

The KHALUB-tree in Mesopotamia: Myth or Reality?

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Nowadays, it is the rare person who has direct experience “waiting until the cows come home”, or has noticed that “the acorn doesn’t fall far from the tree”. For the cultures of antiquity, however, the natural world was an explicit source of meaning and reference. The process of trying to identify the real-world referent for an unknown plant is both an intellectual puzzle and an act of empathy, as we try to envision an ancient world, or at least a word. We hope that this small offering reflects the same enthusiasm for nature and plants that has always informed the research and teaching of Gordon Hillman, to whom it is dedicated.

For the early civilizations of Mesopotamia, terms for plants occur on a variety of media. Most of the extant texts are preserved on clay tablets inscribed in cuneiform. Much as one can write different languages with the Roman alphabet, the cuneiform writing system, which has syllabic and logographic signs, was used for a variety of languages from different language families (*e.g.* Sumerian, of unknown affinity; Akkadian, a Semitic language; Hittite, an Indo-European language). Plant names occur in such diverse contexts as word lists, administrative and economic texts, ritual texts and royal inscriptions among others. Unfortunately for plant identifications, meanings can be assigned to words arbitrarily, the referents of words may change over time, and ancient Mesopotamian texts that describe or allude to plants are ambiguous at best. It is therefore a methodologically sound approach to base identifications on a combination of phytogeographical, epigraphic, etymological, iconographic, ethnobotanical and archaeobotanical evidence. When one of us (Gadotti) approached the other (Miller) with epigraphic information about the Sumerian KHALUB-tree (Akkadian *khaluppu*), we decided to follow the trail as far as it would go. Although most of the lines of evidence can be used, it will be seen that a definitive identification still eludes us. Nevertheless, this exercise demonstrates how to investigate the problem, spells out the qualifications and unavoidable ambiguities that must be dealt with, and provides a base

against which one may assess references to this tree in any new texts that have yet to be discovered.

The best-known reference to the KHALUB-tree comes from the Sumerian composition “Gilgamesh, Enkidu and the Netherworld”, which mentions a tree that was planted along the Euphrates; in the beginning, “there was a solitary tree, a solitary KHALUB-tree, a solitary tree, planted on the bank of the pure Euphrates” (Gadotti 2005, 305). In the composition, not only is the tree originally infested by the terrible Anzud-bird, but also by a snake immune to charms, and by a succubus. It is furthermore associated with the manufacture of possibly ritual furniture for the goddess Inana and of a ball and a stick, tools for Gilgamesh’s ballgame (for recent treatments on the nature of the ballgame, see Cooper 2002, Klein 2002). There is no evidence to support an identification of poplar, willow or other riparian species (see Table 25.1). Rather, the text indicates that the tree is planted, *i.e.* it occurs in the context of cultivation. Given its role in the story, the term KHALUB could refer to a mythical tree, but this seems unlikely; the mythical uses of the wood are similar to those reported in more fact-based texts.

The existence of a real KHALUB-tree is made evident by its appearance in administrative texts from the Early Dynastic and Ur III periods (mid to late third millennium BC), as well as in the royal inscriptions of the rulers of Lagash, which date to the same period. For example, in a late third millennium royal inscription, it is specified that “from Gubin, the land of the KHALUB-tree, he (Gudea) brought down the KHALUB-wood and he fashioned it into the Sharur bird” (Gudea St. B vi 45–46, in Edzard 1997). The toponym Gubi is attested only sporadically in the Sumerian texts of the third millennium BCE (see Edzard *et al.* 1977, 62). In addition to the above-mentioned passage, where the place name is written *gu-bi-in^{ki}*, one should mention Gudea Statue D iv 9 (Edzard 1997), where Gubin is written *gu-bi^{ki}*, and a Sumerian composition attested in Ur III and Old Babylonian texts known as the “Curse of Agade” (Cooper 1983), where

