



# ARCHÉO-NIL

Revue de la société pour l'étude des cultures prépharaoniques de la vallée du Nil

**Naissance de l'état, naissance de l'administration:  
le rôle de l'écriture en Égypte, au Proche-Orient et en Chine**

**Emergence of the state and development of the administration:  
the role of writing in Egypt, Near East and China**

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#### Erratum

Il a été porté à notre attention que deux erreurs se sont glissées dans l'article intitulé «The Significance of Predynastic Canid Burials in Ancient Egypt» publié par Mary Hartley dans le volume 25 (2015) de notre revue. Page 59, à la fin du 5<sup>e</sup> paragraphe, l'intention de l'auteur était de faire référence à Van Neer et al. 2004: 120 au lieu de Friedman et al. 2011: 120. Le nom de l'auteur a aussi été mal orthographié («Freidman» au lieu de «Friedman»). La rédaction d'*Archéo-Nil* présente ses excuses pour les désagréments occasionnés.

It was brought to our attention that two errors occurred in the article entitled "The Significance of Predynastic Canid Burials in Ancient Egypt" published by Mary Hartley in the volume 25 (2015) of our journal. On page 59, end of the fifth paragraph, the author's intent was to reference Van Neer et al. 2004: 120 instead of Friedman et al. 2011: 120. The name of the author was also regrettably misspelt ("Freidman") instead of "Friedman"). *Archéo-Nil*'s team sincerely apologises for any hurt or confusion these errors may have caused.

*Archéo-Nil* est une revue internationale et pluridisciplinaire à comité de lecture («peer review») dans le respect des normes internationales de journaux scientifiques. Tout article soumis pour publication est examiné par au moins deux spécialistes de renommée internationale reconnus dans le domaine de la préhistoire ou de l'archéologie égyptienne. L'analyse est effectuée sur une base anonyme (le nom de l'auteur ne sera pas communiqué aux examinateurs ; les noms des examinateurs ne seront pas communiqués à l'auteur).

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*par Yann Tristant*

# Uruk: Early Administration Practices and the Development of Proto-Cuneiform Writing

*Hans J. Nissen, emeritus, The Free University of Berlin, Germany*

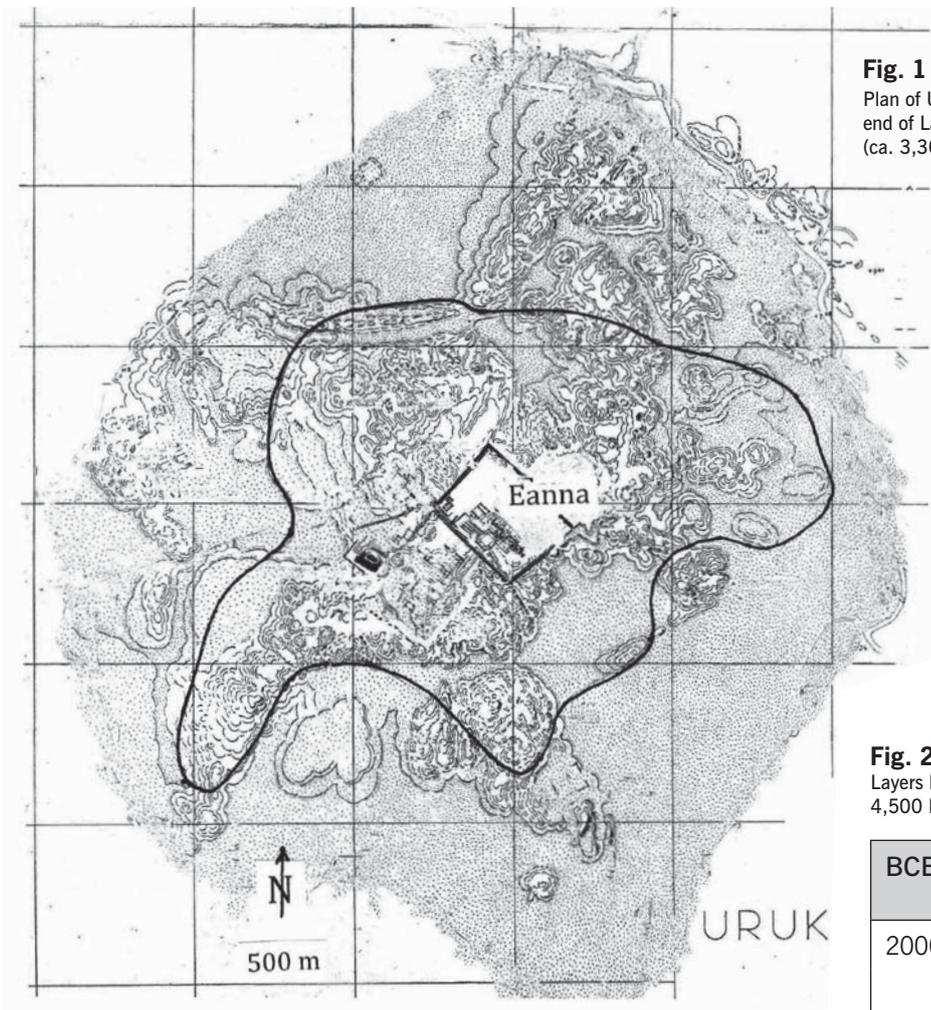
*Any kind of administration needs possibilities of information storage be it on oral or other basis. Non-oral devices like seals or counters have been in use throughout the Near East since the 7<sup>th</sup> millennium BCE. With a heavy influx of people in part of the alluvial plain by the beginning of the 4<sup>th</sup> millennium BCE a host of new problems arose emerging from the density of people and settlements. In particular, some in large settlements central economic administrations emerged in order to secure the livelihood of its inhabitants. Increasingly, new strategies became necessary of supervision, control – and information storage. To this end, initially the existing instruments were enlarged both in their storage capacity and to provide good differentiation. Answering growing demands, however, new means were introduced like cylinder seals, offering more possibilities for differentiation, or counters with different shapes and additions. At a certain moment the search for ever more encompassing devices led to the invention of writing. This operation could make use of the existence of a large number of decoration and identification codes as well as of a long experience with the use and properties of clay. By incorporating these signs, by combining them or adding specific markings, and – in special cases – by drawing the items intended a system of close to 600 different signs was drawn up. On the one hand, writing was meant primarily for purposes in economic administration. No rendering of language was intended, leaving us ignorant about the language behind these texts. On the other hand, the system was used for compiling lists of words and concepts under a certain headline. These lists of names of titles and professions, of cities, of animal categories probably were an attempt to gain intellectual control over one's universe. But again, an identification of Sumerian remains probable but unproven.*

