

# Apprenticeship and the Materiality of Texts in Uruk during the Late Achaemenid and Hellenistic Periods

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**Abstract** This article explores the materiality of texts related to apprenticeship in Uruk during the Late Achaemenid and Hellenistic periods, focusing on the training of pupils and ‘small healer’ (*āšipu šeḫru*) in the Ue XVIII sector. The collections of texts discovered in this area belonged to two families of healers (*āšipu*). They are particularly valuable because they are among the few scholarly collections from this period that have been excavated with sufficient scientific rigour. The study also examines how the cultural transformations of Babylonian scholarship during this time impacted both the apprenticeship and the practices of the healers.

**Keywords** Babylonian culture. Materiality of writing. Education. Uruk. Achaemenid period. Hellenistic period.

**Summary** 1 Introduction. – 2 A Short History of the Houses of the Healers (*āšipu*) in the Ue XVIII Sector. – 2.1 The House of the Šangi-Ninurta Family. – 2.2 The House of the Ekur-zakir Family. – 3 The Education of Pupils and ‘Small Healers’ (*āšipu šeḫru*) in Ue XVIII. – 3.1 Forming Tablets. – 3.2 Learning to Write, Read and Organise Cuneiform on Tablets. – 3.3 Transition from Students to Scholars. – 4 Conclusion.

## 1 Introduction

The making of a clay tablet and the ways of organising the text on it constituted a part of the training of future scribes. However, it is difficult to reconstruct how pupils learned to shape clay in the first millennium BCE, as no theoretical texts have been found that explicitly explain how to do it.<sup>1</sup> Nevertheless, indirect insights can be gleaned on the basis of school texts, some of which originated from collections belonging to scholarly families. A rare example of this is the discovery in Uruk of approximately four hundred tablets in at least two private houses,<sup>2</sup> inhabited from the Achaemenid to the Hellenistic periods by the descendants of Šangi-Ninurta and later by the Ekur-zakir family, whose members were healers.<sup>3</sup> In this article, I aim to underline the significance of these for reconstructing the curriculum of pupils and apprentice healers from the fifth to the third century BCE. I will consider the features that help identify different stages of learning: from the shaping of a tablet to the copying or writing of a work of reference intended for the collection of the student’s teacher.

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<sup>1</sup> Some scribes of the first millennium BCE mentioned the location from which they obtained the clay used for their tablets in colophons (see Maul 1998 and Gesche 2001, 154-5), but do not explain how they learned to produce a clay tablet. Only one school text from the Old-Babylonian period describes this process, see Civil 1998.

<sup>2</sup> See for the texts and their division in genre: Hunger 1976; von Weiher 1982, 1988, 1993, 1998; Clancier 2009, 387-405. On the question of the presence of tablets from the descendants of Gimil-Sîn and Gimil-Nanâya in Ue XVIII, see Gabbay, Jiménez 2019.

<sup>3</sup> My paper follows the translation of *āšipu* by ‘healer’ given by Maul 2019, 26 fn. 3 and Frahm 2020.



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## 2 A Short History of the Houses of the Healers (*āšipu*) in the Ue XVIII Sector

The site of Uruk in antiquity was located on the right bank of the Euphrates. Today, it is situated about 20 km north of the river. In the southeast part of the city, the German archaeological mission carried out several campaigns between 1969 and 1972 in a sector designated as Ue XVIII [fig. 1].<sup>4</sup> Artefacts excavated there suggest that this was the location of a house where at least two different families lived between the fifth and the end of the third century BCE. The peculiarity of these households was that the members of both families practised the profession of a healer (*āšipu*).