the place name is written *gú-bi-na*, *gú-bi^{ki}-na*, and *gú-bi-na* (line 152). At least three different locations have been suggested for this place name; an area near Magan (the region of the Jebel Akhdar, Oman) Bactria or the Zagros (Edzard *et al.* 1977, 62 for bibliography). In the "Curse of Agade" Gubi was the homeland of the Gutians, who, according to the tradition represented by the composition, were responsible for the demise of the Agade empire. Some scholars place *gú-bi-(in)^{ki}* in the Persian Gulf area because it is mentioned in the Gudea inscription along with Magan, Meluhha (the Indus valley area) and Dilmun (Bahrein); and in another inscription, KHALUB-wood is said to be imported from Magan (Cooper 1983, 249). The "Curse of Agade" mentions *gú-bi-(in)^{ki}* as the mountain home of the Gutians, so "Wilcke (...) now suggests the Zagros area" (Cooper 1983, 149). Gubi as the provenience of the KHALUB-tree is consistent in texts dating from the third to the first millennium BCE (Early Dynastic to Neo-Assyrian times).

Ur III administrative texts give a coherent picture; the KHALUB-tree was used for chairs, legs of beds, tables and stools, and its scraps were used to make vessels. Occasionally, the *še* (fruit and/or seed) of the tree were listed as food offerings along with dried fruit (apples and raisins; see, among others, Pettinato and Picchioni 1978, no. 85, Waetzold *et al.* 1994, no. 739).

Furthermore, Sumerian literary texts from the Old Babylonian period (2000–1600 BCE) sometimes associate the KHALUB-tree with the TASKARIN (Akk. *taskarinnu*), which is thought to be boxwood (*Buxus* sp.); see for instance "Gilgamesh Enkidu and the Netherworld" (Gadotti 2005, Shaffer 1963), "Gilgamesh and Huwawa," version A (George 1999, 149–161).

Finally, Akkadian sources also provide useful information about the tree itself:

- (i) It seems that the tree was not particularly big, as it came in small logs (e.g. Lanfranchi and Parpola 1990, no. 208, Marzahn 1991, no. 46;
- (ii) The KHALUB-tree produces *še* (seeds or fruits) which are edible; the seeds and leaves of the tree appear in medical texts (CAD KH 56 s.v. *khaluppu*);
- (iii) By the Neo-Assyrian period, there is some indication that the KHALUB-tree (written *u-lu-pu*) was grown in northern Mesopotamia in controlled environments, namely in orchards, as evidenced by the so-called Harran Census (CAD KH 56 s. v. *khaluppu*, Fales 1973).

Both mythical and non-mythical KHALUB refer to the use of the wood for furniture and small objects, and the presumably small or shrubby tree may be planted. The mythical version is further associated with water. The non-mythical tree may grow either wild or in orchards, has useful fruits (we presume the non-botanical concept of a fleshy fruit) and/or seeds with medicinal use, and it seems to be widespread in west Asia. Miller's first thought on hearing the textual evidence was, "must be some kind of *Prunus* (stone fruit)", but it is worth considering some alternatives.

Many scholars tentatively translated "oak" for this term (see CAD KH 55–56 s.v. *haluppu*), but there is no specific evidence provided for this (e.g. see Glassner 2000, 26, Powell 1987, 146, van de Mierop 1992, 159, Veldhuis 1997, 156). Table 25.1 provides a non-exhaustive list of some common trees of west Asia. It summarises some of the key traits mentioned in the texts in relation to various taxa; types associated with flowing water, some of the most common genera of the west Asian woodland (juniper, pine, oak, pistachio) and several fruit-producing trees.

Based on the clues provided by the ancient texts it would be hard to decide among *Ziziphus* sp. (e.g. *Z. jujuba* (L.) Lam.,

Taxa*	Associated with flowing water	Planted or grows wild	Small or shrubby habit (at least some)	Wood fine-grained	Fruit fleshy	Seed with medicinal uses**
Riparian types— <i>Populus</i> (poplar), <i>Salix</i> (willow), <i>Tamarix</i> (tamarisk), <i>Platanus</i> (plane)	yes	yes	tamarisk, willow	tamarisk	no	no
<i>Phoenix dactylifera</i> (date palm)	yes (also watered)	planted	no	no	yes	yes
Conifers— <i>Juniperus</i> (juniper), <i>Pinus</i> (pine)	No	wild only	juniper (some)	juniper	juniper "berry"	juniper "berry"
<i>Quercus</i> (oak)	No	wild only	yes	no	no; edible nut	no
<i>Pistacia</i> (pistachio)	No	yes	yes	yes	no; edible nut	yes
<i>Prunus</i> spp. (stone fruits—almond, cherry, plum, <i>et al.</i>)	no (but watered)	yes	yes	yes	yes (except almond)	yes
Pome fruits— <i>Malus</i> (apple, pear), <i>Cydonia</i> (quince), <i>et al.</i>	no (but watered)	yes	yes	yes	yes	yes
<i>Elaeagnus angustifolia</i> (Russian olive)	no (but watered)	yes	yes; frequently spiny	medium	yes	yes
<i>Ziziphus</i> (jujube, <i>et al.</i>)	no (but may be watered)	yes	yes; frequently spiny	no	yes	yes

