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PREHISTORY AND PROTOHISTORY OF ANCIENT CIVILIZATIONS

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SIGN AND IMAGE: REPRESENTATIONS OF PLANTS ON THE WARKA VASE OF EARLY MESOPOTAMIA

Naomi F. Miller*
Philip Jones*
Holly Pittman*

ABSTRACT – *The Warka Vase is an iconic artifact of Mesopotamia. In the absence of rigorous botanical study, the plants depicted on the lowest register are usually thought to be flax and grain. This analysis of the image identified as grain argues that its botanical characteristics, iconographical context and similarity to an archaic sign found in proto-writing demonstrates that it should be identified as a date palm sapling. It confirms the identification of flax. The correct identification of the plants furthers our understanding of possible symbolic continuities spanning the centuries that saw the codification of text as a representation of natural language.*

KEYWORDS – Warka Vase, date palm, *Phoenix dactylifera*, Sumerian

RIASSUNTO – Il Vaso di Warka è un oggetto iconico della Mesopotamia. In mancanza di studi botanici rigorosi, le piante raffigurate nel registro basso sono state di solito considerate come lino e grano. In questo studio si propone che l'immagine solitamente identificata come grano, per le sue caratteristiche botaniche, il suo contesto iconografico e la sua somiglianza con un segno arcaico rinvenuto nella proto-scrittura di Uruk, dovrebbe essere identificata come un alberello di palma da dattero. L'analisi inoltre conferma l'identificazione del lino. La corretta identificazione di queste piante favorisce la comprensione di certe possibili continuità simboliche che, attraverso i secoli, hanno visto la codificazione del testo come una rappresentazione del linguaggio naturale.

PAROLE CHIAVE – *Vaso di Warka, palma da dattero,* Phoenix dactylifera*, Sumerico.*

INTRODUCTION

Uruk (Warka) is the apparent site of invention of an archaic sign system, conventionally termed proto-cuneiform script, that employs pictographs. Excavations there also produced numerous works bearing pictorial imagery. Among the most famous and the most written about is the Warka Vase, which scholars deem the paradigmatic visual representation of the period, presenting in registered format a visual articulation of fundamental aspects of Late Uruk society (Bahrani 2002; Bernbeck, Pollock 2002; Groene-wegen-Frankfort 1951; Suter 2014; Winter 2006) (fig. 1).

This paper reconsiders aspects of the imagery on the Warka Vase. The new identification of one of its plant motifs in conjunction with its companion plant, flax, offers a more nuanced view of the Vase and its meaning during Uruk times. Specifically, a plant form with a cross-hatched head in the Uruk image repertoire is an abstraction of an actual date palm offshoot. It also closely resembles a sign

Fig. 1 – The Warka Vase.

that carries meanings associated with date palm offshoots.[1]

We argue that the cross-hatched plant and the proto-cuneiform sign are both based on a "natural prototype" recognized from the "visible world" (see Knight 2013: 64). Clarification of this long misunder-stood visual element helps illuminate the meaning of the artifact in its original setting as well as of other artifacts bearing the motif. The two plants juxtaposed with running water suggest a horticultural setting rather than an agricultural one as is usually assumed. This has several wider implications for our understanding of the Vase. As products of these two plants – dates and a linen garment – are represented in the upper register, the plant identifications knit together the composition of the vase as a whole. Moreover, the gender implications of the two plants reinforce the sexual dichotomy evident in the file of animals above the plants and the two human protagonists in the upper register.

BACKGROUND TO SYMBOLIC REPRESENTATION IN THE LATE URUK PERIOD

It has been long established by philologists (*e.g.,* Damerow 2006; Englund 1998; Gelb 1952; Glassner 2003; Green, Nissen; Michalowski 1990; Nissen 1986; Woods 2010) that archaic writing of the late fourth millennium BC

[1] We use Assyriological typographical conventions for transliterating cuneiform and proto-cuneiform signs into our alphabet. Most cuneiform signs have a variety of both logographic or phonographic readings (Borger 2010). For Sumerian, where the given word or sound is obvious, we use lower case roman type. Where it is either not clear or we wish to acknowledge the presence of a sign without regard to its function, we use upper case roman type. Signs used as semantic classifiers are in superscript. For Akkadian, the same conventions apply, except phonographic readings are in lower case italics. For both languages, lemma are in italics.

CULTURAL REFERENCE	APPROX. DATE	CULTURAL DEVELOPMENT
Neo-Babylonian/Neo-Assyrian	ca. 1000-500 BC	Creation of libraries of traditional literary, lexical and divinatory texts
Middle Babylonian/Middle Assyrian	ca. 1600-1000 BC	
Old Babylonian/Old Assyrian	ca. 2000-1600 BC	Sumerian literary narratives, including the Inana cycle
Ur III	ca. 2100-2000 BC	
Old Akkadian and Gutian	ca. 2350-2100 BC	Limited plant imagery on glyptic; contest scenes important
Early Dynastic (Royal Cemetery at Ur)	ca. 2500 BC	Date is important part of the plant imagery; burnt offerings of date and grain found
Early Dynastic	ca. 2900-2350 BC	Writing system begins to reflect spoken language; Sumerian names appear in cuneiform script
Jemdet Nasr	late 4th/early 3rd millennium	Many forms shared between archaic signs ("proto-cuneiform") and pictorial representations
Uruk	4th millennium	First archaic signs found on tablets and carved in stone at the site of Uruk (=Warka)
'Ubaid	5th millennium	Flax, grain, and date production attested in lower Mesopotamia (botanical evidence); necessarily irrigated
Samarran	6th millennium	Irrigation agriculture (grain and flax) attested at the edge of Mesopotamia in lowland Iraq (archaeobotanical evidence)

Tab. 1 – Key cultural periods and developments relevant to the discussion.

