Aromatics in Early Dynastic Girsu

Zadworny, Piotr

Aromatics in Early Dynastic Girsu

Piotr Zadworny

Student number: 3689980

E-mail: p.e.zadworny@umail.leidenuniv.nl

Thesis supervisor: Dr. Julia H. E. Krul

June 15th, 2023

Master Thesis Classics and Ancient Civilizations

Faculty of Humanities

Leiden University

Table of contents

Introduction and state of research

“It is ironic that as our information improves many of the old certainties become blurred. The tidy groups which help us reconstruct ancient societies are now becoming fuzzy.” (Crawford, 2013, p. 3) — in these words, Harriet Crawford diagnoses the current state of research of early Mesopotamia. The main aim of my work is to explore the diversity of this distant world, and to contribute to the departure from those “old certainties.” By approaching the available data from a microhistorical angle, aware of the limitations of the corpus and its fragmentary character, I intend to present a picture that is detailed, even if limited in scope.

In this thesis, I will use the aromatics industry of Early Dynastic Girsu, a major city in the Lagash state, as it is documented in the **e$_2$-mi$_2$** archive as my object of study — with its workers, their activities, and individuality, and the cultural context in which it existed. My main research questions are: who were the people involved in the aromatics industry of Girsu, what are their tasks, and to what extent is the Girsu archive representative of the aromatics tradition in early Mesopotamia?

In the first chapter, I will examine the types of available sources. The scope of this work is largely defined by the work of others — modern archaeologists and ancient accountants. Limitations arising from this situation will be discussed, together with an attempt to define what kind of information can be extracted. Then, I will introduce the individual aromatics makers of Early Dynastic Girsu, with a particular focus on their gender, social status, and activities. A shorter subchapter will be devoted to the social contexts in which aromatics were used. In the final chapter, I will examine the sources from other early Mesopotamian sites concerning aromatics in detail, to discuss the similarities and unique local traits.

Throughout this work, I will use two terms that need definition — “aromatics” and “early Mesopotamia.”

As for aromatics, two kinds of commodities are meant. First, the aromatic ingredients used for the production of scented goods, often distinguished by the **šem** determinative in Sumerian texts.[1] Second, aromatic substances, mainly oils, used for anointing and other hygienic, as well as cultic

[1] For a detailed discussion of uses of the **šim/šem** determinative, see Middeke-Conlin, 2014, §1.4.3.

purposes, made by aromatics makers from the aforementioned ingredients. When the term "aromatics industry" is used, the materials and people working with them are meant.

When I use the term "early Mesopotamia," I mean three historical periods together — the Late Uruk period (ca. 3200-2900 BCE), from which the earliest written documents originate, followed by the Early Dynastic period (ca. 2900-2350 BCE), with its political fragmentation, the spread of cuneiform writing and further developments of the scribal culture, and eventually the Akkadian period (ca. 2350-2150) — the first attempt at administrative unification of Mesopotamia under king Sargon and his successors.

The reason for such grouping is twofold. First, existing scholarship of aromatics focuses on later, better-documented periods. In this sense, my thesis is complementary to the works of others. Second, only the **e$_2$-mi$_2$** archive of Early Dynastic Girsu is extensive enough to be studied on its own — yet, other sites contribute additional accounts of the aromatics tradition too, expanding the scope of what can be studied.[2]

My thesis stands upon the existing research concerning Mesopotamian aromatics, the study of early developments of cuneiform writing, and the social history of the early Ancient Near East.

The most recent contribution to the study of aromatics in the Ancient Near East is the ongoing *Vegetable Oils and Animal Fats in Early Urban Societies of Syro-Mesopotamia: Digital Data Collection* research project, headed by Walther Sallaberger (2023). Accessible as a website, it aims to explore the uses of oils and fats from archaeological and Assyriological perspectives. The dossiers of texts collected within this project were of great help during the preparation of this thesis.

Another recent contribution is a paper by Robert Middeke-Conlin (2014) concerning the aromatics of Old Babylonian Larsa. In his article, Middeke-Conlin presented an extensive and multidisciplinary overview of the scholarship, and discussed technical aspects of the production of aromatic substances and the social contexts in which they were used. Similar in scope was a work by Hagan Brunke and Walther Sallaberger (2010), who examined the textual sources concerning Umma in the Ur III period. In their case, an analysis of ritual uses of oils and other aromatic substances was presented, along with a discussion of prices and recipes for aromatic oils. Some aspects of the aromatic industry of Early Dynastic Girsu were discussed as well, delineating starting points for several sections of this thesis.

[2] The archive of Ebla, although containing more texts, does not document the aromatics tradition in comparable detail.

The earliest written sources examined in this work date to the Uruk period. To understand them, the research of Robert Englund (1998; 2004) was used. His work allowed the incorporation of the archaic lexical material, extending the scope of this thesis into the 4th millennium BCE.

To embed the research of early Mesopotamian aromatics industries in a wider context, I refer to the works of Jason Ur (2014), discussing the social structures of early Mesopotamian cities, and Vitali Bartash (2019), who described weighing — and wider, trade — as social practices. Their understanding of social hierarchies and practices as diverse and emphasizing individual agency were not only useful for constructing a frame of reference but inspiring to explore the available data in a way as detailed as it was feasible for me.

For the texts originating from Girsu, the work of Kazuya Maekawa (1974), who first precisely analyzed the grain accounts, extracting terms describing social hierarchies and then described the development of **e$_2$-mi$_2$**, "the household of the Woman", under the last three rulers of that city, and those of Scott Beld (2002), focusing on the ritual aspect of Girsu's economy, and of Rosemary Prentice (2010), describing the movement of commodities within the city, were most relevant. They allowed setting the main case study of this thesis in a specific social environment.

All cuneiform texts used in writing this thesis were accessed through the ePSD2, CDLI and EbDA (for the texts originating from Ebla) databases and are listed in the appendix according to their time and place of origin. Sumerian words used in this thesis will be written in **bold**, in the transcription suggested by Pascal Attinger in his recent dictionary (2021). When the entire word is written in capitals, the sign name is meant. In the case of proto-cuneiform signs, their variants will be marked with subscript letters, following their editions in CDLI.

1. Available sources

1.1. Archaeology

In essence, all available sources concerning early Mesopotamia are archaeological. It is only through excavations that artifacts and written documents become available for research, and this by itself is the factor limiting the data accessible to scholars.

At the core of this study are texts originating from Girsu — modern Tello in Iraq — where excavations have been conducted since the 1880s. Although the textual evidence from Girsu is very extensive, no archaeological artifacts that could be linked to the aromatics industry have been found. Harriet Crawford (1973) discusses this in a text concerning Girsu's "invisible exports", calling it a "historically unfortunate accident" that so much of this city's commercial activity was focused on consumable goods, leaving little trace in the archaeological record.

Equally absent are aromatics-related artifacts from the Eanna temple precinct of Archaic Uruk, where the earliest texts have been found. In an overview of this site, Krystyna Szarzyńska (2011, p. 2) notes that before setting the foundation of new buildings the remains of old ones were leveled and "purified with fire" — which is perhaps as close as it gets to the topic of aromatics.[3]

This absence of evidence from sites that yielded most of the texts used in my research can be partially amended by looking at artifacts, specifically pottery, from other early Mesopotamian sites. It must be done cautiously, as it seems that tracing specific use cases seems difficult from the archaeological point of view.

The invention of the potter's wheel as well as the introduction of mass production of ceramics resulted in a variety of new pottery forms attested in the Uruk period and later. Among those newly — and widely — attested forms, St John Simpson (1997) describes "tall jars with short upright spouts" as well as "globular storage jars with vertical lugs", both of which could have been used for storage of liquids.

Moreover, two Sumerian terms, ^{dug}**kur-KU-DU$_3$** and ^{dug}**saman$_4$** appear in archival texts concerning the storage and transfer of fats and perfumed oils with a pithos and a flask — both conforming with the description above (Sallaberger, 1996, pp. 70-71). The latter type is specifically

[3] This topic is elaborated on in section 3.1 of this thesis.

used for oils and aromatics, measuring on average ca. 10 liters, but ranging from less than a half up to 120 liters in capacity.

The difficulties in assessing specific uses of aromatics through archaeology are discussed in detail by Agnieszka Pieńkowska (2018). In her article, she focuses specifically on the use of incense.

Pieńkowska writes that "although the texts enumerate a variety of aromatic substances, proving the popularity of the practice, the archaeological finds […] are surprisingly scarce" (Pieńkowska, 2018, p. 315). Criteria for identification of vessels that might have been used as incense burners are, in her words, "vague to say the least", and textual descriptions that could offer help in distinguishing those artifacts do not exist. Additionally, it is not required that any specific vessel was necessary for this, as incense can be burnt in any bowl.

Moreover, upon examining various forms of pottery found across Early Bronze Age sites, Pieńkowska determines that how archaeological documentation has been written in many excavation campaigns hinders the possibility of recognizing such vessels. Incense burners could be distinguished from lamps through detailed analysis of burn marks, however, in many cases the descriptions offered in the reports are not clear enough or the artifacts are washed, removing any traces that could be used for such examination.

Despite those difficulties, she identifies several possible vessels that could have been used specifically for burning incense. Pedestal bowls, the making of which would be intentionally heat-resistant (such as those found at the Royal Cemetery of Ur; cf. Wooley, 1934, p. 391) and offering stands, suggestively called *Räucherstände* in German scholarship, found in cultic contexts — themselves not bearing any burn marks, but possibly used for supporting other vessels used specifically for that purpose are proposed as candidates (Pieńkowska, 2018). It is those offering stands with a vessel that the cuneiform sign NE (fig. 1) depicts — together with the reading **izi** ("fire") — suggesting their use for burning liquids.

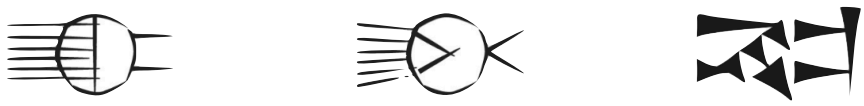

Fig. 1: The shapes of the NE cuneiform sign;
two variants from the Uruk period (4th millennium, NE_a and NE_b) and Ur III (*Esagil* font)

Another kind of artifact that could be linked to the production of aromatic oils are the earliest instruments for distillation, one of which, found at Tepe Gawra and dated to the middle of the 4th

millennium BCE, was described as such by Martin Levey (1960). Levey supported his idea with a Middle Assyrian aromatics recipe discussing the use of a similar vessel. His interpretation was challenged by Henri Limet (1978, p. 154), who claimed that although it is possible to use this vessel in a way suggested by Levey, there was no evidence for distillation in earlier textual records. Although Levey's idea about the vessel's possible use was supported through an archaeological experiment (Belgiorno, 2020), the texts he used as reference are so remote in time that they are hardly a convincing argument.

Thus far, the examples presented show that while the vessels used for everyday storage of liquids, including fats and aromatic oils can are abundantly recorded and identifiable, it is difficult to argue about specific uses of aromatic substances based only on archaeological records.

The excavations at Tello continue, now under the aegis of the British Museum.[4] Considering the development in archaeological methodologies and techniques — as well as recent media reports about structures newly discovered at the site[5] — new artifacts or even production spaces may be discovered to match the archival attestations — and their connection with aromatics production will be established directly.

[4] https://www.britishmuseum.org/research/projects/girsu-project [accessed: 26 April 2023].

[5] https://www.heritagedaily.com/2023/02/royal-sumerian-palace-and-temple-uncovered-in-ancient-girsu/146226 [accessed 26 April 2023].

1.2. Written sources

In comparison to non-textual artifacts, early written documents that can be unambiguously linked to the aromatics industry are more abundant.

This section aims to examine the social environment in which they emerged — the elite households — and two main types of textual sources concerning early Mesopotamian aromatics: lexical lists and administrative accounts. I will discuss how the context in which they appeared shaped them and how they can be used as historical sources.

Additionally, four other texts contain brief mentions of aromatics — two royal inscriptions and two religious hymns.[6] They do not, however, contribute any additional information, therefore I will not analyze them in this work.

1.2.1. Households, accountants and efficiency

Accounting — and eventually writing — was developed in the context of elite institutions. To understand how this environment shaped them, it is useful to first discuss the emergence of Mesopotamian households as social and economic units.

In the Ubaid period — an archaeological culture preceding Uruk and dated to 5800-4000 BCE — the settlements in Mesopotamia were self-sufficient villages of a few hectares in size. Architectural remains point to a common structure of houses — with a central main hall and adjacent spaces (Ur, 2014). Some of those structures are described by scholars as temples, albeit only due to their scale and decorative features. Their main layout was the same as that of dwellings.

Among the remains, interconnected structures appear, capable of housing several families. According to Jason Ur, they are the predecessors of much larger structures excavated in Uruk and other sites in Mesopotamia dated to the 4th millennium BCE. Again, the architectural remains found there are different in scale, but essentially the same in terms of composition (Ur, 2014, pp. 259-261). Ur's model assumes that the expansion of one's own household and, as a consequence, the capability to better provide for one's kin was the main motivation that allowed such complex

[6] The royal inscriptions are: the Vulture Stele (RIME 1.09.03.01 in CDLI; obv. 16:45, 18:4, 21:16 and rev. 1:35) and the "Reforms" of Eri-KA-gina (RIME 1.09.09.01; 10:11). The religious hymns are: the hymn to Asarluhi in Ku'ara (Biggs, 1974, p. 47, lines 33-34) and the Early Dynastic hymn to Utu (the Ebla version: ARET 5 6; 4:2-5 and 15:5; the Abu Salabikh version: Biggs, 1974: 326; 3:1-4).

units to emerge (Ur, 2014, p. 258). By subjugating their domains to more successful economic units, household heads improved their economic status.

Mutual obligations — those of subjects towards the household elites, but the opposite as well — were what ensured the cohesion of extended households. Ur observes that in early Mesopotamia, one's position is not a result of an institutional office, but of a personal relationship to one's superiors. Eventually, through accumulating layers of dependants, elite households could grow to encompass entire cities and states (Ur, 2014).

This approach of Ur implies that household heads at every level of the hierarchy enjoyed a degree of independence, and as a result, they could actively shape such hierarchies. They were active agents capable of adapting existing structures to their individual goals, depending on the economic and social capital they controlled. In the context of this work, it means that the structures in which the aromatics makers participated can be seen as unique, without the need to accommodate them to an institutionalist model.

Throughout the 4th millennium, such extended households grew quickly, resulting in the appearance of the first urban settlements. Already in the earliest written accounts organizations employing dozens of workers and managing thousands of tons of grain are documented, with those numbers only to grow in later periods (Renn, 2020).

At that point, several accounting devices had already been in use. The earliest archaeological artifacts interpreted as counters are small clay tokens of various shapes excavated at ʻAin Ghazal and dated to the 8th millennium BCE. Appearing in the context of an agricultural settlement, they are seen by Denise Schmandt-Besserat (1992) as a way of managing commodities. In her eyes, they represent humans' first cognitive step towards writing — the ability to use abstraction.

