

The Oldest writings,
and Inventory Tags of Egypt,
A Review Essay of Günter Dreyer's
*Umm El-Quaab I--Das prädynastische
Königsgrab U-j und seine frühen Schriftzeugnisse*
(Mainz: Verlag Philipp von Zabern/ Deutsches
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Sincerely yours, Richard Mattessich,

THE OLDEST WRITINGS, AND INVENTORY TAGS OF EGYPT, A REVIEW ESSAY OF GÜNTER DREYER'S UMM EL-QUAAB I—DAS PRÄDYNASTISCHE KÖNIGSGRAB U-J UND SEINE FRÜHEN SCHRIFTZEUGNISSE (MAINZ: VERLAG PHILIPP VON ZABERN/ DEUTSCHES ARCHÄOLOGISCHES INSTITUT, ABTEILUNG KAIRO)

Abstract: Günter Dreyer's Umm El-Quaab I—Das prädynastische Königsgrab U-j und seine frühen Schriftzeugnisse presents comprehensively the results of archaeological diggings in the tomb U-j. It also outlines Dreyer's claim to have discovered the origin of writing. The primary aspect of this review essay is to draw the attention of accounting historians to Dreyer's book and to the claim therein to have discovered the earliest known writing. Since this discovery is closely connected to an accounting function (though in a somewhat different way from that of the Sumerian proto-cuneiform writing), a review of Dreyer's book is well justified. Dreyer's claim is based on a series of small inventory tags (identifying in proto-hieroglyphics the provenance of various commodities) found in the tomb of King Scorpion I (ca. 3400 B.C. to 3200 B.C.). Another aspect of this review is a discussion of the controversy surrounding Dreyer's claim and the counter-hypothesis of accounting archaeology, which sees in the token-envelop accounting of Mesopotamia the origin of writing.

Key words: diggings, inventory tags, proto-cuneiform, proto-hieroglyphics, archeology, claim.

LES ÉCRITURES LES PLUS ANCIENNES ET INVENTAIRES DES VESTIGES DE L'EGYPTE, UN ESSAI CRITIQUE DU UMM EL-QUAAB I—DAS PRÄDYNASTISCHE KÖNIGSGRAB U-J UND SEINE FRÜHEN SCHRIFTZEUGNISSE DE GÜNTER DREYER (LE PANTHÉON PREDYNASTIQUE RÉEL ET LES PREUVES DE SON ÉCRITURE PRÉCOCE) (MAINZ: VERLAG PHILIPP VON ZABERN/ DEUTSCHES ARCHÄOLOGISCHES INSTITUT, ABTEILUNG KAIRO)

Résumé: Le livre Umm El-Quaab I—Das prädynastische Königsgrab U-j und seine frühen Schriftzeugnisse Günter Dreyer présent largement les résultats des extractions archéologiques dans le tombeau U-j. Elle présent également la réclamation de Dreyer d'avoir découvert l'origine de l'écriture. Le but principal de cet essai critique est d'attirer l'attention des historiens de comptabilité et la réclamation, que fait l'auteur, d'avoir découvert la première écriture connue. Puisque cette découverte est étroitement reliée à la profession de la comptabilité (bien que d'une manière un peu différente de celle de l'écriture proto-cunéiforme sumérienne), un examen du livre de Dreyer est bien justifié. La réclamation de Dreyer est basée sur une série de petits existences de vestiges (identifiant dans les proto-hieroglyphes la provenance de divers objets) trouvés dans le tombeau du Roi Scorpion I (entre les années 3400 avant JC et 3200 avant JC). Un autre aspect de cette critique est une discussion de la polémique entourant la réclamation de Dreyer et la contre-hypothèse de la comptabilité archéologique qui voit dans les objets symboliques de la comptabilité de Mésopotamie l'origine de l'écriture.