(Late Uruk period, see Tab. 1) developed in a larger symbolic environment that also included pictorial imagery carried on cylinder seals, which were used to impress: tablets, hollow clay balls, and container sealings (Amiet 1966; Pittman 1994*b*; Schmandt-Besserat 2007). From the beginning, the two symbolic systems shared some forms to denote ideas or words. In texts, the "pictographic" nature

of some signs is clear, but even the typologically earliest texts carry signs that have no identifiable pictorial or real-world referent. Similarly, the motifs of the earliest imagery on the cylinder seals mostly resemble prototypes in the material world, although we cannot in all cases identify the intended referent. Some are likely to be non-representational (Pittman 1994*b*).

While there are some pictorial forerunners for the imagery carried on the seals of the Middle and Late Uruk period found in earlier Late Chalcolithic glyptic traditions of the fifth and early fourth millennia (McMahon 2009; Pittman 2001, 2013; Reichel 2002), the explosion of visual imagery preserved in the seals and seal impressions of the Uruk period parallels the invention and rapid deployment of signs in the proto-cuneiform script. Further, this pictorial imagery is carried not only on seals, but also on more "monumental" works of art such as sculpture in the round, relief sculpture on stone stelae, vessels, and mace heads. The initial strong relationship between the writing system and iconography begins to fade after the Uruk period (Cooper 2008).

THE WARKA VASE

Excavated at the site of Warka in early 1934 by a German team, the Warka Vase was found in Level III (Jemdet Nasr period) of the temple precinct of Eanna along with other objects that had clearly been deposited together. The excavators called the group a *Sammelfund*, and considered it to be a votive offering (Heinrich 1936). The imagery is close in style and iconography to seal impressions and seals found at the site in both Levels IV and III, so the *terminus ante quem* of Uruk III is consistent with the stratified comparanda. The imagery rendered in low relief in register bands on the Vase has been discussed in terms of abundance (Winter 2006), performativity (Bahrani 2002), or as a representation of the social structure and hierarchy of Uruk society (Bernbeck, Pollock 2002; Suter 2014). These studies reveal the multivalent cultural meanings that can be extracted through close analysis of iconography, style, and context.

The Vase was carved in poor quality alabaster and is almost one meter in height (96 cm). It had been repaired in antiquity, and was found together with fragments of what was certainly a second vase that carried similar or identical imagery. The three register bands each carry a distinct theme that, when combined, symbolically refer to what must have been the most important elements of Late Uruk society. The bottom register depicts water, plants and animals. The middle register carries images of nude men carrying bowls, a spouted jar and baskets overflowing with a variety of goods. The upper register renders the most complex imagery in which a male figure (mostly missing but restored with confidence as the paramount individual) confronts a female who stands in front of symbols (gate posts) that can be associated with the later cuneiform sign for the Sumerian goddess Inana.

It has long been understood that some of the individual design elements making up the imagery on the Vase are identical to forms of signs carried on the earliest tablets. In the upper register, for example, the so-called gate post of Inana is visually identical to the cuneiform sign used to denote the name of the goddess in the earliest tablets (Szarzyńska 1989). Another element that is often cited as isomorphic with a proto-cuneiform sign is the structure

Fig. 2 – *a*) The lowest register showing water and plants. *b*) outline of 'cross-hatched' (left) and 'trident' (right) plants.

carried by the small figure standing on the back of the ram. This design element is formally identical to the proto-cuneiform sign for EN (Hockmann 2008).

THE LOWEST REGISTER

A double wavy line is the lowest design element on the Vase (fig. 2*a*). All interpreters agree that the referent is flowing water. Indeed, this design element is isomorphic with the corresponding sign in the archaic script (Green, Nissen 1987: 169, no. 1). Its location at the lowest tier emphasizes its role as a locally available, abundant and life-giving resource. Above the water, in the same register band, two types of plants alternate. Although the pairing of water and plants is represented on other sculptures of the Uruk period as well as on cylinder seals, we argue below that the association of water with the depicted plants reflects the particularly high water requirement of *these* plants. To avoid prejudgment, we call them the cross-hatched plant and the trident plant (fig. 2*b*: left, right); the identification of neither is straightforward. While this contribution focuses on the cross-hatched plant, we consider the trident plant as well.

Most commentators on the imagery, including the authors, have assumed that the cross-hatched plant, with three broadly linear leaves ranked up the long stem, represents a ripe ear of grain, either wheat or barley. The 'inflorescence' (fruiting branch) of the Warka cross-hatched plant appears to have awns (bristles that emerge from ears of grain) projecting from the head, as is characteristic of cereals. This contribution rejects the association of the cross-hatched plant with a kind of cereal because the form of the representation does not correctly capture the salient elements of the natural cereal prototype. Rather we revisit and refine an alternative interpretation of the plant first offered by Mark Brandes (1965) as belonging to an aspect of the date palm.