*Toute administration doit stocker l'information, que ce soit sur une base orale ou autre. Les dispositifs non-oraux, comme les scellés ou les jetons de comptabilité ont été utilisés au Proche-Orient depuis le 7<sup>e</sup> millénaire BCE. Un afflux massif de population dans une partie de la plaine alluviale au début du 4<sup>e</sup> millénaire BCE a entraîné une multitude de nouveaux problèmes, en particulier dans les grandes agglomérations où des centres administratifs et économiques ont émergé afin d'assurer la subsistance des habitants. Progressivement de nouvelles stratégies sont devenues nécessaires pour surveiller, contrôler et stocker l'information. Pour cela les instruments existants ont été augmentés, à la fois dans leur capacité de stockage, et pour mieux exprimer la variété des produits. Toutefois, pour répondre à la demande croissante, de nouveaux dispositifs ont été utilisés comme les sceaux-cylindres, offrant plus de possibilités de différenciation des objets désignés, ou des systèmes de comptage prenant des formes différentes et des ajouts. À un certain stade, la recherche de dispositifs de plus en plus complets a conduit à l'invention de l'écriture. Cette opération a pu tirer parti de l'usage déjà existant d'un grand nombre de codes décoratifs et identificatoires, ainsi que d'une longue expérience des propriétés de l'argile. En incorporant ces signes, en les combinant ou en ajoutant des marques spécifiques, et dans certains cas en dessinant les éléments correspondants, un système de près de 600 signes différents a ainsi été élaboré. L'écriture était destinée principalement à des fins d'administration économique. Il n'y avait là aucune intention de transcrire le langage, nous laissant ignorants de la langue utilisée derrière ces textes. Le système a aussi été utilisé pour compiler des listes de mots et de concepts. Ces listes de noms concernant des titres, des professions, des villes, des catégories d'animaux étaient probablement une tentative de prise de contrôle intellectuel sur l'univers. Mais encore une fois, une identification du Sumérien reste probable mais non prouvée.*

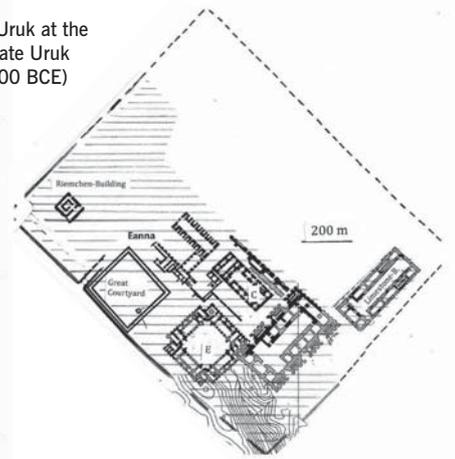
An essay on early administration and writing in Mesopotamia is equivalent to talking about the ancient city of Uruk (**Fig. 1**) since nearly all of the pertinent material has been excavated there. More than forty seasons of excavation have produced enough material to allow a glimpse of around 5000 years of variegated history of the city, from the mid-fifth millennium BCE through the first years of the Sasanian rule of the third century CE. (Nissen & Heine 2009; Crüsemann et al. 2013). This present essay, however, will focus on only a small part of the city, the central area called Eanna, and there, on the remains of the fourth millennium BCE. Changes in extension and importance of Uruk over time had the effect that major parts of Eanna of this period had not been built over for a long time. Thus remains of the early periods came to be accessible easier than in most other places. A further peculiarity is that among the information shedding light on this formative period, we are fortunate to come across a large corpus of information storage devices. Together with the emergence of the oldest writing system around 3300 BCE they give us an insight into some practices of economic administration (Nissen et al. 1993; for dates of absolute chronology: van Ess 2015).

The time under discussion is normally referred to by naming architectural levels in Uruk. Since at the time of the initial years of work in Uruk (1928 ff.) not enough was known of the time before the Third Dynasty of Ur (around 2000 BCE), the lower levels in Eanna were tagged 'archaic' and accordingly, were counted as 'Archaic I' to 'Archaic XVIII' (**Fig. 2**).

The present study will concentrate on levels Archaic IVa to Archaic IX, because: – According to our aim, the discussion will end with the first fully developed urban phase, the time of Archaic IVa, which at the same time saw the emergence of writing.



**Fig. 1**  
Plan of Uruk at the end of Late Uruk (ca. 3,300 BCE)



**Fig. 2** • The Uruk Deep Sounding: Architectural Layers between 2000 BCE (Third Dynasty of Ur) and 4,500 BCE (Late Ubaid period)

– The time of levels IX (ca. 3800 BCE) to IVa (ca. 3300 BCE) roughly encompasses the years of the first slow, then accelerated growth, of administrative structures that are visible through the emergence of ever more complex means of information storage, and ending in the emergence of writing. A problem is the uneven distribution of finds, since of our time range only the remains of level Archaic IVa have been excavated on a larger scale. Already for level IVb the area is conspicuously smaller, and even more so for IVc. Of level V we know little more than the fragments of one large building, and from VI downwards, levels have been reached only in a deep sounding of limited extension. Data on administration and writing thus are available primarily for level IVa. In order to find out more about the crucial time of the formation of writing and administration, we will have to scrutinize all finds of IVa, especially the archaic texts, and to analyze closely the little amount of older material we have.

