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Aron Dornauer

Proso, Sorghum, Tiger Nut
Some Minor Crops in the Cuneiform Sources



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Introduction

Acknowledgments

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Preface

The transition from foraging to farming can be considered one of the major turning points in human history. Generally speaking and despite the results of the research on South- and East Asian prehistory, the earliest transition from foraging to farming took place in the so called Fertile Crescent. The Fertile Crescent is a crescent-shaped region in the comparatively moist and fertile areas of what is an otherwise arid Egypt and Western Asia, including the river valleys of the Nile as well as of the Euphrates and the Tigris, Upper Mesopotamia, the south-eastern fringe of Turkey and the western fringes of Iran, the Levant and Cyprus.

The Fertile Crescent lies in the subtropical belt which means that it has a dry summer climate. The year is split into a mild winter season and a hot and dry summer season. Autumn and spring, the seasons of transition from summer to winter and *vice versa* are very short. Precipitation occurs almost exclusively in the mild winter season. Such a climate is conducive to the evolution of large-seeded annual plants. This is important since the Fertile Crescent was home to the wild progenitors of some founder crops important in early agriculture: einkorn, emmer, barley, flax, chick pea, pea, lentil, and bitter vetch.

Despite the more or less common climatic features of the subtropical region, there are many differences concerning soils and elevations. In particular, the variety of elevations and its impact on winter temperatures, as well as on the volumes of precipitation and some climatic changes, led to a great variety of species and encouraged the evolution of many annual plants, which produce more edible seeds than perennial plants.

Thus, the Fertile Crescent met all requirements for the evolution of both intra- and interspecific crop diversity. This is especially the case since most parts of the Fertile Crescent were in contact with each other, as well as with neighbouring geographical areas: early Bronze Age Babylonia had trading contacts with the Gulf region, including South Asia; Late Bronze Age Babylonia had contacts with Ancient Egypt; Late Bronze Age Egypt had contacts with the Levant, Cyprus and the Hittite empire. Indeed, certain migratory words indicate common terms for some crops throughout the Fertile Crescent.

There is some evidence of significant cultivation of several emmer varieties in 24th century BC Ĝirsu. Recently, combined archaeobotanical and philological studies on plants in third millennium BC Ebla have demonstrated the cultivation of several legumes, einkorn and hard wheat and even the presence of rye. Moreover, in third millennium BC Upper Mesopotamia einkorn and emmer were cultivated. In the first millennium BC, the cultivation of dates played an important role in Babylonia. Also the many terms for cereal-like and legume-like plants might indicate some kind of biodiversity.

However, research on the proportions and ubiquity of cultivated, measured, delivered, processed and consumed food crops shows a dramatic dominance of the cultivation of barley even in the third millennium BC. Indeed, many scientists seem to identify nearly any Sumerian compound word composed with the word *še* with a barley variety, e.g. *šebabbar* "white barley", *šegegge* "black barley", as well as *še'eštub* = *arsuppu* and *šemuš* = *šeguššu* "spring-" and "autumn-sown barley" and *šegunu* = *šegunû* "spring-sown, mottled barley", or with a processed form of barley such as Sumerian *šekuda* = Akkadian *qayyātu* "parched barley" or "pearl barley". Thus, one could assume that there was no significant interspecific but only intraspecific crop diversity and that Mesopotamian agriculture was a kind of a barley monoculture.

In contrast, some cuneiform scientists specializing in crop plants and vegetables consider that some of the Sumerian ŠE compounds, as well as their Akkadian equivalents, might be identified with millets, with some kinds of pulses such as bitter vetch and cowpea, or with some kind of tuber plants. Against this background, this study undertakes research on some Sumero-Akkadian taxa. In the first part of this study I evaluate some terms which several specialists propose to be millet or sorghum varieties: *še'eštub* (še-eštub) = *arsuppu*, *šemuš* (še-muš$_{(3/5)}$) = *šeguššu*, *šezaḫgebar* (še-NE-ge-bar), *šegunu* (še-gu-nu, še-gunu$_3$) = *šegunû*, še-KA, še-KA sig-ga = *arsikku*, še-UD-e-de$_3$ = *duḫnu*.

Besides the critical revaluation of the widely accepted identification of the Akkadian terms *duḫnu* and *arsikku* with Asian millets, I research the other cereal words mentioned above, which some scientists identify with millet species but other scientists suppose refer to types of barley or naked or hulled wheats. In this context, the question that has to be asked is if it is possible that millets were cultivated in Babylonia as early as the late third millennium BC. To address this issue, the contribution of the Bronze Age Gulf trade in exchange for domesticated crops, including African and Asian millets, will be discussed. Finally, the study discusses why, despite their excellent heat and drought tolerances, none of the millet species in arid Babylonia could displace the winter sown main crops.

