

## URUK: KEY SITE OF THE PERIOD AND KEY SITE OF THE PROBLEM

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This conference has been one of several within a short period of time to focus on the Uruk period. Undoubtedly, this is due to the specific importance of this period as the one which saw the consolidation of the early Mesopotamian civilization; yet, an additional reason may be a general dissatisfaction resulting from the fact that in spite of concentrated efforts these conferences never succeed in leading to a general agreement on chronology and the general context. Every so often someone else gets frustrated and in spite of previous failures has the idea that there ought to be a solution — eventually leading to the call for another conference.

Apart from the normal problems resulting from the inadequacy of any archaeological material, I maintain that in this case the basic problem rests with the inadequacy and sometimes misrepresentation of the information available from the key site Uruk and the failure to get the basic problems of the site disentangled.

The first part of this paper is trying to do just that, ending, however, in not more than a big CAVEAT! Yet, although Uruk proves to be one main source of the problems, the site nevertheless remains the main site which we have to turn to if we want to see a large early urban place functioning. The second part, then, will scrape together all the bits and pieces of information on the short period of time of Archaic Level IVa which we happen to know best. Instead of giving the normal composite picture for 'Late Uruk' a snap-shot is intended for this very latest phase of the Uruk period.

### URUK: KEY SITE OF THE PROBLEM

Part of the problem is that all primary information on Uruk has been, and to some extent still is, given in such a manner that no one is encouraged to or would be able to question its validity. In this context, it is telling that none of the excavators ever gave a full and general account of the work done in Uruk; a useful but somewhat dry attempt to disentangle the Archaic Eanna levels is found in Eichmann (1989). And indeed it will be difficult to give a full summary going beyond presenting architectural plans and catalogues of finds because except for the preliminary reports, there just is nothing available except the plans and the find registers — and, of course, the finds themselves. Though there is a need for a critical evaluation of the work in Uruk in general I will limit

myself to evaluating the reliability of pottery published from the Archaic levels in Uruk; it is there that our problems arise.

A rough sketch of the course of the excavation of those levels we are concerned with here will serve as an introduction both to the problem section and the narrative part.

Despite the fact that remains of that same period have been uncovered at a number of sites, Uruk retains its position as the site with the largest exposure and the most important finds, because of the relatively easy and large scale accessibility of remains of this period, resulting from the history of that city during her early periods (Fig. 1).

As a result of the shrinkage of both the city and its central area following the enormous expansion during the early years of the 3rd millennium, large parts of the former central areas had been left open, only eventually to be resettled by private houses in the 8th/7th centuries BC. Thus building remains of the late 4th and early 3rd millennium were encountered almost immediately beneath the houses of the 1st millennium BC. Those houses, built of baked bricks, were easy to excavate, and after their removal an area of almost 6 ha was available for an extensive recovery of the early remains.

The remains of the uppermost early levels dubbed Archaic Levels I through III in Eanna, in addition were heavily damaged by erosion (Fig. 2). These levels resembled each other since a platform intended to receive a temple, on top of which nothing remained, marked the center of the central area, surrounded by buildings of apparently lesser prestige, with one exception: the so-called pisé-building (Stampflehmgebäude) which although sometimes preserved to a height of 3 meters did not pose too many stratigraphic problems, and thus again was removed relatively easily; both its purpose and its history and exact stratigraphic position remain enigmatic (Boehmer 1991; Finkbeiner 1991a; Siewert 1991). Ongoing exposure revealed that this situation was the result of a comprehensive re-organization of the central area of Uruk following the situation in Level IV when the entire area within the early temenos wall had been used for major and some minor public buildings without any apparent central feature (Fig. 3). It was relatively easy to reach this pre-reorganization level, which by then had become the focus of attention anyway because it had

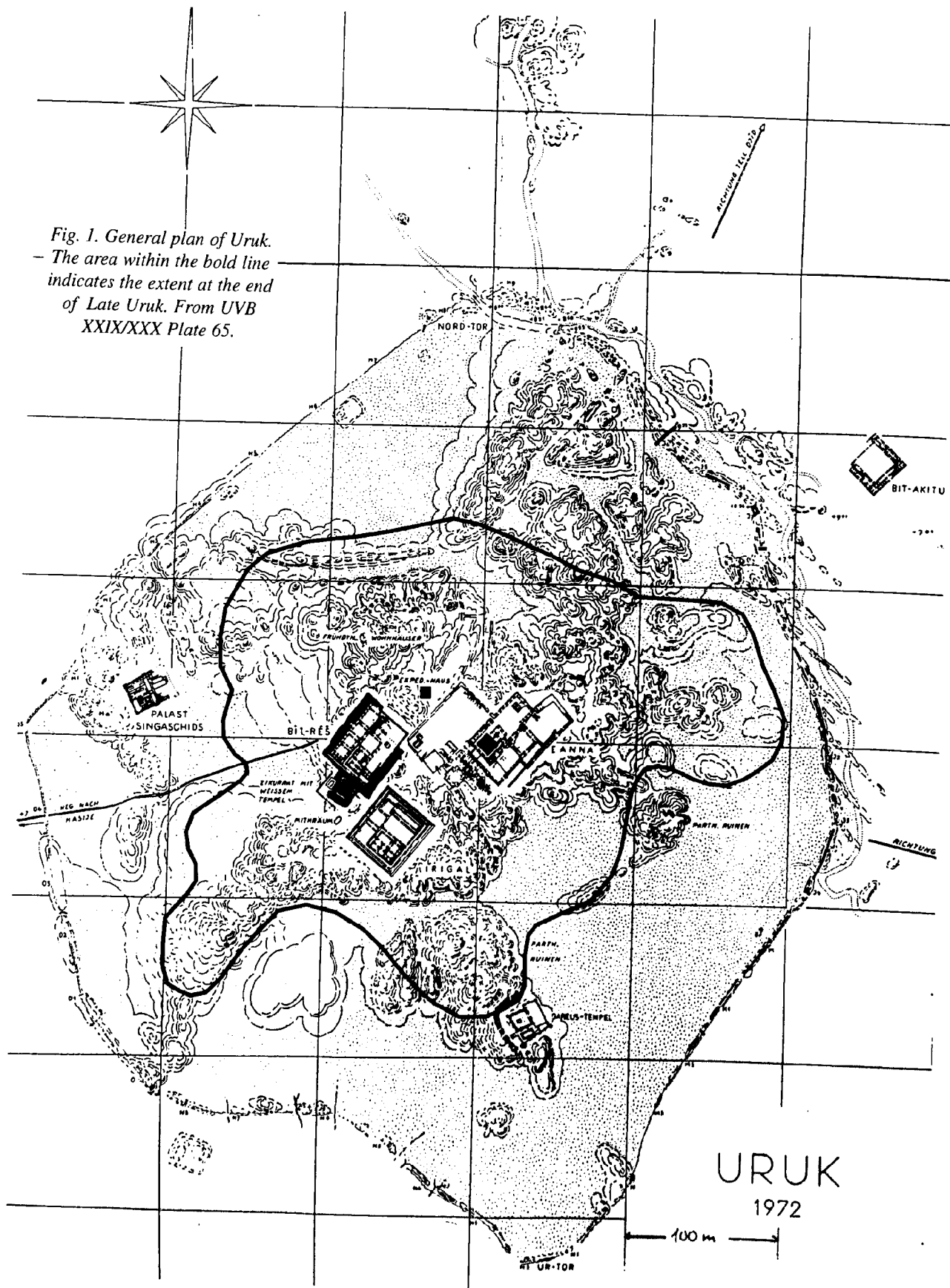


Fig. 1. General plan of Uruk.  
 - The area within the bold line indicates the extent at the end of Late Uruk. From UVB XXIX/XXX Plate 65.