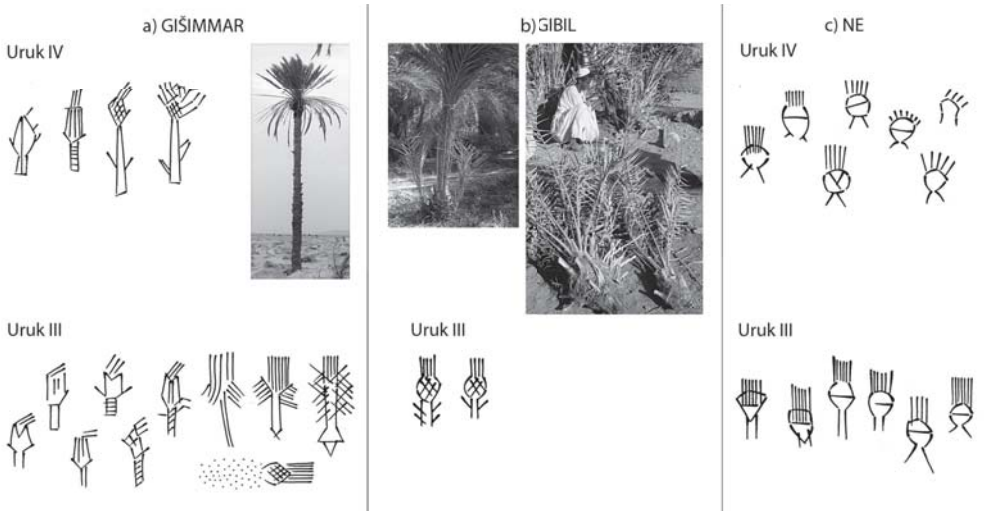

Fig. 3 – Signs and their referents. *a*) GIŠIMMAR, date palm; *b*) GIBIL; young date palm (lower left), date palm offshoot (right); *c*) NE, fire. (After Green, Nissen 1987: sign 230, sign 214, sign 391).

The second, 'trident' plant, has always been more difficult to parse. Van Buren (1939-41:36) and Frankfort (1996: 25) thought it was the date palm, describing the Warka Vase imagery as ears of grain alternating with date palms. Winter (2006), linking the reed bundles of the upper register to Inana, considered the trident plant in light of the later textual associations of Inana to flax and linen. She also noted morphological traits shared with the flax plant.

Fig. 4 – The Warka Mace (Margueron 1965: Pl. 81).

THE CROSS-HATCHED PLANT

Scholars have assumed, but never demonstrated, that the cross-hatched plant represents grain. The first author of this contribution reconsidered this identification when perusing the Uruk archaic sign list (Green, Nissen 1987). She noticed that the proto-cuneiform signs GIŠIM-MAR, the forerunner of the later cuneiform sign for 'date palm' (*Phoenix dactylifera*) and GIBIL, a sign of uncertain graphic origin, closely resemble the cross-hatched plant rendered on Warka Vase (fig. 3*a, b*). The similarity to the GIŠIMMAR sign had already been noted by Brandes (1965) in

Fig. 5 – Cross-hatched plant ("GIBIL") carried by paramount. (After Amiet 1980: no. 637-B).

his study of the Warka Stele. Strommenger (1967), however, dismissed Brandes's insight in her interpretation of both the stele and the Warka Vase. Later scholars have followed Strommenger and ignored the association of the cross-hatched plant and the date palm.

Other examples of the date palm offshoot in works of art of the Uruk/Jemdet Nasr period

During the Uruk/Jemdet Nasr period, the image repertory is often repeated across media. The plant image that we are identifying as a date palm offshoot can be clearly observed rendered in relief on a mace head, on which it also alternates with the trident plant (fig. 4). Additionally, it is depicted on cylinder seals where it is shown carried by either the paramount figure (fig. 5) or his acolyte (fig. 6). On the latter seal, the acolyte follows a slightly taller man who appears to be walking toward a reed bundle. The reed bundle can also be seen (in relief) as an element at the top of the seal itself. Figure 6 shows the plant with a curved stem, a depiction that more accurately represents the offshoot in nature. In other cases it is shown with a

Fig. 6 – Cross-hatched plant ("GIBIL") carried by acolyte. (After Amiet 1980: no. 639).

straight stem, identical to that on the Warka Vase and the mace head (Amiet 1980: image 642). In at least two instances sheep are shown eating from this plant, in each case in association with the gate post of Inana (Amiet 1980: images 637b, 642). In fact, livestock can be fed date fruits and roots (Townsend, Guest 1985: 264), date pits (Chao, Krueger 2007: 1081; Iranica 2011), and the residues of date syrup production (Iranica 2011). Reinfor-cing this fact, and bringing it again to the domain of early Mesopotamia, there is a line in the composition Dumuzid-Inana W (ETCSL: c.4.08.23), "May my sheep eat my plants that ignore

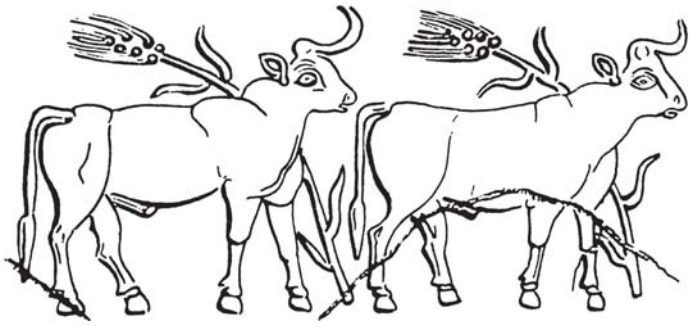

Fig. 7 – Cross-hatched plant ("GIBIL") behind a bull. (After Amiet 1980: no. 39).

winter and summer, my plants, my date palm saplings."