### 2.1 The House of the Šangi-Ninurta Family

The analysis of the level where the tablets were found, along with the colophons of these tablets, leads to the conclusion that the Šangi-Ninurta family lived in the house of the fourth level of the Ue XVIII area.<sup>5</sup> For the most part, this level was excavated during the thirtieth German campaign.<sup>6</sup> Numerous tablets were discovered on the floor and in the fill of the level.<sup>7</sup> In room 4, there were several jars containing tablets. Thirty-two of the tablets found there were completed or almost completed, with numerous mathematical texts deposited in jars together with at least 23 contracts.<sup>8</sup> According to archaeological reports, the jars may have been treated with bitumen to make them waterproof – likely to protect the tablets stored inside.<sup>9</sup> Around 131 of the total of the excavated tablets belong to the Šangi-Ninurta family.<sup>10</sup> The main individuals attested in these tablets are Šamaš-iddin, descendant of Šangi-Ninurta, and his two sons Anu-ikšur and Rīmūt-Anu [fig. 2].<sup>11</sup> The last individual attested is Anu-ikšur's son: Anu-ušallim.<sup>12</sup> The colophons do not mention any affiliation with a temple. Nevertheless, Anu-ikšur several times expressed his devotion to Anu and Antu, also using rare spellings to write their names.<sup>13</sup> Šamaš-iddin, Rīmūt-Anu and Anu-ikšur bore the title of healer (*āšipu*), or 'small healer' (*āšipu šeḫru*).<sup>14</sup>

Anu-ikšur, well-attested in the assemblage as a scribe of tablets for his father and as a supervisor during his own son's apprenticeship, appears in colophons at various stages of his career [tab. 1]:

1. he holds the title of *āšipu agašgū* as the copist of a tablet for his father, whom Anu-ikšur names twice an 'small healer' (*āšipu šeḫru*);<sup>15</sup>
2. he is himself referred to as an 'small healer' (*āšipu šeḫru*), once in a tablet written by his son;<sup>16</sup>
3. he later appears with the title of (fully educated) healer (*āšipu*) [tab. 1].

<sup>4</sup> Schmidt 1979; Sack 1979, 48-50; Kose 1998, 374-80; Pedersén 1998, 207; Clancier 2009, 30-1.

<sup>5</sup> von Weiher 1979, 95; Pedersén 1998, 212; Clancier 2009, 32-3; 2024, 285-7.

<sup>6</sup> Sack 1979, 49-50.

<sup>7</sup> Sack 1979, 49-50; von Weiher 1979, 95.

<sup>8</sup> Sack 1979, 49; von Weiher 1979, 95.

<sup>9</sup> Sack 1979, 49. The jars may have been reused to store the tablets, and the bitumen insulation may have originated from their initial context of use.

<sup>10</sup> Clancier 2009, 406.

<sup>11</sup> For these individuals, see Robson 2008, 227-30; Clancier 2009, 51-2, 58-9; Frahm 2011, 290-1; Robson 2019, 25, 229-32, 237-8.