Mots clés: extractions, existences de vestiges, proto-cunéiforme, proto-hieroglyphes, archéologie, réclamation

LOS ESCRITOS MAS ANTIGUOS ESCRITOS Y EXISTENCIAS DE LOS VESTIGIOS DE EGIPTO, UN ENSAYO CRITICO DEL UMM EL-QUAAB I—DAS PRÄDYNASTISCHE KÖNIGSGRAB U-J UND SEINE FRÜHEN SCHRIFTZEUGNISSE DE GÜNTER DREYER (EL PANTEON PREDINASTICO REAL Y LA EVIDENCIA DE SU TEMPRANA ESCRITURA) (MAINZ: VERLAG PHILIPP VON ZABERN/DEUTSCHES ARCHÄOLOGISCHES INSTITUT, ABTEILUNG KAIRO)

Resumen: El Umm EL-Quaab I—Das prädynastische Königsgrab U-j und seine frühen Schriftzeugnisse de Günter Dreyer hace una presentación exhaustiva de los resultados de las excavaciones arqueológicas en la tumba U-j. También reseña la reclamación hecha por el autor de haber descubierto el origen de la escritura. Este ensayo crítico está orientado a llamar la atención de los investigadores contables y a la reclamación de Dreyer, allí descrita, de haber descubierto la primera escritura que de que se tenga conocimiento. Bien se justifica un análisis del libro de Dreyer, dado que este descubrimiento está estrechamente relacionado con el oficio del contador (aunque un poco diferente de la forma de la escritura proto-cunéiforme sumeria) La reclamación de Dreyer se basa en una serie de pequeñas existencias de vestigios (identificando en los protojeroglíficos la procedencia de varios objetos) encontradas en la tumba de Rey Escorpion I (entre los años 3400 aC y 3200 aC). Otro objetivo de este ensayo es la discusión de la controversia que generó la reclamación de Dreyer y la contra-hipótesis de la contaduría arqueológica, la cual ve en los objetos simbólicos de la contaduría de Mesopotamia el origen de la escritura.

Palabras Clave: excavaciones, existencias de vestigios, proto-cunéiforme, protojeroglíficos, arqueología, reclamación.

¹ Acknowledgment: I am obliged to Dr. Günter Dreyer, Director of the German Archaeological Institute in Cairo, for permission to reproduce the pictures in Figure 1, as well as to the publisher, the Verlag Philipp von Zabern, for the consent to translate some passages of this book into English. Further thanks go to Professor John Baines (Oxford University) for valuable advice, and to the Editor, Professor Stephen Walker, for helping to shape this essay. Finally, I gratefully acknowledge support from the Faculty of Commerce and Business Administration of the University of British Columbia.

The Oldest Writings, and Inventory Tags of Egypt,
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Dreyer's book and its background

The tomb U-j (supposedly of king Scorpion I, ca. 3400 B.C. to 3200 B.C.) was discovered as early as 1988 in the royal cemetery of Umm el-Quaab (the burial site of the predynastic kings of Egypt) near Abydos. The diggings and resulting studies apparently continued until 1994 or beyond. Dreyer's book [1998, in English translation: *Umm El-Quaab I--The Predynastic Royal Tomb U-j and Its Early Writing-Evidence*] is a typical archaeological work, reporting numerous and fascinating details - although mostly of interest to Egyptologists. Its content is comprehensive, including 6 chapters devoted to the Report of Diggings and Architecture, 5 chapters examining ceramics and 7 focussed on smaller items found. The book's literature references are highly specialized; indeed, they seem to be cryptic to laypersons unfamiliar with the six volumes of the *Lexikon der Ägyptologie* [Helck et al., 1975-1986] and other reference works of Egyptology.