Another context in which this plant appears is on relief carvings on vessels and on cylinder seals where it is shown rising on a curved stem behind and above the back of a domesticated bovid (fig. 7). There are two repeating stalks behind two repeating bulls. Three leaf-like appendages emerge from both stalks. The head is more linear than seen on the Vase, and cross-hatched-like patterning is incised.[2] The parallel stems all reach the same height. The stem is curved, not straight. Similarly, a modern impression of an Uruk seal (Topçuoğlu 2010: fig. 1.2) shows two bovids (?) preceded and followed by the cross-hatched plant; another exemplar (Woods 2010: pl. 6) shows the same plant appearing to 'grow' out of water (two wavy lines) on either side of a bovid.

We think all these imagistic versions represent the same plant, and that plant is the date palm, or more precisely, a date palm offshoot. The bulbous base of the hand-held plant further supports this identification (fig. 6). The plants shown on Figure 7 appear to be already growing in the ground. If the scale of the plant shown on the cylinder seals is applicable to that of the Vase, then the plant is about as tall as a person, which accurately represents the size of an immature (*i.e.,* not yet productive) date palm. Finally, there are clear analogies between the archaic sign and the date palm offshoot: the cross-hatched top depicts the spiral arrangement of the leaf bases at the top of the tree or offshoot, the vertical lines emanating from the bole might depict the trimmed leaves. The cross-hatched plants on the Warka Vase and the other cited imagery are very similar in appearance to the GIBIL sign as well as to their prototypes in nature.

The cross-hatched plant and the pictograph for grain (ŠE)

In attempting to identify the cross-hatched plant, we proceed from two basic principles: we value greater resemblance to real world antecedents; and, following the supposition that prior to the third

[2] Of all the comparanda presented here, the plant on this seal is the only one that is ambiguously date palm rather than grain.

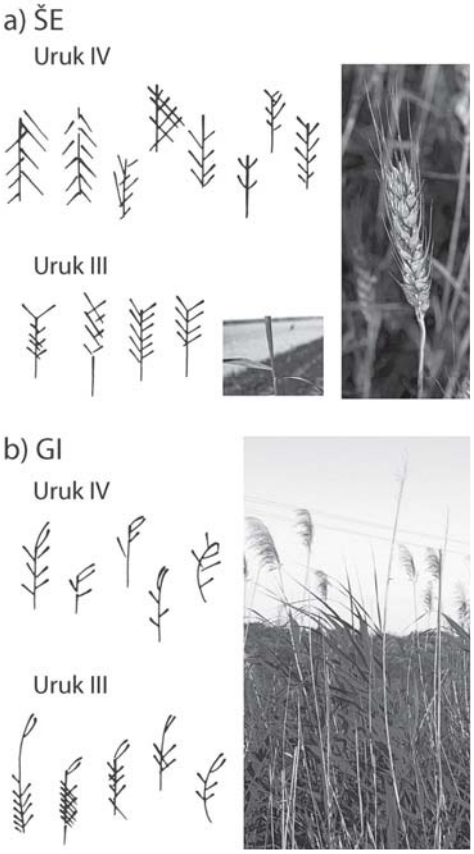

Fig. 8 – Signs and their referents. *a*) ŠE, grain (wheat); *b*) GI, reed. (After Green, Nissen 1987: sign 511; sign 204).

millennium BC, script and iconography drew on common traditions of abstraction, we value resemblance to pictographs. From these two perspectives, any grass, including wheat and barley, would be a poor fit. Grasses have thin leaves. In grasses, the leaf sheath clasps the stem, superficially suggesting the depiction on the vase. The leaf blade, however, emerges at an angle from the leaf sheath (fig. 8*a*). Moreover, awns attached to each grain are about the same length, and so do not all end at the same height along the inflorescence (fig. 8*a*). Finally, the grains are arranged two-ranked up the ear, which typically is longer than it is broad.

The pictograph for grain– ŠE (fig. 8*a*) – is distinctly unlike the cross-hatched plant in depicting the most salient part of an ear of grain: its two-ranked form. The sign does not show leaves. Later forms of the ŠE sign use the individual ear as a collective noun, 'grain', and plant imagery on seals rarely shows individual cereal stalks.[3] The sign derived from reed – GI (Green and Nissen 1987: 211, sign 204; fig. 9*b*) – should also be mentioned, because of its similarity to ŠE. For GI, the 'leaves' are 2-ranked up the stem, whose gently arced upper end evokes the inflorescence of reeds (*Phragmites*).

The cross-hatched plant and the pictograph for date palm (GIŠIMMAR)

The cross-hatched plant shows considerably more likeness to the GIŠIMMAR sign (fig. 3*a*). In later cuneiform tradition, this sign is used primarily to write the Sumerian words /ŋišimmar/ (or /ŋešnimbar/) meaning "date palm" and /sag/ (with the conventional value sag_9) meaning "good." It is reasonably certain that the sign is a schematic representation having the date palm as its natural prototype. The value sag_9 'good' is probably derived from the positive association of the date palm. The

[3] For later times, we know of a grain goddess (Nisaba) and a beer goddess (Ninkasi), but Inana is never directly associated with grain. For a recent survey with bibliography, see Yağmur Heffron, 'Inanna/Ištar (goddess)', Ancient Mesopotamian Gods and Goddesses, Oracc and the UK Higher Education Academy, 2013 [On-line: http://oracc.museum.upenn.edu/amgg/listofdeities/inanaitar/].