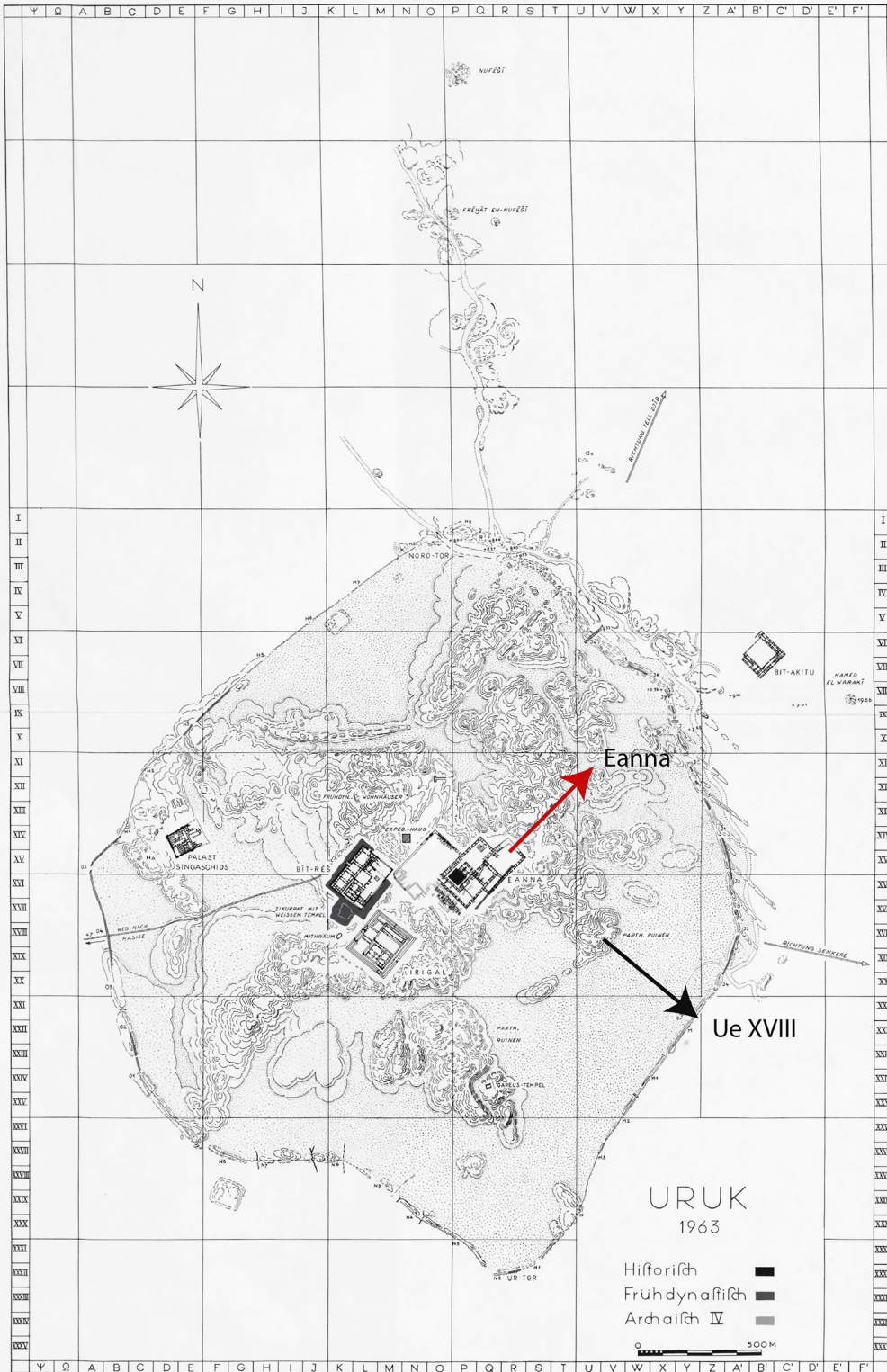
<sup>12</sup> For his father Anu-ikšur, Anu-ušallim wrote the tablets *SpTU* 5 242, *SpTU* 3 90 and *SpTU* 4 151.

<sup>13</sup> See the colophons of *SpTU* 2 8, *SpTU* 1 56 and *SpTU* 3 98.

<sup>14</sup> Only Šamaš-iddin, Anu-ikšur and Anu-ušallim bear this title. Nevertheless, Rēmūt-Anu specifies that he wrote some tablets for his apprenticeship, see for example *SpTU* 4, 174.

<sup>15</sup> This title of *agašgū* appears elsewhere in colophons of Neo-Assyrian and Neo-Babylonian tablets, see for example the colophon of *BAM* 1 (Hunger 1968 no. 234), the Neo-Assyrian tablet is written by Nabû-lē'i, an *asû agašgū*. For Neo-Babylonian examples, see the colophons of Emesal excerpts, UET 6/2 204, written by Nabû-šum-ētir, *šamallû kalû agašgū* and, the tablet published by Starr and Al-Rawi 1999, written by Šamaš-ētir, descendant of the Šangi-Sippar family, *šamallû bārû agašgū*. It is difficult to say if this term describes another status than that of *āšipu šeḫru*. Indeed, the lexical lists *malku* = *šarru* (I 140ff) presents the word *agašgū* as a synonym of *šeḫru*. However, in the colophon of *SpTU* 3 69 written by Anu-ikšur for his father Šamaš-iddin, Anu-ikšur bears the title of *āšipu agašgū* and his father of *āšipu šeḫru* (in a broken context), which could suggest that at least here they are not equivalent. In the tablet *SpTU* 1 26+ both Šamaš-iddin and Anu-ikšur are presented as 'small healers' (*āšipu šeḫru*).