However, the relevance of this esoteric book to accounting history can be justified for at least two reasons: First, the evidence that the excavated proto-hieroglyphics (claimed to be the earliest genuine writings) were inscribed on inventory tags, thus arising out of the need to convey some accounting information. Second, the fact that the competing source of early writing and its precursors - that emerged in Mesopotamia and the Fertile Crescent - also arose out of the need for accounting. The Mesopotamian token accounting and token-envelop accounting systems have previously been identified as the immediate ancestors of proto-cuneiform and cuneiform writing [see, Schmandt-Besserat, 1977, 1992; Nissen et. al, 1993]. Thus the question arises which writing system has chronological priority: The Mesopotamian pre-cuneiform system, manifested in token- and token-envelop accounting and the subsequent proto-cuneiforms, or the Egyptian proto-hieroglyphic system which precipitated on ancient inventory tags? This question becomes all the

more important, as *traditionally* the emergence of cuneiforms was assumed to be about 100 years before that of hieroglyphics:

The earliest known writing dates to shortly before 3000 B.C. and is attributed to the Sumerians of Mesopotamia....Because the earliest writing is logographic, it can be read only in vague terms, but the principle of phonographic transfer is apparent and was well on its way to become logo-syllabic. Egyptian hieroglyphic writing is known from about a *hundred years later*, and it is also the earliest authentication of the principle of phonetic transfer. [Bram et al., 1979, p.322; italics added].

In his Introduction, Dreyer points out that the findings of the royal tomb U-j shed entirely new light on the particular predynastic period, called "Naqada III". But he does not fail to emphasize the hypothetical nature of some of the interpretations presented:

The interpretation of this, in part, very new material, particularly its writing evidence [*Schriftzeugnisse*], and its implications regarding the administrative organization and the royal succession are bound to be hypothetical in many details. A limitation to present merely undisputed facts would have meant to renounce in advance the possibility of further amendments resulting from the discussion and critique.

The evaluation of the interpretation here presented should not merely rely on the understanding of details; it is more important how they fit into the entire picture, the consistency of which forms the basis for the partly hypothetically inferred details. [Dreyer, 1998, p.1, translated].

Part 1 (Chapters 1 to 6) deals with the topography, history and architecture details of the tomb U-j (supported by many drawings) together with an inventory of the individual rooms. Part 2 (Chapters 7 to 11) discusses the numerous local as well as imported ceramic pieces found in the tomb (again supported by many drawings). Most of these ceramics were jugs or fragments of them, occasionally with inscribed signs. Here we already find some indication and interpretation about the purpose of those signs. Part 3 concerns smaller objects, predominantly inventory tags [*Anhängetäfelchen*] of ivory, bone and stone. Some of them were engraved with number markings; others with a variety of pictures (figures of men, animals, trees and other objects) that were interpreted as early writings. These tags are

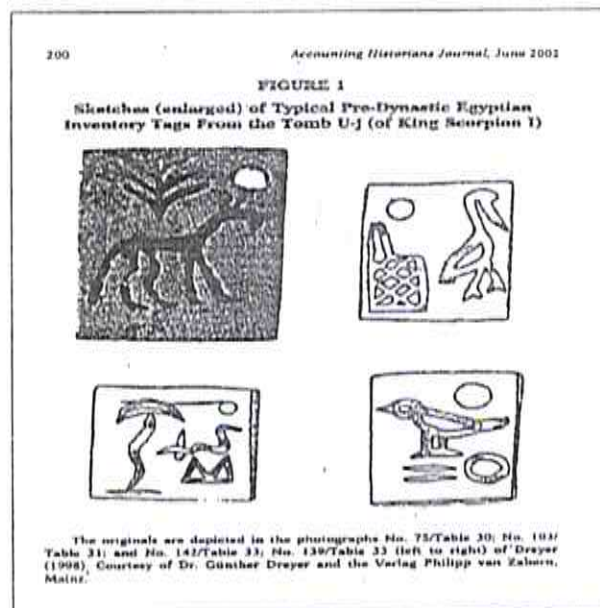
deemed to be the forerunners of those excavated much earlier, although belonging to later archaeological periods (e.g., the king Narmer period). The latter, "younger" tags are occasionally of larger size and not only of ivory and bone, but occasionally also of ebony and other woods. The comparison between older and "younger" tags leads to an interpretation important from the point of view of writing.