Fig. 2: A clay envelope with a collection of tokens from the 4th millennium BCE. (*MS 4631*)[7]

[7] https://cdli.mpiwg-berlin.mpg.de/artifacts/235737/.

Over time, tokens in more elaborate shapes and covered in geometric patterns appeared. In the 4th millennium, the first archives of tokens were created, employing such new inventions as bullae and clay envelopes — hollow clay balls (fig. 2). The use of envelopes, where the objects stored inside were not visible, prompted a new idea: the contents were "described" with an impression of a token and a group of markings symbolizing quantities. In this way, earlier correspondence of one token to one commodity was abandoned and another step towards abstraction was made, propelling the accountants towards dropping tokens altogether and the invention of writing (Schmandt-Besserat, 1996, pp. 55-71).

As much as 90% of written accounts from 4th millennium Uruk contain numbers. Ideographic signs represent commodities, as well as perhaps individuals and institutions. There is little indication of any attempt at representing language — what mattered, it seems, was the ability to store more information (Woods, 2020).

The need for efficiency stimulated the later development of writing too: proto-cuneiform signs are simplified immediately at the earliest stages of their evolution (Woods, 2020, p. 34). How the accounts were written, in turn, became increasingly complex (fig. 3), with primary documents recording just one economic event, and secondary ones, summaries, representing multiple events at once — which allowed the storage of more information on a smaller accounting device (Englund, 2004, pp. 29-30). As a result, the texts were detached from the actual events happening within households, and subordinated to the logic of long-term management (Steinkeller, 1997).

Fig. 3: An administrative tablet from the Uruk period (left) and a grain ration list from ED Girsu (right). (*MSVO 3, 01* and *HSS 03, 13*)[8]

[8] https://cdli.mpiwg-berlin.mpg.de/artifacts/5312/ and https://cdli.mpiwg-berlin.mpg.de/artifacts/221322/.

This development towards optimization through abstraction, in the context of the Early Dynastic period, reached its apex in the form of grain accounts written under the reign of king Eri-KA-gi-na in Girsu, appearing monthly in a mostly unchanged form, with entries grouped along the household's internal hierarchies. At that point, it seems, the entire administrative procedure was optimized.

1.2.2. Types of written sources

Among the types of early Mesopotamian written sources, there are two main ones in which mentions of aromatics are present — lexical lists and administrative accounts — the analysis of which is the core of this paper. The environment in which they were developed determined the information that can be extracted and, consequently, determines the scope of this study.

The first type of texts discussed — lexical lists — are seen as an early attempt to systematize and manage the sign inventories of the emerging writing system (Taylor, 2013). Earliest documents of this type appeared around the same time as the first written economic accounts — in the Late Uruk period (Englund, 1998). Those discovered in the Eanna district of Uruk, termed *Archaic*, are collections of thematically arranged signs used to describe the environment of early cities – occupations, animals, commodities, and locations. The sequences of signs were standardized soon after this type of texts first appeared, allowing scholars to reconstruct larger wholes from excavated fragments.

Jon Taylor (2013, p. 296) describes the choice of entries as "arbitrary, but not random." While it is commonly accepted that the lists were used to educate scribes, the question of the extent to which they were useful in daily accounting practice remains open. Taylor points to an existing discrepancy between the contents of the lists and what is attested in the Uruk administrative corpus and suggests seeing them rather as "intellectual exercises" of early Mesopotamian thinkers. The compositional character of those texts led Robert Englund, Hans Nissen and subsequent scholars to interpret one of them even as the earliest literary text in history (Civil, 2013).

Although at a glacial pace, lexical lists evolved. Archaic texts continued to be used and were expanded in the Early Dynastic period. Spellings of some entries were changed, new entries were added and entirely new compositions were created, contributing to scholars' better understanding of earlier versions. This evolution of those texts testifies to the ongoing intellectual engagement of the scribes with the lists' content, even though a significant number of entries might have been outdated as early as the beginning of the 3rd millennium BCE.

Fig. 4: Fragment of the Archaic *Vessels* list from Umma.
Typically for such lists, each entry (here: DUG_b with another sign inscribed in it) is preceded by the N_{01} mark (a vertical half-round impression). (MS 2503/1)[9]

In total, four early lexical lists contain entries that might be related to the aromatic industry – one of them, *Vessels* (fig. 4), in two versions – Archaic, from Uruk, and Early Dynastic, attested in Fara and Tell Abu Salabikh. It will be used for tracking attestations of ingredients and products as early as the Late Uruk period, as well as for speculation about the aromatics makers' area of expertise. Other lists are lists of professions – including terms describing the aromatics makers themselves.

Summarizing, in the case of lexical lists, through examination of changing spellings, sign additions and substitutions, as well as the internal structure of documents, we can learn about the "theoretical approach" of early accountants to their society. While the exact role of this type of texts is unknown, their intentional composition can be a source of valuable insight.

[9] https://cdli.mpiwg-berlin.mpg.de/artifacts/6070/.

Although the lexical lists might help us understand the administrators' own view of their craft, the main type of sources used in this work are administrative accounts — with most of them originating from the archive of **e$_2$-mi$_2$** ("household of the woman", i.e. the ruler's wife) — an elite household of Early Dynastic Girsu.

The archive of **e$_2$-mi$_2$** consists of ca. 1800 documents written mostly under the rule of three rulers: En-en$_3$-tar-zi, Lugal-AN-da and Eri-KA-gi-na dated to 2400-2350 BCE (Bartash, 2014). The term **e$_2$-mi$_2$** is not unique to Girsu and has been attested in sources since the Uruk period. It is used to describe the women's part of the extended household, where children are also born and raised (Bartash, 2014). While of moderate size, the **e$_2$-mi$_2$** of Girsu is unique in having its own administration. The known ladies of the **e$_2$-mi$_2$** were Dim$_3$-tur, the wife of En-en$_3$-tar-zi; Para$_{10}$-nam-tar-ra, the wife of Lugal-AN-da and Sa$_6$-sa$_6$, the wife of Eri-KA-gi-na.

As a part of Eri-KA-gi-na's reforms, it was renamed to **e$_2$ ^{d}Ba-u$_2$** ("household of the goddess Bau"). However, this did not significantly change how it operated, prompting scholars to recognize it as a temple household *ab origine* (Bartash, 2014, p. 9). Considering the lack of documentation concerning temple staff and mentions of festivals dedicated to other deities, it is perhaps more appropriate to see it as an actual lady's household, with the name change only as a symbolic act of a new ruler looking for legitimacy (Steinkeller, 2022). For clarity, only the original name **e$_2$-mi$_2$** will be used throughout this thesis.

The **e$_2$-mi$_2$** remained in close relationship with other elite households — the **e$_2$-gal** ("palace") and the households of other members of the ruling family. According to Vitali Bartash, the **e$_2$-mi$_2$** archive mentions about 700 people performing various types of services. He notes that "although the occupations [mentioned in the documents] remained the same, the people who performed them often changed" and they should not be seen as "tied" to the household (Bartash, 2020). Among them, six individuals known by name are attested who worked with aromatic substances, even if two of them appear only once. In the light of the "household model" of Jason Ur discussed earlier, each will be viewed as a separate, individual agent active within a diverse tradition.

The corpus of documents from Girsu that consider aromatics – ingredients, makers, and possible uses – consists of roughly a hundred texts of different types. Most of the accounts are grain disbursements on a variety of occasions. They can be used to understand the social status of the aromatics makers. Inventories – unlike lexical lists – record the commodities actually held by individuals and households, and commissions and delivery accounts attest ingredients and instruments used within the aromatics industry. Some of the documents are dated, allowing the discussion of their time of activity. Additionally, other texts record aromatics trade and the use of those commodities in cultic ceremonies.

While the level of detail of the **e$_2$-mi$_2$** archive is an advantage, its specific focus is at the same time a weakness – although very dense, it covers only one specific elite household over a very limited time. Although scant and most likely coincidental, contemporary artifacts from other sites testify to a more diverse industry than what is attested in Girsu alone. Additionally, the **e$_2$-mi$_2$** archive represents the perspective of household accountants, therefore the only mentions of aromatics makers are those that report their economic activity. Other aspects of their lives must remain out of the scope of this study.

As presented in this section, two available types of textual sources allow looking at two aspects of early Mesopotamian aromatics.

On one hand, the lexical lists and literary texts are intentional compositions, allowing us to see how the accountants and scribes imagined their environment. They can be explored for the earliest attestations of terms related to the aromatic industry and cultural associations, as their organized and stable character allows for evaluating the information more confidently. On the other, administrative accounts document actual economic events.

The scope of a study based on such sources must be limited. Like in the case of non-textual artifacts, here too we are dependent on material found through excavations. Moreover, the archives focus on economic activity, leaving other aspects of human life undocumented. They remain valuable historical sources, but they represent only a part of the lived experience.

2. Aromatics in Early Dynastic Girsu — a case study

2.1. The aromatics industry

The variety of accounts collected in the Girsu archive allows a microhistorical approach to people who worked with fragrant substances. The documents in which they appear record two traditions at once — an administrative one and that of aromatics making — with the first one additionally supported through lexical lists and one mention in a royal inscription.

In this subchapter I will first discuss how to find the aromatics makers in sources, then introduce in detail the questions of gender and social status of the individuals recorded in the archives of **e$_2$-mi$_2$**, and finally present an overview of what is known about their activities — about their tasks as aromatics makers and other details of their lives that can be extracted from the records.

In total, six individual aromatics makers from ED Girsu are known by name: Il$_2$, En-šu-gi$_4$-gi$_4$, A-diĝir-ĝu$_{10}$, Gi-nim, Sahar-ra-ne$_2$ and Lum-ma-diĝir-ĝu$_{10}$. It is largely thanks to their work that writing this thesis was possible.

2.1.1. Identification of aromatics makers in the e$_2$-mi$_2$ archive

The most common term for a maker of scented oils, attested in cuneiform sources of most periods, is **i$_3$-ra$_2$-ra$_2$**. It has been discussed extensively by Brunke and Sallaberger (2010) as well as Middeke-Conlin (2014), who additionally collected the attestations of the corresponding Akkadian term *raqqû*. In the Early Dynastic period, **i$_3$-ra$_2$-ra$_2$** appears at the beginning of the *ED Lu D* list from Fara and, following a section of cultic officials, in the *ED Lu E* list. It is attested in the administrative documents of **e$_2$-mi$_2$** as well.

The administrative texts from Girsu record one more professional term related to aromatics: **ka-saman$_4$**. It is known from 75 attestations and it seems unique to the **e$_2$-mi$_2$** household, unattested elsewhere.

While this term has been mentioned in scholarly literature, I am not aware of any publication discussing it in detail. Anton Deimel first translated **ka-saman$_4$** as “der Vorsteher des Fettlagers” (“the fat-storehouse official”), which was later referenced by Josef Bauer in *Altsumerische Wirtschaftstexte aus Lagasch* (1972). Steinkeller (1989) interprets this term as “chief oil maker”, citing its similarity to an Ur III term **ka-guru$_7$**, the “granary supervisor.” Moreover, Walther Sallaberger (1996) translates **ka-saman$_4$** as “[die] Öffnung des Gefäßlagers” (“the opening of the vessels storehouse”) while commenting on an inventory of vessels,[10] but this is inconsistent with other attestations of this term which will now be discussed in details.

Upon the examination of available documents, it does not seem likely that **ka-saman$_4$**’s function was that of a storekeeper. I would like to suggest a different interpretation of this term. First, no evidence of a specific oil or vessel storehouse in ED Girsu exists. Attestations of other organizations of this kind, managing grain and other commodities is available, whereas the transfer of aromatic ingredients and products seems to happen directly between the households (**e$_2$-mi$_2$**, **e$_2$-niĝ$_2$-ĝar**[11], **e$_2$-ganba**[12] and the palace) and the workers — **i$_3$-ra$_2$-ra$_2$** and **ka-saman$_4$** equally. Second, there is no difference between the accounts documenting the transfers of commodities whether they concerned the **i$_3$-ra$_2$-ra$_2$** or the **ka-saman$_4$**. They contain roughly the same kinds of products, ingredients and amounts.

What might be significant is that all the documents concerning “regular” aromatics makers are commissions or deliveries to some kind of household or office, while some of **ka-saman$_4$**’s are “direct” — only mentioning the current lady of the **e$_2$-mi$_2$** (in all cases — Para$_{10}$-nam-ta-ra).[13] This might suggest that the difference between the two is in **ka-saman$_4$**’s direct connection to the household elite. En-šu-gi$_4$-gi$_4$, a **ka-saman$_4$** in the times of king Lugal-AN-da, later became an **agrig** (“steward”) of the **e$_2$-mi$_2$** — which is a high administrative function. It might suggest a pre-existing connection specifically with household administration, however, it too can be explained by En-šu-gi$_4$-gi$_4$’s originally high status.

In light of those remarks, while it seems clear that **ka-saman$_4$** were involved in the aromatics industry of Early Dynastic Girsu, their exact role is debatable. Due to the lack of any mentions of a specific storage facility for fats or vessels, as well as the same types of documents mentioning them

---

[10] The inventory in question is Nik 1 264.

[11] Translated by Attinger (2021) as "(…) entrepôt, grenier, trésor" ("warehouse, granary, treasury”).

[12] This term, translated by Attinger (2021) as „marché; cours, pris sur la marché” („market; exchange rate, market price”), will be discussed in detail in section 2.2.1. “Trade.”

[13] VS 27 87, Nik 301 and VS 14 131.

and **i$_3$-ra$_2$-ra$_2$**, both were likely aromatics makers and **ka-saman$_4$**'s unique designation was due to their social status.

In addition to the terms attested in ED Girsu, the *Early Dynastic Lu D* list from Fara (*SF 48*, discussed in detail in Taylor, 2003) offers one more term that might designate an aromatics professional. It is NI + SUM + IR, listed directly after **i$_3$-ra$_2$-ra$_2$** and not attested elsewhere. In this case, the assumption is based on the signs NI (read as **i$_3$**, "oil") and IR (**ir** — "scent") that form this entry.

The middle sign, SUM, can be read as **se$_3$.g**, "to put". Such use is attested once in the context of aromatics, in a tablet from ED Girsu, where it summarizes a list of ingredients:

šem i$_3$ ĝiri$_3$-ka se$_3$-ga-am$_6$
šem^{ABS} i$_3$.ĝiri.k=a^{LOC} se$_3$.g-a^{NMLZ}=am$^{3NH.COP.S}$
[*Those*] *are the aromatics put in the oil for* [*anointing*] *feet.* (obv. 3.5., VS 14 31)

The order of signs in the NI + SUM + IR entry is confusing and it is difficult to suggest a grammatically correct reading. Since the term itself does not appear in the administrative corpus, it might have been part of accountants' "theoretical exercises" and not an actual profession — or, a term specific to Fara, but coincidentally not appearing in preserved records.

