to the conclusion that the buildings in the central part of the main mound (Fig. 15) are to be identified as private houses (Pfälzner 2001, 310–12; pls. 32–33), as opposed to Fortin's (2000) assumption that they are examples of public architecture. Evidence for their domestic use include hearths (Fortin 1993, 102), gypsum-plastered floors, walls and benches (Fortin 1990b: 543, fig. 6; 1993, 101, fig. 3), and bread ovens (*tanānir*) (Fortin 1990b, 547 f., fig. 12.14). The houses can be classed as 'single room houses' (Pfälzner 2001, 377–78; and in press a).

This leads to the conclusion that Tell Atij was inhabited, contrary to the view of Fortin (2000, 117), and that this local population can be regarded as consumers of the food products stored in the granaries in the northern and southern parts of the main mound. As large parts of the settlement area are unexcavated, and even larger parts had obviously eroded already in ancient times (Fortin 2000, fig. 14), it is not possible to estimate the total population, nor is it meaningful to compare population figures with local storage capacities. What can most obviously be said about Tell Atij is that the total settlement area was larger than that of Tell Raqa'i and that it was protected by an outer fortification wall, again suggesting an even larger population than at Tell Raqa'i.

'Administrative objects' such as tokens, numerical tablets and sealings were found at Tell Atij and Tell Raqa'i. Both Fortin (2000) and Schwartz (1994a) utilise this evidence in their interpretations of the architecture. Objects of this kind have, however, been found in private, domestic contexts in the Middle Khabur region during the third millennium BC, for example a numerical tablet found in what was clearly a third-millennium domestic context in

level 11 at Tell Bderi (Pfälzner 1990, 77; Maul 1992, 11, Pl. 8: 4 and 5). Sealings with cylinder or stamp seal impressions (mostly door sealings) were recorded from several private third-millennium houses in different levels (Dohmann-Pfälzner 1988, 253–57, figs. 12–13; Pfälzner 2001, 232–37) (see below). Therefore it is clear that the use of seals, sealings, tokens and numerical tablets was not confined to public or administrative buildings in Middle Khabur settlements of the Early Jezireh. Their presence is not strong evidence of a centralised administrative system with responsibility for the storage facilities at Tell Raqa'i or at Tell Atij.

In summary, there is no reason to identify the storage activities at small Early Jezireh I and II sites on the Middle Khabur as part of a non-local, redistributive storage system on the basis of settlement structure, architecture, storage capacities or so-called 'administrative objects'. This does not necessarily mean that redistributive storage was unknown in Early Jezireh Northern Mesopotamia. At third-millennium urban centres outside the Khabur Valley there is clear evidence for this system of storage.

At Tell Chuera there are a series of storerooms in a building complex to the north of, and associated with, Steinbau I, a major sanctuary. The storerooms contained large amounts of grain and large scale storage vessels of the pithos-type (Moortgat 1960a; 1960b; 1962; Orthmann *et al.* 1995). Other rooms seem to have been used for processing the grain, and even a bakery could be identified (Orthmann *et al.* 1995). These rooms indicate that grain was stored and processed within one of the largest temple complexes at Chuera. The bread from the bakery may have been distributed to employees or dependants of the temple institution. Clearly these buildings were part of a redistributive storage system at Tell Chuera. The temple complex was in use during Chuera phases IC and ID, contemporary with Early Jezireh IIIa, IIIb and IV. No earlier evidence for redistributive storage is so far available at Tell Chuera.

At Tell Beydar late Early Dynastic III texts suggest the existence of redistributive storage. They record monthly grain rations given to the workers of a public household (Sallaberger 1996, 89). Such rations would have necessitated a storehouse within this administrative unit. On the basis of these texts it has been argued that 'an official household controlled the society and economy of Beydar' (van Lerberghe 1996, 121). Sealings found in the palace of Tell Beydar are interpreted as elements of an administrative system that included storage (Bretschneider and Jans 1997). These redistributive storage activities seem to be connected to the palace, and can be dated mainly to the Early Jezireh IIIb period.

The excavators of Tell Mozan have interpreted seal impressions from container sealings found in and associated with the palace of the rulers of Urkesh (Building AK) as evidence for a royal storehouse in sector B of the building (Buccellati and Kelly-Buccellati 1995–96, 26–29; 1996, 80–84; 2000, 142). There is as yet no evidence as to what was stored here or on what scale it was stored because neither texts nor remains of stored materials have been found in the 'storehouse'. Nevertheless, it is clear that there was palace-based redistributive storage at Mozan during the Early Jezireh IV period.