Dreyer's book is richly illustrated with meticulous description of each object depicted. It contains 106 Exhibits (*Abbildungen*) of which some consist of several, often a dozen or more drawings; furthermore the book contains an Index of Written Symbols of over one hundred signs [pp.183-187]. The Appendix shows a few more Exhibits, and the Tables 1-47 [*Tafeln; unpaginated*] offer some 35 photographs of digging sites, including details; more than 125 photographs of jars and their shards and designs; hundreds of additional photographs of other objects, whether used for games or other purposes.

From an accountant's point of view, the most important drawings (with descriptions and explanations, pp.113-145) as well as corresponding photographs [Tables 27-35] are those of some 190 tags of different sizes. They all have one round perforation for tagging them on some inventory item [cf. Figure 1]. According to Dreyer, the major purpose of this was to identify the object's provenance (or the quantity, in case of number tags). Of these tags, some 43 contain only numerical signs. The remaining tags bear various figures (sometimes two or three on one tag) of people (hunters with bow and arrow, wrestlers, etc.), *animals* (aardvarks, canines, cobras and other snakes, elephants, felines, fish, hedgehogs, hyenas, scorpions, snails, heads of rams and oryx, various kinds of birds such as cranes, ducks, geese, herons, ibis, falcons and unidentified smaller birds, etc.), *plants* (ferns, palms, reeds, trees) and of *other objects* (bags, boats, buildings, earth, furniture, heaven, garments, mountains, thrashing-floors, water, weapons, or things difficult to identify). The tags are inscribed on one side only - save for a few exceptions that may have been recycled. Similar to inventory labels, they were attached to bags, boxes or other containers holding commodities such as linen, oils, etc. The tags served to identify either the place (e.g., a city) or the institution (e.g., a royal granary) of the commodity's provenance or, in case of number tags, the quantity or size of the object. Dreyer [1998, p.136] points out that these tags, together with inscriptions on jars and other containers, constitute the most important findings. Most of them stem from the diggings on U-j, although some come from previous excavations (as far back as the

fieldwork of E. Amélineau [1850-1915] and Sir W. M. Flinders Petrie [1853-1942]). The highlight of Dreyer's book might be the following passage:

As most of the signs manifest themselves as hieroglyphics in the dynastic period [i.e., after 3170 B.C. or so], and since their later arrangement can already be observed in the beginning, it makes sense to take them, at least in part, not simply as symbols/markers, but to read them like hieroglyphics....Also other groups of signs can be read with the same phonetic values....The stork beside the chair (No. 103 [cf. our Fig. 1]...b□ st = Basta. The fact that names of places occur among the signs, can be proven on a non-decipherable (*nicht lesbaren*) sign, the wrestlers (No. 44, X 188), which are [also] inscribed as a hieroglyphic, identifying a place on the pallet of cities in one of the city-rings (Table 43a). A series of tags with the combination of tree + animal can be read, similarly to inscriptions on vessels, as designations of commodities that are named after their originator....Starting from these preconditions, the following readings and interpretations of the individual signs are listed. Although it is often difficult to decide whether a sign is an ideogram or a phonogram. In some cases only one definitive interpretation is possible. For an understanding of some groups of signs, particularly those that stand alone, there are, unfortunately, no hints. [Dreyer 1998, p.139, translated].