* Note that many of these trees have relatively undisputed names in Akkadian or Sumerian: poplar, willow, tamarisk, date, juniper, oak (Akkadian only), pistachio, almond, apple, pear, quince (Postgate 1983; Veldhuis 1997).

** Some parts of nearly all of these plants have some medicinal use reported; the seeds of the riparian species are not among them. For these, and oak, pistachio, Russian olive, stone and pome fruits, see entries in the *Flora of Iraq*; for the date palm (*Phoenix dactylifera*) and jujube (*Ziziphus jujuba*), see http://www.hort.purdue.edu/newcrop/Indices/index_ab.html

Table 25.1. Nonexhaustive list of some common tree genera of west Asia and traits associated with KHALUB in the texts.

Z. spina-christi (L.) Desf.), *Elaeagnus angustifolia* (Russian olive), *Prunus* spp., a genus that comprises the stone fruits (Rosaceae, subfamily Prunoideae, including various wild and domestic almonds, cherries, plums, peach, apricot), or even the pome fruits (Rosaceae, subfamily Pomoidae, including apples, pears, quince). Generally, the spininess and shrubbiness of *Zizyphus* would tend to remove it from consideration. We are not aware of any third millennium or earlier archaeobotanical finds of Russian olive wood or seeds, which suggests it was not in common use. The names for pome fruits are attested in Sumerian and Akkadian sources, but names for the stone fruits are less certain (Postgate 1987), even though both groups grow in the region.

Some of the non-unique characteristics of the KHALUB-tree listed in Table 25.1 are consistent with *Prunus*. The wood of *Prunus* is valued for its fine grain. For most *Prunus* species the fleshy fruit is eaten, for others (almonds) the edible kernel is extracted from the pit. The leaves and seeds of many *Prunus* species are rich in phytochemicals, which make some types bitter or even toxic, but nevertheless they might be useful for medicines or poisons. In the absence of more detailed verbal descriptions, images, or etymological evidence, even this suggestion is weak. There is one particular species that warrants investigation on linguistic grounds; *Prunus mahaleb* L., called the mahlab cherry in American English (it is grown as an ornamental in the United States) and the St. Lucie cherry. In modern Arabic it is *mahlab* (Lane 1863, 625, Townsend and Guest 1966) and it was the similarities in the consonants of the Arabic and ancient words that warranted continued investigation. For assonance to be more than mere coincidence, however, both phonological and morphological differences between KHALUB/*khaluppu* and *mahlab* would have to be reconciled.

Botany and ethnobotany of *Prunus mahaleb*

According to the references collected by the editors of the *Chicago Assyrian Dictionary*, the wood of the *khaluppu* tree was imported from Gubbin (= Gubin, Gubi), Makan (= Magan) and Meluhha. Yet the genus *Prunus* occurs throughout the woodlands of Asia. In particular, the distribution of *P. mahaleb* extends from Central Europe to Pakistan, and in Iraq it grows in upland regions at 1300–1800m (Townsend and Guest 1966, 170). It does not grow along the coast. One explanation for the broad and somewhat disparate source areas for *khaluppu* could simply be that the wood was transported over land from the western Zagros (Gubbin), and that at the eastern edge of its range it was harvested inland, brought to the coastal regions of the northern Indian Ocean (Makan, Meluhha, Dilmun) and then shipped to Mesopotamia by boat along well-attested trade routes.