The second part addresses the question of whether the recently proposed identification of the Akkadian crop $^{(še/ú)}$*qayyātu* with *Cyperus esculentus*, a plant that has been demonstrated to have been present in ancient Egypt but not in Mesopotamia, is supported by the cuneiform evidence; in contrast, many specialists suppose that *qayyātu* is barley or a processed form of a cereal such as pearl barley, groats, a dish or a pastry. I undertake some more detailed ecotrophological research on the use of *qayyātu* as an intermediate in the production of beer and foodstuff. In this context, I also study some other semi-baked and fermented intermediates.

Textual Sources Analysed

Textual Sources: Literature and Data Bases

For this study, I undertook research on everyday texts, lexical lists and literary texts, especially concerning the Early and Middle Bronze Age, from the late 25th to late 16th centuries, but also from the Late Bronze and Iron Ages. For this purpose, the following electronic databases were searched: ACHEMENET (Briant 2015), ARCHIBAB (Charpin 2008ff.), *BDTNS* (Molina 2002ff.), *CDLI* (Englund & Dahl 2016), DCCLT (Veldhuis 2003), *DKB-LLA* (Richter 2006ff.), EbDA = (Milano 2014), ETCSL (Black *et al*. 1998–2006), OBTC (Rahman 2002ff.), Oracc (Tinney & Robson 2014ff.), SAAo (Radner 2014). In addition, I consulted the "Sumerisches Glossar" corpus of W. Sallaberger (LMU München) and employed my own database (any taxon in the corpora of AASOR 13; AASOR 16; AIHA 4; ARM 1, 7, 9–13, 21, 23; BATSH 6, 9; Beydar; BLMJ; EN 9/1; ETBL; KAJ; KTT; MARV 2–4, 9; OBTCB; OBTR, RAE; RE; SMN; SMEA; TBR; TCH; TFS; TH; THU; TL; Wiseman 1953; WVDOG 102. Furthermore, PDF versions of large dictionaries were exploited. For the Late Bronze Age texts from Nuzi (end of the 15th and 14th centuries), I browsed the volumes of the series JEN and SCCNH series, as well as the monographs of Zaccagnini 1979 and Fadhil 1983, Müller 1994. For Late Bronze Age texts from Kassite Babylonia I browsed the volumes of PBS 2/2 and CUSAS 30.

Everyday Texts

Irrespective of whether the textual sources analysed come from books written on paper or from digital data bases, most of the primary sources cited could be designated as everyday texts, namely letters, legal contracts, administrative lists, receipts and so on. However attractive the word "everyday texts" sounds, the goal of such texts was not to teach modern scientists the meaning of single terms. Since ancient writers and recipients knew what they were talking about the information concerning different crops is very brief, ambiguous and scarce, even if sometimes there is an useful piece of information such as the date of the delivery of seed indicating the period of sowing of a specific crop, the date of measuring the harvest indicating the date of the maturing and ripening of a crop, the kind of irrigation of a crop indicating its drought tolerance and so on. Roughly the same applies to primary sources concerning the post-harvest processing and preparation of crops. Such information is very scarce and ambiguous, although there may be some information, for example, about the baking and the brewing quality of a specific crop, if a specific crop was a major ingredient or only a – presumably – tasty and spicy adjunct.

Lexical Lists

In addition to examining everyday texts, I undertook research on crop terms in so-called lexical lists. Research on lexical lists has the advantage that it might give an impression of ancient taxonomy. However, this information is only useful if one establishes the criteria based on which the lexical lists were compiled and if one knows which taxonomical distinctions were significant to the compilers of the lexical lists. To the best of my knowledge, there are as yet no satisfactory approaches to the latter issue. However, concerning the criteria based on which the lexical lists were compiled, it is useful to classify some types of lexical lists employed in this study.

Some lexical series are acrographic word lists. These lists are organized according to the signs by which the scribes used to write a specific word. Such an acrographic list can be found in Nigga [78.]. There is a bilingual version of Nigga = *makkūru*, Nigga Recension B, which offers Akkadian translations for Sumerian terms [78.]. Due to the acrographic organization of Nigga, it is not possible to deduce the meaning of an entry by neighbouring entries.