Hence Dreyer interpreted a few of these signs as genuine ideographic writing, standing for inscriptions with phonetic values (in contrast to mere pictographs representing concrete objects). Some of the tags contain symbols that were not found in any later writings. Others had symbols resembling hieroglyphic characters (e.g., the last tag of Figure 1, the bird above two horizontal lines and a ring). A third group of labels could be interpreted indirectly. For example, the signs on the first tag (Figure 1) could refer to a plantation (the tree) belonging to a king or temple (considering that the "Chief of the Westerners", a local god of death, was identified by a dog-like animal). The chair and stork on the second tag, phonetically interpreted, would mean "ba-st" or "Basta" (possibly a city in the Nile Delta). However, Dreyer [1998, p.137] points out that the tags or labels (*Etiketten*) discovered by him, resemble closest those previously unearthed (although pertaining to a later period) that were called "simple" labels (in distinction to other categories, such as annalistic labels, labels for festivities, and abbreviated annalistic labels).

Numerals

The description of numerals in Dreyer [1998, pp.193-194] covers less than a full page (including 16 small sketches on p. 139). It is meagre in comparison to Schmandt-Besserat's [1992, pp.184-194] treatment of numerals and counting in ancient Sumer. Thus the 43 sketches of number tags [Dreyer, 1998, pp.115-117 and their photographs on Tables 27-28] are by no means fully explained. We mainly learn that the vertical and horizontal lines as well as the spirals refer to numerals (already known from another Naqada tomb), and that they served to determine the quantity or size of the object to which they were attached.

It seems that traditionally a *horizontal* line (or impression) stood for one unit, a *vertical* line for 10 units and a *spiral* for hundred units. Dreyer [1998, p.139] is not completely clear on this score, but he points out that in the tomb U-j, no signs for 10 seemed to occur on the tags. He explains this aberration by the supposition that in case of textiles (which, indeed, were found close to those number tags), a horizontal (instead of a vertical) line represented *ten* units of a square ell (ca. 45 x 45 inches) of material. What further complicates the picture is that some number tags of U-j do contain vertical as well as horizontal lines. However, the reason is not so much to distinguish a "one" from a "ten", but the fact that, depending on the direction of the grain (in stone or wood), the more convenient direction

(either horizontal or vertical) was chosen. A further assumption is that, possibly, a spiral *with* a line was used to indicate a specific quantity of textiles, while a spiral *without* a line referred to a specific quantity of corn. These comments may become relevant when interpreting Dreyer's findings in relation to Schmandt-Besserat's thesis on the origin of abstract counting.

Commentary on dreyer's claim

As mentioned, until recently the evidence about the oldest writing clearly pointed to Mesopotamia. Writing emerged from the token-envelop system during the last quarter of the fourth millennium B.C. Thereby clay tokens were impressed unto the surface of clay envelopes which, in turn, represented a kind of equity claim [cf., Schmandt-Besserat, 1977, 1978, 1992; Mattessich, 1987, 1994, 2000; Nissen et al., 1993]. Towards the end of this period, the Sumerians made their accounting entries by impressing the tokens on *flat clay slabs* instead of impressing them on clay envelopes². In the course of the next hundred years, those token-impressed clay tablets were further refined; first by engraving them with additional pictographic as well as ideographic symbols (proto-cuneiform writing), thus conveying additional business information. Later, the indentations were made with a reed stylus. At the same time, a sophisticated syllabary developed. Thus full-fledged cunei-form writing emerged. In time, it transcended its accounting and commercial origin, finding application in general information transmission, as well as in literature and poetry.

In contrast, Dreyer's claim is to have discovered the oldest writing, not only in Egypt but the "earliest" in general. As we have seen, this claim was based on a series of small, perforated bone and ivory tags (the size of postage stamps) each of which bore some signs, often similar to later hieroglyphics. Obviously this relatively recent discovery still has to be thoroughly evaluated and assessed by Egyptologists, Assyriologists and archaeologists in general. No indication seems to exist that the newly found proto-hieroglyphics have influenced the cuneiforms of Mesopotamia,

2. As pointed out, for example in Mattessich [2000, pp.6-7, 89-90, 103-104], the transition from the token-envelop system to subsequent accounting on clay tablets caused a loss of the double-entry features which the former system contained. Furthermore, the more convenient clay tablets no longer needed the tokens as symbols representing economic goods (assets); they used the tokens merely as tools for impressing those shapes, the impressions of which then represented those goods.

despite the evidence of existing trade between predynastic Egypt and the countries East of it. On the contrary, Aldred [1984, p.77] states that the "first attempts at a pictographic system of writing have also been traced by some scholars, ultimately to a Mesopotamian source, particularly to the Jemdet Nasr culture which extended as far as Syria by the end of the 4th millennium B.C."