As can be seen from the examples cited, the evidence of redistributive storage in the Khabur and Balikh drainage is limited to Early Jezireh IIIa, IIIb and IV. As yet there is no convincing argument for the existence of redistributive storage during the Early Jezireh I and II periods. In the Middle Khabur there is no indication for redistributive storage even in the periods Early Jezireh IIIa, IIIb and IV. There is no reason to think that the Early Jezireh III and IV economical and political systems ended at the southern border of the Khabur triangle. It would not be surprising to find evidence for redistributive storage on Middle Khabur sites in these periods. Tell Melebiye and Tell Bderi would be, in view of their settlement size and population densities (Lebeau 1993; Pfälzner 2001), good candidates for these kinds of facilities. Excavations did not find them, probably owing to the limited size of the exposed areas.

Community storage in the Early Jezireh period on the Middle Khabur

This paper argues that the oval structure at Tell Raqa'i, levels 3 and 4, and the granaries at Atij were used for community storage. Hole (1991; 1999) has already suggested a community-based, local function for these structures. He has proposed that nomads or semi-nomads who were seasonal residents in the Khabur used them to store their agrarian products; at other times of the year these nomads would have lived in the steppes to the east and west of the Khabur River. This reconstruction is based on ethnographic models of recent pastoral nomadism (Hole 1991, 17–19). Hole observes intensive settlement activities in the steppe region to the west of the Khabur (Hole and Kouchoukos, in press a and b; Hole 1999) and argues that the architectural remains at Atij and Raqa'i 'are different from [those at] purely dwelling sites' (Hole 1991, 27). He therefore suggests that migratory people dwelt off-site but used the storage facilities at Raqa'i and Atij for personal food or animal fodder.

The storage patterns at these sites can be explained without suggesting nomadic use. At Tell Raqa'i level 4 ethnographic analogies (see above) suggest that each unit in the oval building may have stored the produce of a different household. Some of the chambers, (e.g., room 4 measuring 1.5 x 0.6 m) are tiny; their volume is similar to an ordinary bin in many ancient and modern Near Eastern houses. Such chambers had just enough space to store the supplies of one household. Omitting the larger spaces within the oval structure (units 17, 18, and 29), which may have been courtyards, there are 26 small chambers which may have been used as single household silos.

There are a total of 17 houses in the excavated part of level 3 at Tell Raqa'i. The southern half of the settlement has been eroded; originally there may have been up to 34 houses. Consequently, the total of 26 small storage chambers in the oval structure comes close to matching the rough estimate of houses. It may well be that every household at Raqa'i had the use of a storage unit in the oval structure which acted as a community storehouse. The chambers would not have been filled uniformly to capacity; households would have used them as needed. The variation in chamber sizes may have matched the variation in the economic strengths of the households. Finally, the irregular layout of the building would accord with its being a communal building constructed by the local villagers.

To what extent did storage facilities exist in the single houses of Tell Raqa'i? Many of the houses of level 3 have a main living room, with a hearth and gypsum-plastered benches. Other rooms were used as grinding rooms, as indicated by the presence of grinding tables, standard equipment in Early Jezireh houses. Most level 3 houses have only one or two rooms; there are no store rooms or other storage facilities (Pfälzner 2001, 142, 152, 165–66, 309–10). The only exception is house 8 C in level 3 of Raqa'i (see Figs. 13 and 14), which had its own storage chambers (Curvers and Schwartz 1990, 11, fig. 8; Pfälzner 2001, 307, 309). This household seems, for whatever reason, not to have participated in the practice of community storage at Tell Raqa'i. In contrast, the houses of Tell Bderi and Tell Melebiye did include provision for storage.

It is not possible to correlate houses with storage units at Tell Atij because too little of the settlement has been excavated (Fortin 1995, fig. 13). The reduced size of chambers within the storage complex at the northern end of the main mound can, however, be taken as an argument in favour of the association of single storage units with single households at Atij. This is supported by the observation that many walls in the northern storehouse are not bonded, which means that these chambers were added on as needed. There is evidence for a second storehouse in the southern part of the main mound (Fortin 1990, fig. 8a). Possibly there were several social groups inhabiting Tell Atij, each using different storehouses.

The so-called 'administrative devices' found at Tell Raqa'i and at Tell Atij, i.e., to-

kens, numerical tablets and sealings, may have been used to identify individual property within the communal storehouses. This view is supported by an analogy from an ethnographic case study in Cyrenaica (Libya). There, decorated seals and stone tablets with incised signs, called *khattātāt*, are used to identify property in a community storage system (Hallaq 1994a; 1994b) (Fig. 16).

Compact, fortified storehouses like those found at Tell Raqa'i and other village sites on the Middle Khabur are paralleled in the *irherm*-storehouses of Morocco, found in sedentary Berber villages (see above). Such storehouses are designed to ensure the security of the stored goods. The Raqa'i storehouse was in the village centre as are the storehouses in Lela and Nuna in Burkina Faso. The settlement plans of Raqa'i level 3 (Fig. 13) and of the Nuna village of Valiou (Fig. 9) show striking parallels in the spatial arrangement of houses and communal storage facilities.