To summarize, while **i$_3$-ra$_2$-ra$_2$** is the most common term for an aromatic oil maker, it is not the only profession dealing with aromatics mentioned in the early Mesopotamian sources. An additional designation of **ka-saman$_4$** is widely attested in the **e$_2$-mi$_2$** archive, and it is the most frequently occurring one. While it seems that they too were aromatics makers, their status in the household hierarchy was likely different than that of **i$_3$-ra$_2$-ra$_2$**.

In the **e$_2$-mi$_2$** archive, two aromatics makers are described as **i$_3$-ra$_2$-ra$_2$**: Il$_2$ and Sahar-ra-ne$_2$. The other four — En-šu-gi$_4$-gi$_4$, A-diĝir-ĝu$_{10}$, Gi-nim and Lum-ma-diĝir-ĝu$_{10}$ — were described as **ka-saman$_4$**.

2.1.2. Gender and social status

Two aspects of ED Girsu aromatics makers' identities can be examined through the analysis of administrative records: their gender and social status.

By first looking at different ways in which information about aromatics makers' gender can be extracted from available data and then constructing a possibly detailed picture of social relationships they were parts of, I will discuss the diversity within such a small group of individuals. The influence of the political changes happening during the reign of Eri-KA-gi-na on their lives will be discussed as well.

In her chapter in *Women in the Near East: a Sourcebook*, Harriet Crawford (2014) comprehensively outlined how gender can be studied in early Mesopotamian sources. She comments there on the biases that contribute to the male-dominated vision of the past and presents a selection of areas that can be investigated in search of diversity. While her text, as well as the entire volume, seems to be focused on women, a task no less important is to examine those who are assumed to have been men.

The first type of sources Crawford discusses are archaeological artifacts and architectural structures. While this topic has been discussed in detail in the previous chapter, it is worth noting that there seem to be no depictions of aromatics makers in iconography, nor among discovered grave goods. No specific spaces devoted to the aromatics industry have been identified either, making this category of sources largely unhelpful.

The textual sources are available, though they too present the limitations discussed above. Identifying the gender of individuals based on their names is difficult — as presented in a paper by Daniel A. Foxvog (2011), who examined the corpus of Early Dynastic Girsu from this angle. Although he managed to identify a number of hints — name elements, including theophorics typically used for either gender — it is impossible to draw any conclusions from such a method. Among the ED Girsu aromatics makers, his findings apply only to the name of En-šu-gi$_4$-gi$_4$ — in Foxvog's view, this should be a man's name due to the "en" element.[14] Yet, one of the most widely known owners of such a name was En-he$_2$-du$_7$-an-na, a woman.

Eventually, the matter of gender can be approached indirectly, through the examination of other terms with which the administrators described the aromatics makers. Here, observations on the structures of economic texts of ED Girsu made by Maekawa (1974) are particularly helpful. One of the terms used to describe En-šu-gi$_4$-gi$_4$ and Gi-nim in the accounts was **lu$_2$ šuku-dab$_5$-ba** ("individuals holding subsistence land").[15] According to Maekawa's conclusions, this title was used

[14] Foxvog (2011, p. 62) writes that among the owners of 72 different names starting with "en", 123 were male, 1 was female and 7 were of unknown gender.

[15] Many documents identifying them as such exist; cf. RTC 54 (En-šu-gi$_4$-gi$_4$) and HSS 3 6 (Gi-nim).

exclusively to describe men. A-diĝir-ĝu$_{10}$ too is known for holding **šuku** land,[16] therefore indirectly it can be concluded that he was a man. Additionally, in one of the documents where he appears, men and women are counted separately — and it is clear that he is counted among men.[17] Il$_2$, known for holding land as well, is elsewhere described as **lu$_2$ igi-niĝen$_2$** ("the ones who observe"),[18] also used as a description of men who took part in cultic duties.[19]

We have no information about the remaining two aromatics makers — Lum-ma-diĝir-ĝu$_{10}$ and Sahar-ra-ne$_2$. Equally unknown are the families of any of the individuals discussed in this chapter. Yet, at least in the case of four of them, the assumption that they were men can be proven.

The second aspect, the social status of aromatics makers, is more nuanced. In light of Jason Ur's (2014) remarks about the rather amorphous character of early Mesopotamian households, where the hierarchy emerges as a result of the mutual obligations of individuals, it seems reasonable to examine the case of each of them individually.[20] Administrative sources that are not connected to aromatics, such as grain accounts, land assignments, and so-called „pure milk and pure malt" lists contain enough information to understand their situation. Additionally, the observations of Maekawa concerning the development of the **e$_2$-mi$_2$** will allow embedding those documents in the history of this elite household.

Based on the archival documents, the aromatics makers attested in the **e$_2$-mi$_2$** archive can be divided into three groups — with the first being the **ka-saman$_4$** of that household. To this group belong En-šu-gi$_4$-gi$_4$ and Gi-nim. En-šu-gi$_4$-gi$_4$ is first attested as **ka-saman$_4$** in the first year of Lugal-AN-da's reign.[21] His last documents in that role are dated to the sixth year of the same king.[22] Soon after, in the first year of Eri-KA-gi-na, the position is taken by Gi-nim,[23] who remains there until the end of his rule.[24]

They both are documented in similar types of texts. They are both responsible for agricultural work — En-šu (as he is often called in the archives) is attested at least three times as someone

---

[16] VS 27 70.

[17] HSS 3 25.

[18] This translation of **lu$_2$ igi-niĝen$_2$** was suggested to me by Julia Krul.

[19] VS 14 183.

[20] See section 1.2.1. "Households, accountants and efficiency."

[21] VS 27 12.

[22] DP 269; VS 14 123 and 131, VS 25 11, 41 and 71; Nik 45.

[23] Mentioned as **ka-saman$_4$** in the **ensi$_2$**-year of Eri-KA-gi-na: DP 228, HSS 3 5-6, Nik 264.

[24] In the sixth year of Eri-KA-gi-na's reign: DP 150; MVN 3 7; VS 27 1.

responsible for delivering the grain from the **en**'s land to various storehouses,[25] and a document from the sixth year of Lugal-AN-da describes him as a holder of a **šuku** ("subsistence") plot.[26] The same distinction is assigned to Gi-nim.[27] In his case, additionally, several documents mention receipts of fodder for animals and a plow.[28] Moreover, they are tasked with construction work, similar to other people of that status.[29]

Interestingly, both En-šu and Gi-nim are attested in other functions than that of an aromatics maker. After En-šu finishes his activity as **ka-saman$_4$**, he becomes the **aĝrig** ("intendant") of the **e$_2$-mi$_2$** and signs many of the grain documents written during Eri-KA-gi-na's reign.[30] During that time, his full name is used more often than before. Gi-nim is attested in a number of documents from the time of Lugal-AN-da's reign before he assumed the position of an aromatics maker. There, he is listed as **lugal-dalla** (of unknown meaning) and perhaps as one of the **sagi** ("cupbearers").

This consistency, together with their other positions within the top echelon of the **e$_2$-mi$_2$** is expressed in one more type of documents — the "pure milk and pure malt" lists. Those documents, discussed in detail by Scott Beld (2002, pp. 129-136) as a manifestation of the cultic gift economy, are a unique category of texts. Beld sees them as related to two festivals of Nanše and describes them as records of gifts of the higher class of the **e$_2$-mi$_2$** personnel (those described as **lu$_2$ igi-niĝen$_2$**) to wives of elite persons of Girsu.

Both En-šu-gi$_4$-gi$_4$ and Gi-nim hold this obligation. Documents recording their participation are dated to the 4th and 5th years of Lugal-AN-da (En-šu) and the 1st and 2nd years of Eri-KA-gi-na's reign as **lugal**.[31] In both cases, they are responsible for the gifts to the wife of the administrator of the temple of Ninmar — which can be interpreted as an established role of the **e$_2$-mi$_2$**'s **ka-saman$_4$**, regardless of who held it. This is supported by the fact that Gi-nim takes part in the exchange earlier as well, and then he is responsible for a gift to a different person.

The last link connecting En-šu and Gi-nim is another person, Lugal-i$_3$-nun. This aptly named individual is listed as a **gab$_2$-ra** ("assistant") of En-šu in two texts from the times of Lugal-AN-da.[32]

---

[25] BIN 8 353; RTC 67 and VS 25 41. Possibly Nik 45 as well.

[26] RTC 54.

[27] A number of documents, ex.: HSS 3 6-13.

[28] For fodder lists see ex. VS 25 66 and DP 150; plough: VS 27 25.

[29] En-šu: TSA 24, Gi-nim: DP 343 and MVN 3 11.

[30] At the beginning of Eri-KA-gi-na's reign: DP 416 — and at the end: DP 115. In the last year of Eri-KA-gi-na, there is a rapid growth in the number of documents signed by En-šu.

[31] En-šu: DP 132 and 226, VS 14 173; Gi-nim: DP 133 and TSA 05.

[32] VS 25 11 and 71.

Later, under Eri-KA-gi-na, the same person is described as a helper of Gi-nim in another grain account.[33]

The evidence concerning En-šu and Gi-nim points to a role with (at least roughly) established responsibilities and status within the **e$_2$-mi$_2$**. They were regular recipients of grain rations and held land, and were part of the cultic gift economy. Other than that of **ka-saman$_4$**, they held various positions among the elite of the household, attesting to their membership in the "central" group of **e$_2$-mi$_2$** members.

En-šu-gi$_4$-gi$_4$ and Gi-nim are not the only people described as **ka-saman$_4$**. The second group, represented by two more individuals, A-diĝir-ĝu$_{10}$ and Lum-ma-diĝir-ĝu$_{10}$, appear in this role as well. Texts mentioning them are much fewer in number, with the latter present in only four accounts in total.[34] They are also different in character, as no regular ration lists contain their names. Additionally, both are described in the records as **ka-saman$_4$** at the time when this role is seemingly held by someone else.

This can be explained in two ways — either that more people were holding the same title in the **e$_2$-mi$_2$** household — but in such a case, why would they not appear in regular lists? — or that they were only incidentally tied to the activities documented in the archive. According to the observations of Maekawa, the second option seems more likely.

In Maekawa's (1974) eyes, in the archive of **e$_2$-mi$_2$**, some documents were focused on tracking the internal affairs of the household members, whereas other might have contained "outsiders" as well. He points especially to festival ration disbursements as those that might record individuals from other households and demonstrates this by comparing the names of those who are documented there. This explanation seems to fit the case of A-diĝir-ĝu$_{10}$ — in the times of Lugal-AN-da, he appears in five documents, four of which are this kind of festival ration lists.[35] One of those festival documents, *RTC 61*, contains also the name of Lum-ma-diĝir-ĝu$_{10}$.

According to Maekawa (1974), the beginning of Eri-KA-gi-na's reign was a time of major changes in the structure of several households in Girsu. In his view, in his efforts to reshape the society of Girsu, the new ruler dissolved the earlier domains of Lugal-AN-da's brother, Ur-tar-sir$_2$-sir$_2$-ra, and established a new one, dedicated to the god Ig-alim, to which many of the members

---

[33] MVN 3 2.

[34] BiMes 3 10, BIN 8 368, RTC 61 and VS 27 86.

[35] DP 59 (offerings for the ancestor cult of En-en$_3$-tar-zi, a previous king and father of Lugal-AN-da), Nik 53 and RTC 61 (receipts of emmer and barley during the festival of Bau) and VS 27 81 (receives oil during the "malt eating festival of Nanše").

were transferred. This idea was short-lived, however, and abandoned at the latest in the second year of his rule as **lugal**. Members of this household would be then subjected to **e$_2$-mi$_2$** and from then on listed on a separate kind of ration lists, classified by Maekawa as those for "the personnel belonging to the organizations of the children of the ruler."

Those lists are where A-diĝir-ĝu$_{10}$ appears again. Albeit now in the character of a cupbearer (again, a position in the top ranks of the household), mentions of him continue until the 4th year of Eri-KA-gi-na's **lugal**-ship.[36]

It is possible that A-diĝir-ĝu$_{10}$ was already old and died at that time. A document dated to the "17th year" exists, where a person of the same name is a witness in a sale of a field by Dim$_3$-tur, described there as the wife of En-en$_3$-tar-zi, the administrator of Ningirsu's temple.[37] In such a case, that would be the 17th year of the reign of Enmetena, as it is commonly agreed that later rulers did not hold their positions that long. If so, in the 4th year of Eri-KA-gi-na, A-diĝir-ĝu$_{10}$ would have been a part of various elite households for at least 20 years.

The story of A-diĝir-ĝu$_{10}$ seems to illustrate two ideas. First, the **ka-saman$_4$** were members of the household elite. He too, like En-šu and Gi-nim held other positions in the top ranks of his household. Second, it seems that the inner household hierarchies of which he was a part were strong enough to survive the "reforms" of Eri-KA-gi-na. He seems to have remained a part of the same organization, even though it as a whole was subject to several transfers, as described by Maekawa. In this sense, his story fits the interpretation of household structures as primarily vertical, as described by Jason Ur.

The third group are the **i$_3$-ra$_2$-ra$_2$**, the „regular" aromatics makers. This type is represented by Il$_2$ and Sahar-ra-ne$_2$, with the latter attested in only one document. In comparison to the stories of **ka-saman$_4$**, Il$_2$ seems detached from household politics. He is first attested in a few documents dated to the second year of Lugal-AN-da and is present in the record until the fourth year of Eri-KA-gi-na.[38]

While there are no grain rations that he would receive, two land assignments exist, testifying to him holding subsistence land as well. In addition, Il$_2$ received several wool rations and his status is described in a few different ways. The administrative accounts in which he appears, while all related to wool, seem to form two groups. First, dated to the 3rd, 4th and 5th years of Lugal-AN-da, are records of a fairly small group of individuals (11 in total) described as **lu$_2$ didli-e-ne** ("various

[36] DP 116-118; Nik 16.

[37] BIN 8 352.

[38] 2nd year of Lugal-AN-da: Nik 91, VS 14 109 and VS 27 70; 4th year of Eri-KA-gi-na: DP 563 and VS 14 183.

people") receiving wool directly from Para$_{10}$-nam-tar-ra, the lady of **e$_2$-mi$_2$**. Maekawa (1974) describes some of those people as members of the household of the aforementioned brother of Lugal-AN-da, Ur-tar-sir$_2$-sir$_2$-ra, perhaps allowing to see Il$_2$ as one of them as well.

In two other accounts, both dated to the 4th year of Eri-KA-gi-na's **lugal**-ship, he is part of a different group of people, seemingly unrelated to the first one. They are described collectively as **lu$_2$ igi-niĝen$_2$-ne**, and the household involved is **e$_2$-gal**, the "palace". Although this "organizational trajectory" seems similar to that of A-diĝir-ĝu$_{10}$, the fact that Il$_2$ does not appear in any of the grain accounts makes it more difficult to assign him to any specific household.