<sup>16</sup> Anu-ušallim wrote the tablet *SpTU* 3 90 for his father. He mentions his father, Anu-ikšur, as *āšipu šeḫru* and refers to himself just as 'his son'.



**Figure 1**  
Plan of the city of Uruk  
with the localisation  
of Ue XVIII from  
Lenzen 1965, pl.27

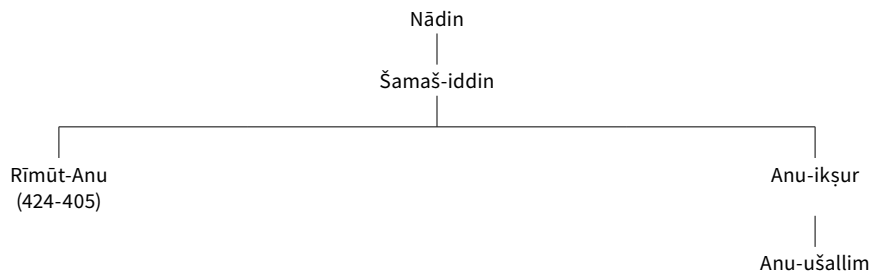
The colophons reflect the prolonged use of the title *āšipu šeḫru*, which likely indicates that this title referred to a specific hierarchical rank rather than the status of a student.<sup>17</sup> However, this hypothesis must be approached with caution due to the exceptional use of these titles by the members of the Šangi-Ninurta family.

**Table 1** The different stages of Anu-ikšur's career

Title	Tablets
<i>āšipu agašgû</i>	<i>SpTU</i> 3 69
<i>āšipu šeḫru</i>	<i>SpTU</i> 1 126+; <i>SpTU</i> 1 33; <i>SpTU</i> 1 38; <i>SpTU</i> 1 50; <i>SpTU</i> 1 49; <i>SpTU</i> 3 90
<i>āšipu</i>	<i>SpTU</i> 1 31; <i>SpTU</i> 1 45; <i>SpTU</i> 1 47; <i>SpTU</i> 1 51; <i>SpTU</i> 1 56; <i>SpTU</i> 2 8; <i>SpTU</i> 5 241; <i>SpTU</i> 1 83

Although the members of the Šangi-Ninurta family did not bear any title showing an institutional affiliation, the colophons of their tablets show twice that they nonetheless had access to the collection of the Eanna temple. The colophons of two excerpts of the series *bīt rimki*, *SpTU* 4 127 and *SpTU* 3 66, specify that Šamaš-iddin copied them from a writing-board belonging to the Eanna temple.<sup>18</sup>

Only one literary tablet includes a date.<sup>19</sup> Rīmūt-Anu wrote it during the reign of 'Darius' (*ṛda-ri-ia-amuš*, probably Darius II, i.e. 423-405 BCE).<sup>20</sup> The house was occupied by the family in the second half of the Achaemenid period: around 445-330 BCE, if we take into account the dates of the contracts found in the house.<sup>21</sup> Parthian graves disrupted the site, causing a partial mix-up among the artefacts of levels II, III and IV, which makes it challenging to sort the tablets belonging to different assemblages if they do not have a colophon.



**Figure 2** Family tree of the Šangi-Ninurta family

## 2.2 The House of the Ekur-zakir Family

About 157 tablets from Ue XVIII, found mostly in level II, belonged to the Ekur-zakir family.<sup>22</sup> The family is well-attested in Uruk during the Neo-Babylonian period and some of its members held significant positions as temple scribes within the administrative structure of Eanna.<sup>23</sup>

In room 1 of level II, the excavation report of 1979 mentions the discovery of a niche in the north-west wall that was filled with tablets.<sup>24</sup> The tablets were baked and placed on top of each other. Unfortunately, there is no record of the exact arrangement of the tablets with regard to each other. Further research on the tablets kept in Baghdad would also have to confirm whether the baking of the tablets happened in a secondary context or whether it was carried out by the scribes who wrote them.

<sup>17</sup> On the question of the age of the 'small' scribes, see Jiménez 2022, 23 and the cited literature.