In summary, the Early Jezireh I and II storage structures on the Middle Khabur are to be interpreted as facilities for community storage within villages of sedentary households. The Tell Raqa'i houses, despite being small, have all the activity areas necessary for houses of a sedentary population. The economic basis of these villages was without doubt agriculture and pastoralism (McCorriston 1998; Zeder 1998). It is common practice in a steppe environment for individuals (or sometimes even a complete household) to leave their homesteads temporarily and to move around with their flocks in search of grazing grounds. This practice has been observed also in Early Jezireh IIIa strata at the densely populated town of Tell Bderi (Pfälzner 2001, 176–77, figs. 80 and 81) and is probable even for Tell Chuera (*ibid.*, 178–79). Here the theory presented overlaps Hole's theory, which can be labelled 'local use theory I: steppe consumption'. But in opposition to Hole, our new theory (labelled 'local use theory II: village consumption') is based on the idea that the storage units in the granaries of Tell Raqa'i and Tell Atij belonged to local village households with permanent houses.

Domestic storage in the Early Jezireh period on the Middle Khabur

A detailed functional analysis of the houses of Tell Bderi (Pfälzner 2001) showed that a variety of domestic storage installations and associated objects existed during the Early Jezireh IIIa, IIIb and IV periods. There was also some evidence of domestic storage at Tell Melebiye. Neither site, however, had evidence of communal storage in these later Early Jezireh phases.

The domestic storage facilities

Storerooms

Most Tell Bderi houses have proper storage rooms. They are usually rather small rooms associated with the living room or the courtyard. The only installations in these rooms are shallow depressions or a circle of mud-bricks in the floor designed to hold the round-based storage pots typi-

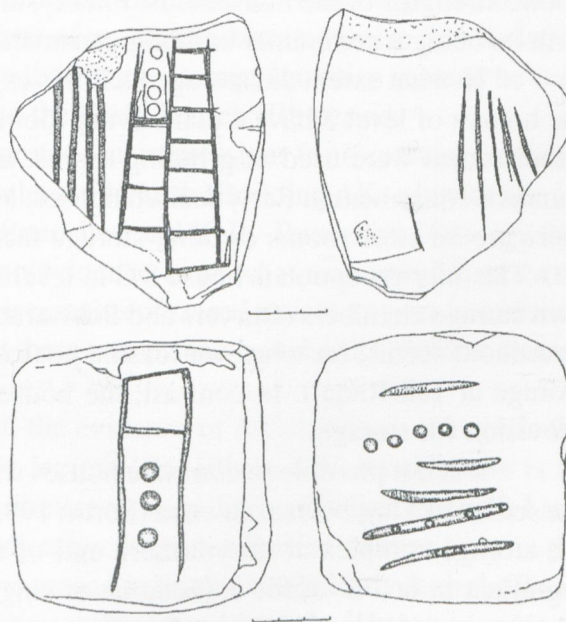


Fig. 16. Stone tablet registers (*khattātāt*) used to identify property in collective storage, from the region of Cyrenaica (Libya) (after: Hallaq 1994a, figs. 4–5).

cal of the Early Bronze Age (Pfälzner 2001, 160–61, 184–91).

The storage rooms were often filled completely with pottery vessels, so that hardly any space was left free on the floor. The highest number of pottery vessels in a storage room at Tell Bderi was found in the Early Jezireh IIIa House XVII (level 17): 47 vessels were located in storage room FM, which had a surface area of only 2.7 sq. m. (Pfälzner 2001, 187, 294, pl. 21, 66–67).

Storage rooms could house additional activities. In storeroom O of House I (level 8, Early Jezireh IV), a room measuring 3 x 3 m, 26 pottery storage vessels were found together with a grinding table (Pfälzner 1992–93, 54–56, fig. 54; 1996). The adjoining room N of the same house, the living room, was also used for storage, as indicated by a further 27 storage jars (Pfälzner 1992–93, 54–56, figs 52–53; 1996).

Storage bins

These are parts of rooms which have been made into storage areas or closed silos by means of partition walls (Pfälzner 2001, 157–58). The partition walls consist of small mud-bricks or *pisé*. They are erected on the floor, so that the base of the bin roughly correlates with the floor level of the room. The floors and sides of the bins are usually gypsum-plastered. Openings in the sides of the bins are rarely observed in the preserved parts of the walls and must have been positioned at a higher level.

A bin in the northern part of room O of House I at Tell Bderi (level 8, Early Jezireh IV) was created by closing off this part from the rest of the room with a dividing wall. House XIV (level 14, Early Jezireh IIIa) contains a similar bin in the northern part of room DB. In House III (level 10, Early Jezireh IIIb) a gypsum-plastered bin was inserted on the short side of the room, also by erecting a small partition wall inside the existing room.