Of the two land assignments, in one of them, *VS 14 72*, Il$_2$ appears alongside A-diĝir-ĝu$_{10}$. They are both assigned "land for growing barley", described as a property of Para$_{10}$-nam-tar-ra, and again are described as **lu$_2$ didli**. The other document, dated to the second year of Eri-KA-gi-na, attests to him holding subsistence land, and he appears there together with some of the names known from aforementioned wool accounts.

It seems reasonable to assume that Il$_2$ was in some kind of relation to the **e$_2$-mi$_2$**, but he certainly was not part of the central household staff. Some similarities to the story of A-diĝir-ĝu$_{10}$ exist, but due to his name (most likely never written in full, and with the hypocoristic meaning "porter", and being one of the most common descriptions of people in the Girsu archive) it seems impossible to follow him in documents other than those that describe him with his professional title. In contrast to the **ka-saman$_4$**, no records of him participating in festivals exist. He is still described as **lu$_2$ igi-niĝen$_2$** and as holding subsistence land — so his position was still relatively high.

Individual, prosopographic approach to the archives shows that even such a small group of aromatics makers was diverse in terms of their relationship with the elite household. Differences in proximity to the **e$_2$-mi$_2$** are visible through administrative records, with En-šu and Gi-nim as members of the queen's household itself and other aromatics makers as connected to it more loosely. In all of **ka-saman$_4$**'s cases, their membership in the household elite is attested through their participation in festivals, cultic exchange of goods, and holding of other important titles in their households. While the position of **i$_3$-ra$_2$-ra$_2$** can only be examined in detail in the case of Il$_2$ — and turns out to be more vague, a descriptive approach is still possible.

It seems that in the case of Early Dynastic Girsu's aromatics makers, we are dealing with a group of men of varied, but relatively high status, who are connected to several organizations closely tied to the **e$_2$-mi$_2$** household. To some extent, their personal stories can be reconstructed, allowing a more granular understanding of Girsu at that time.

2.1.3. Activities

In this section, the tasks of Early Dynastic Girsu aromatics makers will be examined. Their work can be studied through accounts of aromatic ingredients and deliveries of finished goods. Their activities other than the production of aromatic oils will be discussed too, as well as the time when they worked.

In principle, the aromatics makers of Girsu made their products from animal fats (**i$_3$ ab** and **i$_3$ nun** – "cow fat" and "butter" are mentioned as oily bases) mixed with aromatic ingredients such as resins and plants, among which cedar ("**eren babbar$_2$**") is the most dominant. The most commonly attested type of product was **i$_3$ ĝiri$_3$** ("oil for [anointing] feet"[?]). Additionally, one text mentions **i$_3$ šu šeš$_4$ ensi$_2$-ka** ("oil for anointing the hands of the *ensik*"[?]) with a different set of ingredients, including otherwise unattested **$^{\text{šem}}$dilmun** ("the Dilmun aromatic").[39]

The ingredients and other technicalities of the ED Girsu aromatics industry have been extensively discussed by Hagan Brunke and Walther Sallaberger (2010), and the topic of specific resins was further expanded upon by Vitali Bartash (2019).

Several terms related to aromatics appear already in the 4$^{\text{th}}$ millennium BCE and they too were discussed by Sallaberger (2023). It is perhaps worth noting that his interpretation of the NI$_b$ HI sign combination appearing in the *Archaic Vessels* list as "aromatic oil" is not likely. The term **i$_3$ du$_{10}$**, while attested in the Early Dynastic period, does not appear in the context of aromatic products – in this sense it was used from the Ur III period onward. It should be probably understood more literally, as "fine oil." A regular term for aromatic oils in general in Early Dynastic Girsu is **i$_3$ ir-a**, attested as **i$_3$ ir** in lexical lists from Fara as well.

Another important detail is Bartash's interpretation of DUG$_b$×UH$_{3a}$ from the same text as an early writing of **bulug$_x$**, an aromatic resin (2019, pp. 202). Through analogy, several other terms attested there can be understood as aromatic ingredients as well: DUG$_b$×GEŠTU can be read as **tal$_2$** ("fennel"), one of the common ingredients and a substance later used by Gudea for anointing his

[39] TSA 06.

head.[40] DUG×GIŠ might be a description of oil "aromatized by wood", attested as **i₃ ĝeš** in *Early Dynastic Practical Vocabularies A* and *B*.[41]

One of the entries contains the sign NAGA as well, one of the readings of which is an alkaline plant used for hygienic purposes (Brunke and Sallaberger, 2010).

Another interesting entry in the *Archaic Vessels* list is DIN IR_a, replaced in the Fara version by **ĝeštin ir** („scented wine"?). Together with a number of administrative accounts in which the aromatics makers receive malt, and an inventory of vessels held by Gi-nim which includes several specifically brewing vessels, this hints at an additional task they might have been responsible for.

In *Nik 91*, Il_2 receives 5 **gur** and 2 **ban₂** — over 600 liters — of crushed malt (**munu₄ naĝa₃ĝ̂ᵉᵃ²**) in five separate deliveries from Nam-mah-ne_2, the maltster. Use of such a volume other than industrial is difficult to imagine, especially considering the administrative character of the account. The action is described as **e^{VP}-ta^{ABL}-zi(.g)**, a finite verbal form of **zi.g** ("to get up"), a term commonly used in later periods in the form **zi-ga**, meaning "expenditure."

DP 163 is a more complicated account, again involving Il_2. Here, several individuals deliver various types of processed cereals to storehouses in the **e_2-mi_2**. Il_2's share consists of **bappir₃**, interpreted either as a form of yeast or a combination of aromatics used for brewing.[42] While the ingredients discussed so far are known from beer brewers' accounts, yeast fermentation is common in other light alcoholic beverages as well.

The aforementioned inventory of vessels that points to aromatics makers' connection with brewing is *Nik 264*. While four of the types of vessels are either known for being used for storage of fats (i.1.: ^{dug}**kur** and i.2.: ^{dug}**kur-KU-du₃**)[43] or described as used with oils (i.5.: **mud$_{x(LAK449)}$ i₃ luh gaz-za** — "oil jar, clean, broken?" and ii.1.: **gar₃ bala i₃ luh** — "oil transferring vessel, clean"), other are brewing vessels: ^{dug}**ma-hara₄** (i.3., "beer brewing vessel"), **mud$_{x(LAK449)}$ kas a-de₂** (i.5., "jar for pouring beer"), **gakkul₂** (ii.2., "mash tub"), **lam-ri** (ii.3., "brewing vat") and **sim gi kas sur** (ii.4., "reed sieve [for making] filtered beer").[44]

---

[40] For the attestation in Gudea's cylinders, cf. Gudea Cyl. A 18:21 and A 19:6 (in both cases as ^{šem}**GEŠTU**).

[41] For an analysis of oils in the *Early Dynastic Practical Vocabularies A* and *B* cf. Sallaberger 2023. EDPV A contains a short list of aromatic ingredients as well: **šem** ("aromatics"), ^{šem}**UD** (?, unattested otherwise), ^{šem}**tal2-tal2** ("fennel"), ^{šem}**GAM.GAM-ma** ("terebinth"?, cf. Brunke and Sallaberger, 2010), **zu-sa ir-nun** (unknown meaning).

[42] For a discussion of ingredients used by Sumerian brewers, including **bappir**, see Damerow, 2012.

[43] Cf. DP 265, a shrine inventory where both those types are attested as vessels in which fats and aromatic oils are stored for offerings.

[44] For a discussion of terms for brewing vessels, see Sallaberger 1996, p. 72.

Let us now return to the *Vessels* list. The basic reading of **ĝeštin**, “wine”, does not fit here particularly well. However, a similar term, **a-ĝeštin-na** for “vinegar” is known, which is seemingly descriptive: vinegar is a combination of water and acetic acid, sour in taste – perhaps like their wine, hence the word.

While vinegar could have been made from fruit, a similar kind of acidic liquid can be made from fermented malt – alegar. Its production would be similar to that of beer — and would require similar ingredients and equipment. Three types of administrative documents and an entry in the lexical list together with oils and aromatic ingredients, when examined together, seem to suggest that brewing this acidic liquid could have been one of the aromatics makers’ tasks.

Another type of activity in which the aromatics makers were most likely involved is arguably more common to other inhabitants of Girsu. As among the work-related accounts, 11 have month dates, it is possible to examine the time of aromatics makers’ activity and to see it in a wider context of the entire year.

The group of documents with month dates appears as follows:

month	month no.	receipts	deliveries
udu-še$_3$ še-a ^{d}Nanše	III	DP 270, DP 514 (2)	
udu-še$_3$ še-a ^{d}Nin-ĝir$_2$-su-ka	IV	DP 511? (1)	DP 264 (1)
gu$_4$-ra$_2$-bi$_2$ mu$_2$-a ^{d}Nanše “egir$_4$ iti udu-še$_3$ še-a ^{d}Nin-ĝir$_2$-su-ka-ta”	V	TSA 06, VS 27 70 (2)	DP 269 (1)
gu$_4$-ra$_2$-bi$_2$ mu$_2$-a	V / VI	VS 14 123 (1)	DP 267, DP 268, VS 14 138 (3)

The last entry, **gu$_4$-ra$_2$-bi$_2$ mu$_2$-a**, is unclear, as it can mean either the fifth or the sixth month written in a shorter way. In both cases, it is clear that all known dates of aromatics accounts are clustered between the third and the sixth (or fifth) month.

This sample and distribution are too small to establish correspondences between documents with any certainty that could allow calculating the time needed by aromatics makers to produce finished goods. It could be estimated to be around a month — as there are no deliveries attested in the third month, and relatively many in the last one — however, this can be coincidental. Only two documents can be tentatively paired as a commission and a delivery, as they mention the same amount and kind of aromatic oil and were both assigned to En-šu — *VS 14 131* and *DP 269* — the former, however, is undated, frustrating any attempts to establish a more certain production time.

According to the cultic and agricultural calendar of Girsu, as discussed by Scott Beld, the months III-VI were summer months, when activity in the fields was at its lowest point (2002, p. 203). It seems that there were no major cultic events in months IV-IV either that would have explained the increased need for aromatic substances (Beld, 2002, pp. 156-157).

This correlation with the agricultural cycle is interesting, as all the aromatics makers were at the same time landholders.[45] The focus of aromatics production in a time when the agricultural workload is lower could point at two things: first, their large involvement in subsistence farming, preventing them from working as aromatics makers at other times of the year, and second — consequently — at the part-time character of aromatics production. It seems, as long as the time distribution of preserved documents is not entirely coincidental, that the production of aromatic oils might have been a summer job.

To summarize, the tasks of early Mesopotamian aromatics makers might have involved other things than preparing scented oils. While this by itself has already been discussed in the literature, two other areas of activity — brewing and farming — are visible in the ED Girsu sources as well. Considering that all the dated aromatics-related documents were written in summer, for the rest of the year they might have been busy with more common, agricultural tasks.

[45] This aspect is discussed in detail in the previous section (2.1.2. “Who were they?”).

2.2. Society

As abundant as the sources for the previous subchapter, so scarce in the **e$_2$-mi$_2$** archive are the documents concerning the social contexts of aromatics use. In total, seven tablets document trade, and nine mention ritual contexts in which scented oils might have been used.

Considering this scarcity, it will be difficult to describe either of those contexts in detail. This subchapter aims to examine what little data is available and rather discuss the questions and limitations to what information can be extracted from it than provide specific answers. Yet, it can be used as a springboard for when more sources become available.

2.2.1. Trade

In this section, several aspects of the aromatics trade will be discussed. After presenting existing descriptions of Girsu imports and exports in literature, I will examine the question of aromatics prices, their relation to those of other commodities, and the uncertainties surrounding the value of aromatic oils.

The most comprehensive description of aromatic ingredients being traded into and out of Early Dynastic Girsu is the contribution of Rosemary Prentice (2010). In her work, she examined all kinds of trade documents, with the few documenting the trade of resins and aromatic oils among them. Another more recent contribution is that of Vitali Bartash, who presents an overview of resins as well (2019). In his case, the focus is on the weights used for measuring.

It has been assumed for a long time that aromatic oils were a luxury commodity. While simple ingredients might have been accessible and used on their own as incense,[46] the value of aromatic oils seems more difficult to estimate.

Starting from the available data, there are five trade accounts concerning ingredients, with three of them documenting prices. In the most detailed one, *DP 513*, ca. 300 liters of the **GAM.GAM-ma** ingredient ("terebinth", cf. Brunke and Sallaberger, 2010) were purchased by the merchant Ur-^{d}Nin-mar^{ki}, alongside ca. 170 liters of the **ge$_{17}$** ingredient, 50kg of the **IM** resin and

[46] See the discussion of incense burners by Pieńkowska (2018) referred to in section 1.1. „Archaeology." Various aromatic conifers, including juniper, are known as local from Girsu documents.

3.5kg of myrtle.[47] Similar quantities are mentioned in *MVN 3 10*, where it is 210 liters of **GAM.GAM-ma** and again ca. 170 liters of **ge$_{17}$**. Two accounts regarding trade with Elam document purchases of ca. 13.5kg of myrtle in one of them and 5kg of $^{\text{šem}}$**kur-gi-rin** in each.[48]

Those quantities are much larger than in any of the preserved commission documents. The largest of them, *Nik 301*, a commission for the making of 13 **dug** vessels of aromatic oil, contains values that in some cases are ten times smaller than those mentioned in *DP 513*. This discrepancy makes it difficult to assess how the ingredients were managed and whether they were used for other purposes than just making aromatic oils.

In terms of prices, a certain difficulty stems from the fact that an exotic, unattested elsewhere unit — the "stones of Der" — was used for weighing the silver paid for some of them. The rate between the "correct" stone and the "stone of Der" can be either 1:1.5 or 1:1.9, depending on how the clause about Ur-$^{\text{d}}$Nin-Mar$^{\text{ki}}$'s debt in *DP 513* is understood.[49]

To make the prices given in the documents meaningful, I will compare them to the price of barley, presented by Cripps as 1 shekel of silver per 2 bariga — an average monthly ration of **lu$_2$ šuku-dab$_5$-ba** ("men holding subsistence plots", including **ka-saman$_4$**) in the times of Eri-KA-gi-na (Cripps, 2014). When considering the prices of ingredients needed to prepare one **dug** vessel of the "standard" aromatic oil, half of the monthly ration would be taken up by the cost of $^{\text{šem}}$**bulug**, from a sixth to an eight would be paid for $^{\text{šem}}$**ge$_{17}$**, another tenth — for terebinth and a much smaller fraction, one thirty-seventh, for the **IM** resin.[50]

Those fractions together cover roughly three-quarters of a monthly ration of **lu$_2$ šuku-dab$_5$-ba**. In terms of the list of ingredients however, they do not exhaust even a tenth. Considering that all the attested ingredients were significantly more expensive than barley (with the cheapest, terebinth, roughly four times as expensive), it is safe to assume that from the household's perspective, it was more of a financial effort to purchase the ingredients than to pay the oil maker — and yet, the amounts purchased were much greater than for just one **dug** of scented oil.

While it is possible to discuss prices of single ingredients from the perspective of the elite households accounts, it is impossible to estimate the value of finished aromatic oils, nor the value of the ingredients on the market inside Girsu.