As to the precise dates of those inventory tags, the last word is not yet out, but if Dreyer's dating proves to be correct, those proto-hieroglyphics could precede the proto-cuneiforms of Mesopotamia, and possibly even the token-envelope impressions (pre-cuneiforms) out of which the proto-cuneiforms and cuneiforms arose. Yet here too, a full evaluation awaits further research results.

Not every archaeological discovery is of the same importance. Greater prestige is attached - not only by lay-persons - to disclosing the origin of writing than to many other archaeological discoveries (just as discoveries dealing with the descent of the human species have higher status in palaeontology), which then are put under special scrutiny. Thus the claim to have found the origin of writing has raised many questions, doubts and criticisms. Indeed, three major arguments have been advanced against Dreyer's claim:

- i. The evolution of early writing in Mesopotamia is documented in much more detail [see Schmandt-Besserat, 1992; Nissen et al., 1993] than that of Egypt, as Robert Englund remarked to the editors of the "Why Files"³. Even if the origin of Dreyer's inventory tags can be shown to have preceded the *envelope-token* accounting, the fact remains that the later emerged out of *token* accounting, which can be traced back to 8000 B.C. by hard and fast evidence. Additionally, pretty much the same token shapes were used throughout most of the Middle East (Fertile Crescent). Although neither the simple nor the complex tokens can be considered "writing" in the proper sense, the pre-cuneiforms, proto-cuneiforms and cuneiforms evolved in direct ascendancy from this pre-historic information system.

3. See <http://whyfiles.org/079writing/2.html> [pp.2-3] and also Baines [1998]. The "Why Files" are a project created by the National Institute for Science Education and the Natural Science Foundation, funded by the Graduate School of the University of Wisconsin-Madison. Robert Englund is Professor of Archaeology at the University of California at Los Angeles.

- ii. The pertinent carbon dating of Dreyer's findings is apparently only accurate within 200 years. This is a very tight margin of error (an argument submitted by John Baines to the "WhyFiles")⁴, particularly as the Mesopotamian evidence for the origin of writing points at a time around 3200 B.C. [according to Nissen et al., 1993, p.5]. It even is a date overlapping with Dreyer's claim for the earliest Egyptian writing.
- iii. Baines also casts doubt on Dreyer's claim to have correctly deciphered the meaning of the tags' inscriptions. Baines finds the number of signs on each tag too limited for meaningful deciphering - a powerful argument, indeed. Dreyer's response that some of the tags carry not only two or three symbols, but occasionally four, may not quell this scepticism.

Potential consequences

What are the consequences of Dreyer's findings for the archaeology and history of accounting? If his claim stands up to scrutiny, ancient Egypt would, indisputably, turn out to be the place where writing first originated. Yet, one still would have to show that this Egyptian creation was transferred to Mesopotamia, and that the Sumerian proto-cuneiform and cuneiform writing derived from Egypt. Otherwise it could be argued that writing originated *independently*, almost simultaneously, in Egypt as well as in Mesopotamia (and plausibly in other places, as for example in China and the Americas - possibly at a later time).