Storage pits

Subterranean storage pits cut into the ground can be rounded or rectangular and have a depth of 1 to 2 metres below the house floor (Pfälzner 2001, 155–57). Many examples are lined with mud-brick uprights on their sides and horizontally laid mud-bricks on their floors (Figs. 17, 18 and 18b).

The largest storage pits in third-millennium houses at Tell Bderi are found in a separate courtyard of House XII (level 12, Early Jezireh IIIb). Two cylindrical pits with a depth of 1.7 metres and a diameter of 2 metres were cut into the ground close to each other. Both were lined with mud-bricks. The same type of storage pit is also found within rooms, e.g., FP in the main living room CM of House XIV at Tell Bderi (level 14, Early Jezireh IIIa). This subterranean, rounded storage pit, which was again lined with mud-bricks almost completely filled the room, which had a surface area of 3.9 sq. m. In House XIII (level 13, Early Jezireh IIIb) several storage pits were randomly distributed in the vast courtyard (Pfälzner, 2001, pls. 17–20).

Similar installations can be identified in the third-millennium houses of Tell Melebiye. In House G 1 room 2494 was nearly filled by a rectangular subterranean pit, which was lined with standing mud-bricks in its lower part, while in the upper part horizontal bricks protruded into the pit (Lebeau 1993, 232, pl. 85, 132–34, pl. XXXIII). Comparison with the facilities at Tell Bderi suggests that this installation was probably a storage pit and not a tomb, as Lebeau (1993, 232) believes.

Palaeobotanical analyses of charcoal from the storage pits at Tell Bderi give evidence that these installations were used to store different products. Grain, primarily barley, seeds and olive stones were found (Van Zeist, in press; Engel 1996). Furthermore, the remains of

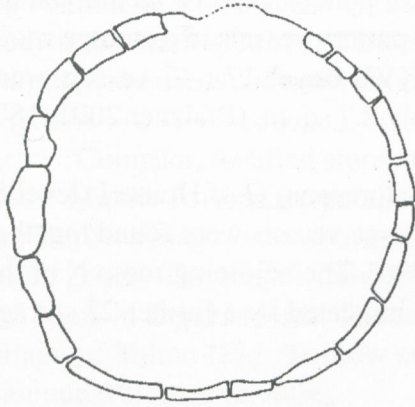


Fig. 18a

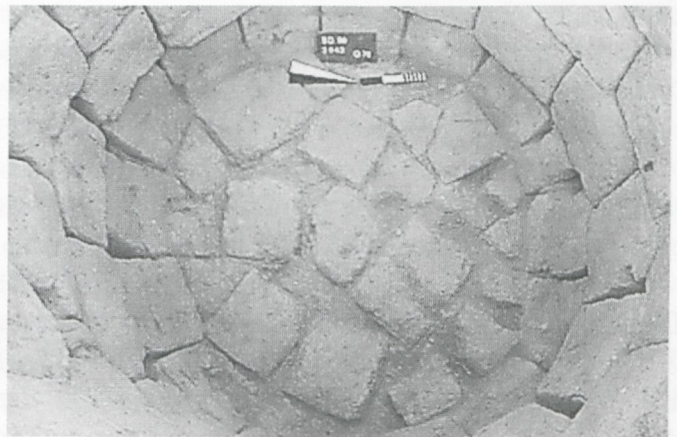
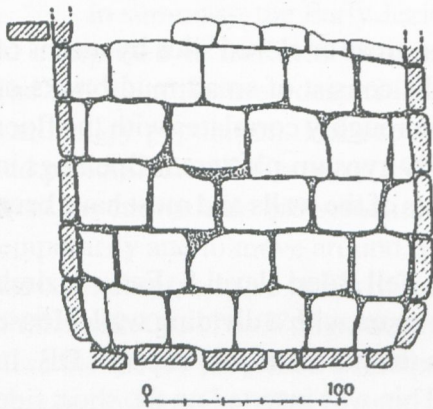


Fig. 18b

Fig. 17

Fig. 17 Domestic storage pit lined with mud-bricks on the inside, Tall Bderi, House XII, level 12 (Early Jezireh IIIb).

Figs. 18a and 18b. Views inside a domestic storage pit lined with mud-bricks on the sides and bottom, Tall Bderi, House XII, level 12 (Early Jezireh IIIb).

reeds, different kinds of wood and straw demonstrate that not only food products were kept in the storage pits. Probably the use of storage pits varied seasonally.

Mud-brick shelves

Shelves built of mud-bricks are frequent in the third-millennium houses of Tell Bderi. Horizontal bricks or a wooden plank cover a series of parallel standing mud-bricks, arranged at a right angle to the wall. On this kind of shelf or stand goods in bags, vessels or other containers could be deposited at a safe distance from the floor of the room. Very similar installations, called *dejje*, which are used to hold grain sacks or other goods, can be found in contemporary rural houses in Northern Syria (Pfälzner 2001, 158, fig. 79).