BCE	Archaic Levels	Archaeological Periods	
2000		IIIrd Dyn of Ur	
2500	I,1	Dynasty of Akkad	
	I,2		
	I,3		
	I,4		
	I,5		
	I,6		
3000	I,7	Early Dynastic	
	IIIa		
	IIIb		
3500	IIIc	Jamdet Nasr	
	IV a	First	Writing
	IV b / c	L	U
	V	A	R
	VI	T	U
4000	VII	E	K
	VIII/IX		
	X/XI	Early Uruk	
	XII		
	XIII		
	XIV		
4500	XV	Late Ubaid	
	I		
	XVIII		

### Dating Problems

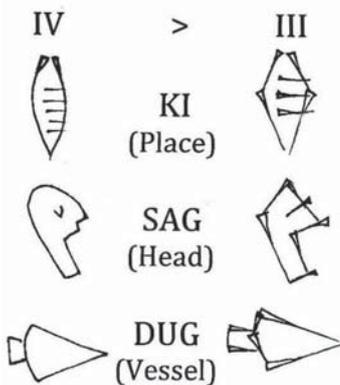
The most serious problem to overcome, however, is the fact that even for the finds of level IVa there is no absolutely secure dating possible, since none of the relevant finds were found in the context where they were produced, used or written. Instead, they were found all over Eanna in layers of rubbish, originating from using debris to fill holes and depressions in order to create level foundation platforms for new buildings. Presumably, the rubbish was fetched from areas where together with general refuse tablets and broken sealed clay closings had been dumped after they had served their purpose. In all likelihood, they originated from the stores of a large administrative unit located within Eanna (Nissen 1987).

Rubbish layers, therefore, are not tied to an architectural level automatically, but a relation is established only when an overlying dated structure seals them. The date of the building, then, gives the moment of the deposition of the rubbish a *terminus-ante-quem* date, while any inclusions must be older. How much older, however, is undeterminable, since we have no information on either the time elapsed between the time of use and the disposition on the dumps, nor on the time between this disposition and the carrying off to its final position. For want of better information we assume that inclusions date roughly to the phase preceding the *terminus-ante-quem* date.

This 'meta-stratigraphic' kind of dating allows a fairly secure attribution. However, it is restricted to the few cases of indubitable superimposition of rubbish layers by dated buildings: if a feature of level IIIc dating seals a rubbish layer this results in a t.a.q. IIIc date for the deposition of the rubbish and a probable IVa date for the inclusions; a superimposition of a IIIa feature results in a IIIb date for the inclusions.

In the case of the archaic tablets there fortunately is an additional way of relative dating, which allows linking up some of the many undated tablets with the ones meta-stratigraphically dated to the time of IVa. Though exact dating remains a problem, these tablets for convenience will be referred to as 'Level IV'

**Fig. 3**  
Evolution of Cuneiform Signs



**Fig. 4**  
Examples of  
Tablets of the time  
of levels IV and III



texts. Looking at the whole of archaic tablets, and in particular at the shape of the signs we are able to categorize the tablets into two palaeographically distinct groups (Green & Nissen 1987). Characteristic of the Level IV texts is that after making an oblique imprint into the surface of the tablet the stylus then is drawn out enabling the scribe to produce curved lines in addition to straight ones. The technique changes to the following stage of Archaic Level III as the stylus is imprinted in a way that only straight lines can be produced dissolving the former curved lines into series of straight ones. This gives the signs the abstract shape anticipating the look of later cuneiform (**Figs. 3 & 4**).

Since it can be shown that all tablets, with a meta-stratigraphical date of IVa display features of the palaeographically older group, we can be reasonably certain that all tablets showing these features belong to the older group. Applying these criteria to the archaic tablets we end up with attributing 1148 tablets and fragments, or roughly a third of all tablets found to the Level IV group. Although we cannot rule out that inclusions of the rubbish could be older than the time of IVa it is difficult to imagine a prolonged lifetime of the older group of tablets, in particular since there are no signs of an inner development.

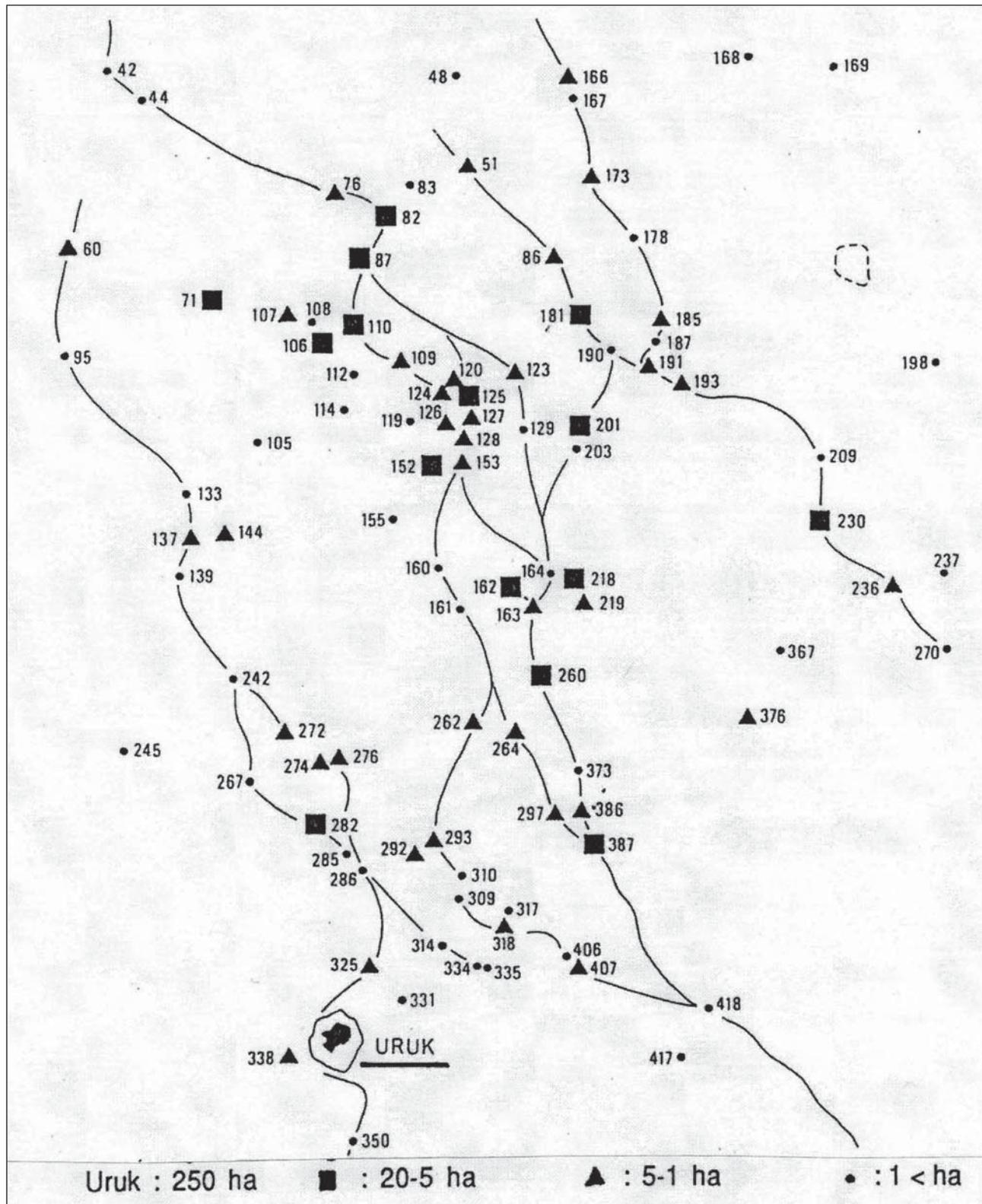
## The administration at the time of level IVa