In the face of the overwhelming evidence which Schmandt-Besserat [1992] and others brought to bear on the derivation of writing from token-envelope accounting, sufficient evidence is unlikely to be found to prove the derivation of proto-cuneiform writing from those early Egyptian signs. Thus the "independence hypothesis" (also favoured by Baines) seems to fare better at this stage. Indeed, the *many differences* between proto-hieroglyphics and proto-cuneiforms are surprising. Not only is the appearance of the writing totally different, but so is the material used, the technique involved and, to some extent, the usage - all this in the

4. See <http://whyfiles.org/079writing/2.html> [p. 2]. John Baines is Professor of Egyptology at Oxford University.

face of existing exchange of merchandise and ideas between those two regions during this critical period.

Whether Dreyer's claim is firm or shaky, we have to examine to what extent it could change or influence the arguments presented in Schmandt-Besserat [1992], Nissen et al. [1993], Mattessich [2000, Chapters 1-5] amongst others. Whatever the outcome, the fact that token accounting can be traced to 8000 B.C. (and that the Egyptian tags with signs were attached to economic goods) reinforces the claim that commercial information and accountability gave the impetus to writing, whether invented in Mesopotamia, Egypt or both places. Even though the Egyptian tags cannot be interpreted as accounts, they obviously fulfilled, as vouchers or inventory labels, an accounting function.

Let us examine whether, or to what extent, Dreyer's claim, if up-held, could have an impact on previous results of accounting archaeology. To do this, the major facts and hypotheses set forth by Schmandt-Besserat [1992] and Mattessich [2000, Chapters 1 to 5] are presented. Afterwards, we examine any possible impact.

A condensed version of relevant arguments by schmandt-besserat

- 1) In Sumerian economics of the late 4th millennium, sealed "bullae with attached stringed tokens" and "clay envelopes with tokens inside" were two alternative ways of accounting for control, administration and the redistribution of wealth [cf. Schmandt-Besserat, 1992, :pp.108-128, 170, 178]. Thereby token-stringed bullae (clay seals), as well as clay envelopes with token content, bore witness of ownership or debt relations [cf. Schmandt-Besserat, 1980, p.385; 1992, pp.10, 166-183].
- 2) Before ca. 3250 B.C., the tokens were likely preserved in perishable containers (e.g., sealed leather pouches which later fulfilled the purpose assigned to clay envelopes). This assumption is supported by evidence that even after 3250 B.C. leather pouches were occasionally still in use for storing clay tokens [cf. Schmandt-Besserat, 1992, pp. 9-10, 97-98].
- 3) From about 3200 B.C. onwards, many of the sealed envelopes were *impressed* with the very same tokens contained inside those envelopes

before sealing them [cf. Schmandt-Besserat, 1992, pp.120-128]. The purpose of this improvement was apparently to facilitate the identification of the *content* without breaking the envelope.

- 4) The subsequent proto-cuneiform (and later cuneiform) writing, which took over the idea of impressing those tokens (with additional explanatory engravings) but upon the more practical clay tablets, is evidence that *the first writing attempts arose out of commercial activity in general and accounting activity in particular* [cf. Schmandt-Besserat, 1992, pp.130-154; Nissen et al., 1993, pp.13-24].
- 5) "The accountants of Uruk IV-a about 3100 B.C. invented the first numerals - signs encoding the concept of oneness, twoness, threeness, abstracted from any particular entity. This was no small feat, since numerals are deemed to express some of the most abstract thoughts our minds are able to conceive" [Schmandt-Besserat, 1992, p.192]. Yet *abstract numerals and abstract counting must not be confused with counting by one-to-one matching and concrete counting through tokens and specific number words, respectively*. Such counting systems are obviously much more ancient [Schmandt-Besserat, 1992, pp.184-194; Nissen et al., 1993, pp.25-29].