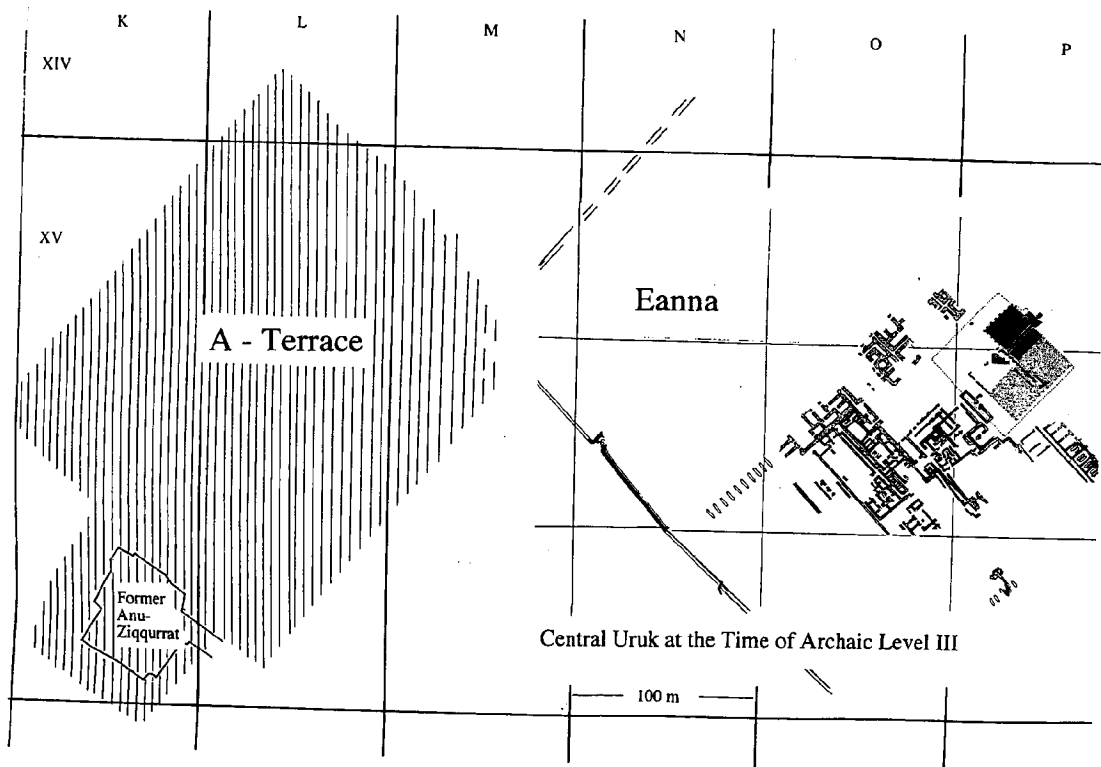


Fig. 2. Plan of the central area of Uruk during Eanna Archaic Level III. Author's original based on UVB X, Abb. 2 and UVB XX Plate 30.

turned out to be associated with the occurrence of the earliest clay tablets with true writing (UVB II, 43ff.).

This rearrangement of the architecture after Archaic Level IV was taken as the dividing line between two main cultural phases, and since by that time efforts were made to design a general system of chronological subdivisions, Level III was called after the site of Ĝemdet Našr while IV was assigned to the end of a period called after Uruk itself (Potts 1986). In due course, in addition to hundreds of the earliest tablets several hundreds of lumps of clay with impressions of magnificently decorated cylinder seals, some objects of major art, and ensembles of buildings remarkable for both their plans and their size were recovered from this level.

Uruk had been started as the third excavation of the German Oriental Society after Babylon and Assur, all run by historians of architecture. Unlike Babylon and Assur, howev-

er, with their firm context in well known historical periods, the excavations in Uruk from an early point on opened a door into an unknown context. This turned out to pose problems which the architects were not equipped to deal with. None of them was trained in methods of pre-historic research and while some of the early directors would admit that pottery could be a useful tool for dating

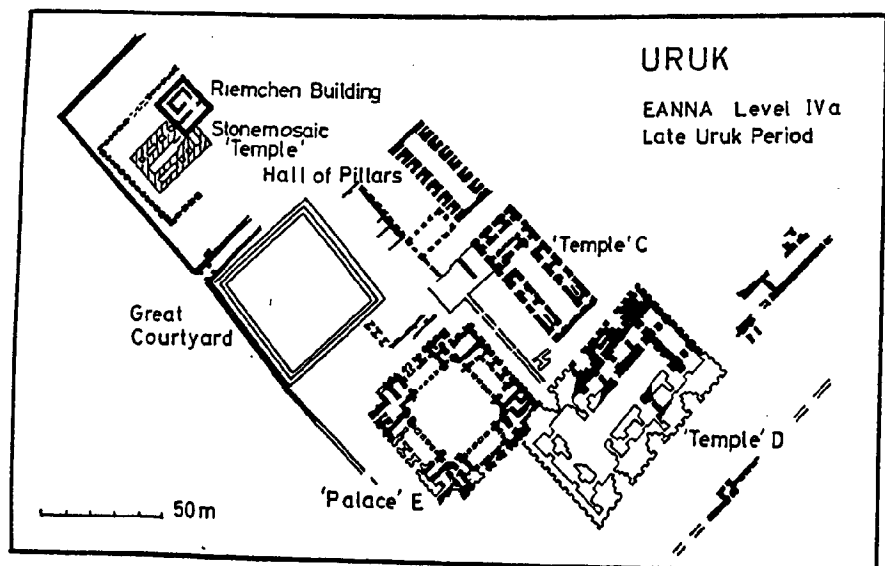


Figure 3. Plan of the buildings of Eanna Archaic Level IVa. Author's original.

and comparative purposes, Lenzen as the one who was longest in office was explicitly opposed to this approach and consequently during his long years of directorship, attention was only paid to pottery if it were complete vessels, or if the sherds happened to be decorated. While architecture was meticulously recorded, and tablets and seals were given due attention, pottery was explicitly neglected in most cases. This happened to create most of the problems when it comes to linking Uruk with the contemporary outside world. Furthermore, the pioneering work of Falkenstein's on the first 620 of the oldest clay

tablets (Falkenstein 1936) seemed to suggest that once the tablets could be read, they would throw enough light on the period to make it redundant to question archaeological material of allegedly inferior value like pottery or animal bones. This critical view may sound strange, since after all, there does exist a pottery sequence from the so called deep sounding in Uruk, which everyone is referring to. But exactly this is the center of the problem, because this sequence is not what it pretends to be.

The general neglect of pottery in the Uruk excavations could have continued, but all of a sudden,