<sup>18</sup> *SpTU* 3 66, l.52, see also for this text Baragli 2022, 30. Both tablets seem to have been found together in a small room of the layer IV in Ue XVIII/1.

<sup>19</sup> *SpTU* 5 231.

<sup>20</sup> Clancier 2009, 58-9.

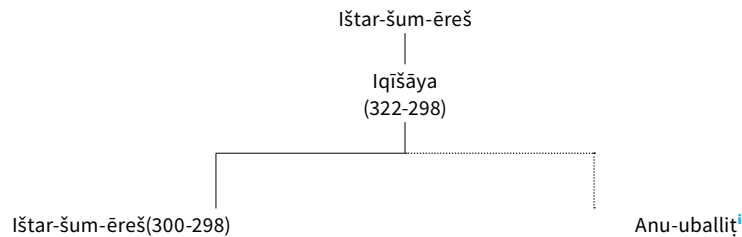
<sup>21</sup> Oelsner 2001, 484-5; Hackl, Oelsner 2017, 75; Clancier 2024, 290-1, 296. Clancier 2009, 58-9 estimated that the house of the descendants of Šangi-Ninurta was inhabited between 445 and 385 BCE.

<sup>22</sup> Clancier 2009, 406.

<sup>23</sup> Kümmel 1979, 130, 156-7.

<sup>24</sup> Hoh 1979, 30.

The most frequently attested individual of the collection of level II is Iqīšāya, son of Ištar-šum-ēreš [fig. 4]. Some of his tablets are dated to the end of the fourth century BCE (322-316).<sup>25</sup> In the colophons of literary and scholarly texts, he introduces himself as an *ērib bīti* of Anu and Antu and as a healer (*āšipu*).<sup>26</sup> Several tablets from his collection were written as a part of the scribal training of his son Ištar-šum-ēreš,<sup>27</sup> but also of a certain Anu-ab-ušur, descendant of the Kurī family,<sup>28</sup> and maybe of Anu-ab-ušur, descendant of the Gimil-Anu family.<sup>29</sup> Both the Kurī and Gimil-Anu families belonged to the traditional Urukian urban elite. Based on the contracts from the British Museum published by P. Corò,<sup>30</sup> Iqīšāya's son, Ištar-šum-ēreš was involved in the network of prebend holders in the Rēš temple of Uruk. He wrote two prebend sale contracts in 300 BCE and 298 BCE for another branch of the Ekur-zakir family, which were witnessed by his father Iqīšāya.<sup>31</sup> Few of Iqīšāya's tablets are dated, however the dated tablets reveal that he acted as a healer from at least 322 BCE and lived until at least 298 BCE.<sup>32</sup> His last documented activity is his role as a witness in a prebend sale contract. If one follows the reading of the colophon of *TCL* 6 50 by K. Stevens, it is also possible that he had a second son named Anu-uballiṭ whose scholarly activities are known from the Rēš temple [fig. 3]. Furthermore, a tablet found in level II of Ue XVIII indicates that the descendants of Ekur-zakir still lived in the same house at the end of the third century BCE, long after the death of Iqīšāya.<sup>33</sup> The scribe of the scholarly text *SpTU* 2 33, Mannu-iqāp, also wrote prebend and allocation contracts for the staff of the Rēš temple.<sup>34</sup>



<sup>i</sup> Stevens 2013, no. 25, restores the broken colophon of *TCL* 6 50 to read 'Anu-uballiṭ' and proposes to recognise in the person a son of Iqīšāya. If her interpretation is correct, this tablet would have been at some point removed from the household of Iqīšāya/Anu-uballiṭ and taken to the Rēš temple.