Fig. 9 – *a*) Detail of aerial offshoot growing above a leaf base. *b*) In Sudan, aerial offshoots are allowed to grow until they are big enough to separate easily from the main trunk. *c*) Palm leaves are trimmed to make the tree easier to climb, as demonstrated to Miller in February, 2015, el-Kurru, Sudan. The cut fronds are valued as an excellent fuel.

archaic texts from Uruk carry several variants of GIŠIMMAR. The main ones feature a straight stem, a cross-hatched head and 'fronds' that emerge vertically from the head that are 'trimmed' to the same height. Some variants have side-leaf vestiges and some have 'fronds' pendant from the 'head' area.

The cross-hatched plant, the date palm sapling and the GIBIL sign

Of all the archaic signs, the cross-hatched plant looks most like the GIBIL sign (fig. 3*b*), which displays a straight trunk, cross-hatched head, 'fronds' emerging vertically from the head, and side-leaf offshoots. While this sign has obvious similarities to the GIŠIMMAR sign, it is not clear of what, if anything, it was originally a picture. We propose that it represents the young offshoot of a date palm.

The nature of date palm propagation makes this stage of the tree's life-cycle a likely candidate for ideological importance, as cultivated palms are generated from off-shoots rather than seeds. Date palm offshoots can grow either from the base of the plant or from high up on the stem (Chao, Krueger 2007: fig. 3). They form in the leaf axils (angle between the leaf and stem), and "are recognized by their curved form while seedlings have a straight form" (Zaid, de Wet 2002). For transplanting, the optimal offshoot is "at least three to five years old with a base diameter between 20 and 35 cm" (Zaid, de Wet 2002) (fig. 3*b*, right). Sometimes the upper leaves are tied in a bundle; for transplanting, "lower leaves must be cut off and the remaining ones tied together in order to facilitate handling" (Zaid, de Wet 2002). The remaining leaves can give the impression of a trimmed top. As

the palm tree grows, the lower leaves drop off or are trimmed (fig. 9*c*), creating the characteristic cross-hatched appearance on the trunk. This pattern is alluded to in ancient Mesopo-tamian architecture as early as the Late Uruk period, in clay cone and inlaid decoration of pilasters (see Brandes 1968; van Buren 1946) and continues into second-millennium sacred architecture (*e.g.,* at Ur and Šubat Enlil/Tell Leilan). The fronds of the date palm have more-or-less paired leaflets extending out from a central midrib, but the inflorescence has a spathe-and-spadix form – a spathe is a leaf-like structure that protects the ripening branched spadix, on which the flowers are arranged.

The philological evidence for what lies behind the GIBIL sign is ambiguous. The archaic texts from Uruk and contemporary sites are generally either records of the conveyance of goods or lists of words composed of signs produced by trainee scribes. Most of the signs are rooted in pictorial representation of actual objects, although without the evidence of the later cuneiform corpus it would be difficult to do more than identify the more obvious allusions. We still cannot read the earliest texts in the way we can later ones, but two approaches lead us to a better under-standing of them. First, the transmission of the writing system relied on the copying of lists of signs, words and phrases. These so-called lexical lists (Veldhuis 2014) were organized into broad contextual categories and were relatively standardized. Many of these lists continued to be copied for over a thousand years. Within the entries, the forms and order of the signs evolved in keeping with contemporary usage outside of the lexical lists, but order of the individual entries was generally preserved. Therefore, it is possible to trace the evolution of these specific signs into later periods, when other evidence permits an identification of the concepts they represent. Second, for many of the signs outside this process, we can still identify a sequence of later signs that preserves the evolutionary trajectory of the sign-form into later, better documented periods. Combining these two procedures allows us to build up an idea of what specific Uruk texts are concerned with and thus partly contextualize the meaning of signs otherwise unknown.

In later lexical lists, the GIBIL sign with a reading gibil is equated with the Akkadian word *pirhu* 'offshoot, sprout'. More commonly, it is used to write the Sumerian word *gibil* 'to be new'. It is not, however, used to write the word for date palm sapling, which is conveyed by the sign group GIŠ.ŠA6.TUR, probably read $suhuš_x$ (Heimpel 2010: 103). Nor does it appear to represent 'date palm sapling' in the Archaic texts. There, it seems to be used as a qualifier of other nouns rather than as a substantive in its own right. (See, for example, Englund 2001: 20-22 on the temporal or calendrical concept conveyed by the sign combination SUa GIBIL; see also Monaco 2007: 13-14.) Moreover, in later periods, there is both graphic and philological overlaps with another sign that is unlikely to be a representation of a date palm sapling: the NE-sign (fig. 3*c*; for these and related sign groups, see Rubio 2012).

We think that identifying the cross-hatched plant with the date palm sapling rather than grain provides a more elegant interpretation. It removes the need to see a coincidence in the iconographic representation of the cross-hatched plant and the pictographic representation of the

date palm sapling. The discrepancy of the GIBIL sign being derived from a date palm sapling, but not being used as the later cuneiform logogram for it, is not unique. For example, the pictograph derived from the human foot does not write the word for foot. Graphically, the main difference between the GIBIL sign and the cross-hatched plant – the latter's luxuriant side leaves – may link the image to the sign as a "categorical salient feature" (Knight 2013: 86) that identifies the image as belonging to a specific category rather than necessarily reflecting a real botanical structure. In this case, the projections may evoke leaves, thereby signaling that the intended referent is a plant.