Some lexical series are word lists. Originally, word lists comprised sequences of Sumerian nouns dealing with a restricted semantic field (e.g. professions, gods, plants and so on). In the early second millennium BC the complex Sumerian word list Urra (= *ḫubullu*) arose, which addressed a wider range of topics and was organized according to topics such as "stones", "reeds", "woods and trees", "plants" and "crop plants" and so on [21. 16. 54.]. In the first millennium the Urra = *ḫubullu* was extended to 24 tablets. Only now does the series consist of Sumerian terms and its Akkadian translations.

Bilingual lists offer Akkadian translations for many Sumerian terms including the names of crop and spice plants as well as related topics such as the processing, measuring and harvesting of crops. Some of the listed terms might reflect everyday language, some technical language and some literate language. Some of the terms are almost exclusively attested in lexical lists. Thus, Urra = *ḫubullu* is not a collection of words that reflects reality. It is important to keep this in mind.

In the first millennium BC, text commentaries were introduced.[1] For example, the Hellenistic Murgud = *imrû* = *ballu* is a commentary on the bilingual Urra = *ḫubullu* [17.]. It adds a third column, which contains some further information, a semantic connotation or a specification of the Sumerian entry and its Akkadian translation in the bilingual Urra = *ḫubullu*. For example, Urra II notes: (116) še-UD-e-de$_3$ (:) MIN(ŠE.IM) *pu-ṣi* "(Sumerian) to dry/to bleach a grain (that is Akkadian) dried/bleached grain" [16.]; Murgud adds: (r. ii 22′) še-UD-e-de$_3$ (:) ŠE.IM *pu-ṣu* (:) *duḫ-nu* "(Sumerian) to dry/to bleach a grain (that is Akkadian) to dry/to bleach a grain, (for example:) millet" [17.]. Thus, the first two columns state the Sumerian term and

[1] For the early history of Mesopotamian commentaries, see Frahm 2011, 317–333.

the Akkadian equivalent and the third column explains the Sumerian and the Akkadian terms by giving a specific example.

While the major lexical series come from Babylonia, some are genuine Assyrian, such as the Uruanna = *maštakal* [20. 80.]. The Uruanna is a kind of plant glossary from the first millennium BC Assur. It contains such information as which Sumerogram indicates which plant, which plants resemble a given plant, or which plants can substitute for a given plant.[2] Thus, the list does not consist of precise translations. Also of genuine Assyrian origin is the Practical Vocabulary of Assur (PVA). The PVA has two columns, with Sumerograms in the first column and the syllabical writing of the corresponding Akkadian term in the second column, or two syllabical writings of two Akkadian synonyms, or an Akkadian word and Akkadian terms that explain the word. Many lines and passages in the PVA concerned with crops correspond to the Uruanna tablets I, II and III.[3]

[2] See Scurlock 2014. See also Kinnier Wilson 2005.

[3] See Landsberger & Gurney 1958, 336f.

Part One: Sumero-Akkadian Minor Cereal Crops – The Case of the Millets

Introduction

What Is It All About?

Sumerian vocabulary knows several terms for cereals, which are composed with the Sumerian word *še* "barley, cereal" such as *še'eštub* (še-eštub), *šemuš* (še-muš$_{(5)}$) or *šezaḫgebar* (še-NE-ge-bar). Akkadian knows many words for cereals that are preceded by the sign ŠE, acting as a determinative irrespective of whether the crop was barley or not.

Against this background, several researchers suggested that some of these terms should be identified with an Asian or African millet, namely Sumerian *šegunu* (še-gu-nu, še-gunu$_3$), *še'eštub* (še-eštub), *šemuš* (še-muš$_{(5)}$), še-KA, še-KA sig-ga, še-UD-e-de$_3$, *šezaḫgebar* (še-NE-ge-bar), *šezaḫgebar babbar* (še-NE-ge-bar babbar$_2$) and *šezaḫgebar gegge* (še-NE-ge-bar gegge), as well as Akkadian *šegunû*, *duḫnu*, *arsikku*, *arsuppu* and *šeguššu*.

Besides the critical revaluation of the widely accepted identification of the Akkadian terms *duḫnu* and *arsikku* with Asian millets, the question also has to be asked if it is possible that millets were cultivated in Babylonia already in the late third millennium BC. For this purpose, the various identification proposals of Akkadian and Sumerian cereals with different types of millets are discussed. The contribution of the Bronze Age Gulf trade with Oman and Gujarat in northwest India in exchange for domesticated crops, including African and Asian millets, will be discussed.