Figure 3 Family tree of the Ekur-zakir family branch of Iqīšāya

- <sup>25</sup> The tablets *SpTU* 1 90, *SpTU* 2 38, *SpTU* 3 97, *SpTU* 4 162 and RA 12 are dated to the reign of Philip III Arrhides (323-316).  
<sup>26</sup> For example, *SpTU* 1 94.  
<sup>27</sup> For example, *SpTU* 1 139, *SpTU* 2 6 and *SpTU* 4 147.  
<sup>28</sup> He is the scribe of the tablets *SpTU* 1 90, *SpTU* 2 44 and *SpTU* 4 162.  
<sup>29</sup> He may be the scribe of the tablet *SpTU* 4 150, r. ii 19': [...] 'DUMU' <sup>1</sup>Id60-ŠEŠ<sup>mes</sup>-MU A 'ŠU-60, and possibly the same person as the seller of the healer-prebend (*āšipūtu*) in the contract Corò 2018 no. 5.  
<sup>30</sup> Corò 2018. In both contracts Iqīšāya is the fifth witness of the transaction.  
<sup>31</sup> VDI 1955/4 no. 6 and Corò 2018 no. 2.  
<sup>32</sup> For the tablet dated see for example *SpTU* 1 90, *SpTU* 2 38, VDI 1955/4 no. 6 and Corò 2018 no. 2.  
<sup>33</sup> Mannu-iqāp, descendant of Ekur-zakir, wrote *SpTU* 2 33 around 211/210 BCE. According to E. von Weiher (1979, 102), the tablet was found in the second layer of Ue XVIII. Mannu-iqāp also wrote a hymn to Adad, *BiMes* 24 51, written in 111 S.E. (ca 201/200 BCE).  
<sup>34</sup> YOS 20 54 was written around 115 S.E. (197-196 BCE), and *BRM* 2 31 was written in 118 S.E. (in 194 BCE).

### 3 The Education of Pupils and ‘Small Healers’ (*āšipu šeḫru*) in Ue XVIII

#### 3.1 Forming Tablets

A big part of the tablets found in Ue XVIII was the product of scribal training for pupils who studied Akkadian and Sumerian scholarly series in order to specialise in the art of the healer at a later stage.<sup>35</sup> Various phases of the school curriculum are evident in the assemblage, highlighting the domestic context of apprenticeship.

Although we can say with certainty that level IV was occupied by the descendants of Šangi-Ninurta and level II by the descendants of Ekur-zakir, it remains impossible to determine which family inhabited level III, as the level was significantly destroyed by a fire and subsequently disturbed by Parthian period burials.<sup>36</sup> To the south-west of Room 7 of the level III, a work surface covered with asphalt encircled by bricks was unearthed by the excavating team, who interpreted the installation as an area for processing clay before it was formed into tablets.<sup>37</sup> Around the surface were roughly formed, fine and dark clay lumps, pointed bone objects considered to be styluses, as well as unbaked anepigraphic tablets and tablets with only rulings drawn in preparation for writing.<sup>38</sup> According to the excavation reports, these finds were associated with the scribal activities undertaken in the healers’ house. Although the bone objects may be linked to domestic activities in the house, the anepigraphic tablets and tablets with only rulings suggest that the pupils in the Ue XVIII sector may have already reached the stage of their education in which they were able to form their own tablets.<sup>39</sup> These finds provide intriguing evidence of the practice of preparing tablet layout prior to the writing process.

Additionally, the house of the healers also possessed ovens. In level II, remnants of a fireplace with a brick base were discovered in room 1, and a *tannūr*-oven was excavated in room 3.<sup>40</sup> The proximity of ovens to the pre-made tablets was interpreted by the excavators as a possible indication that they may have been used for tablet-baking.<sup>41</sup> However, similar to the bone objects, the possibility of a domestic use cannot be ruled out.<sup>42</sup> A chemical analysis of the clay objects from Ue XVIII in the future would confirm the practice of firing tablets in this private context.

#### 3.2 Learning to Write, Read and Organise Cuneiform on Tablets

The assemblage from the houses of the healers provides insights into how scribal students familiarised themselves with holding the stylus, writing the basic elements of signs in cuneiform script, and how they progressed to memorising actual signs. Two notable examples are the tablets *SpTU* 5 276 and *SpTU* 5 277 [fig. 4]. The context of their discovery suggests that they were produced at the level occupied by the Ekur-zakir family.<sup>43</sup>

<sup>35</sup> Clancier 2009, 81-5.

<sup>36</sup> See Clancier 2024, 290.