According to an archaeological survey of the modern surface of Uruk the city covered an area of at least 250 hectares around 3400/3300 BCE (Finkbeiner 1991). On the rule of thumb of 100 to 200 people per hectare this could have amounted to 25,000 to 50,000 inhabitants. Though we lack information on most aspects of the society of that time we can be sure that the administration played an important role. It is impossible to imagine such a city and a crowd of people to have existed and functioned without rules and an administration seeing to their adherence and if necessary, to their enforcement – on all levels. In the same vein, we know of at least two major fields of probable administrative activity where no details are known. On the one hand, Uruk and probably also other Babylonian cities were the center of a network of relations with the neighboring areas from Egypt over Syria and Turkey to Iran. The archaeological evidence points to the founding of settlements with Babylonian inventory along the Syrian Euphrates and into southeastern Anatolia, less so on the upper Tigris, on the one hand, and isolated finds like seals and pottery in local communities throughout the other areas. Most probably they have to be seen in the context of trade and securing raw materials for alluvial Babylonia. Both close connections with the ‘Uruk-style’ settlements and relations at large with more distant areas like Egypt must have had some ‘port of call’ in Uruk, presumably including some kind of administration. But except the occasional reference to foreign goods in the archaic texts we have no further evidence of foreign relations, neither from the texts nor from archaeology (for a different weighting see Algaze 2008).

The other field concerns the relations between Uruk and its hinterland (**Fig. 5**). It was of sheer necessity that a large part of the provisioning came from the surrounding area. Even if part of Uruk’s population was able to secure its livelihood, this was very limited if only because the land immediately available in the vicinity of the city was occupied already by contemporary villages. In order to guarantee an uninterrupted flow of supplies to Uruk it needed a strong administration – but there are no data because the administrators seem

**Fig. 5**  
Settlements of the  
Late Uruk Period  
(3,400/3,300 BCE) in  
the Hinterland of Uruk

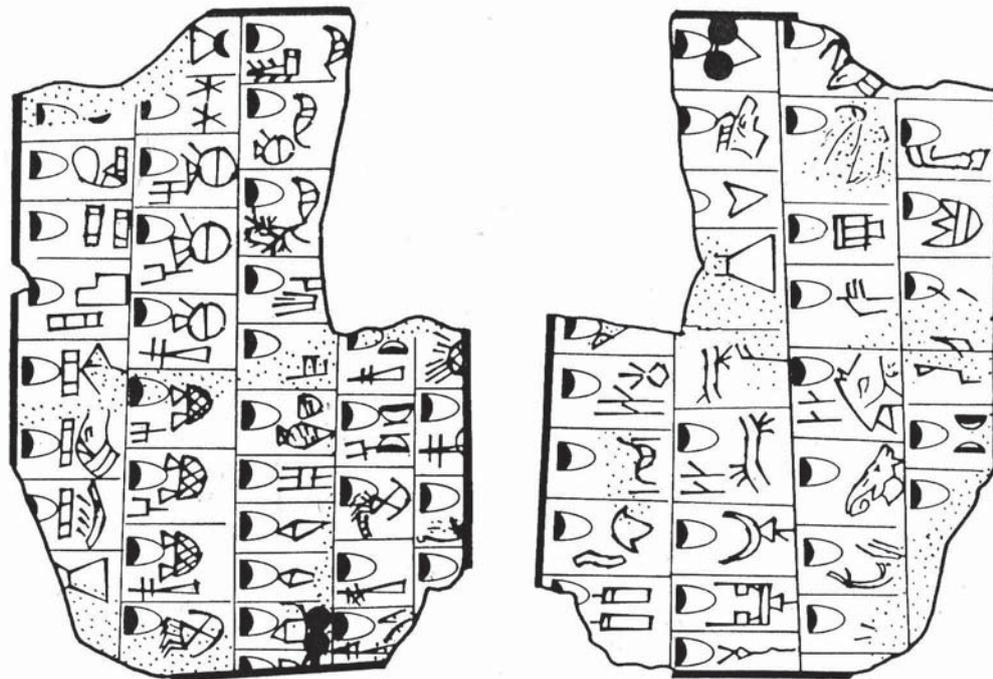
to have been interested only in the entry and the exit of goods of their warehouses. We are rarely informed about the final recipients of outgoing goods, and never about their origin.



Early writing anyway was intended to serve not more than a narrow field. Its logographic character made it a perfect tool for an accountant's lingo, which does not need finite verbs, for instance. Though the syllabic use of signs of the logographic script was known, this was not used to reproduce details of language. Although much points to Sumerian as the language behind the archaic texts, this is still unproven (Steinkeller 1995; Englund 1998; Rubio 1999; van Soldt et al. 2005).

Nevertheless, we do get some help from the written sources, both from the large bulk of economic texts and the small group of so-called 'lexical lists'. These are enumerations of words and names (Englund & Nissen 1993), which will be discussed later in detail. One of them enumerates titles and names of professions & functions (Fig. 6). Apparently it was held in high esteem because it was copied through the centuries into the 2<sup>nd</sup> millennium almost without variation in content, adjusted only in the sign forms to the current style. It was known even later as is testified by a list from around 1200 BCE, which lists outdated sign-forms and assigns them as 'modern' translations. The first line of our list is translated with 'sharru', king. Apparently, the title of NÁM:ESHDA, though not in use since one and a half millennia, was still remembered as the title of the highest official.