One might also well ask, why would this wood be imported if it was readily available closer to home? In answer to this, it is first of all worth mentioning that the range of a plant says nothing about its frequency of occurrence. Further-

more, the distribution of a plant can change over time. This is particularly true for any plant in west Asia, thanks to millennia of human manipulation of the environment. Therefore, without further textual and archaeobotanical evidence, it is not possible to know how available *P. mahaleb* would have been in any particular locale, because we do not know how common it was in the woodlands of west Asia and whether or not it was planted in gardens at any given time period. By the end of the third millennium, however, the native woodlands had suffered severe deforestation, so perhaps the closer sources had been eliminated (see Miller 1997, 2004). Textual references to the tree growing gardens may reflect its local scarcity in the wild. In recent times, too, it has been planted in orchards in Iraq (Townsend and Guest 1966).

In Iraq, *Prunus mahaleb* L. is described as “a small tree about 3m high” (Townsend and Guest 1966), although under some conditions it can grow up to 10–15m (Davis 1972). Townsend and Guest (1966) comment that “the fruit is edible and can be seen on sale in the local markets” in Iraq. Unlike many members of the genus *Prunus*, whose leaves and seed kernels characteristically have prussic acid (which produces hydrogen cyanide), *P. mahaleb* has relatively low concentrations of that phytochemical. Nevertheless, it does have chemical compounds that have a variety of pharmacological and other properties that can account for the recorded ethnobotanical uses in Iraq and elsewhere (Duke 2004, Lane 1863, 625); for example, the leaves contain coumarin, an anticoagulant (Patton *et al.* 1997). It is used in food, medicine, and perfume.

Sour cherries have been part of the pharmacopoeia in west Asia since Classical times. Dioscorides (*De materia medica*, Book 1, 157), mentions the medicinal uses of *Prunus cerasus* (a related species, assuming *P. cerasus* L. var. *avium* is meant) in treating stomach ailments (Gunther 1934, 82–83). Later, the therapeutic powers of sour cherries were alluded to by the Greek physician Galen, who, in Book 2 of his treatise *De alimentorum facultatibus* discussed their astringent quality (Grant 2000, 123).

Like the fine-grained wood of other cherry species, that of *P. mahaleb* could be used to make objects. It is not quite as fine as boxwood, but it is more similar to boxwood than to the coarser-grained oak (see, for example, micrographs in Schweingruber 1990).

Given the vagaries of common names and changes over the centuries, KHALUB might sometimes refer to other wild cherries, like *P. microcarpa* C.A.Mey. or *Prunus cerasus* L.; note that in a 1913 publication, the botanist Handel-Mazzetti noted “the Arabic name MEHLEB in use for *P. microcarpa*” in Iraq (Townsend and Guest 1966, 167).

Archaeological evidence

Archaeological evidence for *Prunus mahaleb* provides additional support for the possibility that it is the referent for KHALUB-tree. Consistent with both the foreign origin of

much of the wood used for furniture, as well as the likelihood that local wild trees might have been exploited for fruit, seed, and leaves, we might expect to come across occasional finds of this species in archaeobotanical assemblages. Although the genus *Prunus* is common enough in the archaeobotanical assemblages of the Near East, the wood of *Prunus mahaleb* is not readily distinguished from a wide variety of other *Prunus* species (Schweingruber 1990, 631). *Prunus* sp. seeds are also fairly often encountered in flotation samples, but when identified beyond genus, they are usually various kinds of wild almond. Aside from some finds in Europe (see Kroll 2004), *Prunus mahaleb* has been found in a nearly pure third-millennium deposit at Hammam et-Turkman on the Balikh, a Euphrates tributary. Van Zeist and Waterbolk-van Rooijen (1992, 161) comment on the unusual nature of the find, and that “it might not be wholly accidental that [it is] from a site which was an important administrative and commercial centre”, one with access to a locally rare commodity; the closest wild-growing trees are about 100km distant from the site.

Etymology, phonology and morphology

It cannot be assumed that plant names are stable over time and between different cultures and languages. Ambiguities can result from our ignorance of the range of plant taxa included under a common name. For example, the Sumerian word ERIN may refer to either juniper (genus *Juniperus*) or cedar (genus *Cedrus*; see Hansman 1972); this linguistic ambiguity is paralleled in American English, where the folk name of the juniper, *Juniperus virginiana*, is red cedar. Nevertheless, etymological relationships can persist over millennia, and may be traceable through regular sound shifts. For example, a Greek word for caper (*Capparis* sp.), *aspalathus*, is likely to have come from a Semitic word with the three-consonant root *s-p-l*; the word persists in modern Arabic as *šefala* (with phonological shifts of *s* to *š* and *p* to *f*) (Miller 1997).