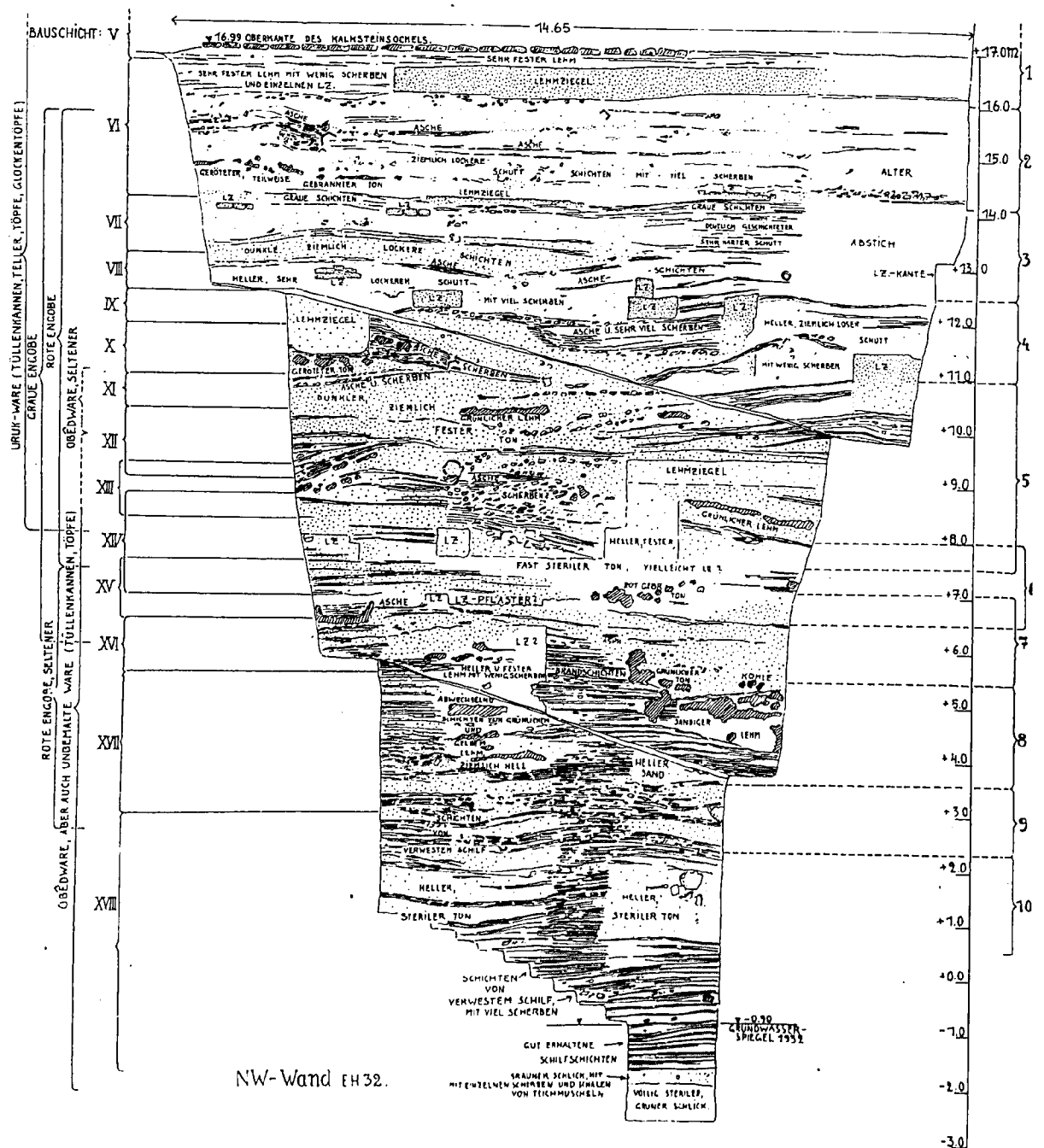


Fig. 4. Section of the deep sounding. From UVB IV Plate 2.

Mesopotamian archaeology, and the excavators of Uruk in particular, were confronted with the finds from Habuba Kabira, and shortly thereafter from Tell Kannas and Jebel Aruda on the Euphrates in modern Syria (for literature cf. Algaze, 1993). Findings of unmistakable Uruk-period affiliation turned up in large quantities, within a presumed alien environment. Immediately questions arose as to the nature of relations with Uruk-period Babylonia, and in particular as to the exact temporal relation. The Uruk crew was caught by surprise and was unprepared to enter a meaningful dialogue. Instead, no one interfered, if only by cautioning, when people started using the pottery sequence of the Uruk deep sounding as the point of reference. It is at this point when the second part of the problem began. But first let us check the reliability of the pottery from the deep sounding.

People had noticed before that on the pottery plates for the Archaic Levels I - III of the Uruk sequence (von Haller, 1931, Taf. 20 B and C) items were included which undoubtedly were of much later date, and, secondly, questions were raised whether more material might be available than published. While this question was never answered, at least most of the published sherds themselves were found in the reserves of the Berlin museum. Subsequently, the sherds were re-studied, re-drawn and re-published (Sürenhagen, 1986 and 1987). However, this publication of Sürenhagen's did not change the basic message, and the validity of the pottery sequence was not only not challenged but strengthened - in particular, he did not even try to question the completeness of the material.

In order to understand the basic problems one has to know that the deep sounding had only been started after the Level V building, the so-called Limestone Temple, had been cleared already to its floor level. The site of one of the large courtyards of that building was chosen (Eichmann 1989, 39f.; Beilage 25). Consequently, the lower levels encountered there received designations from VI on. Altogether 13 lower levels could be distinguished using floors or walls as dividers (von Haller 1931 Taf. 2; Eichmann 1989, Beilage 4; here: Fig. 4).

This meticulous recording of occupational traces contrasts with the kind of information on the other finds. To be sure, the publication gives us a rich collection of pottery (von Haller 1931); but nowhere do we find information on whether this constitutes everything found, or only a selection. In fact the much wider range of pottery shapes and finishes recorded than for other parts of the Uruk excavation led and still leads readers to believe that every sherd was kept. But while from assemblages from other sites we know that certain types were more numerous than others, the assemblages of the Uruk deep sounding resemble more a mean section, giving one example for each 'type' only.

Two examples may suffice: one is provided by the type 'cup with strap handle' which in other Late Uruk contexts (for example, Nippur: Hansen 1965, 202 fig. 6;

203 fig 10; Susa: Le Brun 1978, fig. 28; Chogha Mish: Delougaz and Kantor 1996, Pl. 95-97) is reported as quite frequent, while from the deep sounding for all Late Uruk levels, i.e. levels IV through VIII, only 2 examples are published (von Haller 1931, Taf. 18, Cu; Dv).

The other example concerns the so-called Bevelled Rim Bowls. While from all other sites of Uruk date we know that mass-produced types like bevelled rim bowls, or early conical cups sometimes account for half, or even more, of the total sherd count (Delougaz and Kantor 1996, 49-50), we find only one single Bevelled Rim Bowl depicted within the deep sounding plates, and this is for Level XII (von Haller 1931 Taf. 18A c); none of these bowls appears for the levels when elsewhere they occur in massive numbers. The answer is that still in my time in Uruk any of these sherds would be met with 'we have seen them before', and be thrown away. It is my firm conviction that the pottery tables of the deep sounding represent a selected sample only.

This is true anyway for anything depicted for Level V and above because as mentioned, the sounding was started only below the floor of V. Everything given for Level V and upwards is either material from another trench in Eanna (the so-called 'Sägegraben', again republished by Sürenhagen (1987), or a selection of sherds found over the entire area of Eanna which had been ascribed to one of these levels mostly by non-archaeologists. To add the final point: the task of publishing the pottery was entrusted to the architect von Haller. No wonder, therefore, that good 2nd millennium sherds are found among the pottery depicted for Levels IV or III.

The failure to see these basic problems started to have consequences when the excavators of the newly found sites in Syria started comparing their pottery assemblages with the Uruk sequence in order to establish temporal links. The presence, and even more the absence, of features from the Uruk pottery assemblages as represented in the plates of the deep sounding were taken as authoritative when it came to close dating. One of the last and most unfortunate examples is Sürenhagen's correlation of the Habuba assemblage with Uruk Levels VI and VII, on account of the alleged absence of bevelled rim bowls from Levels V and IV in Uruk (Sürenhagen 1993)!

This may sound like academic dogmatism, but in fact, it pulls the carpet from under our feet: with the pottery sequence of the Uruk deep sounding shown to be unreliable we have nothing to substitute for it. The Nippur deep sounding is not published in full (Hansen 1965), and the Abu Salabikh sequence is not long enough. To be sure, there are other items from Babylonian excavations which could be used for dating purposes, like seals or writing tablets, but they either do not occur in the areas outside of Babylonia, or not in a way to be used for comparative purposes. With pottery being the only reliable means of correlation we therefore have to face the fact, that at a point when Uruk — and Babylonia — from all we know would seem to be the

most obvious point of reference for this period, details do not allow us to use it as such.

Unfortunately, this is not end of the problems with the material from Uruk. When people talk about Uruk-period Uruk, one often gets the feeling that they are not aware of the totally disparate amount and kind of evidence. In fact, almost everything we ascribe to the (Late) Uruk period — whether architecture, or seals, or writing, or art — originates from the short phase of Level IVa. Only very little is known of Levels IVb and c, and even less of Level V, and almost nothing of the lower levels. Our habit to speak of the Late Uruk period having seals, art and writing, is stretching the evidence because it is only for architecture that we have evidence for the IVa building principles reaching back as far as level VI. If we want to avoid unfounded assumptions we have to keep those phases which have yielded little more than pottery apart from Level IVa with the abundance of information I am going to talk about later on.

A final misunderstanding derives from the fact that the excavators treated those rubbish layers containing the tablets and sealings as if this rubbish originated from the buildings underneath. As has been stated over and over by the excavators themselves, all the magnificent buildings were found totally emptied. The reason behind it is, that from all our evidence, these buildings were not destroyed but apparently were carefully dismantled down to wall stumps of about 50 cm in height. The cleaned areas between these stumps then were filled with bricks from the demolished walls, in order to create huge terraces which eventually were used as foundation platforms for the next building. In other places, for instance between former buildings, larger depressions had to be filled before reaching the intended height. In these cases, rub-

bish from somewhere else was brought to the spot in order to level the ground before the spreading of the terrace. It was these rubbish layers which in addition to pottery, bones and ashes contained the tablets with archaic writing, and the sealings. Contrary to the opinion of the excavators the rubbish was not connected to the building on top of which it was found. The proof for this departure from the excavators' assertion is provided by adjoining fragments of the same tablets found in totally different rubbish complexes (Green, Nissen 1987, 24-25).