---

[47] The approximation of 1 sila$_3$ = 0.8l and 1 mina = 0.5kg is used.

[48] Elam documents are RTC 20 and RTC 21.

[49] For the ratio 1:1,5 see Powell, 1971, pp. 202-203; the ratio 1:1,9 was suggested to me by Dr. Jan Gerrit Dercksen in private correspondence.

[50] The prices were compared against the proportions recorded in Nik 301.

All the discussed documents attest to prices paid by the household merchants outside of the city. It cannot be assumed that the same market mechanisms would determine the value of aromatics in the internal urban economy. While in market economies it is supply and demand that regulate the prices of given commodities, in other economic systems other factors must be taken into account. In the case of Early Dynastic Girsu, due to the specificity of the **e$_2$-mi$_2$** archive, it is difficult to establish a wider economic framework.

Taken to the extreme, if elite households completely controlled the flow of commodities, it could have meant that aromatic oils were not available in the internal market.[51] It is easy to imagine the ingredients being imported only for specific purposes, with no further distribution outside of the elite households. In such a case, the prices and their relation to other commodities would have been meaningless, as the goods would not have been there to be bought anyway.

It seems that there was no specific aromatics trade nor a separate kind of merchant dealing with those commodities. While in the *Lu E* lexical list, various terms for traders follow **i$_3$-ra$_2$-ra$_2$** almost immediately, in all the documents aromatic goods are accompanied by other merchandise. Merchants delivering aromatic goods are described as **dam-gar$_3$** ("merchant")[52] or **gal dam-gar$_3$ e$_2$-mi$_2$** ("great merchant of the **e$_2$-mi$_2$**")[53], **ga-eš$_8$(-mah)** ("long-distance trader").[54] As none were specifically responsible for aromatics, the discussion of the distinction between them is beyond the scope of this thesis.

The purely commercial character of their activities should not be assumed either. *VS 14 38*, a tablet documenting trade with Dilmun, alongside goods for exchange ("**niĝ$_2$ šu tak$_4$-a**", among them cedar wood and aromatic oil) lists **maš-da-re-a** gifts (interpreted by Beld as "religious/ ceremonial offerings"; cf. Beld 2002). Another text mentioning the same trader, Ur-^{d}En-ki — *RTC 26* — documents the amounts of copper exchanged for undefined amounts of the same goods mentioned in *VS 14 38*, but nothing in exchange for the gifts.

---

[51] One of the organizations attested in the **e$_2$-mi$_2$** archive — **e$_2$ ganba$_2$** — is translated as the "market." Yet, judging by textual evidence, it seems to be just another storehouse for various goods that might have acquired the function of a market in later periods. RTC 53 and 56 document disbursements of bread from **e$_2$ ganba$_2$**; DP 89, 383, 551 and 553, as well as VS 27 45 are deliveries of various foodstuffs to this place and VS 27 88 is an inventory tablet mentioning pine wood stored there.

[52] Ur-^{d}Nin-mar^{ki} in DP 513; Ur-^{d}En-ki in RTC 26 and VS 14 38.

[53] Ur-e$_2$-muš$_3$ in Nik 300.

[54] Ĝiri$_3$-ne$_2$-ba-dab$_5$ in RTC 20 and 21. A sizable dossier about this specific trader could be assembled (at least 13 documents), with attestations between 17th year of Enmentena and 3rd year of Eri-KA-gi-na's **lugal**-ship. Besides **ga-eš$_2$**, he is also described as **dam-gar$_3$**.

According to Harriet Crawford (2013, pp. 447-461), the **dam-gar$_3$** (as suggested in her text, better translated as "business agents") were not just responsible for the commercial exchange of goods. They might have carried gifts for their business partners — forming one of the layers of diplomatic relations between cities. This aspect of external trade adds another layer of complexity that is difficult to disentangle.

Summarizing, although some information on aromatics trade — both in terms of ingredients and finished goods — is available, the wider context of it is largely missing. The discrepancy between the trade documents and commissions to aromatics makers opens questions about the amounts of materials that were used and possibly other uses of the imported ingredients. No texts exist describing what the **e$_2$-mi$_2$** elites did with such huge quantities of aromatic resins — and while it can be easily imagined that they were consumed as they were, burnt for their smell without composing them into oils, there is no evidence of this.

The accounts documenting prices are difficult to interpret too. On one hand, they provide us with a rough estimate of the value of imports against the average monthly income of aromatics makers, on the other — they cannot tell us anything about the availability of those commodities to non-elite inhabitants of Girsu.

If there is any meaningful conclusion to be drawn, it is that the documents related to trade show us how much of this aspect of early Mesopotamian aromatics is still unknown.

2.2.2. Cult

In the *Lu E* list, **i$_3$-ra$_2$-ra$_2$** follows a short series of entries describing temple officials. Although connections between specific types of priests and aromatics are known from later periods, the **e$_2$-mi$_2$** archive does not document their activities. As a result, the few documents concerning aromatics in the cultic context are vague. Most of them have been discussed by Scott Beld (2002) in his work concerning the ritual economy of ED Girsu.

According to Beld, a number of texts talk about an "anointing ritual", described by accountants as **i$_3$ e-šeš$_4$**.[55] It was part of the New Year celebrations and the only time when people of lower ritual status (including **igi-nu-du$_8$**, "those who do not see," i.e. do not take part in other

[55] RTC 52, VS 25 8 and VS 27 7.

ritual activities) were taking part in the cult. On this occasion, they received bread and beer. Two documents mention offerings to ancestors done in that time as well — including offerings of cedar oil.[56]

He mentions two other occasions on which the anointing ritual was performed — a feast in the **e$_2$-mi$_2$**, which he interprets as similar to the tablets documenting the expenses associated with the funeral of Para$_{10}$-nam-tar-ra,[57] and the building of the temple of Nanše, where food rations were distributed to workers during such a ritual.[58] Beld compares this to building rituals described later in Gudea cylinders — and while he describes some similarities and possible continuities, it must be acknowledged that the cylinders themselves are a literary text and cannot be used as a truthful description of events.

For the sake of completeness, two other documents can be added. First is *DP 265* — a shrine inventory. It is a short document recording various fats, including aromatic oils, stored as monthly offerings. Neither the vessels mentioned, ^{dug}**kur-KU-du$_3$** and ^{dug}**kur**, nor the volumes of commodities are significant. It is one of a group of similar texts; however, none other mentions aromatic oils.

It might be surprising that the archive of the **e$_2$-mi$_2$**, a household so often described as a temple, offers so little information on its cultic personnel.

The few documents discussed by Beld register other expenses and the “anointing ritual” is used just as a piece of context information. While some information about aromatics is mentioned (cedar oil, the **šeš$_4$** verb, “to anoint”, used in the context of aromatic oils as well),[59] it is fragmentary. The fact that aromatic oils are mentioned among offerings points to another ritual use — but again, no further information is provided.

Similarly to trade, the cultic use of aromatics is largely an open question. The evidence points to several possible paths to follow but does not allow doing so. It seems that more (or different) sources are needed if the social contexts of the uses of aromatics in ED Girsu are to be truly discovered and described.

---

[56] RTC 58 and DP 222.

[57] DP 159.

[58] DP 122-123.

[59] VS 14 109, TSA 6.

3. Early Mesopotamian sites other than Girsu

While the archive of the **e$_2$-mi$_2$** offers by far the most varied and the most complete information on early Mesopotamian aromatics makers, several other sites produced records that too are valuable sources on this topic.

In this chapter, I will discuss these sources in a historical context. They might be entirely coincidental and represent only one aspect of the aromatics makers' work — yet they add to the diverse image of the aromatics tradition, with unique and local traits, visible already in the earliest documented period.

Those examples should not be seen as complementary to Girsu. In some cases, they contradict what we know from the Girsu archive and at other times they point to different practices — and there is no reason to see them as parts "missing" from the **e$_2$-mi$_2$** archive. They will be discussed in chronological order due to the increasing range of available sources and the variety between them, not to suggest any evolutionary development unless it is specifically mentioned.

3.1. The Late Uruk period

The Late Uruk period (ca. 3500-2900 BCE) is the earliest layer of textual evidence. Archaeological sources point to several sites with elite households and large architecture. Writing, although known mostly from Uruk, is attested in other sites as well (Umma, Tell Uqair and others). A wide trade network centered on southern Mesopotamia existed at the time as well, spanning from Egypt, through the Levant, to the areas around the Persian Gulf, evidenced by typically Urukean artifacts and architectural remains found in those locations (Selz, 2020).

Other than the *Vessels* lexical list discussed before, there are no sources from the Uruk period that attest to aromatics with certainty. The term **i$_3$-ra$_2$-ra$_2$** does not appear yet, although many professional terms known from later periods have already been used at that time, and a possible earlier spelling of this specific term will be discussed in this section.

Additionally, some proto-cuneiform accounts can be hypothetically connected to aromatics. Although such an interpretation is still not certain due to multiple possible meanings of individual

signs, in a few cases more terms related to aromatic production or ingredients appear together, making such an interpretation more probable.

The first interesting case is *UVB 16, Tf. 27l* (fig. 5), dated to the Uruk IV phase, a simple account which might document a single receipt of aromatic ingredients.

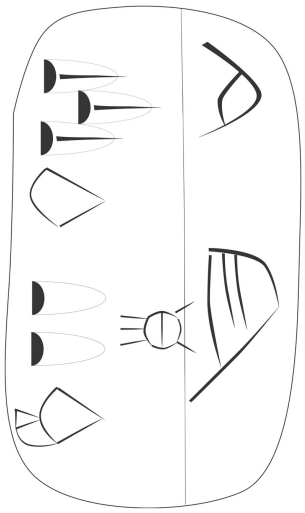

Fig. 5: a drawing of UVB 16, Tf. 27l.[60]

Starting from the end, the colophon describes the content as U_4 NE_a IR_d, maybe to be understood as “incense for morning” or “incense for one day” based on the entry NE_a + IR_a from the Archaic *Vessels* list.

As for the entries on the left side of the tablet, the first item, written 3_{N02} $KAŠ_c$,[61] might record processed aromatic ingredients — the numeric signs used belong to the numbering system used for goods such as groats and malt, and the sign KAŠ from the *Vessels* list (although in the “b” variant of the sign) was in later versions replaced with **šem** — with the change perhaps suggesting an earlier meaning of KAŠ. The other entry, 2_{N01} DUG_c, might be the oily base of the aromatic product.

Another fragmentary administrative tablet from the Uruk III phase — *IM 134329* — might document cultic use of aromatics. It contains several terms seemingly connected to the temple complex as well as entries that might represent aromatic substances.

The remaining fragment reads as follows:

---

[60] https://cdli.mpiwg-berlin.mpg.de/artifacts/3059/.

[61] Following the edition available at CDLI. The tablet is damaged in that place (which is not marked on the drawing) and only a rough shape of the sign can be traced.

1. […] I NUN_a […]
2. 3_{N01} $ALAN_c$ AN $MUŠ_{3a}$
3. 1_{N01} ZATU651? RA
4. 1_{N01} GUG_2 GIŠ |KA_2×LAM|
5. 1_{N01} E_{2a} NA_{2a}
6. 1_{N01} SI [X] IR_a? NE_a SU_a
7. 1_{N01} […]
8. EN_a DUG_a AB_b $ZATU686_a$

The account contains references to cultic objects and spaces — line 2, with the numeral 3 (in the basic sexagesimal system, used for counting individual items) and **alan ^{d}inana(.k=ak^{GEN})**, can be interpreted as "three statues of Inana."[62] Line 5 can be read as (1) **e_2 nu_2(.d=ak^{GEN})**, "bedroom" or "sleeping chamber," a standard part of a goddess' temple.[63]

This interpretation can help in understanding two other terms used — I NUN_a and KA_2×LAM. They are attested in the Archaic and Early Dynastic *Cities* list, and an examination of the changes in this document might be useful to understand them. The *Cities* list begins with entries of city names, hence the title ascribed to it by Assyriologists, and continues with several terms of unknown meaning — among them, I NUN_a and KA_2×LAM. A hint on this matter is introduced in the Early Dynastic version of the list, where in the same part of the list such terms as **gi_4-guna** ("high sacred terrace") appear, suggesting that parts of the temple feature in that list as well, allowing the interpretation of I NUN_a and KA_2×LAM as such.

The most suggestive entries in terms of aromatics are found in line 6. The combination of signs IR_a + NE_a ("incense") is known from the Archaic *Vessels* list. The signs SU and SI, appearing in the same case, can be interpreted in this context as well: in the same list, the entries concerning aromatics are followed by SU_a + NI_b, 4_{N57} SU_a + NI_b and E_{2a} + SU_a + NI_b, perhaps designations of vessels with leather fittings (Sallaberger, 1996, p. 71). In this case, the unread sign from this case might be a part of such a sign combination. The remaining sign, SI ("horn"), can perhaps in this context be compared to **si $dara_3$**, "hartshorn", a cleaning substance made from deer (or mountain goat) antlers, known from later periods.

Brunke and Sallaberger (2010, pp. 45-46) discuss the use of aromatics in purification rites in the context of Ur III Umma. There, the object of ritual were the statues of Šara, a local deity.

---

[62] The three statues most likely reference the "triple Inana" — three forms (morning, "reigning" and evening) in which the goddess received offerings. See Steinkeller, 2021, pp. 253-254.

[63] Private correspondence with Julia Krul.

Through burning incense and washing the statues (there too hartshorn is mentioned as a cleaning agent), the divine powers were rejuvenated. The idea of purification by fire being present already in Archaic Uruk is suggested by archaeological data as well, making such an interpretation reasonable (Szarzyńska, 2011).

A few other tablets contain multiple signs that might contextually suggest a connection to aromatics as well — *ATU 5, pl. 10, W 6604* and *IM 74343* (DUG_b and IR_a), *W 19408, 14* (DUG_c, $KAŠ_c$, NE_a and ZATU651, known from the "purification" tablet discussed above) and *W 19408, 44* (NE_a, DUG_c, ZATU651 and $SILA_{3a}$×$GEŠTU_{c3}$, perhaps related to the DUG_b×GEŠTU entry from the Archaic *Vessels* list discussed in section 2.3 "Activities"). However, in those cases, there are either other entries appearing in the accounts that are not related to aromatics or the tablets are too broken to discuss their meaning with certainty.

Interestingly, the term ZATU651 attested at least three times in a similar context appears on an Uruk IV version of the professions list as well. This might suggest it represented a person dealing with aromatics and, as it was accompanied by the RA sign in line 3 of *IM 134329* — maybe a phonetic component? — that it was an earlier spelling of **i_3-ra_2-ra_2**. However, numerous other attestations of this term exist in unrelated contexts, making this interpretation difficult to prove.