Storage vessels

Three different types of vessels can be identified as storage vessels in the third-millennium houses of Tell Bderi (Fig. 19): medium jars with a narrow neck; medium jars with a wide neck; big jars with a wide neck. The medium-sized jars have a body diameter of around 30–35 cm, their height ranging from 30 to 40 cm. The big jars have body diameters of around 45 cm, their height reaching up to 80 cm (Pfälzner 2001, 184–91).

All three types of vessel are always present together in the storage rooms of third-millennium houses at Tell Bderi. In room FM of house XVII, mentioned above, they are associated with 28 large lids and a large number of jar-sealings, which support the identification of all these vessels as storage vessels. Most of the jars have a rounded base, which allows them to be stacked one on top of the other. This allows space to be saved by super-positioning several rows of vessels. Parallels in West African examples of domestic storage (Fig. 10) support this reconstruction of Early Jezireh domestic storerooms (Pfälzner 1996).

Pot covers

Objects used to cover jars in the third-millennium houses of Tell Bderi are made of clay or gypsum and have the shape of either flat discs or conical stoppers (Pfälzner 2001, 209–13). They are used to protect the contents from dirt, evaporation and predators. They do not provide security against unauthorised opening of the vessels unless a sealed lump of clay is added to connect the cover and vessel. Lids and stoppers provide useful information on domestic storage activities (Fig. 20).

Seals

Seals were used in managing domestic storage facilities in the third-millennium houses of Tell Bderi. This is important, since seals are usually regarded by archaeologists as strong indicators of institutional administration and control of storage or other economic processes. Finds from Tell Bderi and Tell Melebiye demonstrate that seals were present in houses and were used by their inhabitants. At Bderi, a seal was found in room O of House I (level 8, Early

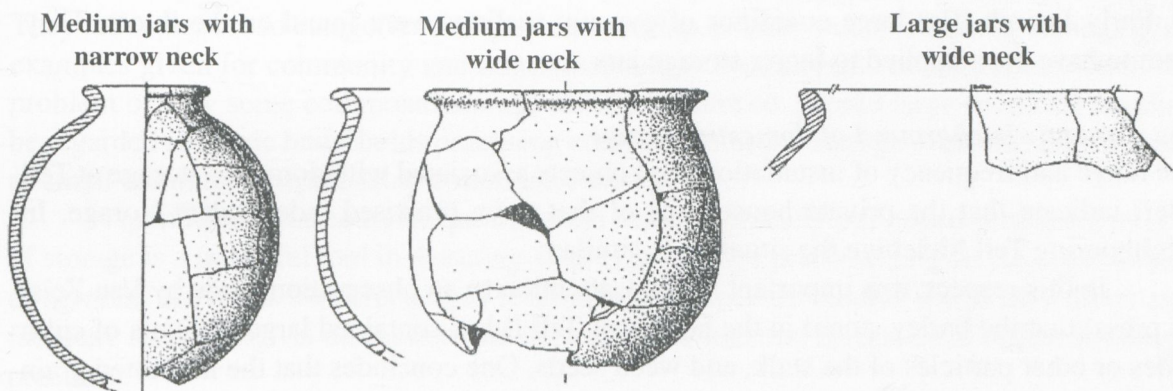


Fig. 19

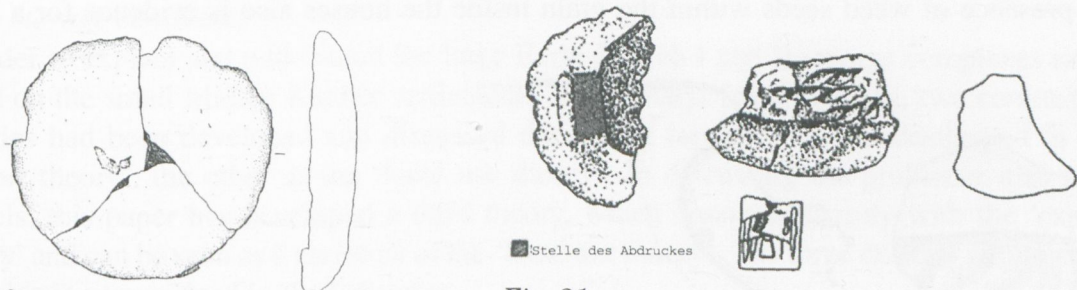


Fig. 20

Fig. 21

Fig. 19. Three types of domestic storage vessels from Tall Bderi (Early Jezireh IIIb–IV).

Fig. 20. Gypsum disc used as pot cover in domestic storage at Tell Bderi (Early Jezireh III/IV).

Fig. 21. Door sealing with stamp seal impression, used in connection with domestic storage at Tell Bderi in room FM of House XVII, level 17 (Early Jezireh IIIa).