The next lines repeat the sign NÁM, probably an expression for head or leader, while a second component denotes their area of responsibility. As such we find DI 'legal decision'; URU, 'city'; ERIN 'workforce'; APIN 'plow' or 'plowman'; and SHE 'barley' what tentatively may lead to a reading as head of the legal office; of the city(-administration); of the deployment of the labor force; of the plowmen; or of the barley provisioning. Sharing the element NÁM probably means that they rank on the same level. Later in the list GAL 'big' takes the place of NÁM probably pointing to GAL ranking below NÁM. Among these we find GAL:UNKEN = kingal, the 'leader of the assembly'.



**Fig. 6**  
Level IV Tablet of  
the Title's List

Apparently, the list mirrors a large and diversified administration with the enumeration of high officials and heads of departments in the first part, followed by lesser ranks. Though later in the list normal professions like cooks appear it looks as if at least the first part reflects the general administration of the city. But there is no additional information available.

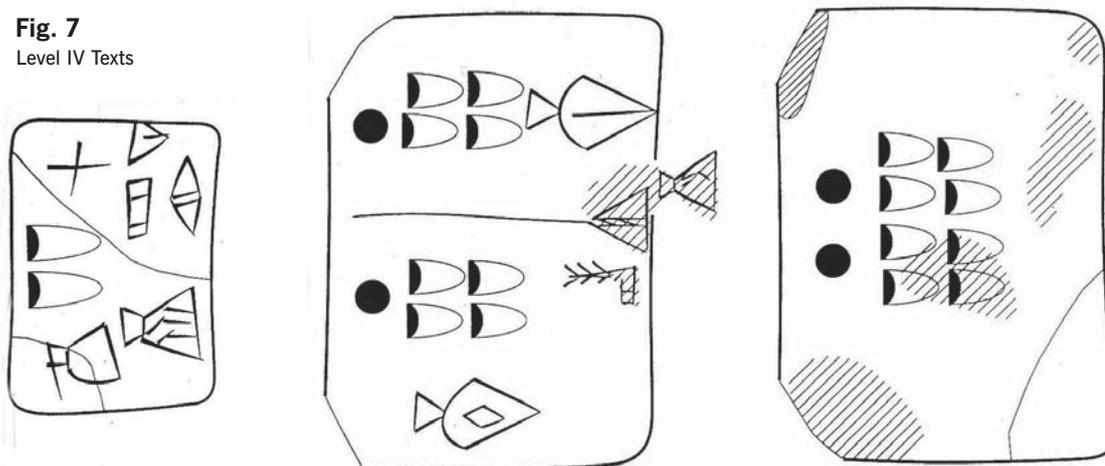
The economic texts (Fig. 7) come in two groups. One consists of small tablets with one or several writing signs but no numerical ones. A lengthwise perforation suggests their use as tags to be attached to containers. They obviously had the same function as the early tags from the tomb of U-j in Egypt (Dreyer 1998). Though presumably once numerous, only few have survived probably because they were used and discarded at another place than the bulk of economic texts.

The majority is more of a data processing nature, recording numbers and volumes of commodities with the aim of taking stock of the entries and exits of warehouses. They point to the existence of a large central economic administration in control over both domestic and foreign resources of all kinds. It is true that a large number of tablets contain only one piece of information consisting of numerals and script characters but of an equally large number the surface is divided into columns and cases each of which contains one piece of information. Normally such entries would just be listed one after the other without revealing the common denominator but in other instances the numbers of the various entries on one side of the tablet would be summed up and the total written on the other side. Such differences of recording in these documents testify to a complexity of the administrative apparatus but although clearly administrative documents they do not contribute much on shedding light on the structure of that administration.

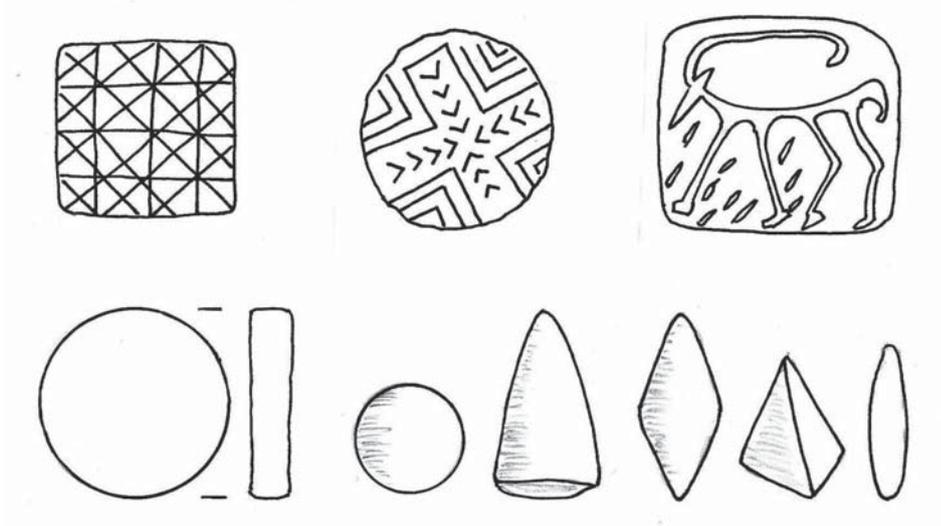
Writing was certainly the most encompassing way of storing information when it came to controlling the operations of a complex economic unit. However, if we look at the situation of information storage devices in general, we encounter a large range of contemporary possibilities in addition to writing most of which are inferior as to storage capacity and radius of action. In particular, this refers to the large spectrum of counters and seals.