To conclude, the evidence from the Uruk period is scant and highly tentative. The only attestations with any certainty are those in the lexical lists. Yet, if the interpretations of *UVB 16, Tf. 27l* and *IM 134329* presented above are accepted, those would be the earliest mention of aromatic ingredients and the use of aromatics in a ritual context. It is possible too that ZATU651 is an earlier spelling of **i_3-ra_2-ra_2**, though this too is highly speculative.

3.2. The Early Dynastic period

The Early Dynastic period (ca. 2900-2350 BCE) followed an apparent collapse of the Uruk trade network but continued the developments of the Uruk culture. A "second wave of urbanization" is attested, with most Mesopotamians living in cities (Liverani, 2020).

At that time, the cuneiform script was reformed — with many proto-cuneiform signs falling out of use and new ideas introduced, including the writing of (some) grammatical features, which allows to distinguish the language hidden under the signs. Sumerian was joined by Semitic languages — including Eblaite, used in the lands of modern Syria. The political landscape of the Early Dynastic period was one of fragmentation — with culturally close but separate city-states engaging in diplomacy and armed conflict. This is reflected in the administrative accounts of the time, with idiosyncracies in calendars, weights, and specific terms used by accountants (Bartash 2019; 2020).

In comparison to the Uruk period, Early Dynastic sites offer more texts referring to aromatics. While none of them form archives as cohesive and extensive as that of the **e_2-mi_2,** they allow for expanding the scope of research beyond what is known from Girsu.

3.2.1. Southern Mesopotamia

The texts from southern Mesopotamia are scattered. Two originate from Adab and two from Nippur. Fara and Zabalam are represented by one document each, and one additional text of unknown provenance exists.

Among them, the **i_3-ra_2-ra_2** is mentioned only twice. Unfortunately, in both cases, the texts do not contain any usable information — therefore, any material for comparison must be drawn from indirect sources such as inventories.[64]

Three such accounts exist. One is *CUSAS 35 229* from Adab, documenting commodities brought to the city by two sailors. Among them were the common **i_3 eren babbar$_2$** ("cedar oil") and **i_3 šem tur-tur**, an oil known from the accounts of the Ur III period. A variant spelling of **saman$_x$** is used — ŠE.BU.$ŠE_3$.NUN. Furthermore, an unspecified **i_3 ir** ("scented oil," known from the *Early*

[64] TMH 5 75 is a house sale document from Fara and mentions Ur-^{d}Nin-PA, the **i_3-ra_2-ra_2**, among people involved. CUSAS 35 201 from Adab mentions the otherwise unknown aromatics maker E_2-an-ne_2 and is an account of wooden implements brought to the carpenter.

Dynastic Practical Vocabulary) appears in *MC 4 7*, a list of commodities of an unknown origin and character.

Moreover, a list of aromatic ingredients is provided in *TMH NF 1-2 308*, a text from Nippur. On one hand, this document lists the well-known, commonly attested woods and resins — cedar, cypress, terebinth, myrtle and **bulug$_x$** — on the other, five of the ingredients mentioned do not appear anywhere else. Furthermore, two of the entries contain **gana$_2$** — so far identified as typical for Ur III Umma (Brunke and Sallaberger, 2010), where it substituted $^{\text{šem}}$**ge$_{17}$**.

Two of the texts — one from Nippur and one from Zabalam — discuss the uses of aromatic substances.[65] The text from Nippur is a medical tablet, where anointing with various oils (the **naĝa** plant, juniper, myrtle, pine and the unknown $^{\text{šem}}$**marguzum**) is part of a procedure of healing an unknown illness. The other one is a list of objects described as **niĝ$_2$-me ereš-diĝir inana** ("the things belonging to the high priestess of Inana"), with the most common types of aromatic woods and resins among them. As observed by the editors, Palmiro Notizia and Giuseppe Visicato, those objects could have been provisions for a seven-day festival (Notizia and Visicato, 2016, p. 214) — and the wood could have been then burned as incense.

3.2.2. Ebla

The archives of Ebla span over ca. 50 years around the 23rd century BCE — until the destruction of the city by Akkadians. They originate from a palatial archive, where they were used to document the economic activities of the Eblaite state. Many of them can be accessed through the EbDA (*Ebla Digital Archive*), a database maintained under the supervision of Lucio Milano.[66]

In terms of aromatics, one must begin by discussing the most important difference between Ebla and southern Mesopotamia — the availability of olive oil. The location of this city in the Levant provided local elites with olives, grown in groves controlled by the royal family and members of the state administration (Archi, 2015).

The accountants of Ebla seem to have been aware of this difference. It is expressed in the administrative records, where an interesting duality of the Eblaite scribal tradition can be observed. On one hand, local scribes were aware of the Sumerian tradition, as copies of the aforementioned

---

[65] CBS 14211 (Nippur) and CUSAS 33 241 (Zabalam).

[66] http://ebda.cnr.it/.

Early Dynastic Practical Vocabulary were found in their archives.[67] On the other, none of the Sumerian terms related to oils are used in the administrative corpus.

Instead, the accountants of Ebla developed a separate set of terms. They described the olive trees as **ĝeš i$_3$** and the olive oil as **i$_3$ ĝeš**. Furthermore, *ARET 9 80* notes two types of aromatic oils: **i$_3$ ĝeš ^{ĝeš}šem** ("olive oil aromatized with wood") and **i$_3$ ĝeš ^{ĝeš}ad$_2$** ("olive oil aromatized with myrtle"). A more general term, **i$_3$ ĝeš ir** ("aromatic olive oil") is attested in *EST 57*.

Oil products were stored in ***la-ha*** vessels, known later in Akkadian as *lahannu*. Eblaite sources provide a professional term, **lu$_2$ i$_3$ ĝeš** ("oil maker"?), but their function is unclear. Alfonso Archi suggests that this person might have been involved in the production of aromatics but notes that there is no evidence of that. No individual oil makers are known, and the term **i$_3$-ra$_2$-ra$_2$** does not appear in Ebla either. Moreover, a place **e$_2$ i$_3$ ĝeš** ("the oil press"?) is attested, though of undetermined meaning.

Archi notes that anointing ceremonies are known from Ebla as well, however, in this case it is again unknown whether aromatic or "regular," unscented oils were used (Archi, 2015, p. 347), especially considering relatively few mentions of aromatic products in the Eblaite corpus, itself significantly larger than that of the **e$_2$-mi$_2$**.

The existence of an entirely separate system of terms to describe the production of oil — and, consequently, aromatics — might suggest that the Eblaite accountants were aware of the difference between their commodities and those originating from southern Mesopotamia. It is clear that they knew the "mainstream" Sumerian terms and decided not to use them.

It can be argued that in this case, it was the environmental conditions that shaped not only the production of oil (which is not surprising) but also the scribal practice of documenting it. In this sense, the case of Ebla is significantly different than other Early Dynastic sites.

[67] *ARES 4 1*. Discussed in detail in Civil, 2008.

3.3. The Akkadian period

The Akkadian period (ca. 2350-2150 BCE) is defined by the conquest of Mesopotamia and surrounding areas by the dynasty of Sargon, king of Agade, whose state is described as the first empire in history (Schrakamp, 2020).

Sargon's successors ruled over the area until the invasions of the Gutians, and their reign had long-lasting consequences for Mesopotamian culture. The Semitic language of new rulers — often put in place instead of local elites — started appearing in administrative accounts. The empire attempted an administrative reform, for the first time introducing universal measurements and a common dating system based on year names.

In addition to the introduction of Akkadian as a written language, administrative records gradually changed shape. Tablets with multiple columns are replaced by accounts organized in lines, with increasingly regular, rectangular shapes. Those developments allow the rough dating of documents in which the date was not written or not preserved.

One of the cities conquered by the dynasty of Agade was Ebla, where the administrative records were discontinued. Other cities — such as Adab, Girsu and Umma — survived and continued keeping archives. Sources from those cities can be used for the study of aromatics in the Akkadian period, with each providing information about a different aspect of the industry.

3.3.1. Adab

The archaeological context of the Adab archives is largely missing (Visicato and Westenholz, 2010). The texts were most likely written in two elite households — the palace and **e$_2$-dumu** ("household of the child", i.e. the son of the ruler), which can be determined through prosopography and the information provided by the accounts themselves.

The accounts of Adab mention two aromatics makers (**i$_3$-ra$_2$-ra$_2$**) — Ur-^{d}En-lil$_2$-la$_2$ and Ur-^{d}Er$_3$-ra, each more than once.[68] Palaeographic dating allows us to tentatively place the first one in the times of kings Maništušu and Narām-Sin, and the other under Narām-Sin and Šarkališarri. The

[68] Ur-^{d}En-lil$_2$-la$_2$: CUSAS 20 262 (paleographically dated to Middle Sargonic), CUSAS 13 162, CUSAS 19 170, OIP 14 119 (Classical Sargonic); Ur-^{d}Er$_3$-ra: Adab 1021, CUSAS 13 21 and OIP 14 91 (CS).

documents attest to other aromatics makers being active in Adab as well, however, no information about them is available.

Some information about the social status and work organization of the aromatics makers in Adab is available. In *CUSAS 13 21*, Ur-^{d}Er$_3$-ra is listed among relatively high personnel (chief farmer, priests, chief sailor and leader of charioteers). An apparently different idea is represented in *CUSAS 35 282* — an account in which the **i$_3$-ra$_2$-ra$_2$** are nine and, similarly to craftsmen, have their **ugula** ("overseer"). It is the first attestation of a hierarchical structure among the aromatics makers.

In terms of the activities of the aromatics makers of Adab, they are largely similar to those known from ED Girsu. The ingredients used are comparable, with one additional — $^{\text{šem}}$***ha-ra-num$_2$***? — appearing in *CUSAS 35 227*, an Early Sargonic account. Moreover, two documents mentioning Ur-^{d}Er$_3$-ra (*Adab 1021* and *OIP 14 91*) seem to be related to brewing, although less clearly than in the case of the documens discussed in the previous chapter.

An interesting difference can be observed in terms of the dated texts. Although only two monthly dates are available (for *CUSAS 11 234*, a receipt of ingredients; and the aforementioned *Adab 1021*), the first one is dated to the month $^{\text{iti}}$**gur$_x$-a**, i.e. January (Sallaberger, 2021), an important time in the agricultural cycle. This, together with a work organization different from that in the **e$_2$-mi$_2$**, must raise a question about the aromatics makers' status and activity. It is possible that in the palace of Adab, the **i$_3$-ra$_2$-ra$_2$** did not work part-time, like in ED Girsu, but as regular, full-time craftsmen.

3.3.2. Girsu

The records concerning the aromatics makers from Girsu in the Akkadian period are scarce, especially in comparison to the **e$_2$-mi$_2$** archive. I am aware of only five informative tablets, with two of them mentioning one Lu$_2$-banda$_3^{da}$.[69]

Lu$_2$-banda$_3^{da}$ appears in one bread and flour ration list, *RTC 126.* Other professionals mentioned are the chief scribe, whom Lu$_2$-banda$_3^{da}$ follows, and several groups of craftsmen. A different document, *STTI 1 45*, mentions Gu$_2$-sar, "the man of Lu$_2$-banda$_3^{da}$, the aromatics maker" — again, suggesting some kind of hierarchy or at least cooperation between them. Another account

[69] Lu$_2$-banda$_3^{da}$ appears in RTC 126 and STTI 1 45; the other documents are RTC 98, STTI 1 30 and ITT 2 4587.

documents the work organization — the personnel list *RTC 98*, recording at least two aromatics makers, although unknown by name.

Two other documents from Girsu offer little information. One, *STTI 1 30*, is a list of various items summarized as **niĝ$_2$-iti** (perhaps a monthly tribute?). Among them, three types of oils are present — **i$_3$** ***ši-iq-dum*** (“almond oil”), **i$_3$** $^{\text{šem}}$**bulug$_x$** and cedar oil. The other document, *ITT 2 4587*, is an incidental trade account. The merchant Du-du, described as **ga-eš$_8$** (“long-distance trader”), delivers a number of aromatic ingredients. The prices, the organization receiving the goods, or the origin of the commodities, however, are not recorded.

3.3.3. Umma

The collection of documents from Umma is the largest among the Akkadian period sources, though it too comes from largely unknown archaeological contexts. In the total of 19 tablets, however, there is enough information to discuss the social contexts of aromatics makers’ work, their activities and the uses of aromatics.

One aromatics maker, Nimgir-eš$_3$-tum$_2$, is known by name and appears in two records.[70] Moreover, his son, Lugal-nesaĝ — although himself no longer an **i$_3$-ra$_2$-ra$_2$**, is known. Lugal-nesaĝ is not described otherwise than just by his name, and appears in five accounts, all of them being receipts of various aromatic oils — suggesting that he was somehow connected to the administration of the household. This could, although indirectly, suggest a comparably high status, of both him and his father.[71]

A different person whose activity is connected to aromatic oils is Ba-al-li$_2$, never described with any job designation, but perhaps also playing a role in the administrative structure. The texts mentioning Ba-al-li$_2$ are an inventory of aromatics and two dispatches of scented oils to high officials, suggesting a centralized control of those commodities.[72]

In terms of aromatic products and ingredients appearing in Umma, some unique aspects must be mentioned.

---

[70] CUSAS 26 203 (as Nimgir-eš$_3$) and BIN 8 318.

[71] AOAT 250 558 2; BIN 8 317, 321, 334 and 339.

[72] BIN 8 295, 318 and 335.

Among the types of oils, cedar,[73] ***mu-ra-num$_2$***, almond and **ĝiri$_3$** ("oil [for anointing] feet", known from ED Girsu) are attested. Two seem to have been specific to Umma before they spread out in later periods: the ***mu-ra-num$_2$*** oil and almond oil — the latter known otherwise only from the aforementioned trade record from Girsu. The Akkadian terms used by the accountants to describe them make it impossible to decide whether those ingredients were introduced in Umma or appeared earlier as some of the Sumerian words of unknown meaning. A known correspondence is that of ***ʒa-ba-lum*** ("juniper") regularly replacing earlier terms.

The interference of Sumerian and Akkadian is expressed in the measurements as well — with both "Sumerian" and "Akkadian" **sila$_3$** used as a volume in a number of records (Foster, 1982). There seems, however, to be no discernible rule that would allow us to explain which measurement standard was used in which case.

The archive of Umma scores two "firsts" as well: *CUSAS 26 203* is the first attestation of **i$_3$-ra$_2$-ra$_2$** receiving sesame — the oil of which in later periods replaced animal fats as bases for Mesopotamian aromatics. According to Hartmut Waetzoldt (1985), the availability of sesame was — similar to the standardization of measurements and the introduction of Akkadian terms — a consequence of Sargon's imperial expansion. The second "first" is the first attestation of **i$_3$ du$_{10}$** used as a term for aromatic oils — the goods distributed by Ba-al-li$_2$ to high officials are described as **i$_3$ du$_{10}$-ga ir-nun ur$_3$-še$_3$** — "the fine oils of noble scent for rubbing."[74]

As for the uses of aromatics, the texts from Umma point mainly to ritual activities. Three texts mention scented oils in the contexts of two festivals — the ne-saĝ ("first fruits," a spring harvest festival) and the festival of Nin-ildu$_3$.[75] They mention the temples of Umma as places where anointments would be performed.