A condensed version of additional arguments by mattessich

In interpreting Schmandt-Besserat's theory from an accountant's point of view [cf., Mattessich, 2000, 1994, 1987], the following arguments were advanced:

- 6) If writing and abstract counting emerged after the advent of token-envelope accounting, then the previously accepted assertions [i.e., Littleton, 1933, p.12; Skinner, 1987, pp.4-6] that the *major prerequisites of accounting* were writing and abstract counting turn out to be *incorrect*.
- 7) If a particular token represented a specific asset, and its token-form determined the type of commodity for accounting purposes, then this *form or shape* had the same function that today a specific *asset account* fulfils.
- 8) If the individual tokens inside an envelope represented assets, and the envelope stood for an IOU (in kind), then the token impression on the surface

of the envelope, in their inseparable totality, can be considered a quantification of the corresponding equity.

- 9) The token-envelop system is more than merely an IOU. Seen from a modern perspective, it is a closed, double-entry representation (like a primitive balance sheet). Individual assets were recorded by inserting moveable tokens into the envelope (debit entries, representing a physical reality); while the very same quantity, but as an inseparable totality, was recorded by impressing the tokens onto the envelope (as credit entries, representing the social reality of a legal claim).
- 10) The transition from pictographic to ideographic representation in ancient Sumer sheds light not only upon Wittgenstein's question about the difference between "showing" and "saying" (i.e., between illustrative versus written or oral representation) but, above all, on the early transition from the first to the second.

Concluding comments

Concerning the ten items discussed above, in my view, Dreyer's claim only could have an impact upon items 4, 5, and item 6. It possibly could affect item 10.

As to the argument of item 4, (particularly the italicised portion), two possibilities exist:

- (a) Assume that it could be shown that Sumerian writing derives from Egyptian writing. Then in order to maintain the argument that accounting was the impetus to writing, one would have to confirm the present assumption that the first Egyptian writing attempts stem from the necessity of inventory labelling in Egyptian graves and possibly at commercial transactions.
- (b) If the "derivation hypothesis" does not hold, the situation would be even simpler. One would merely have to substitute the expression of "the first writing attempts in Mesopotamia" for "the first writing attempts". However, for accountants the major issue is whether the first writing emerged out of accounting activities-though it would be interesting to know whether writing was born in Mesopotamia or in Egypt, or in both areas independently. This still seems to be an unresolved case.

The argument of item 5 concerns the assertion that abstract counting was first conceived in Uruk at about 3100 B.C. This fairly specific statement is explained in Schmandt-Besserat [1992., pp.184-194, and some of her previous publications] with considerable detail in its evolutionary setting. Dreyer [1998, pp.193-194], in contrast, deals with numerals in a less specific and much shorter way. However, if it could be demonstrated that the predynastic Egyptian "number tags" were based on an abstract counting system (instead of concrete counting), it could affect previous theories on the origin of abstract counting. There is no indication in Dreyer's book that this was the case. Nor does any hard and fast evidence exist that counting in the abstract sense emerged in Egypt prior to its Mesopotamian origin, although this possibility is not completely eliminated. The existence of different number conventions for textiles as for corn (as mentioned by Dreyer) can hardly be used as evidence against abstract counting, since in Mesopotamia, long after the introduction of abstract counting, different measurement systems were still used for different commodities [cf. Nissen et al., 1993, pp.25-29].

Dreyer's claim also could affect item 6. Since this is a *conditional statement*, the consequence hinges on this very condition, which is found in item 1 together with item 4. The first one, I believe to be unaffected by Dreyer's claim, but the second one may not be so. Thus the outcome will depend on the resolution of item 4, as discussed above. In other words, accountants hardly have to worry about Dreyer's thesis, but some previous archaeological claims might be affected by it.

Finally, the assertion in item 10 could require a reformulation, yet its essence would remain unchanged. Since the Egyptian inventory tags with their proto-hieroglyphics also indicate a transition from "showing" to "saying" in Wittgenstein's sense.

In summary, Dreyer's claim, even if sufficiently verified and generally accepted, is unlikely to affect essentially the hypotheses (advanced during the last two decades or so) of accounting archaeology, but could have an impact on the primacy of writing or perhaps even of abstract counting.