Already from the 7<sup>th</sup>/6<sup>th</sup> millennium BCE onwards have counters been used for retaining information on numbers – specific simple geometric forms made

**Fig. 7**  
Level IV Texts

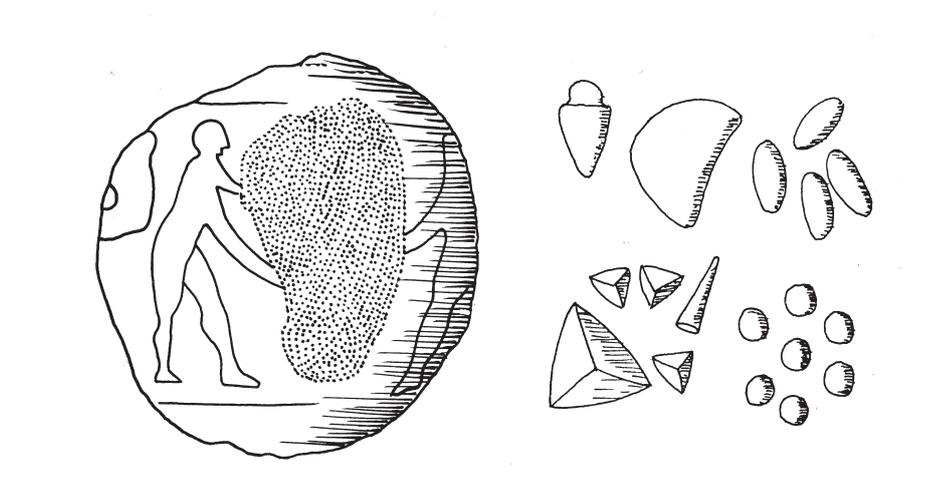


of clay standing for different numbers (**Fig. 8**). The application of stamp seals for storing information on the seal owner, served to secure all kinds of closing made of clay: it was kneaded around door latches, around knots of bales, or used to secure the openings of vessels.



**Fig. 8**  
Simple Counters  
and Stamp Seals

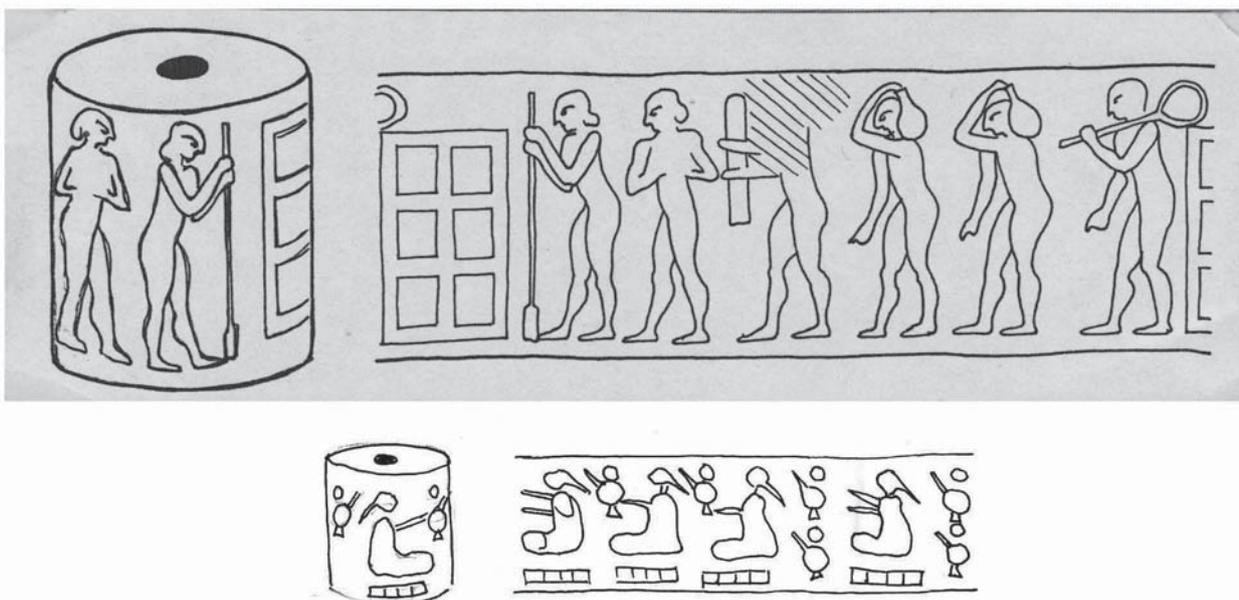
Now, at the time of Archaic Level IVa we find in addition to simple counters complex ones, equally made of clay, which may take on the shape of objects, or are differentiated by the application of various kinds of incisions; they obviously were used on another level than simple counters. At the same time we find media doubling the storage capacity: clay balls enclosing a number of simple counters, with their surface covered entirely with seal impressions store information about numbers and on a person simultaneously. The same applies to clay tablets displaying both numerical signs and seal impressions; not writing. Besides the simple stamp seals – sometimes taking on the form of animals, what may have signaled a special status of the seal bearer – another kind of seal is used: the cylinder seal. The curved surface of small stone cylinders receives engraved patterns, which, if rolled over wet clay surfaces, produce an endless band of relief, as opposed to the limited impression of the stamp. This way the entire surface of a clay closing may be covered with impressions, enhancing the protection against any fraud (**Fig. 9**).



**Fig. 9**  
Sealed Clay  
Envelope and  
enclosed Counters

Cylinder seals come in two forms (Fig. 10). One, preserved almost only through their impressions, displays multi-figured, well-composed scenes in an excellently detailed execution. A wide range of variations allows a large number of people to have an individual seal. Hardly half the size of the former group, the other seals show more simple patterns, executed using mechanical tools like drills or cutting wheels without subsequent touching up. The ability to differentiate is conspicuously smaller than the one of the former group. Of this group original seals are known but no impressions. Differences in form, design, execution and way of preservation suggest that these two groups probably have been employed on different organizational levels and/or in different places. At the same time, they may have conveyed differences in status or function of people involved.

**Fig. 10**  
Figural and Simple  
Pattern Cylinder Seals



Apparently the large number of storing tools was an answer to the different needs of a diversified administration with different levels of organization and responsibility. The choice of method depended on the required minuteness of detail, particularly, when it came to a later audit. Although writing is the most powerful of these tools it is used only when the others did not suffice. It differed from the other tools primarily in the volume of information that could be stored simultaneously. But it remained within the same conceptual line in that background knowledge kept being necessary to turn the recorded information into a message.

There is a remarkable parallelism between the diversity observed in the field of information technology and control mechanisms and the one of offices and functions of the title's list seen before. But of course, there is no chance to propose any direct connections.