Interestingly, one of the accounts mentions cedar oil disbursed to two charioteers and one other person — perhaps for the ceremonial chariot, to be used where otherwise pig fat would have been applied.

---

[73] For five jars of which one of the documents — CUSAS 35 514 — seems to be a recipe, however, the exact meaning of the colophon is difficult to interpret. In such a case, the "cedar" oil would be a combination of many other ingredients as well.

[74] BIN 8 335.

[75] The ne-saĝ festival: BIN 8 320 and 339; the Nin-ildu$_3$ festival: BIN 8 296.

In addition to the sources discussed above, one tablet from Ešnunna is worth mentioning — *MAD 1 286*, a list of ingredients containing some unusual spellings (such as **a-a$_2$-zum**, perhaps for more common **al-gazum$_x$**), and adding to the variety already described.

3.4. Diversity

The documents from early Mesopotamian sites other than Girsu show a correlation between the cultural environment and the aromatics industry. The influence of external factors is visible in a variety of contexts, resulting in an image of the aromatics tradition as diverse as the surroundings that shaped it.

First, the case of Ebla and its separate accounting and oil traditions point to the influence of the natural environment. The scribes were aware of the uniqueness of Ebla's economy in comparison to "mainstream" Mesopotamia and adapted the existing accounting methods to their particular needs.

A second factor is the evolution of the scribal tradition itself — through the expansion of cuneiform more sources become available, not necessarily lining up with the developments of the aromatic industries. Changes in writing styles allow for grouping texts and assigning them to specific sites, as well as their relative dating, and idiosynchrasies in spellings and terms used inform us about local administrative practices.

Third, political developments visibly shape the aromatics industries. The records from the Akkadian period bear signs of Sargon's and his successors' rule — through the introduction of terms in the Akkadian language, standardized measurements, and a new important ingredient — sesame. None of them are dramatic, but all influence the work of aromatics makers and the administrators.

At the same time, all the aforementioned documents share a number of similarities, testifying to a wider, common tradition. Outside of Girsu, regardless of their social status and work organization, people working with aromatics were described as **i$_3$-ra$_2$-ra$_2$**. The popularity of cedar oil, as well as the most commonly used aromatic ingredients remained consistent. The texts from Adab from the Akkadian period connect the aromatics makers to brewing again, even though in a more vague way. The use of scented oils for anointments — hygienic or ritual — too is similar in all of early Mesopotamia.

Conclusions

So far, scholarship on Mesopotamian aromatics has focused on later periods, with the reason cited that they are better documented. In this work, I have attempted to show that even early Mesopotamian sources allow — to a varying degree — a detailed study of the people who worked with aromatic ingredients and the social contexts in which aromatics appeared.

Although the archaeological sources are ambiguous, textual evidence from early Mesopotamia is diverse and relatively abundant. After examining the largest and most detailed collection of sources, the archive of the **e$_2$-mi$_2$** from Early Dynastic Girsu, other sites can be looked at in search of similarities and unique traits, together forming a mosaic of documents shaped by two traditions — that of aromatics and that of accounting.

Jon Taylor compared the documentary evidence from early Mesopotamia to "scattered specks of light against an overwhelming sea of darkness" (Taylor, 2013, p. 290).

Following his parallel, the earliest speck, although still quite dim, are the sources from the Uruk period. They are the earliest attestations of terms for aromatic substances in lexical lists. No individual aromatics makers can be discerned yet, and if we accept the presented interpretations of the texts discussed in section 3.1 as accounts of ingredients and of a purification rite, they are the earliest administrative texts pointing to the use of aromatics.

More numerous and brighter are the specks from the Early Dynastic period. Fara produced a unique term for an aromatics maker, Adab a different spelling for the commonly used vessel, and in Nippur an entirely unique set of ingredient terms is attested — together with early evidence for the use of aromatics in medicine. Adding to the diverse picture, due to its geographic location, Ebla developed an entirely separate tradition of oleiculture, influencing locally available aromatics. Eblaite accountants, clearly recognizing their difference from the tradition of southern Mesopotamia, developed their own terms to describe local products.

The archive of the **e$_2$-mi$_2$** allows for studying the aromatics industry in incomparable detail. The lives of six individual oil makers can be examined: six men, some of them belonging to the household elite and with a role in ceremonial duties, others — apparently — craftsmen, though still of high status. In addition to making aromatic oils, they could have been involved in brewing alegar, a malt-based acidic condiment. They worked on aromatic oils in summer, when their agricultural duties were on hold, and the goods they produced were stored in the **e$_2$-mi$_2$** storehouses until they

were needed — as traded commodities, cultic offerings, or for anointments during important events.

The specks from the Akkadian period might not be more luminous than earlier ones, but they slightly change. In those documents, we can for the first time see hints about the work organization, with multiple aromatics makers appearing in one household at the same time, perhaps working in a different system than in Girsu. The accounting practices evolve, with the appearance of Akkadian terms for ingredients and products, as well as new measurements introduced by the imperial administration. Eventually, an entirely new ingredient joins — sesame — successfully replacing the animal fats used until that point.

The emerging picture is that of a lively, diverse tradition, seen through the perspective of equally changing habits of accountants.

As the groundwork for the study of later periods — as described by Middeke-Conlin — is laid out, it might be worthwhile to examine them again to investigate the individuals who shaped the aromatics traditions of Mesopotamia. The same questions as those posed in this work can be asked: what do we know about them as people? What did they do other than make aromatic oils? What was unique about them and what was dictated by the frames of a wider tradition?

Whether the picture of later sources would turn out to be equally — or more — diverse as in early Mesopotamia, or a subject to institutional *uravnilovka*, research of aromatics in the spirit of Crawford's observation quoted as the opening words of this work can continue. Interestingly, it is through the blurring of the "old certainties" that the image becomes sharper.

Reference list

Archi, A. (2015). *Ebla and Its Archives: Texts, History, and Society.* De Gruyter.

Attinger, P. (2021). *Glossaire sumérien–français: principalement des textes littéraires paléobabylonienens.* Harrasowitz Verlag.

Bartash, V. (2014). E_2-mi_2 — Women's Quarters: the Earliest Written Evidence. In Buccellati, F., Helms, T., Tamm, A. (Eds.) *House and Household Economies in 3rd Millennium B.C.E. Syro-Mesopotamia.* Archaeopress.

Bartash, V. (2018). Age, Gender and Labor: Recording Human Resources in 3350-2500 BC Mesopotamia. In Garcia-Ventura, A. (Ed.) *What's in a Name? Terminology Related to the Work Force and Job Categories in the Ancient Near East.* (pp. 45-80). Ugarit-Verlag.

Bartash, V. (2019). *Establishing Value: Weight Measures in Early Mesopotamia.* De Gruyter.

Bartash, V. (2020). The Early Dynastic Near East. In Radner, K. (Ed.) *The Oxford History of the Ancient Near East*. *Volume I: From the Beginnings to Old Kingdom Egypt and the Dynasty of Akkad.* Oxford University Press.

Bauer, J. (1972). *Altsumerische Wirtschaftstexte aus Lagasch.* Pontifical Biblical Institute.

Beld, S. G. (2002). *The Queen of Lagash. Ritual Economy in a Sumerian State.* [Doctoral dissertation, University of Michigan].

Belgiorno, M. R. (2020). Ancient Distillation and Experimental Archaeology about the Prehistoric Apparatuses of Tepe Gawra. *EXARC Journal*, 2020 (2).

Biggs, R. D. (1974). *Inscriptions from Tell Abu Salabikh*. University of Chicago Press.

Brunke, H., Sallaberger, W. (2010). Aromata für Duftöl. In Kleinerman A., Sasson J. M. (Eds.) *Why Should Someone Who Knows Something Conceal It?* (pp. 41-74). CDL Press.

Civil, M. (2008). *The Early Dynastic Practical Vocabulary A (Archaic HAR-ra A)*. Missione Archaeologica Italiana in Syria.

Civil, M. (2013). Remarks on AD-GI_4 (A.K.A. "Archaic Word List C" or "Tribute"). *Journal of Cuneiform Studies*, 2013 (65). (pp. 13-68).

Crawford, H. (1973). Mesopotamia's Invisible Exports in the Third Millennium B.C., *World Archaeology*, 1973 (5).

Crawford, H. (Ed.) (2013). *The Sumerian World*. Routledge.

Crawford, H. (2014). An Exploration of the World of Women in Third-Millennium Mesopotamia. In Chavalas, M. W. (Ed.) *Women in the Ancient Near East: A Sourcebook.* Routledge.

Cripps, E. D. (2014). Money and Prices in the Ur III Economy of Umma. *Wiener Zeitschrift für die Kunde des Morgenlandes,* 2014 (104). (pp. 205-232).

Damerow, P. (2012). Sumerian Beer: The Origins of Brewing Technology in Ancient Mesopotamia. *Cuneiform Digital Library Journal*, 2012 (2).

Englund, R. K. (1998). Texts from the Late Uruk Period. In Bauer J., Englund R. K., Krebernik M. (Eds.) *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit.* (pp. 15-233). Universitätsverlag.

Englund, R. K. (2004). Proto-Cuneiform Account-Books and Journals. In Hudson, M. and Wunsch C. (Eds.) *Creating Economic Order: Record-keeping, Standardization and the Development of Accounting in the Ancient Near East.* (pp. 23-46).

Foster, B. R. (1982). *Umma in the Sargonic Period*. Archon Books.

Foxvog, D. A. (2011). Aspects of Name-Giving in Presargonic Lagash. In Heimpel W., Trantz Szabó G. (Eds.) *Strings and Threads: A Celebration of the Work of Anne Draffkorn Kilmer.* (pp. 59-97). Pennsylvania State University Press.

Levey, M. (1960). The Earliest Stages in the Evolution of the Still. *Isis,* 1960 (51:1). (pp. 31-34).

Limet, H. (1978). Pharmacopée et Parfumerie Sumériennes. *Revue d'Histoire de la Pharmacie,* 1978 (25).

Liverani, M. (2020). A History of the Ancient Near East. In Snell D. C. (Ed.) *A Companion to the Ancient Near East*. (pp. 11-26). Wiley.

Maekawa, K. (1974). The Development of É-MÍ in Lagash during Early Dynastic III. *Mesopotamia 8-9.*

Middeke-Conlin, R. (2014). The Scents of Larsa: A Study of the Aromatics Industry in an Old Babylonian Kingdom. *Cuneiform Digital Library Journal,* 2014 (1). https://cdli.mpiwg-berlin.mpg.de/articles/cdlj/2014-1

Notizia, P., Visicato, G. (2016). *Early Dynastic and Early Sargonic Administrative Texts Mainly from the Umma Region in the Cornell University Cuneiform Collections*. CDL Press.

Pieńkowska, A. (2018). Mesopotamian Incense Burners from the Third and Second Millennia BC: An Archaeological Approach. In Horejs B., Schwall C., Müller V., Luciani M., Ritter M., Giudetti M., Salisbury R. B., Höflmayer F., Bürge T. (Eds.) *Proceedings of the 10th International Congress on the Archaeology of the Ancient Near East.* Harrasowitz Verlag.

Powell, M. A. (1971). *Sumerian numeration and metrology.* [Doctoral disseration, University of Minnesota].

Prentice, R. (2010). *The Exchange of Goods and Services in Presargonic Lagash.* Ugarit-Verlag.

Renn, J. (2019). Learning from Kushim About the Origins of Writing and Farming. In Renn J., Schemmel M. (Eds.) *Culture and Cognition. Essays in Honor of Peter Damerow*. Edition Open Access.

Sallaberger, W. (1996). *Der Babylonische Töpfer und Seine Gefäße.* University of Ghent.

Sallaberger, W. (2021). The Emergence of Calendars in the Third Millennium BCE: Deities, Festivals, Seasons, and the Cultural Construction of Time. In Shibata, D., Yamada Sh. (Eds.) *Calendars and Festivals in Mesopotamia in the Third and Second Millennia BC.* Harrasowitz Verlag.

Sallaberger, W. (2023). *Vegetable Oils and Animal Fats in Early Urban Societies of Syro-Mesopotamia: Digital Data Collection.* https://www.i3-mesop-oil.gwi.uni-muenchen.de/

Schmandt-Besserat, D. (1992). *Before Writing.* University of Texas Press.

Schmandt-Besserat, D. (1996). *How Writing Came About. University of Texas Press.*

Schrakamp, I. (2020). The Kingdom of Akkad: A View from Within. In Radner, K. (Ed.) *The Oxford History of the Ancient Near East*. *Volume I: From the Beginnings to Old Kingdom Egypt and the Dynasty of Akkad. Oxford University Press.*

Selz, G. J. (2020). The Uruk Phenomenon. In Radner, K. (Ed.) *The Oxford History of the Ancient Near East*. *Volume I: From the Beginnings to Old Kingdom Egypt and the Dynasty of Akkad. Oxford University Press.*

Simpson, St. J. (1997). Early Urban Ceramic Industries in Mesopotamia. In Freestone I., Galmster D. (Eds.) *Pottery in the Making: World Ceramic Traditions.* British Museum Press.

Steinkeller, P. (1989). *Sale Documents of the Ur-III period.* Steiner Verlag Wiesbaden.

Steinkeller, P. (2004). The Function of Written Documenation in the Administrative Praxis of Early Babylonia. In Hudson, M. and Wunsch C. (Eds.) *Creating Economic Order: Record-keeping, Standardization and the Development of Accounting in the Ancient Near East.* (pp. 65-88). CDL Press.

Steinkeller, P. (2021). Archaic City Seals and the Question of Early Babylonian Unity. In Abusch, T. (Ed.) *Riches Hidden in Secret Places*. *Ancient Near Eastern Studies in Memory of Thorkild Jacobsen.* (pp. 249-258). Eisenbrauns.

Steinkeller, P. (2022). Urukagina's Rise to Power. In Cohen, Y., Gilan, A., Wasserman, N., Cerqueglini, L., Sheyhatovitch, B. (Eds.) *The IOS Annual Volume 23: "Drought Will Drive You Even Toward Your Foe."* (pp. 3-36). Brill.

Szarzyńska, K. (2011). Observations on the Temple precinct $E\check{S}_3$ in Archaic Uruk. *Journal of Cuneiform Studies*. 2011 (63).

Taylor, J. (2003). Collations to Lu C and D. *Cuneiform Digital Library Bulletin*, 2013 (3).

Taylor, J. (2013). Administrators and Scholars: the First Scribes. In Crawford, H. (Ed.) *The Sumerian World.* (pp. 290-304). Routledge.

Ur, J. (2014). Households and the Emergence of Cities. *Cambridge Archaeological Journal,* 2014 (2).

Visicato, G., Westenholz, A. (2010). *Early Dynastic and Early Sargonic Tablets from Adab.* CDL Press.