If any dates can be given to these objects found in the rubbish, it is the date of their final dumping which can be encircled only in those cases where the rubbish stra-

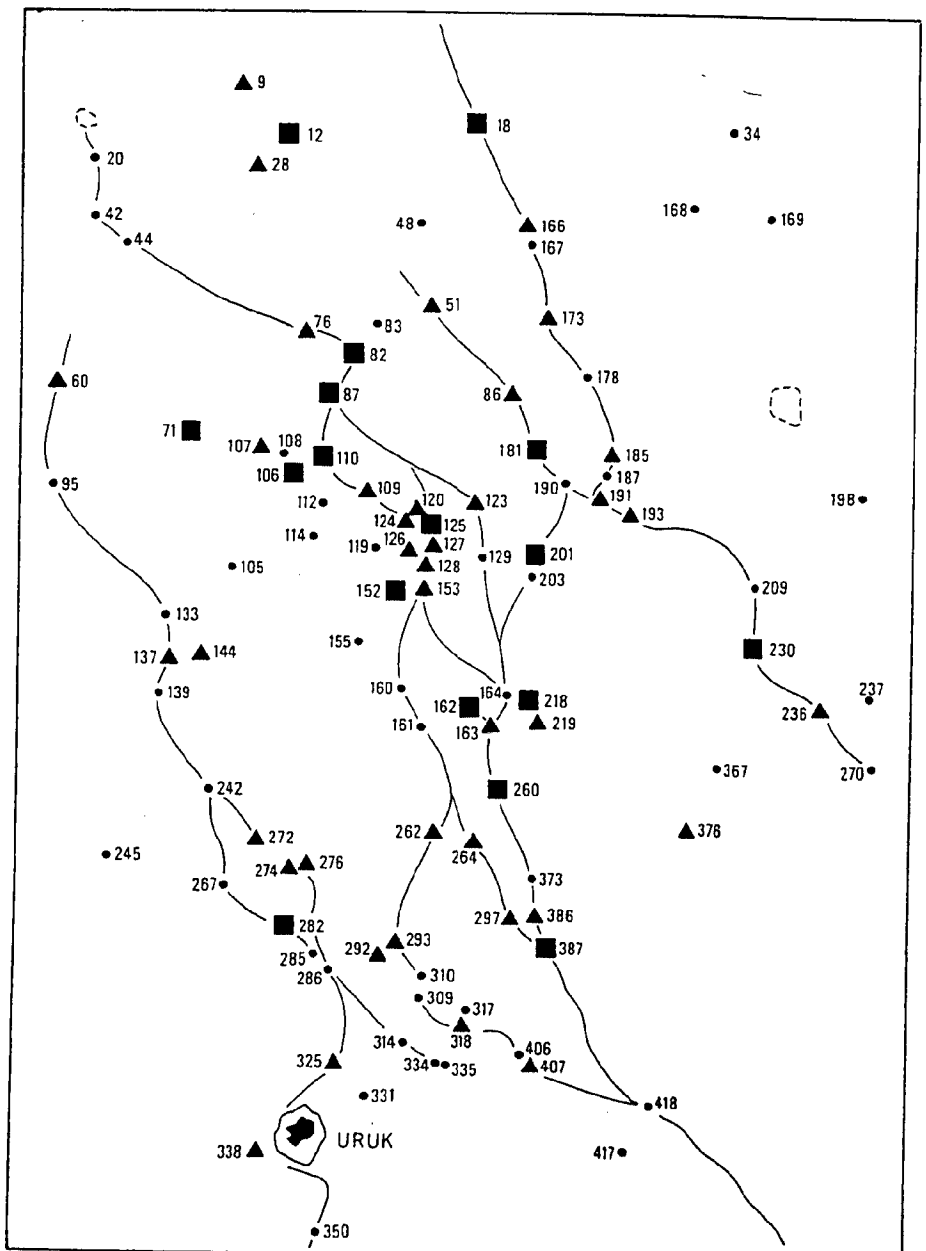


Fig. 5. Warka Survey map of the Late Uruk period. Author's original.

tum is sealed by a superimposed structure which itself is tied into the stratigraphic sequence. Consequently, all allegedly dated objects from Uruk have to be re-examined as to whether they belong to this category.

Of these cases, only one example should be mentioned here, the sealed clay bullae, which outside of Uruk have been found at many places in Syria/SE Anatolia as well as in Susiana. Their peculiar appearance suggests a specific purpose making it unlikely that they emerged independently. Thus their appearance could be an ideal temporal anchor, putting all find spots within a narrow bracket of time. The evidence from most of the other sites points to a date before the final phase of the Late Uruk period. Unfortunately, these bullae were found in Uruk in a pit sealed by a structure of Level III date. The situation of finds in Uruk therefore cannot be used for a close dating within the Late Uruk period, excluding their use for establishing a close link between Uruk and the other sites.

As mentioned before, Uruk period levels have nowhere been uncovered on either a comparable scale, or representing the full sequence. Thus no other material is available which could at least help straighten the Uruk mess. Since there is no hope for quick remedy in Uruk or Babylonia, the only way out is to turn the tables: all efforts should be put into establishing a close net of correlations and crossdatings between the sites outside of Babylonia, into which one day the Babylonian sequence may be tied.

#### URUK AT THE TIME OF ARCHAIC LEVEL IVA

Taking advantage of this new situation I feel free to concentrate on the material from Uruk itself, treating it as a self-contained universe, without constantly paying attention whether and to what degree its development can be linked to the outside world. As a matter of course, it is understood that this approach is justified only as long as this internal net of correlations within the outside world has not been established. It goes without saying that this approach does not mean a digression from our basic concept, that both development and importance of Uruk cannot be fully understood unless its relation with the neighboring areas is considered.

Before turning to the main topic, I should like to mention another point adding to the notion of complexity. Except for short interludes, up to the end of the Parthian period, Uruk and her hinterland had always been watered by a branch of the Euphrates. During the Sasanian period, however, the Euphrates changed its bed to the modern position and barely touched the westernmost fringes of the old agricultural area. Fallen desert since, this area, especially north and east of Uruk, provides an opportunity to investigate large stretches of land whose surface had not been touched since centuries. Only altered by wind erosion which in fact even enhances the potential of finding items of archaeological importance on the surface, this area around Uruk proved to be an ideal ground for applying methods of archaeological surface surveying.

It was another stroke of luck that particularly for the Uruk period it was possible to locate more than 100 sites of all sizes in the countryside of Late Uruk date. However, none of them came even close to the probable size of Uruk of 250 ha, leaving Uruk undoubtedly the largest and most important site of the area. Since for this survey, antedating any of the subsequent investigations in Syria and Southeast Anatolia, only the material from Uruk was available for establishing the pottery sequence, the nomenclature had to follow the guidelines derived from Uruk. Though later findings, for instance from Abu Salabikh, could suggest that a distinction could have been made between Middle and Late Uruk, the basis did not exist yet. Since the survey operated on the principle of diagnostics for each period and since no full collections could be kept, the evidence does not allow a revision.

Though the first part of my paper has conveyed a rather pessimistic outlook as to the reliability of the information from Uruk there is enough material available to venture giving a sketch of the situation in Uruk during the Late Uruk period. Unless explicitly mentioned, however, this sketch will refer only to Archaic Level IVA.

According to the surface survey of the site (Finkbeiner 1991b), the dense coverage with Late Uruk pottery extends over an area of at least 250 ha, or 2.5 square kilometers (cf. Fig. 1). As a rule of thumb we came to use a ratio of 100 to 200 inhabitants per ha of inhabited area. Unfortunately, the preoccupation with the central areas never left time to investigate private quarters in Uruk. Thus any more refined approach to population figures is excluded. If from these 250 ha we deduct 50 for the public areas, streets etc. we end up with between 20,000 and 40,000 inhabitants of Uruk around 3200 BC. N. Postgate has even calculated that we might have to reckon with 500 per ha (Postgate, 1994). But even the lower figures may suffice to give an impression of the many and complex problems of organization connected with such size.