Diversification and/or stratification seem to be the governing principle in general as expressed also in an advanced division of labor. Indications are found in metallurgy, ceramic technology, or in the building trade. Though not directly shedding light on administration proper these fields contribute to the picture of a general complex structure of the society. Obviously, this was not a beginning but the result of a long development, and this, in particular, applies to writing and administration.

## The development of information technologies

The earliest simple seals and counters date to the 7<sup>th</sup>/6<sup>th</sup> millennium BCE (cf. Fig. 8). While there is no evidence that counters undergo any changes well into the fourth millennium BCE, patterns of the stamp seals – at first mostly not more than parallel or crossed lines – start to become more diversified from the fifth millennium onwards, even to the extent that figurative elements are included. Presumably, changes in economic life had made it necessary for a larger number of people to be identified by an individual seal design.

The time of the Archaic Levels IX/VIII in Uruk (around 3800 BCE), brought a substantial alteration as we see the earliest cylinder seals appearing, unfortunately not in Uruk, since these levels have hardly been touched. Instead, they were found in contemporary Tell Sheikh Hassan on the Middle Euphrates in Syria, where levels 8-13 date to this time (Boese 1995). Though very rare, they testify to the presence of this kind of seals.

The reason for the appearance of cylinder seals is suggested by the advantages over the stamp. The curved surface of the stone cylinder offers a larger ground than the stamp for the application of complicated patterns, with the potential of providing a larger clientele with an individual seal. This time, the changes in economic procedures must have been of a different magnitude than the ones noticed before.

Furthermore, covering the entire surface of the clay closing with seal impressions, prevented any fraud to go unnoticed, providing an impersonal security in addition to the virtual one guaranteed by reference to the seal owner. This again points to a substantial change in economic affairs.

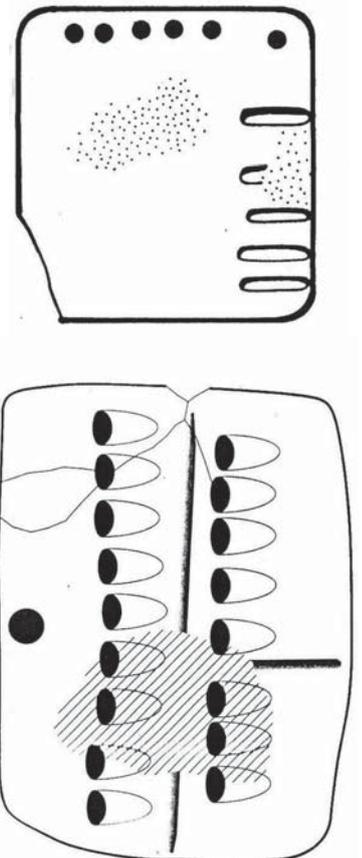
In addition, in Sheikh Hassan levels 8-13 = Uruk Archaic Levels IX/VIII we recognize a first attempt to increase the volume of information stored on the same medium in the form of sealed clay balls containing counters. Storing information both on a number and on a person within the same medium is taken to be another answer to growing needs for more complex means of control.

Somewhat later we meet for the first time flattened cakes of clay – anticipating the shape of inscribed tablets – displaying impressions or incisions made with a reed stylus standing for numbers while the entire surface is covered with a seal impression: again two kinds of information are stored using the same medium. The arrangement of the numerals (Fig. 11) does not yet follow the customs observed on the written tablets, as in addition to vertical impressions sometimes flat impressions from the side are used. Also, the number of these numerical signs may exceed 10 suggesting that it was not yet obligatory to keep within the rules of the sexagesimal or decimal system (Damerow & Englund 1987).

Presumably, other systems did exist which we have no knowledge of, but already the known ones tell us of the general urge to look for more effective and comprehensive means of information storage, and at the same time, to reduce the amount of background knowledge necessary to complete the message. When writing appears as the end of this line it is not meant to render background knowledge superfluous but to reduce its use (For a different view cf. Glassner 2003).

It is not by chance that we see these enhancements appearing following the time when we notice another dramatic change. After long years of very sparse settlement with only few isolated settlements the plain around Uruk becomes densely settled within a short period of time (Adams & Nissen 1972). This

**Fig. 11**  
Numerical Tablets



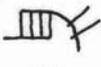
increase was enabled by a shift to a moderately dryer climate, which rendered the flood-ridden, or even partly marshy alluvium into an inhabitable state. The spatial distribution of the sites suggests structured relations between them and Uruk (cf. Fig. 5), as they are organized as a three-tiered system directed towards the urban center of Uruk. This indicates both an economic dependency between Uruk and its hinterland, and the necessity of a corresponding administration. These developments must have brought about an enormous increase of problems on all levels, which to some degree found answers in the improvement of controlling devices.

### The invention of the writing system

The pressure mentioned before left everyone involved to recognize at once the significance of the new tool when the idea of a new comprehensive code sprang up. Consequently, the implementation of the writing system did not take much time, as indicated by the observation that we find no unsteadiness or many variants of the signs of what should be expected if the formulation would have taken a prolonged period of time. This relatively quick action was enabled by the existence of most of the elements, which only needed to be assembled. The oldest writing stage counts slightly more than 600 distinct signs, which can be grouped into five categories (unclear items are omitted; Fig. 12):

- a) Naturalistic pictures (26)
- b) Signs abstracted from pictures (88)
- c) Totally abstract signs (98)
- d) Signs created by combining signs of the categories 1-3 (220)
- e) Signs created by graphically differentiating signs of categories 1-3 (106)

**Fig. 12**  
Samples of the Five  
Categories of Signs of  
Level IV Writing

a	 33	 70	 88	 204	 339	 437
b	 12	 82	 134	 188	 302	 376
c	 37	 75	 79	 254	 384	 575
d	 43	 93	 360	 387	 400	 610
e	 86	 237	 258	 284	 286	 289

It is surprising to contrast the small number of pictographic signs (a) to the high number of fully abstract ones (c) – making the designation of the writing system as ‘pictographic’ to be obsolete. Equally remarkable is the high number of category (b), involving that the abstraction must have happened before devising the writing system. Obviously older codes had existed which should be expected of a complex society, that was certainly in need of a large variety of means of differentiation; be it on the social or the economic level, and in many other fields.