Waetzoldt, H. (1985). Ölpflanzen und Pflanzenöle im 3. Jahrtausend. *Bulletin on Sumerian Agriculture,* 1985 (2). (pp. 77-96).

Woods, C. (2020). The Emergence of Cuneiform Writing. In Hasselbach, R. (Ed.) *A Companion to Ancient Near Eastern Languages.* (pp. 27-46). Wiley.

Wooley, C. L. (1934). *The Royal Cemetery*. British Museum Press.

Appendix

This list contains all the documents (189) referenced in this thesis. The entries are organized first chronologically, then geographically and alphabetically.

For the ease of use, the administrative documents are written in a way that is searchable in CDLI. The lexical lists can be found in the DCCLT database (http://oracc.museum.upenn.edu/dcclt/corpus). Where relevant, information about the contents of the tablet and people recorded is given. Lexical list composites are not divided into witness tablets.

Uruk period

IV = Uruk IV (ca. 3350-3200 BCE), III = Uruk III / Jemdet Nasr (ca. 3200-3000 BCE).

ATU 5, pl. 010 W 6604	Uruk	III		
IM 074343	Uruk	IV		
M 134329	Uruk	III	purification rite?	
UVB 16 Tf. 27l	Uruk	IV	aromatics?	
W 19408,14	Uruk	IV		
W 1940844	Uruk	IV		
Archaic Cities			lexical list	
Archaic Vessels			lexical list	

Early Dynastic

Other than the texts from Fara (dated to the Early Dynastic IIIa period, ca. 2600-2500 BCE), all documents are dated to the Early Dynastic IIIb period (ca. 2500-2350 BCE).

Ena = En-an-na-tum$_2$ I, Enm = En-mete-na, Ene = En-en$_3$-tar-zi, Lug = Lugal-AN-da, Ukg = Eri-KA-gi-na

CUSAS 35, 201	Adab			E$_2$-an-ne$_2$
CUSAS 35, 229	Adab		goods brought to Adab by two sailors	
ARET 9 80	Ebla			
EST 57	Ebla			

Early Dynastic Lu D	Fara	ED IIIa		
TMH 05, 075	Fara	ED IIIa	house sale	Ur-^{d}Nin-PA
AoF 38, 3-14	Girsu	5 Ukg	grain	Gi-nim
BIN 08, 352	Girsu	17 Enm?	field sale	A-diĝir-ĝu$_{10}$
BIN 08, 353	Girsu	5 Lug	grain	En-šu
BIN 08, 354	Girsu	6 Ukg		En-šu
BIN 08, 359	Girsu	2 Ukg		A-diĝir-ĝu$_{10}$
BIN 08, 368	Girsu	1 Lug	wool	Lum-ma-diĝir-ĝu$_{10}$
CTNMC 1	Girsu	6 Ukg		En-šu
DCS 008	Girsu	1 Lug	grain	En-šu?
DP 59	Girsu	3 Lug	ancestor offerings	A-diĝir-ĝu$_{10}$
DP 92	Girsu	4 Ene		En-šu?
DP 114	Girsu	5 Ukg		En-šu
DP 115	Girsu	6 Ukg		En-šu
DP 116	Girsu	4 Ukg		A-diĝir-ĝu$_{10}$
DP 117	Girsu	4 Ukg		A-diĝir-ĝu$_{10}$
DP 118	Girsu	4 Ukg		A-diĝir-ĝu$_{10}$
DP 119	Girsu	2 Ukg		A-diĝir-ĝu$_{10}$
DP 121	Girsu	6 Ukg	grain	En-šu, Gi-nim
DP 130	Girsu	3 Ukg		Gi-nim
DP 132	Girsu	5 Lug	“pure milk and malt” list	En-šu, Gi-nim
DP 133	Girsu	1 Ukg	“pure milk and malt” list	Gi-nim
DP 146	Girsu	6 Ukg		En-šu
DP 149	Girsu	6 Ukg		En-šu
DP 150	Girsu	6 Ukg	grain	En-šu, Gi-nim
DP 151	Girsu	6 Ukg		En-šu
DP 163	Girsu	e Ukg	bappir	Il$_2$
DP 171	Girsu	2 Ukg	wool	Gi-nim
DP 181	Girsu	5 Lug	wool	Il$_2$
DP 184	Girsu	1 Lug		
DP 192	Girsu	2 Lug	textiles	En-šu
DP 193	Girsu	6 Lug	textiles	En-šu

DP 226	Girsu	4 Lug	“pure milk and malt” list	En-šu
DP 228	Girsu	e Ukg	grain	Gi-nim
DP 263	Girsu	2 Lug	aromatics	En-šu
DP 267	Girsu	4 Lug	aromatics	Il_2
DP 268	Girsu	5 Lug	aromatics	En-šu
DP 269	Girsu	6 Lug	aromatics	En-šu
DP 270	Girsu	3 Lug	aromatics	En-šu
DP 271	Girsu	3 Lug	aromatics	Il_2
DP 416	Girsu	1 Ukg		En-šu
DP 514	Girsu	4 Lug	aromatics	En-šu
DP 550	Girsu	6 Ukg		En-šu
DP 563	Girsu	4 Ukg		Il_2
DP 581	Girsu	2 Ukg	land	Gi-nim
DP 584	Girsu	6 Ukg	land	Gi-nim
DP 607	Girsu	2 Ukg	land	Gi-nim
DP 623	Girsu	3 Lug	construction	En-šu
DP 624	Girsu	3 Lug	construction	En-šu
DP 625	Girsu	3 Lug	construction	En-šu
DP 626	Girsu	5 Lug	construction?	En-šu
DP 627	Girsu	5 Lug	construction?	En-šu
DP 628	Girsu	e Ukg	construction	Gi-nim
DP 630	Girsu	2 Ukg	construction	Gi-nim
DP 643	Girsu	3 Ukg	construction	Gi-nim
DP 657	Girsu	1 Lug	construction?	En-šu?
Erm 14343	Girsu	3 Ukg		A-diĝir-ĝu$_{10}$
Erm 14347	Girsu	6 Ukg		En-šu
Erm 14349	Girsu	5 Ukg	grain	Gi-nim
FAOS 15/2, 067	Girsu	6 Ukg		En-šu
FAOS 15/2, 124	Girsu	3 Ukg		A-diĝir-ĝu$_{10}$
HSS 03, 005	Girsu	e Ukg	grain, “festival of Bau”	Gi-nim
HSS 03, 006	Girsu	e Ukg	grain	Gi-nim
HSS 03, 007	Girsu	2 Ukg	grain	Gi-nim

HSS 03, 008	Girsu	3 Ukg	grain	Gi-nim
HSS 03, 009	Girsu	3 Ukg	grain	Gi-nim
HSS 03, 010	Girsu	3 Ukg	grain	Gi-nim
HSS 03, 011	Girsu	3 Ukg	grain	Gi-nim
HSS 03, 012	Girsu	6 Ukg	grain	En-šu, Gi-nim
HSS 03, 013	Girsu	6 Ukg	grain	En-šu, Gi-nim
HSS 03, 018	Girsu	6 Ukg		En-šu
HSS 03, 023	Girsu	6 Ukg		En-šu
HSS 03, 024	Girsu	6 Ukg		En-šu
HSS 03, 025	Girsu	2 Ukg		A-diĝir-ĝu$_{10}$
HSS 03, 026	Girsu	3 Ukg		A-diĝir-ĝu$_{10}$
HSS 03, 027	Girsu	3 Ukg		A-diĝir-ĝu$_{10}$
HSS 03, 030	Girsu	7 Lug?	grain	Gi-nim
HSS 03, 032	Girsu	1 Ukg	grain	Gi-nim
HSS 03, 034	Girsu	4 Ukg	grain	Gi-nim
HSS 03, 040	Girsu	1 Ukg	land	A-diĝir-ĝu$_{10}$
MVN 03, 002	Girsu	e Ukg	grain	Lugal-i$_3$-nun
MVN 03, 004	Girsu	6 Ukg		En-šu
MVN 03, 007	Girsu	6 Ukg	grain	En-šu, Gi-nim
MVN 03, 011	Girsu	6 Ukg	construction	Gi-nim
Nik 1, 016	Girsu	4 Ukg		A-diĝir-ĝu$_{10}$
Nik 1, 022	Girsu	2 Ukg		A-diĝir-ĝu$_{10}$
Nik 1, 045	Girsu	6 Lug	grain	En-šu
Nik 1, 053	Girsu	1 Lug	grain	A-diĝir-ĝu$_{10}$
Nik 1, 091	Girsu	2 Lug	malt	Il$_2$
Nik 1, 264	Girsu	e Ukg	vessels	Gi-nim
Nik 1, 301	Girsu	2 Lug	aromatics	En-šu
RTC 054	Girsu	6 Lug	grain	En-šu
RTC 061	Girsu	1 Lug	grain, “festival of Bau”	A-diĝir-ĝu$_{10}$, Lum-ma-diĝir-ĝu$_{10}$
RTC 067	Girsu	6 Lug	grain	En-šu
TSA 02	Girsu	1 Ukg	grain	Gi-nim

TSA 05	Girsu	2 Ukg	“pure milk and malt” list	Gi-nim
TSA 06	Girsu	6 Lug	aromatics	Sahar-ra-ne$_2$
TSA 24	Girsu	6 Lug	construction	En-šu
VS 14, 009	Girsu	e Ukg	grain	Gi-nim
VS 14, 072	Girsu	4 Lug	land	A-diĝir-ĝu$_{10}$, Il$_2$
VS 14, 079	Girsu	3 Lug	wool	Il$_2$
VS 14, 109	Girsu	2 Lug	aromatics	Il$_2$
VS 14, 123	Girsu	6 Lug	aromatics	En-šu
VS 14, 131	Girsu	6 Lug	aromatics	En-šu
VS 14, 138	Girsu	3 Lug	aromatics	Il$_2$
VS 14, 173	Girsu	4 Lug	“pure milk and malt” list	En-šu, Gi-nim
VS 14, 181	Girsu	4 Lug	textiles	En-šu
VS 14, 182	Girsu	2 Ukg		En-šu
VS 14, 183	Girsu	4 Ukg	wool	Il$_2$
VS 25, 011	Girsu	6 Lug	grain	Gi-nim, Lugal-i$_3$-nun
VS 25, 034	Girsu	4 Lug	wool	Il$_2$
VS 25, 041	Girsu	6 Lug	grain	En-šu
VS 25, 066	Girsu	1 Ukg	grain	Gi-nim
VS 25, 069	Girsu	6 Ukg		En-šu
VS 25, 070	Girsu	1 Ukg	land	Gi-nim, A-diĝir-ĝu$_{10}$
VS 25, 071	Girsu	6 Lug	grain	Gi-nim, Lugal-i$_3$-nun
VS 25, 085	Girsu	4 Lug	construction	Gi-nim
VS 25, 093	Girsu	2 Ukg	land	Il$_2$
VS 27, 001	Girsu	6 Ukg	grain	En-šu, Gi-nim
VS 27, 004	Girsu	2 Ukg	grain	Gi-nim
VS 27, 006	Girsu	2 Ukg	grain	Gi-nim
VS 27, 012	Girsu	1 Lug	animals	En-šu
VS 27, 025	Girsu	6 Ukg	plough	Gi-nim
VS 27, 040	Girsu	6 Ukg		En-šu
VS 27, 059	Girsu	e Ukg	aromatics	Il$_2$

VS 27, 069	Girsu	5 Lug	wool	En-šu
VS 27, 070	Girsu	2 Lug	aromatics	Il_2
VS 27, 081	Girsu	3 Lug	“malt eating festival of Nanše”	A-diĝir-ĝu$_{10}$
VS 27, 086	Girsu	1 Ukg	aromatics	Lum-ma-diĝir-ĝu$_{10}$
VS 27, 087	Girsu		vessels	Gi-nim
BiMes 03, 10	Lagash	4 Ena?		Lum-ma-diĝir-ĝu$_{10}$?
CBS 14221	Nippur		medical	
TMH NF 1-2, 308	Nippur		aromatics, lexical list?	
CUSAS 33, 241	Zabalam		cult?	
Early Dynastic Lu E				
Early Dynastic Practical Vocabulary A				
Early Dynastic Practical Vocabulary B				
Early Dynastic Vessels				
MC 4, 07			gift?	

Akkadian period (38 documents)

ES = Early Sargonic, MS = Middle Sargonic, CS = Classical Sargonic.

Adab 1021	Adab		bappir	Ur-$^{d}Er_3$-ra
CUSAS 11, 234	Adab	ES	aromatics	
CUSAS 13, 021	Adab	CS	personnel	Ur-$^{d}Er_3$-ra
CUSAS 19, 170	Adab	CS	aromatics	Ur-^{d}En-lil$_2$-la$_2$
CUSAS 20, 262	Adab	MS	aromatics	Ur-^{d}En-lil$_2$-la$_2$
CUSAS 20, 267	Adab		aromatics	
CUSAS 35, 227	Adab	CS	aromatics	
CUSAS 35, 282	Adab	MS	bread	
OIP 14, 091	Adab		beer	Ur-$^{d}Er_3$-ra
OIP 14, 119	Adab			Ur-^{d}En-lil$_2$-la$_2$
CUSAS 13, 162	Adab/Girsu?			Ur-^{d}En-lil$_2$-la$_2$

MAD 1, 286	Ešnunna	ES?	aromatics	
ITT 2, 04587	Girsu		trade	
RTC 098	Girsu		personnel	
RTC 126	Girsu		bread	Lu_2-$banda_3^{da}$
STTI 1, 030	Girsu			
STTI 1, 045	Girsu		aromatics	Gu_2-sar, Lu_2-$banda_3^{da}$
AOAT 250, 558 2	Umma		oils	Lugal-nesaĝ
BIN 08, 294	Umma	ES?	aromatics	Lu_2-^{d}Utu
BIN 08, 295	Umma		oil	Ba-al-li_2
BIN 08, 296	Umma		“festival of ^{d}Nin-$ildu_3$”	
BIN 08, 300	Umma	MS?	aromatics	Lugal-niĝ$_2$
BIN 08, 313	Umma		oil	Lugal-niĝ$_2$
BIN 08, 317	Umma		oil	Lugal-nesaĝ
BIN 08, 318	Umma		inventory of oils	Ba-al-li_2
BIN 08, 319	Umma	MS?	aromatics	Nimgir-$eš_3$-tum_2
BIN 08, 320	Umma	MS	“ne-saĝ festival”	
BIN 08, 321	Umma		oil	Lugal-nesaĝ
BIN 08, 334	Umma		oil	Lugal-nesaĝ
BIN 08, 335	Umma		oil	
BIN 08, 339	Umma		oil, “ne-saĝ festival”	Lugal-nesaĝ
BRM 3, 103	Umma	ES?	oil	
CUSAS 26, 203	Umma	CS	sesame	Nimgir-$eš_3$
CUSAS 35, 514	Umma	CS	aromatics	
CST 010	Umma		oil	
Nik 2, 088	Umma		aromatics	
IOS 049			aromatics	
RA 79, 21 1			aromatics	