To stay with the organization for a minute, I would like to refer to the results of the survey of the hinterland (Fig. 5). In the sectors north and east of the city — because of swamps and cultivation west and south were inaccessible for the same kind of archaeological investigation — more than 100 settlements could be located which by their surface pottery can be shown to have been inhabited in the Late Uruk phase. In size they range from less than 1 ha to more than 20. Furthermore they are arranged in such a manner that one could imagine several small settlements relating each to a larger one. Obviously, one cannot expect them to be arranged to follow the theoretical pattern of settlement systems of Christaller's when he formulated the central place theory (Christaller, 1934), but there are enough elements visible to finally reconstruct a four-tier system of settlements with Uruk at the very top.

The idea of the central place theory is that within an array of settlements, one of them would attract those

organizational functions which everyone needed but which are too specialized to be sustained in every small village. A central place by definition would be the home of central functions which are on a higher level of complexity. To control these functions or to enhance them, needs a higher socio-economic competence and organizational abilities. The more tiers a system has the higher the degree of specialization, the more complex the situation of the society, and the higher the competence necessary to keep everything under control (Johnson, 1977). Quite obviously, the top of a four-tiered system required a very high level of competence in various fields, of which I may mention here only the one directly connected to the city-hinterland relation.

As a matter of course, the inhabitants of the city, are not able to produce all of their food. For instance, if we assume that the 40,000 inhabitants had to grow their own barley, an area of 70 square kilometers of intensively cultivated land would have been needed, or an area of 5 km radius from the city limits. However, part of that land was already occupied by villages. Another part seems to have consisted of swamps which existed well into the next period (Adams, Nissen 1972, p. 25 with fig. 12). Consequently, we should assume that part of the food supplies had to be delivered to the city by the hinterland. Unfortunately, there is no information in the texts on how this could have been organized. Most probably, this system was very precarious and prone to be disturbed, and yet it just had to be kept functioning short of creating food problems in the city.

But back to the city itself. Possibly the city grew out of two settlements on either side of the Euphrates which then would have flowed right through the center of later Uruk. Because of later overburden, there is no evidence available. The assumption, then, is based on the existence of the two main cultic installations, 'Anu' and Eanna facing each other in the center of Uruk; on the assumption of tensions between the two, as a result of which one of them ('Anu') was totally withdrawn from sight by the very end of Late Uruk (Nissen, 1972); and on the later tradition which keeps the memory of the old, venerable name of Kullaba for Uruk or a part of it without specifying its location. In a country criss-crossed by rivers, crossing-points are important points of aggregation; it should not be unusual to find twin settlements on either side of such a crossing; for examples within the Uruk hinterland see Adams, Nissen 1972 fig. 11. Although both parts would long have been joined by the time of the Late Uruk period, with the Euphrates divided into two courses on either side of the city limits, the difference must have been still visible, as from all information we have, the western part of the city was about 4 m lower on the average than the eastern part. As the most vivid remains, there survived two central areas in the center of the city, known as Eanna in the east and the so called Anu district in the west.

Of the two, Eanna is much better known because over the next couple of thousand years it remained the

cultic center of the city, re-arranged by Urnammu shortly before 2000 BC in form of a Ziqqurra with surrounding courtyards and buildings. The Late Uruk ensemble was much larger and probably covered an area of 8-9 ha, of which close to 6 hectares have been uncovered. It stood out in height by two meters from the surrounding eastern part of the city area and presented an almost even surface, sloping down towards the southern corner. As far as it has been investigated the area was occupied by a number of major buildings of up to 1500 square meters of floor space, interspersed with small special structures, remains of older cultic structures, open spaces and a square water basin with sides 50m long. Unless a central building is still hidden in the unexcavated area, these buildings and structures seem to have served either a number of different functions, or a pattern of consecutive functions. None can claim from size or arrangement to have been more important than the others.

At this point it should be stressed already that none of the structures in any way resembles buildings destined for any kind of economic activities.

Much less is known about the western center because right after the end of the Uruk period part of a complete reorganization of the central areas consisted of the erection of a huge platform which was supposed to engulf the old central building of the Western part. Since this terrace remained in use for unknown purposes and later was even taken as the foundation for the enormous building complex of the Bit Resh, a large temple complex of Seleucid times, the larger part of that old western center remains inaccessible. Fortunately, we happen to know what probably was the oldest central structure, a high terrace of 11 m in height, with a temple on top, known as the White Temple, which may have risen a further 6-7 meters. The impression must have been a totally different one from Eanna, with that White Temple standing as a landmark to be seen from afar.

Going on to talk on the level of complexity, it would be easiest to expand on what we know from the archaic tablets. But it would be unfair against all my colleagues who do not control this kind of material, and if I understood the topic of this conference correctly, the idea was also to probe into the question of to what extent it is possible to talk about complexity when we have only archaeological material available. In fact, this is the issue for all other sites except Uruk. Before turning to the texts, I therefore would like to restrict myself to discussing the archaeological evidence for complexity. If this is accepted then three items remain to be discussed: pottery, a workshop area, and the cylinder seal.

With my remark on the normal attitude in Uruk towards pottery it is quite obvious that there never was pottery collected which would be suited for any kind of technical analysis or a study of the production process. In our context, remarks on pottery therefore have to be limited to two issues: the use of the true potter's wheel and the mass appearance of the bevelled rim bowls.



Until not too long ago it was held that what distinguishes Uruk pottery from Ubaid pottery, apart from largely being undecorated, is that Uruk pottery was made on the wheel, and that it was the only one for which this new tool was used. With new evidence pouring in from Syria and Southeast Anatolia this may not be the case any more as other contemporary kinds of pottery also seem to be produced the same way. But this does not affect my argument which then would be valid for the other complexes too.

The idea is that a new tool, or a new technical process is an answer to a challenge, or the other way around, without challenge no new technical device. One may derive an idea on the kind of challenge from comparing the new with the old situation and ask for the advantages of the new process over the old one (Nissen, 1989). In our case, the advantages are that the use of the fast wheel undoubtedly serves to speed up the process of pottery production. This could be answering two problems. On the one hand this could be a compensation for a decrease in the number of people employed in pottery production, as one of the results of the increasing professionalization of the crafts. On the other hand, or in addition, it could be an answer to an increasing demand, be it because of population growth or because of a growing diversification of types within the average household. Only the sheer population growth would be neutral in the sense of our question, while both other points are elements of an increase in complexity.

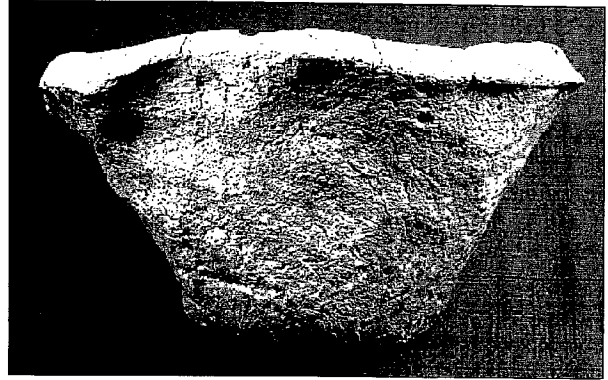


Fig. 6. Bevelled Rim Bowl. Author's original.