Jeziroh IV), which is a storage and grinding room (Pfälzner 2001, 232). At Tell Melebiya a seal was found inside a private house (Lebeau 1993, 505, fig. 5).

Door-sealings

The largest collection of door sealings at Tell Bderi (Pfälzner 2001, 232–34) was found in room FM of House XVII (level 17, Early Jezireh IIIa), which can be identified as a storage room on the basis of large numbers of storage vessels (see above). Seventeen door sealings, often with seal impressions, were found deposited in a small mud-brick box within this room (Fig. 21). They offer clear evidence that the door between the storage room and the adjoining living room was regularly closed and controlled by sealing. This indicates that the storage of goods was controlled within the house.

Door sealings with cylinder seal impressions were also encountered in House XIV (level 14, Early Jezireh IIIa). In the same house storage bins, storage pits and storage vessels provide abundant evidence of domestic storage. These and other finds of sealings in houses at Tell Bderi prove that door sealings were employed in the control of domestic storage.

Jar sealings

Jar sealings with cylinder seal impressions have been found in an Early Jezireh IV house on the northern spur of Tell Bderi (Dohmann-Pfälzner 1988, 253 f., pl. 58c–e). The pieces were originally attached to a small jar and to a medium bowl, which must have been used for transporting or storing products in rather small quantities.

A second group of jar sealings from the houses at Tell Bderi is made of gypsum (Pfälzner 2001, 237–39) (Fig. 22). At Bderi gypsum sealings were more common than clay sealings. In the small storage room FM and in the adjoining room FL of House XVII (level 17, Early Jezireh IIIa) large quantities of gypsum sealings were found on the floors. They seem to have been applied to larger storage jars.

The economic background of domestic storage

The range and frequency of installations and objects associated with domestic storage at Tell Bderi indicate that the private households of that town practised independent storage. In neighbouring Tell Melebiye the situation is similar.

In this respect, it is important to draw attention to an observation made by Van Zeist (in press) that the barley stored in the houses of Tell Bderi contained large amounts of culm nodes or other particles of the stalk, and weed seeds. One concludes that the harvested grain stored in the houses of Tell Bderi was not cleaned. The cleaning of grains must have taken place inside the houses, probably repeatedly, before the final processing of single quantities. The presence of weed seeds within the grain inside the houses also is evidence for a har-

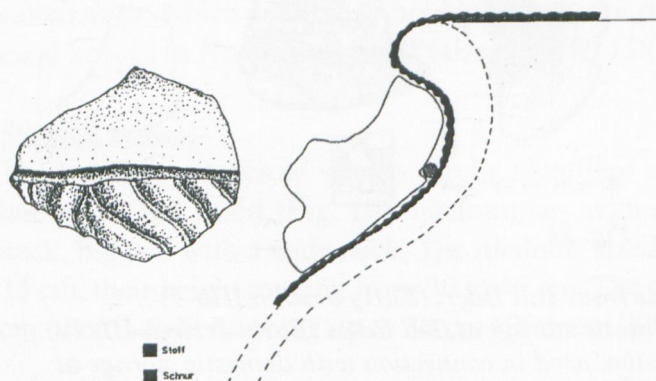


Fig. 22. Jar sealing made of gypsum, used in connection with domestic storage at Tell Bderi in room O of House I, level 8 (Early Jezireh IV).

vesting practice where the cereal crop was cut close to the ground with the consequence that low growing weeds were included. Obviously the grain was not threshed before it was brought into the houses as threshing would have reduced the weeds in the grain. (See Van Zeist's and Bakker-Heeres' analysis of organic materials from Selenkahiye in Van Zeist and Bakker-Heeres 1988, 289–90.)

It therefore seems highly improbable that these households were supplied with grain rations by an administrative institution. It would be expected that grain rations would have been delivered cleaned. The grain remains found in the houses of Tell Bderi seem to have derived from the harvests collected by the individual households. The households brought their harvests to their houses before threshing or cleaning. Accordingly, the Early Jezireh IIIa, IIIb and IV households of Tell Bderi have to be regarded as producers of grain. The domestic storage of agrarian products shows that the households were completely, or at least largely, economically independent. This seems to be one of the main characteristics of the economic system during the Early Jezireh III and IV periods.

Conclusions

The typological perspective: towards a concept of modes of storage

A theoretical concept of different modes of storage has been developed based on ethnographic and historical information. It distinguishes three modes of storage: redistributive storage, community storage and domestic storage. The three modes differ in their political, economic and social organisation and in the architectural and spatial arrangement of storage facilities. They are rather broad categories and they can overlap, as observed through the ethnographic examples given for community and domestic storage. Much of this overlap comes from the problem of how some communal storage should be viewed: should large extended families be regarded as single households practising common domestic storage or should they be seen as small communities practising community storage?