One of these older systems consisted of the counters (Fig. 13). At least from Archaic VI onwards, in addition to the simple ones ‘complex’ counters appearing, which anticipated later writing signs not only in shape but also with the addition of incisions or hatching (Schmandt-Besserat 1992). Other codes probably existed in fields like textile design, pot marks, painting, and body decoration.

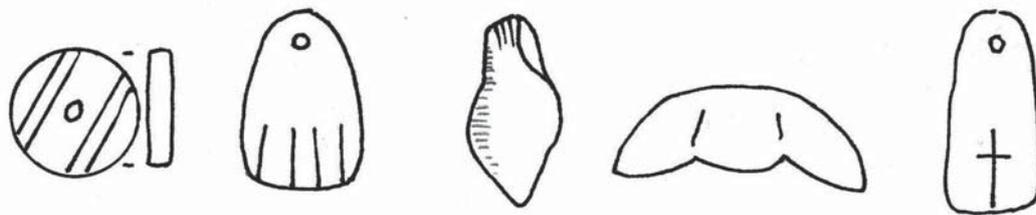


Fig. 13  
Complex Counters

The high number of signs of category (d) tells us that in spite of the large number of existing codes the number of signs did not suffice. On the one hand, the ensuing search for new signs brought forward the naturalistic drawings of category (a). On the other hand, instead of inventing new forms existing ones were combined receiving different meanings from the original ones (d), or they were differentiated by adding hatching and incisions of category (e), which may have derived from older customs in the storehouses to mark containers or rooms.

But not only could the creation of sign forms fall back on a repertoire of existing signs but all elements for the various techniques were known: thorough acquaintance with the properties of clay; the shaping into tabular cakes, and the use of the stylus (Fig. 14).

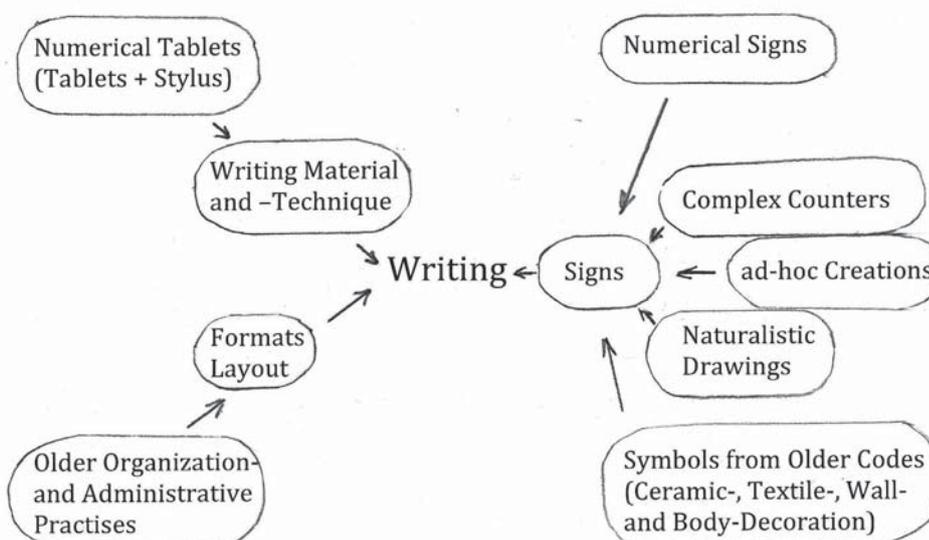


Fig. 14  
Sources of Proto-  
Cuneiform Writing

## School before writing

The mastery of the pre-writing tools of information storage and other rules of economic administration needed much knowledge and expertise, which not only had to be acquired but also to be transferred from one generation to the next.

Although there is no actual evidence it is hard to imagine another way than assuming that at the same time as being the center of the operative business the economic administration was also responsible for the recruitment of the next generation of administrators and for the proliferation of knowledge (Nissen 2011).

Besides this task such “schools” probably also had other functions. The list of titles does represent a structure of the administration, which certainly had existed before the advent of writing, and the list had found its form orally before it was put in writing. The same applies to the other lists, which enumerate the names of vessels with various contents, of metal objects, or the names of cities (Englund & Nissen 1993). For many centuries well into the late 3<sup>rd</sup> millennium BCE they served as part of the school curriculum. They were attempts to control one’s universe by listing, categorizing and grouping its components, and make their world comprehensible and thus controllable. Thus these lists present another dimension of knowledge than just serving as school texts. Schools were not only places of vocational learning but intellectual centers, and it is conceivable that it was here where problems of all kinds were recognized and discussed. It was probably in these circles where somebody had the idea of a system superior to all the others; where the importance was recognized immediately; and where those people were assembled who designed the system within a short space of time.

## In the beginning was the administration

In spite of the limited range of material the result is a moderately coherent picture. The rapid densification of settlements and people resulting from a relatively sudden influx of people triggered problems on all levels. They could only be met by a quick creation of rules, which in turn needed an administration to be executed and enforced. To be sure, at first the enhancement of existing elements of administration may have sufficed but growing pressure made it necessary to think up new tools – on the basis of the existing ones.

The nature of our sources limits our discussion to the sector of economic administration. However, the size of the city, her interaction with the countryside and – not the least – the diversity of offices mentioned in the title’s list suggest that on a general level administration was not less complex than in the field of economy.

Indications of early urban structure and urban administration appear by the time of Archaic Levels IX/VIII, or around 3800 BCE. Their development towards the fully urban life of the time of Archaic IV gathers speed as can be seen in the increasing enhancement of volume and complexity of storing information.

When in this course of the development some one came up with the idea of a writing system, the problem awareness was so high that all people involved immediately were able to recognize the power of this new tool. Writing expanded the power of the systems of older controlling devices without replac-

ing them. It is true that by the time of the younger group of texts, or of level III the volume of information on one tablet was increased by non-writing features and other markers, but the writing system was not extended to render spoken language until the middle of the 3<sup>rd</sup> millennium BCE. Since this new tool was difficult to learn and to apply it was employed only when the other parts of the system failed. At the time of appearance of writing there was no way of telling that it was to become one of the most important modes of expression of human civilization.

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