<sup>37</sup> Hoh 1979, 28-9.

<sup>38</sup> Hoh 1979, 28, 30.

<sup>39</sup> On the process of learning to shape clay into tablets, see Taylor 2011 and Taylor, Cartwright 2011; Maul, Manasterska 2023, 7-9. See also Charpin 2008, 98-100; Taylor 2011, 7, with literature on anepigraphic tablets.

<sup>40</sup> Hoh 1979, 29.

<sup>41</sup> Hoh 1979, 30.

<sup>42</sup> See also Charpin 2008, 98-9 and the relevant literature for the bone styli found in the house of Ur-Utu in Sippar during the Old-Babylonian period.

<sup>43</sup> Clancier 2009, 400.



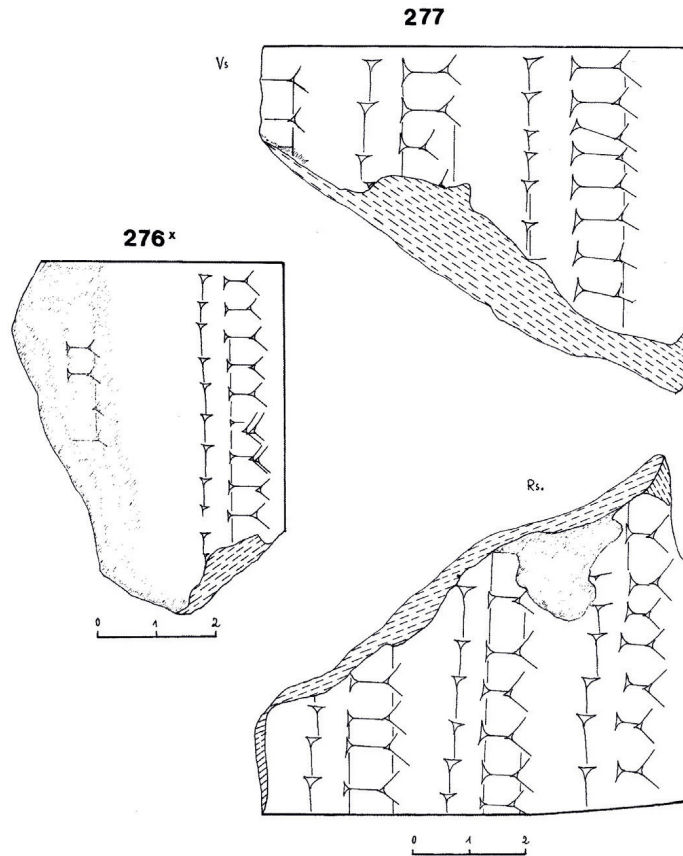


Figure 4  
SpTU 5 276, 277 copied  
by von Weiher 1998

First, a pupil traced fine columns on the surface of a rectangular tablet, after which he progressed to write signs, or more specifically, basic elements of signs in these columns. In the two tablets mentioned above, the student wrote the signs DIŠ and BAD, which enabled him to practice writing the most basic forms of cuneiform: the vertical, the horizontal and the oblique wedges. This exercise, attested already during the Kassite period, also helped develop the basic motor skills necessary to manipulate a stylus in the desired manner.<sup>44</sup>

During the initial stages of the curriculum, beginners copied Syllabary A (S<sup>a</sup>), Syllabary B (S<sup>b</sup>) and Vocabulary S<sup>b</sup> to learn the form of logograms, their syllabic values, and their Akkadian translation. Several such exercises were excavated in the section Ue XVIII.<sup>45</sup> The study of these lists comprised the first part of the curriculum (written on tablets of Type 1 in Gesche's terminology).<sup>46</sup> It was common practice for the pupils only to write on their tablet the signs, without explicitly indicating their names or pronunciations.<sup>47</sup> Furthermore, several manuscripts from the collections of Ue XVIII contained the same entries of the Syllabary A.<sup>48</sup>

<sup>44</sup> For the Kassite attestations, see Bartelmus 2016, 126-7. For other parallels from the Neo-Babylonian and Late-Babylonian periods, see Gesche 2001, 58-60.