Much has been written on the issue of the Bevelled Rim Bowls (Fig. 6; summarized in Millard 1988), and although I am still holding on to my idea of these bowls being designated to issue the daily barley rations to large numbers of people, this is only part of the argument here. The main point is its massive appearance — Chogha Mish (Delougaz and Kantor 1996, 49-50) — and its uniform size. Whether destined for rations, votive offerings (Mallowan, 1933, 168), yoghurt (Delougaz, 1952, 127f.) or bread (Millard, 1988), they served one limited purpose for an unlimited number of cases. If the Bevelled Rim Bowls were for bread, it would mean that either bread would be distributed in large quantities, requiring a cen-

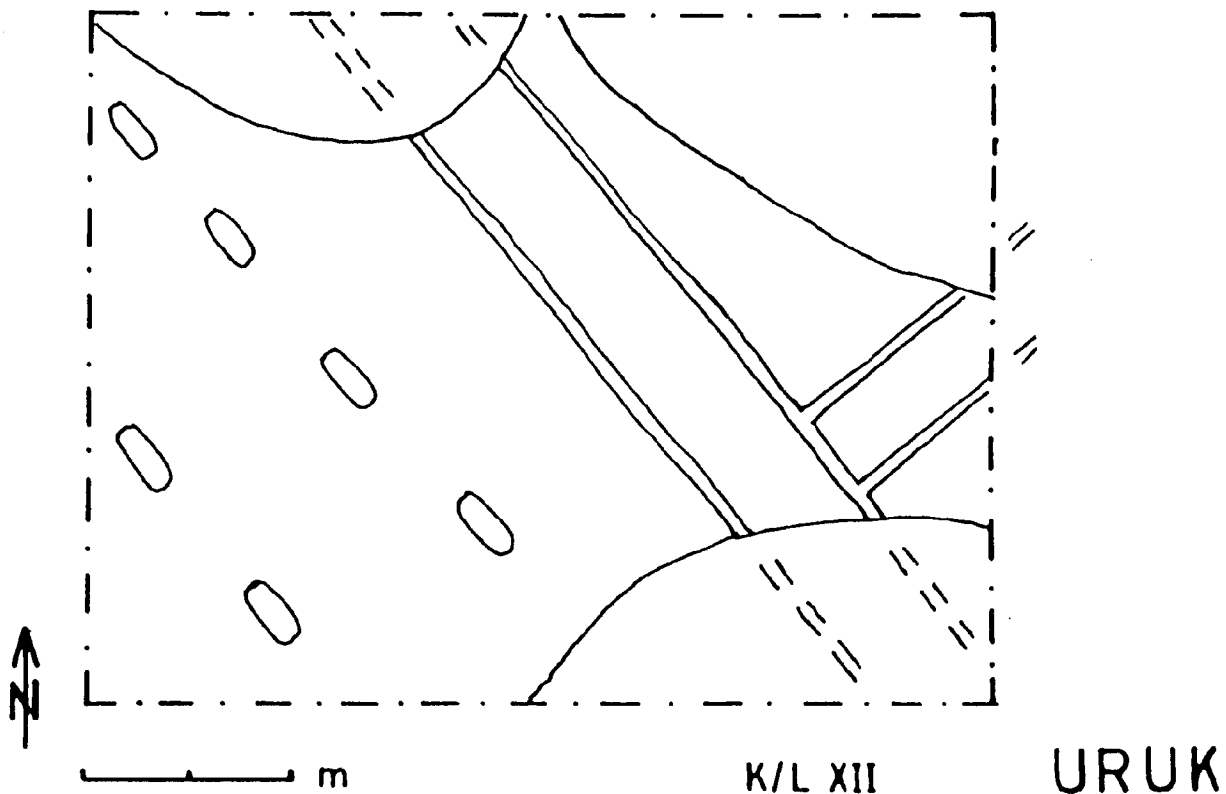


Fig. 7. Plan of excavation in Uruk squares K/L XII. Author's original.

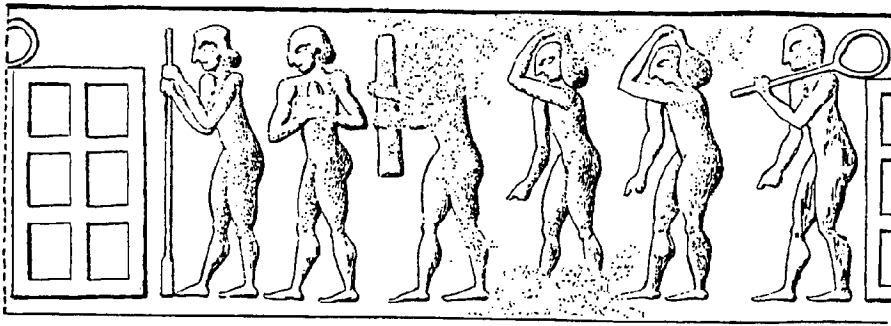


Abb. 1



Abb. 2



Abb. 3

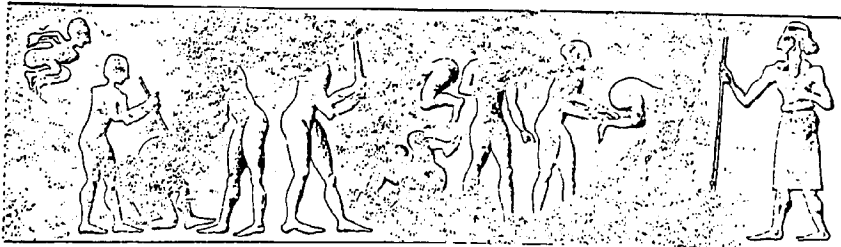


Abb. 4



Abb. 5

Fig. 8. Drawing of some cylinder seal impressions of Late Uruk. From Lenzen 1949, Abb. 1.

tral agency, or bread would be made by private bakers but in uniform weight, and again it would require a central agency controlling the compliance with the standard. At any rate, the existence of Bevelled Rim Bowls by the millions as in Babylonian or Susiana sites does indicate a high level of complexity.

Next is the case of a workshop within Uruk. Since I used this example quite often before (Nissen, 1988, 90f.), I may be allowed to restrict myself to a short reference (Fig. 7). A number of parallel long troughs and accompanying oval holes were found dug into a gently sloping surface, everything exposed to high temperatures. The troughs and the pits still contained ashes. Although nothing pointed to the nature of their purpose, I proposed that it may have been a metal-melting plant, where in the absence of larger crucibles small amounts of metal were molten in each of the pits, and then poured into the preheated troughs where they would join and flow into the direction of something like a foundry. People have argued that metal couldn't possibly stay liquid, but specialists support my proposal.

Anyway, in this context my argument is not connected to what was done there, but I am interested in the organization. Because it seems obvious that something was done simultaneously at each of the pits in direction of the troughs.

This is a case of bundling of labor which is considered to be an advanced kind of division of labor. One may go one step further and assume that supervisors were necessary to keep the work on the troughs under control, and might

even think of a higher level of coordination should the idea of a foundry hold. We will see in a minute that such hierarchization is present in the texts.

My last archaeological sample is the cylinder seals. As mentioned earlier, the Uruk material does not give a clear answer as to the earliest occurrence (Fig. 8). Attempts by M. A. Brandes (1979) and R. M. Boehmer (1999) following H. J. Lenzen (1949) to assign some seal impressions an early date in the Uruk sequence have to be dismissed: the rubbish including the seal impressions dates from the same time as the building underneath - rejected above-, while Boehmer (1999) in addition ignores the principle that rubbish can only be dated in very loose terms, and only if superimposed by a stratigraphically dated structure (Green and Nissen 1987, 21ff.). In fact, the oldest firmly dated specimens may date back to Level IVc, since there is vague reference to seal impressions found on or between the stones of the limestone temple of Level V. All the evidence from other sites tells us that cylinder seals must be older, however, and I would not hesitate to accept a dating to Level VI or VII times.

No matter at what time, but certainly when the cylinder appears then it is a sudden affair of almost entirely replacing the old stamp seal. If we want to know the reason we should ask for the advantages the cylinder had over the stamp. Two come to mind immediately: much larger surfaces can be provided with an impression of the seal, and more complex and encompassing themes can be applied to the seal. Taking for granted that seals always had played a role as a controlling device in economy we may ask what these two new elements may have been a reaction to.

The function of a seal always had rested on the possibility to recognize the owner of the seal through its design and thus to know who would take sanctions against any improper treatment of the sealed item. Stamp seals offer a limited space for design variation, and thus only limited possibilities to create unmistakable patterns which is necessary if the aim is to identify the owner. If the provision of a larger space for seal designs was a reason for the cylinder seal, this could be an answer to a growing need to enlarge the range of distinguishable designs. Two possible explanations come to mind: one, growth in the number of people who were engaged in economic matters and needed an unmistakable seal. The other one derives from the observation that within a small community a code with minute differences may be acceptable but with the enlargement of the range of economic activities to include even unknown partners it becomes more important to have strong code differences.

The latter argument could also be used in the case of the second main difference to the stamp. While earlier it was held sufficient to know who applied the seal in order to safeguard the sealed object, the sealing of the total surface by means of the cylinder seal adds another quality of security: any breakage of the sealed surface

would be noticed immediately because the relief could not be restored. Now, it is not only the authority of the seal owner protecting the item but also the impersonal total coverage. If this provision was intended, it again could argue for an expansion of the range of economic life beyond the limits where it was based on personal acquaintance.