Ethnobotanical significance of dates and grain

The ethnobotanical significance of each plant also suggests that the manner of depiction of the cross-hatched plant on the Warka Vase is more appropriate for the date palm, specifically its sapling, rather than a cereal grass, even though both dates and cereals were important agricultural products. Wheat and barley were grown under irrigation in lowland Iraq from as early as the Samarra period (Helbaek 1965), and evidence for both wheat and barley (Neef 1991) and the date palm (Zohary *et alii* 2012: 134) appears in Mesopotamian archaeological contexts as early as the Ubaid period.

Dates were important for food, alcohol, sweetness. The trunk of the date palm was important for wood (construction, fuel), and the leaves for matting. The date palm is a cultivated tree. The plant is dioecious, which means its flowers are unisexual. For the date palm, moreover, male and female flowers grow on different individuals. In the wild or when grown by seed, approximately half the plants are male and half female (Zohary *et alii* 2012: 131). One male palm will provide enough pollen for fertilizing the flowers of at least 50 female palms (Nixon, Carpenter 1978: 24). Only female trees produce fruit. In order to maintain varieties with desirable properties, propagation is from naturally developing offshoots, which are clones of the parent plant. Offshoots are generated by both male and female date plants as part of the growing cycle. Although fruit quality largely depends on the mother plant, there are also some named, clonally propagated male cultivars (Pintaud *et alii* 2013: 25). Therefore, both the male and the female offshoots of a fine date variety may be of great value, and hand-pollination would ensure that desirable traits will be manifested in the fruit. Hand-pollination of dates is likely to have been practiced from the beginning of domestication, because it cultivated plots can be given over to female, fruit-producing plants. Each tree is tended individually.

In contrast to date palms, stalks of grain become important in their collectivity in fields, or after threshing, when the seeds are stored and used in bulk. By the fourth millennium BC, grain had been a dietary staple for thousands of years. Made into beer, wheat and barley had great social as well as nutritional value. Barley straw was fed to animals and was also used to make mats.

By the mid-third millennium, the dietary significance of these plants is clear from wheat, barley and date offerings found in the third-millennium Royal Cemetery at Ur (Ellison *et alii* 1973), whereas the iconography of the jewelry demonstrates the ancient symbolic significance of the date palm (Miller 2000). From an agroecological perspective, both date palm and grain must be irrigated in southern Mesopotamia, but

the date palm survives inundation and is commonly planted on levees near flowing water. Thus, the admittedly later symbolic importance of date in conjunction with the depiction of growing conditions close to water on the base of the Vase further favors an identification of a date palm sapling over grain.

THE TRIDENT PLANT

We can now reconsider the identity of the trident plant (fig. 2*b*, right). In contrast to the cross-hatched plant, the trident occurs unambiguously on only two ancient objects, the Warka Vase and the Warka Mace. On both, the two plants have the same visual importance. They are shown at the same scale in the same number. The similarity in height suggests that the trident plant represents a sapling or tall plant, not a full-grown tree. With the possible exception of the shrubby tamarisk, we cannot think of a Mesopotamian tree that would have little branches or leaves growing up the stem.

The only plausible trident plant identification that has been proposed to date is flax (Crawford 1985, Winter 2006; Strommenger 1967 suggests flax or hemp). Winter's argument depends on the reasonable assumption of cultural continuity between pre-literate and literate Mesopotamia. Her specific identification is inspired by the known later association of Inana with flax and linen garments, and there are formal similarities, too. Flax has small sessile leaves crowded up the stem (Townsend and Guest 1980: 275), and the sturdy stalks of the domesticated form (*Linum usitatissimum* L.) support a branching inflorescence that is similar to that of the Vase's trident plant. The fruits

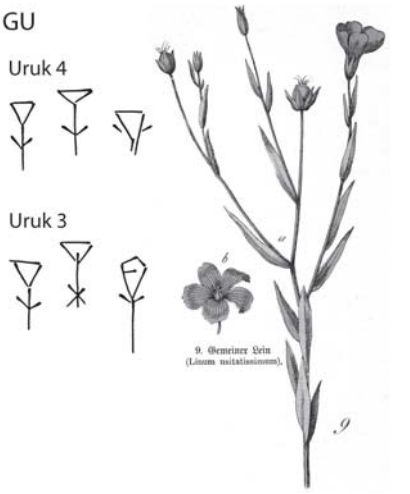

Fig. 10 – Signs and their referent. GU, flax. (After Green, Nissen 1987: sign 232).

are round capsules borne singly on the ends of the stems; if the trident plant is indeed flax, it is most likely represented as fruiting, not flowering. In Mesopotamia, flax is an irrigated plant (see McCorriston 1997).

GU, the archaic sign for flax (and original Sumerian word for flax, see Waetzoldt 1983), has the same general shape of an inverted triangle on a stick (fig. 10). It is missing what might appear to be a key element: numerous small leaves. But, like the GIBIL sign, a couple of angled ticks may signal "plant" to the reader. Flax may be grown for oil or fiber, but the economic and symbolic importance of linen cloth in ancient Mesopotamia explains the visual emphasis on the fiber-bearing stem.

SYMBOLIC CONTINUITIES IN GENDERED AND POLITICAL NARRATIVES

There is continuity in the symbolic domain from the Uruk to Jemdet Nasr

and Early Dynastic I periods (Amiet 1966; Otto 2010; Pittman 1994*b*; Strommenger 2007; Scott in press). This phenomenon occurs in other domains, such as architecture, administrative practices and agriculture. Imagery on the Warka Vase is largely iconographic, consisting of individual elements that represent discrete ideas in a conventional way. As the writing system becomes clearly able express something close to spoken language during the ED III period, images no longer have to represent narrative ideas directly, and new compositional and iconographic strategies emerge (Cooper 2008). Although some associations remain stable throughout the Early Dynastic period, such as the signs AN 'sky god/heavens' and A 'water', some images are lost and new ones develop.