Apart from these heuristic questions the ethnographically developed concept of modes of storage is a powerful tool in directing studies on storage practices and on the organisation of agrarian activities. These concepts of storage offer specific models which may direct and facilitate archaeological discussion and the search for material correlates of different storage practices.

The functional perspective: towards an understanding of the socio-political background of large storage complexes

In order to explain and understand the large Early Jezireh I and II storage complexes excavated on the small Middle Khabur settlements of Tell Raqa'i and Tell Atij, two contrasting theories had been developed and discussed during the last decade, one designated as the 'export theory', the other as the 'local use theory'. In discussing the problems with both models, this paper has developed a third theory, which contrasts sharply with the 'export theory' and can be seen as a variation of the 'local use theory'. The three existing explanatory models are summarised in the following.

The 'export theory'

Proposed by Schwartz and Fortin, the 'export-theory' states that the Middle Khabur storehouses were intermediate redistributive centres for the storage and processing of grain. The

grain may have been produced either in the Middle Khabur area or in the northern, more fertile plains of the Khabur triangle. The main reason for its large-scale storage at several small Middle Khabur sites was the practice of shipping surplus down the Khabur on demand in support of the food economy of the important urban centre of Mari. The storage facilities, therefore, belonged to a centralised system of redistributive storage.

The 'local use theory I: steppe consumption'

Hole formulated this theory in opposition to the 'export theory'. He claimed that the food products stored at Middle Khabur sites were produced locally in the area of the Middle Khabur to meet local demands. It is assumed that these settlements had low populations. The food was needed for a growing nomadic or semi-nomadic population in the steppe, mainly to the west of the Khabur valley. Hole argued that these groups were temporarily present in the Khabur valley, occupying off-site dwellings during their presence in the valley but establishing and maintaining the storage structures.

The 'local use theory II: village consumption'

This article argues in favour of a second 'local use theory' that emphasises the presence of permanent houses at the sites of Tell Raqa'i and Tell Atij in association with large storage structures. The households of these villages are regarded as users of single storage units within the complex storehouses. As far as estimates are possible, the number of households correlate with the number of available storage units in the storehouses. The storage activities are interpreted as village-based community storage, although it is possible that some of the households may have engaged in pastoralism, making temporary absence from the village necessary.

In principle any of these theories is possible, but this article argues that the first theory is unlikely because of the restricted capacity and the irregular architecture of the storehouses, the general settlement structures and population figures at the small Middle Khabur sites, and the difficulties involved in the interpretation of 'administrative objects'. The argument for the second theory involving nomadic or semi-nomadic people in the storage activities at the small Middle Khabur sites is purely hypothetical with no supporting evidence. The third theory, the 'local use theory II: village consumption' is preferred, because it can be seen that there were enough sedentary or semi-sedentary households, especially at Tell Raqa'i, to match the single storage units within the storage complexes.

The historical perspective: towards describing the development of economic systems in the Early Jezireh period.

In the survey of storage facilities on the Middle Khabur through all phases of the Early Jezireh period, a clear chronological picture evolves (Fig. 23): indications for community storage are restricted to the periods Early Jezireh I and II, while the evidence of domestic storage is confined to the periods Early Jezireh IIIa, IIIb and IV. The phase of community storage is followed by a second phase in which storage was domestic. It can be argued that these two distinct methods of storage were associated with distinct economic systems. Below we will attempt to define and detail these systems.

A model for the Early Jezireh I/II economic system

In the Early Jezireh I and II periods the economic system existing in the area of the Middle Khabur utilised community storage. The storage of agricultural products seems to have been

EARLY-JEZIREH	Bdēri		Chuēra	Raqā'ī	MODES OF STORAGE	STORAGE FACILITIES
V			I E			No evidence
IV	IV	8 - 6	I D-late		Domestic storage; supra-based: Redistributive storage (palace and temple households)	Domestic storerooms; Domestic storage pits; Domestic storage vessels; Sealings and recording systems for domestic storage; Sealings and rooms for redistributive storage
III b	III b	13 - 9	I D-early			
III a	III a	20 - 14	I C	2		
II	II	27 - 21	I B	3	Community storage	Community storehouses; Sealings and recording systems for community storage
I	I	28		4 5 - 7		Community storehouses; Grill-plan-storage structures (?)

Fig. 23. Modes of storage and storage facilities of Middle Khabur and Syrian Jezireh sites in a chronological scheme.

organised on a village basis. There is no evidence indicating that a centralised administration or foreign institution was involved in this system. Middle Khabur society was founded on independent, autonomous, small villages, engaged in agriculture and animal husbandry, and spread along the Khabur River valley. Besides Tell Atij and Tell Raqa'ī, the sites of Tell Kerma (Saghieh 1991), Tell Mulla Matar (Sürenhagen 1990) and Tell Ziyade (Buccellati, Buia and Reimer 1991; Hole 1999) can be mentioned in this context. All of them seem to have contained structures for communal storage, although the storage facilities differed from site to site. There is no evidence for any change in the economic structures between the Early Jezireh I and II periods; the oval structure at Tell Raqa'ī continues from level 4 (Early Jezireh I) to level 3 (Early Jezireh II).