Whatever reason was responsible we will never know, but the cylinder seal probably succeeded rather quickly because it provided solutions to several problems. These problems were all connected with the economic situation, and no matter which one we chose to have been the driving force, they all argue for an expansion of the economy, both in volume and in the number of people involved as well in the range in the geographical sense.

To return to our topic: if already the frequent use of the stamp seal in connection with some kind of centralization as in Ubaid period Tell Abade speaks for a rather complex administrative situation, then certainly the advent of the cylinder seal marks a considerable increase in complexity.

Finally the first script. Again so much has been written on the earliest writing (Nissen, Damerow, Englund 1993) that I may be allowed to limit myself to a number of comments, both on a more general level and specific to the topic.

It may not need to be reiterated that the existence of a writing system is a sign par excellence of complexity, but it is worthwhile to recall the probable course of events which ultimately led to the appearance of writing. This is especially so, because we get another argument for a period of increasing complexity which we derived already from the discussion of the other items.

Some points may briefly be recalled in advance. On the problem of the dating of the first emergence of writing I can only repeat myself: the earliest tablets can be assigned a terminus ante quem date of IIIc, leaving as date for their manufacture the time of Level IVa, not excluding a slightly earlier date (Green and Nissen 1987, 50).

We have no idea on the original place of their employment. True, the contents of a number of the administrative documents can be read as part of a centralized economic administration, taking in enormous quantities of food stuff and other goods, and distributing them to offices and individuals, but this does not necessarily require that all tablets belonged to that sphere. I cannot help developing the feeling that the fact that nearly all tablets were found within the limits of Eanna plus the prevailing ideas on a centralized temple economy extracted from later sources have prevented us (including myself) from asking inconvenient questions.

There is more reason to question the Archaic Texts being a true sample. Wherever levels of the Archaic period date have been reached outside of Eanna (squares OXI-XII; UVB V, 13ff.; K/L XII: Nissen 1970;

Archaische Siedlung: UVB XIX) at least one Archaic tablet has been found. The almost exclusive provenience of the tablets from Eanna may thus be nothing else but reflecting the area of exposure: 60.000 square meters of Eanna against a total of approximately 25 square meters for all the other trenches!

And finally, we have not been able so far even to suggest where both the storage and the controlling may have taken place. Unless one assumes all these structures to have been located in the still unexcavated areas, there is just no structure within Eanna to accommodate such activities. The longer I am confronted with this problem the less am I excluding the possibility that this area may have been outside of Eanna. As I mentioned already, the rubbish used for these layers in Eanna must have been brought there from a central dump area where all the garbage from the occasional cleaning of the stores and offices had been brought, including the expired tablets and sealed items.

But let us return for a moment to the question of the origin of writing. As in previous cases, we should start by asking what it was an answer to. Among the close to 5000 archaic tablets and fragments from Levels IVa and III we do not have a single one which would not belong to the main big groups of documents of economic administration on the one side, and lexical lists on the other side. Specifically, from its overwhelming use as a means of economic control there can be no doubt that it answered to new needs in the economic system. If we are asking for precursors, then we should be looking for arrangements which may have fulfilled that task before, only on a more restricted level. Since apart from all the connotations which we usually attribute to writing, writing certainly is the most universal means of information storage, it is worthwhile to look for older kinds of information storage.

As such we met the sealing technique already which is nothing but a system to store information on the seal owner. Like seals we know from the Neolithic of another system of storing numbers or quantities by means of clay tokens which according to different numerical values took on different shapes (Schmandt-Besserat 1992).

These are simple but effective systems, simple because they allowed only one item of information to be stored at the same time. For thousands of years this apparently was held sufficient, only in the course of the Late Uruk development do we recognize attempts to enlarge the storage capacity. Two features come to mind: the sealed clay bullae and the sealed numerical tablets. In the first case, a certain number of clay tokens representing a certain number was wrapped into a ball shaped clay envelope whose surface was entirely imprinted with one or more cylinder seals. This way the same device allowed to store information on the number and on the person responsible at the same time. The same is true for the sealed numerical tablets, consisting of clay slabs supplied with indentations standing for numbers; the surface of the tablet then would be fully covered by cylinder seal impressions.

I take these items for indications that the older systems of information storage were not found sufficient anymore, and that more encompassing systems were looked for, in order to control the problems of a growing economy. In all cases discussed so far, these are substantial changes in the daily routine, and I would suggest that unusual pressure must have mounted before such changes are introduced. I further assume that the search to come up with better devices went on on a broad front, until finally someone had the idea of a script, which because of the ongoing search immediately was recognized by everyone as the final answer.

I took some time to expand on this issue because it fits nicely what we have suggested before, that the Late Uruk saw some severe changes towards more complexity, raising problems which needed to be answered, at least on the level of economy, but we will see in a moment that it probably encompassed all aspects of society.

Though this sounds like a straight forward development, there is one big problem: the evidence from Uruk does not allow us to substantiate this course of events. As I mentioned before, find circumstances in Uruk do not enable us to be in any way more precise on the earliest occurrence of cylinder seals, sealed bullae and numerical tablets than assigning them to the Late Uruk.

Short of reporting on details of the administrative documents, I would just like to mention one basic observation. It seems that the administrators' task was only to keep track of what entered the stores and what left them. It looks as if it was secondary to them, where things came from and where they finally went, but as if they were primarily interested in keeping control over what actually was in store, calculated as the entries minus the exits. Possibly they needed these figures for planning purposes as is shown by one tablet where they calculated how much seed had to be retained for so large a field (Nissen, Damerow, Englund, 1993, fig. 51.).

To our dismay that means that we should not expect to get any information on where the goods came from and how this procurement was organized. This cuts out any hope that we might get some information on the relation of Uruk to its hinterland from the texts. Likewise we should not expect too much information on who received allotments, or wages, as once the goods had left the stores it was not a matter of interest anymore. The closest we get is a tablet of Level III date which lists enormous amounts of barley distributed to four high officials (Nissen, Damerow, Englund 1993, fig. 34). Yet these amounts are much too high to be intended for their personal use. It seems more likely, therefore, that these amounts were meant to be distributed to the employees of that office. How this would have worked, and primarily, what the amount was for each individual recipient remains unaccounted.

This, by the way, is a good example of the need to limit our expectations, because we are constantly con-

fronted with the observation that writing was used very economically. That means that everything considered common knowledge would not be noted. In fact, it is only the unusual information being documented, rendering it extremely difficult for us to understand these texts because as a matter of course we have no command over what was normal knowledge by that time.

The last, but to my mind, the most important point is not provided by the administrative documents but by one of the lexical lists I referred to earlier. About 15% of all the archaic texts belong to this kind where words and concepts belonging to the same semantic family are listed one after the other in consecutive lines. There are lists of trees and wooden objects, of metal objects, of animals according to kind, and of place names. Altogether we have identified 16 such lists which each follow a fixed order throughout their many copies. These lists have not only been copied over and over at the same time but also over many centuries. The last time that we find copies of such lists retaining exactly their original sequence of entries, is the Akkadian period, when the lists existed already for almost 1000 years. There is a strong probability that these texts formed an essential part of the school curriculum.