Barley and flax vs. *date palm and flax*

In the texts of the second millennium flax is more commonly paired with barley than with date palm, but there is no reason *a priori* to assume that association goes back to the Late Uruk period. A few texts suggest an earlier association of flax and date palm, which is consistent with the agroecology of the plants.[4] Like barley, flax is mentioned with fields, but unlike barley, it is also mentioned in the context of gardens and orchards (*e.g.,* ETCSL c.4.08.01, c.4.08.16). Syrup (of the date) is also mentioned as a garden or orchard product (*e.g.,* ETCSL c.2.2.2, c.2.5.4.02, c.2.6.9.5 *et alii*). Irrigated date palms survive the seasonal inundation of the Euphrates, and flax has a higher water requirement than grain (Anderson and Read 1966).

Thus, the Warka Vase testifies to an alternative tradition in which fertility of plants, animals, or people was conveyed by the combination of dates and flax rather than barley and flax (see Miller 1999, 2000, 2013). Whether these different traditions can be considered chronologically distinct or indeed divided in any other fashion is moot.[5] Taken together, the design elements water, date and flax create a coherent visual theme.[6] Each one occurs in other compositions, but when all three are present, the meaning of the co-occurrence of the elements denotes the concept of the well-watered garden or orchard. Interpretation of the lowest register as a garden location allows us to consider long-lasting Mesopotamian tropes of gender.

The date palm and the flax plant

If the proposed identifications of the cross-hatched and trident plants are correct, then the Vase appears to show flax interplanted with date palms. This alternation can be explained on symbolic

[4] See Winter (2006: 206 n.11) for barley and flax; ETCSL c.1.5.1, Nanna-Suen's journey to Nibru: "Before Dilmun existed, palm trees grew in Nibru and the great mother Ninlil was clothed in fine linen."

[5] Two possible explanations for the symbolic substitution of barley for date are that the recession of the Persian Gulf led to the replacement of palm groves by grain fields (see Pournelle 2003) or that the date palm did not hold the same iconographic significance for elites who gradually infiltrated lower Mesopotamia from beyond the alluvium (see Cohen 2005: 32).

[6] Visual themes are "classes of images within a broader corpus for which it is reasonable to infer a common subject matter" (Knight 2013: 93). The composition illustrating a visual theme "generally has as its referent one dominant idea, and such ideas are commonly expressed visually by conventional forms" (*ibid.*, p. 94).

grounds. Specifically, the lower register shows gendered binary oppositions. Most obvious is the file of alternating rams and ewes. These sheep do not depict a normal herd, which, for dairy, would be primarily female or, for wool herds, female and castrate. Whether the alternating plants at the bottom of the Vase are meant to represent male and female in some way or merely sensitize the viewer to the possibility of duality is less clear, but gender is hinted at in the choice of plants. The very heavy work of planting, pollinating and harvesting dates is men's work. Although other agricultural labor was also mostly men's work, weaving was women's work in Sumer, and flax products such as bridal sheets are a literary topos connected to femininity (see also McCorriston 1997).[7]

The ordering of the registers, with animals facing right, bearers facing left, and apparent presentation of gifts from a right-facing man to a left-facing woman provides directionality to the composition, so the visual elements are more than just a simple illustration of presumably related items. Regardless of the specific ritual depicted on the Vase, the two items offered by the paramount to the goddess or her representative are the products of the plants shown on the lower register: a clothed servant presents cloth (presumably linen) and a naked one presents a basket topped by a cluster of dates still on the stem. At the level of artistic composition, therefore, the date-palm saplings and flax of the lower register are transmuted into the products of these two plants that are proffered to the goddess or her representative in the top register. The combination of date palm and flax strengthens the duality already apparent in the 50/50 sex ratio of the caprids.

Speculations: Maximal parameters

Given the gendered imagery of the animals and the proposed gendered associations of the plants, we agree with Winter that the flax plant image is associated with the female personage of Inana. By symmetry, the sapling would therefore be associated with a male personage. Although later Mesopotamian narrative offers a diversity of partners for Inana, in OB literary texts the Inana cycle of stories revolves around the relationship between the deities Inana and Dumuzi. These traditions find some echo in the lower and upper registers of the Vase. Whether the characters of shepherd and gardener implicit in the lower register of plants and animals refer to divine or human figures, early Sumerian kings are sometimes personified as metaphorical gardeners and shepherds (Novák 2002); in OB texts, Dumuzi is frequently referred to as a shepherd. In the storehouse section of the Vase's upper register we see two animals associated in later tradition with Inana and Dumuzi: the lioness and gazelle respectively.[8]

[7] By the second millennium BC, texts suggest an association between dates and linen from Dilmun (see Marchesi 2011: 194; see also ETCSL t4.22.1, line 95, which describes the dates of Isin as being "like a great linen garment that hangs on a tree, heaped up into piles." This shows that the symbols may be based in the reality of the natural world as well as ancient economic and social relationships.