Community storage was probably linked to some kind of collective organisation of agriculture by single village communities. Distinct social groups could have existed at the small village sites, each performing agricultural activities along the principles of intra-group co-operation. The basis of such co-operation could have been kinship relations, for example clan, lineage or family bonds. In ethnographic examples, kinship relationships are a frequent reason for the development of community or collective storage systems.

Local irrigation systems, which would have facilitated and stabilised the agrarian productivity of the villages, could have been organised and run by individual village communities.

A model for the Early Jezireh III/IV economic system

During the periods Early Jezireh IIIa, IIIb and IV settlements of 5 to 7 hectares existed in the Middle Khabur region, considerably larger than the 1 hectare sites of the Early Jezireh I and II periods. Tell Bderi and Tell Melebiye are the most prominent examples of these 'small towns'. These settlements were founded as far back as Early Jezireh I and were continuously inhabited through Early Jezireh II, but in Early Jezireh IIIa and IIIb they replaced more or less completely the older settlement system of small villages.

The change in settlement pattern was paralleled by the change in the modes of storage. Community storage was not found in this time, but there is abundant evidence for domestic storage within private houses. This hints at dramatic changes in the overall economic and, probably, political system.

These changes happened slowly and continuously; there is no indication of an abrupt change or sudden outside influence during the development from the older to the younger system. The old type of settlement organisation still existed when the new type of settlements, with their different household organisations, came into existence during the Early Jezireh II and the beginning of the Early Jezireh IIIa period.

During Early Jezireh IIIa, IIIb and IV the households of settlements like Tell Bderi were characterised by independent domestic storage. This suggests economic autonomy in agrarian activities. The town communities of this time were much larger than before and were composed of a huge number of households, apparently of a similar economic status. The small corporate working groups of the older period, which participated in community storage, have disappeared. Kinship relations must have ceased to be the basis for community formation and economic organisation.

The integration of Early Jezireh III/IV Middle Khabur town communities into political systems is difficult to understand at the moment, because we have found neither official buildings nor evidence for redistributive storage at these sites. The urban centres of the Khabur triangle and the Balikh drainage have clear evidence of redistributive storage (see above). This suggests that such institutions were also an important factor in Middle Khabur society. Either these institutions existed at places such as Bderi or Melebiye but were not discovered in the excavations, or the redistributive institutions of the Khabur triangle exercised economic and political influence over the valley of the Middle Khabur. In the first case, the Early Jezireh III/IV towns of the Middle Khabur would have supported independent economic-political systems; in the second case, this region would have been dependent on larger, exterior economic and political systems in the adjoining Northern Khabur plains.

From a theoretical point of view we cannot assume that the households of Middle Khabur towns were the only social elements of Middle Khabur societies. It has to be assumed that the households practising domestic storage were overlaid by politically active institutions organising redistributive storage. This combination of social elements can be observed outside the Middle Khabur area at an urban centre such as Tell Chuera, where redistributive institutions existed parallel to economically autonomous or partly autonomous households (Pfälzner 2001, 325–48; 378–79, 381).

The redistributive storage during the Early Jezireh IIIa, IIIb and IV periods can be attributed to temple as well as palace institutions. The Early Jezireh III/IV economic and political system should be conceived as both complex and differentiated.

The picture of the economic and socio-political evolution of Early Jezireh society presented above roughly correlates to the scenarios described by Weiss and Schwartz for mid-third millennium urbanisation and state formation in the Khabur area. Weiss (1990) reconstructs the first emergence of a state organisation as well as large scale urbanisation at Tell Leilan during the Leilan IIIc phase, which can be dated to the Early Jezireh II period. In phase Leilan IIa, which is parallel to Early Jezireh IIIa, after Leilan was urbanised, the city walls were built.

Schwartz (1994b), in an attempt to develop models for the political organisation of Early Jezireh societies, sees a development from complex chiefdoms in the Ninevite 5 period (Early Jezireh I) through a phase of city-state formation in the Late Ninevite V period (Early Jezireh II) to established city states during the following period (Early Jezireh III/IV). The

supposed redistributive storage at sites like Tell Raqa'i is taken by Schwartz as evidence for the existence of elite control in the chiefdom society of the Ninevite 5 period. This idea can not be supported in view of the identification of Middle Khabur storage structures as facilities for community storage.

It is hoped that future research at sites such as Chuera, Beydar, Mozan, Arbit and other places in the Khabur and Balikh drainage will help scholars to evaluate these different approaches and will contribute to a better understanding of the social, economic and political dimensions of the diachronic perspective of Early Jezireh culture.

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