The most famous one of these lists to judge from the number of both contemporary and later copies is a list of titles and professions (Englund, Nissen 1993, 14-19. Nissen, Damerow, Englund, 1993, 110f; Selz 1998, 294ff.; here: Fig. 9). To be sure, of this text also we understand only a fraction, but there is enough to let us be sure of several points. First of all, the entries are arranged according to rank. This is shown by the repeated occurrence of lines in the text when the second element would be repeated through two or more lines, but in the first line always be combined with the sign GAL which we know

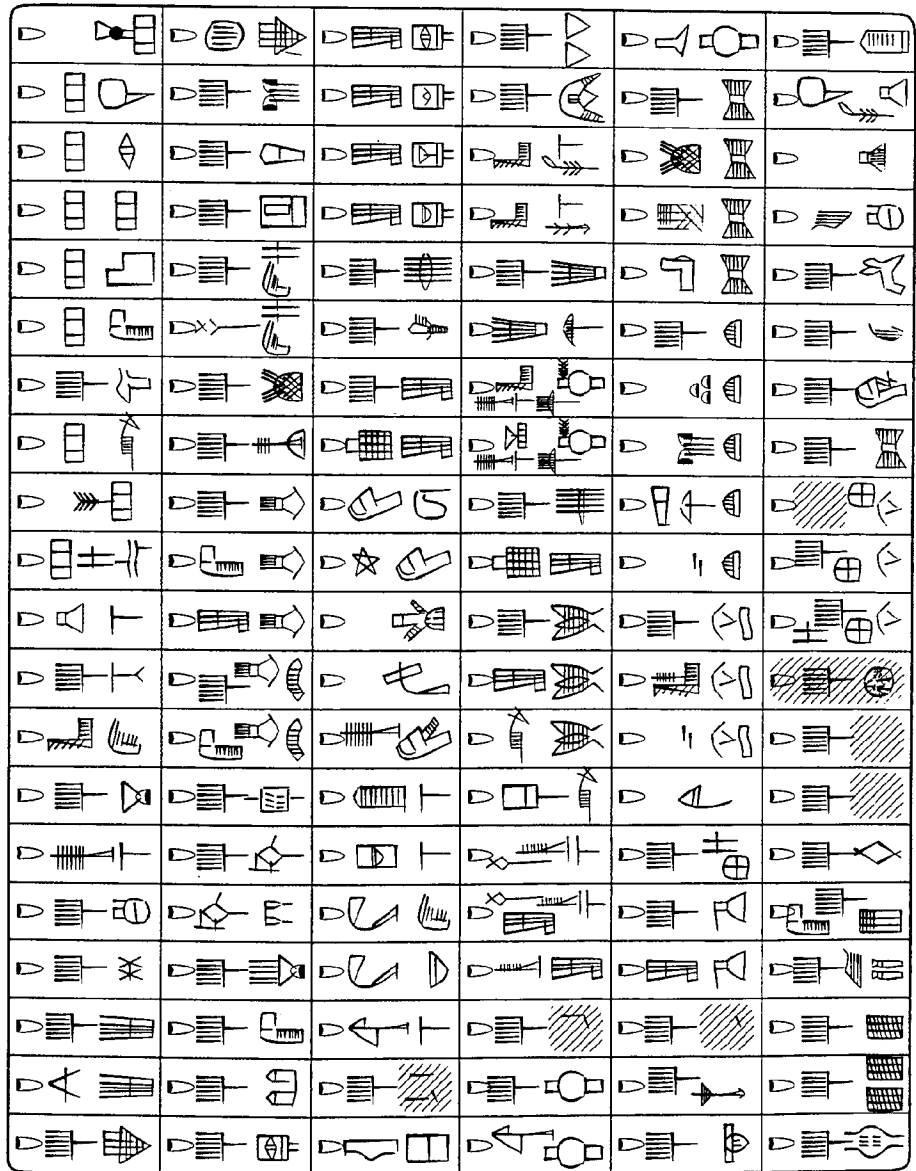


Fig. 9. Reconstructed text of the Lú A list. From Englund and Nissen 1993, Abb. 4.

to mean 'big'. The corresponding element in the next line varies and may be 'small', or 'son', or 'younger brother'. We take it to mean that within a trade or craft named by the repeated sign there is differentiation between ranks.

If this were the rationale behind the arrangement, then the first line of the list should be the most important or highest rank. Unfortunately, the sign combination we read NÁM-EŠDA is not known from later sources as title of an high official, but fortunately people continued copying this list until it was not understood anymore, when the necessity arose to translate some of these terms into everyday language. Thus someone compiled a dictionary around 2000 years later, and translated our NÁM:EŠDA with šarru, then the word for king (Selz 1998, 300-1).

Accepting then that the list starts with the title of the highest official of the polity we get a clue to the meaning of the next lines, all a combination with the word NÁM standing for 'leader', or 'head of...'. As second elements we meet 'the city', 'law', 'barley', 'the plow' and 'the work force'. It takes little imagination to assume that this list reads almost like a directory of heads of departments with the heads of the city administration, of the law department, of the plowmen, of the food department and of the labor department.

Of course, this is all tentative and I am sure that we will have to revise our current ideas in a number of cases. But several things probably will remain valid. On the one hand, this is a vivid picture of a strictly hierarchically organized administration, if not society. And this seems not only to be true for the higher ranks but also for the level of crafts; it matches with what I said in conjunction with the workshop in Uruk.

Secondly, I cannot but assume not only that this list reflects the situation at the time of the first writing but also that this is an established system already by that time. I am inclined to think that these were structures which again like in the other cases had evolved as an answer to something. And I would not hesitate to put the responsibility on the same increase in the level of complexity which we had encountered before as a major driving force.

Two additional points seem especially worth mentioning. One concerns conflicts and their management. It certainly is true that for most of human history we have no direct information on that important aspect of human life. Even in writing anything dealing with conflict management shows up relatively late in the record. And yet, it is totally inconceivable that conflicts and conflict management were not a major issue of society, from the appearance of sedentary life at the latest. One reason for the lack of information seems to be that it probably always has been a field of relatively few but firm rules with a set of sanctions which would not need to be fixed. In addition, unfortunately, it is impossible to think of any kind of archaeological setting which would be able to give us any clues as to kind and level of conflict management.

It would be totally misleading, however, to assume that early societies didn't know how to deal with conflicts. I am referring specifically to an article of Greg Johnson's on scalar stress, when he was able to show using ethnography that group-size and amount and level of conflicts are systemically and inseparably interconnected (Johnson 1982). Apparently, there are thresholds of size which let the level of conflicts rise exponentially. Johnson talks about 300 people being one of these thresholds above which the level of conflicts necessitates an established manner of dealing with them.

I don't want to expand on this important issue, and just ask the rhetorical question whether it is conceivable that a group of at least 20,000 could live together without

a set of rules and sanctions. And to my mind, this even requires an agency which would not only administer these rules and sanctions but also see to their application. I am not surprised at all, therefore, to find very high in our titles list someone who I modernistically call the head of the law department (Nissen 1999b).

The last point concerns the observation that none of the understandable entries of the list has to be affiliated in any way with a cultic function. Although at this point I am not yet ready to propose a complete anti-model to the prevailing one which sees Archaic Uruk as an early counterpart of Late Early Dynastic Lagash, i.e. as an early example of a temple-run and -centered city-state, I see none of the arguments surviving which had been used for this model.

At the end of this survey of what we know about IVa-Uruk, Uruk emerges as a very powerful polity, based on a highly complex social structure as well as a strong economy, with a strong political leadership, which can use its accumulated wealth to import everything deemed necessary: all kinds of colored stones for jewelry, seals, works of art and vessels from the Zagros mountains; metal from an unknown source, and certainly also timber from the mountains. Its sheer economic power certainly made it a difficult neighbor, although we don't know anything about external conflicts. What is used sometimes as a sign for warfare, the so called prisoner scenes on cylinder seals, to my mind speak more for the existence of internal conflicts, as there are no efforts made to differentiate between the 'soldiers' and the 'prisoners'.

There remains one point on the agenda, as otherwise all arguments would be kept hanging in the air. Repeatedly, I have referred to a growing complexity as the driving force behind the development of cylinder seals, the writing system, or the emergence of political institutions. Since I have repeatedly elaborated on this topic (Nissen 1988; 1999a), I may be allowed briefly to summarize what I see as the ultimate cause for this change.

From the joint surveys of lower Mesopotamia we derive the clear statement that by the Ubaid period this plain had been sparsely settled, that by Early Uruk we find a major increase in the number of settlements starting from the northern end of the plain, and that by the Late Uruk, especially in the middle and southern part of the plain we see a settlement density of totally unparalleled dimensions. In the hinterland of Uruk the number of settlements rises from 11 to more than 100 early in the Late Uruk. In addition, not only is Uruk, with at least 250 ha, many times larger than the largest settlements known from the previous period, but within the hinterland of Uruk there are several sites larger than Susa or Chogha Mish during the Ubaid.

To my mind, the opportunity to settle this extremely large and fertile plain of lower Mesopotamia within a relatively short period of time had the consequence of creating a population density of totally unknown dimen-

sions. While all solutions to the new problems rested on earlier accomplishments, the new quality and dimension of the problems prompted the emergence of institutions on a much higher level than before. It is the total of these answers which we summarize when we talk about the Early Urban Civilization. The higher level of competence and flexibility of dealing with complex problems acquired during these processes becomes the main asset when Babylonia over the next couple of centuries is confronted with fundamental problems which might have thrown off balance a less settled society.

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