[8] Old Babylonian texts directly identify Dumuzi with a gazelle and Inana with a lioness. For example, Dumuzi successfully begs Utu to turn him into a gazelle to escape demons (Dumuzid's Dream, ETCSL: c.1.4.3 and CDLI http://cdli.ucla.edu/search/archival_view.php?ObjectID=P469528 and the link to the online commentary by Pascal Attinger) and Inana is referred to as the lioness of heaven in Inana D (ETCSL: c.4.07.4 and CDLI

Following Steinkeller's conceptualization of a league of southern Mesopotamian cities in the late fourth millennium (Steinkeller 2002*a*, 2002*b*), Hockmann (2008: 335) argues that the imagery on the Vase should be seen as a celebration of a significant moment in the life of this alliance and that the Vase itself functions as a durable stone marker of this moment. That a political alliance should be symbolized as a union between a male and a female (*i.e.,* a marriage) is not outlandish.

Suter (2014) criticizes Hockmann's identifications of city signs and contextualization of the vase within a city league. However, she shares his approach of seeing the Vase from a primarily administrative perspective rather than a religious one. For her, however, the Vase is a celebration of offerings made within an internal Uruk context rather than a wider city league. Moreover, she rejects the ideas that the protagonists are divine figures or that they are involved in a (ritual) marriage. Suter's attempt to situate the Vase in contemporary rather than OB contexts is methodologically sound. We agree with Winter (2006), however, that the imagery of the Vase itself, taken as a whole, frames the upper register in terms of a sexual and reproductive relationship, regardless of which combi-nation of human and divine figures is involved. Furthermore, we see a political dimension to that relationship.

Speculations: Minimal parameters

It will never be easy to precisely follow the cultural continuities and changes between the Uruk III and OB periods, given the diachronic chasm between them. We have already suggested a change in plant metaphors for abundance between the Archaic and later texts. Moreover, to the extent that the ideology was sensitive to changes in the surrounding political structures, it must have evolved between the Uruk and OB periods. The OB period was separated from the archaic Uruk period by profound changes both in terms of general political organization and the relationship between the goddess Inana and the king. The Uruk polity seems to have a single focus of political and economic power in its temples. During the third millennium, however, this original nucleus became separated into two: the temples continued to control great economic resources but they became politically subservient to a ruler-figure who now lived in his own building – the palace – and controlled large economic resources of his own (Sallaberger 2010). More specifically, while Early Dynastic kings had a significant relationship with Inana (Steinkeller 1999), they were themselves treated as human figures. In contrast, OB mythological texts reflect a later period in which kings were explicitly divinized. At some level, therefore, they are likely to reflect an ideological break within an ongoing narrative tradition that originated in the fourth millennium BC or even earlier. Moreover, OB texts feature several male figures intimate with Inana, including Dumuzi, Šukaletuda, Enmerker and others. There is no reason to assume

http://cdli.ucla.edu/search/archival_view.php?ObjectID=P478854). The gazelle pendants found amongst Puabi's jewelry in the Royal Cemetery, ca. 2500 BC, may well reference Dumuzi (Cohen 2005; see also Pittman and Miller 2015). Marchetti (2011) pointed out two rhyta depicted on the Warka Vase that show a (female) lion and a gazelle, which could refer to the "goddess" and the "priest-king". Moreover, Marchetti (2011: 192) suggests that "the 'priest king' could be identified with a god (at least in the Uruk E'anak III phase)."

that Dumuzi is the only one of these figures connected to the ideology of Uruk (Civil 2013).

CONCLUSION

The Warka Vase exemplifies narrative representation across the "word-image divide" (Martin 2006). Late Uruk visual representation, whether in text or imagery, was part of a larger system of meaning that was understood and shared among the elites and scribes of Uruk (see also Pittman 1994*a*, 1994*b*; Michalowski 1990; Schmandt-Besserat 2007). The imagery carved on seals and other media is usually based on resemblances to things in the real world. Proto-cuneiform signs, too, were part of the "visible world" of the ancient scribes and artists. Because the first signs written on clay tablets came later, it is reasonably assumed that scribes drew on pre-existing visual conventions when devising signs.

As noted by others (Bahrani 2002; Bernbeck, Pollock 2002; Suter 2014; Winter 2006), from top to bottom, the symbols on the Warka Vase integrate many visual elements into a single, complex composition. Our new interpretation allows us to reconsider the environment of symbolic cognition in which the earliest semiotic systems developed. First, contextualization permits us to see the basal tier as a garden rather than a field or just a collection of isolated plants. Second, the use of duality as an indicator of abundance is present in the Warka Vase imagery, but differs in some ways from that of later literary texts: sometime between the third millennium and 1800 BC there was a symbolic shift in tropes of abundance from the visual date and flax to the literary barley and flax. Third, our analysis strengthens gender-related interpretations. Fourth, a specifically political interpretation of the lowest register as a reference to the metaphorical role of the ruler as gardener and shepherd supports an interpretation that a ritual of alliance with political implications is depicted.

This is not the place to explicate the Warka vase in detail, and the correct identification of the plants does not directly address the complex Inana narratives. It does, however, provide a satisfying complement to interpretations based on enduring Mesopotamian tropes of fertility and abundance. Furthermore, combining interpretations of gender and politics, we argue that Warka vase represents some ritual of (political) alliance, either mythical or real.

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Use-wear analysis, Pastoralism, Urbanization.

In copertina / *Cover illustration*: Plan of mud-brick fortification-wall from Arslantepe-Malatya, 12th/11th century BC (Manuelli, Mori, fig. 3); The Warka Vase, Late Uruk period (Miller *et alii*, fig. 1); Ram-shaped pot from Domuztepe, Late Neolithic (Tekin, fig. 5).

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