The similarity between the modern Arabic word for the mahlab cherry, *mahlab* (Townsend and Guest 1966), and the Sumerian KHALUB, Akkadian *khaluppu* inspired this essay. If *mahlab* could be shown to have an etymological relationship with KHALUB/*khaluppu*, there is at least a plausible argument to be made for associating the ancient plant name with *Prunus mahaleb* itself or a similar type of tree. Note that *kh* is velar, like German *ch*; *h* laryngeal, like Dutch *g*; *h* is aspirated, closest to an English *h*.

Grammatically, the root of *mahlab* should be *h-l-b*, which has many associations with milk. Lane (1863, 625) comments that one of his Arab acquaintances told him “that it is the custom of some of the Arabs, previously to their milking, to chew some [*mahlab*], and to anoint with it the teat of the animal”. If *khaluppu* had a Semitic root, it would be *kh-l-p*. However, if Akkadian *khaluppu* is a loan word from the Sumerian KHALUB, as Liebermann (1976, 306) concludes, either it is unnecessary to explain the association with milk,

or one could make the argument that *h-l-b* is an Arabic folk etymology that accrued to the ancient word.

This discussion does not require that there be a direct etymological relationship between the Akkadian and Arabic words. That is, Arabic might have received the word *mahlab* from some other Semitic language, although it does not appear in either Biblical Hebrew, Babylonian Aramaic or Palestinian Aramaic (Barry Eichler, pers. comm. 25 September 2006). To make an argument for etymological relationship between the Akkadian and Arabic terms, one would, however, have to explain the phonological transformation of *kh* to *h* and *p* to *b*, as well as the addition of the prefix *ma-*.

According to Moscati (1964), an Akkadian *p* can be transformed into an Arabic *b*. The velar and laryngeal *h*'s are more problematic. Moscati (1964, 44) suggests that the phoneme *kh* in Proto-Semitic and Akkadian becomes *h* in Hebrew, but remains *kh* in Arabic. However, there is at least one analogy that supports the possibility proposed here; the word for boatman allows one to go from a Sumerian and Akkadian velar *h* to an Arabic laryngeal *h* (Table 25.2).

The last task is to find some explanation for the prefix *ma-*. According to Moscati (1964, 80) in Semitic languages, “four principle meaning-variants are connected with the prefix *m-*: local, temporal, instrumental, abstract”. Unfortunately, none of these are obviously applicable to turning a foreign plant name into a recognisably Semitic one. We therefore reluctantly conclude that our best efforts to connect the ancient plant name KHALUB/*khaluppu* to the Arabic word *mahlab* and thence to an identification with *Prunus mahaleb* have not borne fruit.

In the absence of a traceable relationship between the Akkadian and modern Arabic words, the best one could say about KHALUB is that the botanical and textual evidence is consistent with an identification of *Prunus*, without being able to rule out other fruit trees. For botanists and archaeobotanists, lessons to be learned are that there is a large body of ancient Sumerian and Akkadian texts that refers to plants, and establishing the validity of a text-based identification requires very close attention to specific linguistic comparisons of sound and form. For Assyriologists, it is important to understand that the referents of common “folk” names of plants, both modern and ancient, may change over time and may not have an exact scientific equivalent; botany and archaeobotany can help narrow the range of plausible identifications; and without specific descriptions, secure identifications remain elusive. We hope our explication of the botanical, archaeobotanical, and linguistic evidence about KHALUB/*khaluppu*

Sumerian velar <i>h</i> (KH)	> Akkadian velar <i>h</i> (kh)	> Arabic laryngeal <i>h</i> (h)
MA ₂ .LAKH _a	> <i>malakhkhu</i>	> <i>mallaaḥ</i>
KHALUB	> <i>khaluppu</i>	> [<i>ma</i>]hlab

Table 25.2 Boatman: A proposed analogy for sound shift from velar to laryngeal *h*.

alerts the reader to the potential for collaboration between archaeobotanists and Assyriologists.

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