<sup>45</sup> SpTU 1 103-4, SpTU 1 106-9 and SpTU 1 111 must have belonged to the Ekur-zakir family. SpTU 4 199, SpTU 4 213 and SpTU 5 280 must have belonged to the Šangi-Ninurta level of occupation. For most of the texts, it is difficult to know to which family/level they belonged. They were mostly discovered in the third layer (SpTU 1 105, SpTU 1 110, SpTU 1 112-16, SpTU 4 196-8, SpTU 4 200-11, 217, SpTU 5 281-2). On the importance of these series in the curriculum of pupils in Mesopotamia, see Veldhuis 2014.

<sup>46</sup> Gesche 2001, 44-48.

<sup>47</sup> Except for SpTU 1 112-16, SpTU 4 198, and SpTU 4 200, which also contain the name and pronunciation of the signs.

<sup>48</sup> The Syllabary A entries 1-43, 69-106, 207-21, 281-4 and 333-51 are copied in tablets found in Ue XVIII.

Two manuscripts of the Syllabary B with monumental cuneiform signs and Neo-Babylonian forms come from the Ue XVIII area (*SpTU* 4 212 and 216) [fig. 5].<sup>49</sup> The learning of archaizing cuneiform signs began relatively early in the curriculum and this was likely followed in the house of the healers in Uruk.<sup>50</sup> The skill to write archaizing form of cuneiform signs enabled future scholars to read inscriptions or older texts found during construction or renovation work or to produce texts in a monumental cuneiform style.<sup>51</sup> It is impossible to say to which of the collection these tablet belonged, that of the Šangi-Ninurta or of the Ekur-zakir family.<sup>52</sup>

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Figure 5  
*SpTU* 4 212 (obverse) copy  
by von Weiher 1993

<sup>49</sup> von Weiher 1993 and *MSL* III. Roche-Hawley 2024, 25 dated these tablets to the Seleucid or Parthian period. Nevertheless, archaeologically, they belong to Achaemenid or Seleucid contexts, see the presentation of the Ue XVIII sector at the beginning of this article.

<sup>50</sup> Gesche 2001, 72-4.

<sup>51</sup> For Monumental Cuneiform, see Harper 1904; Borger 1978, 5-35; 2004, 624-92; Maul 2012; Cancik-Kirschbaum, Chambon 2014, 15-16; Cancik-Kirschbaum, Kahl 2018, 256-61, Roche-Hawley 2024.

<sup>52</sup> Clancier 2009, 398.



The tablets from the Ue XVIII sector also provide intriguing insights into how students learned to estimate how many lines they could fit on a clay tablet and how they practised considering spatial relations between the signs in order to accommodate their entire planned text in the available space.<sup>53</sup> The tablet *SpTU* 3 108 helps to elucidate this process [fig. 6].

This manuscript of Weidner's *God List* in the first-millennium Babylonia was an introductory exercise providing instruction in writing divine names since the Kassite period.<sup>54</sup> The traces of rulings on the obverse and reverse of this tablet [fig. 6] indicate that the pupil began by drawing rulings before writing the text. The number of lines and columns in the draft of the tablet did not necessarily correspond to the number of columns and lines required to accommodate the entire copied text, so the preparation of rulings likely constituted the initial part of the exercise.<sup>55</sup> Horizontal rulings were drawn during the writing process with the tip of the stylus, whereas vertical rulings could also be impressed into the surface of the tablet with a length of twisted yarn.<sup>56</sup>

Even experienced scribes, frequently encountered difficulties in accommodating all the lines of the original composition into their copy's format. *SpTU* 2 32, a 'non-canonical' (*aḫû*) tablet of *šumma ālu* copied by Iqīšāya, who bears the title of healer (*āšipu*) in the colophon, demonstrates this challenge [fig. 7]. Apparently, Iqīšāya spaced the signs on the first part of the obverse too widely (see the green lines in figure 8). In the second part of the obverse and in the second part of the reverse of the tablet, he had to abandon this practice, instead attempting to fit as many lines as possible on the reverse (see the red lines in figure 8), and ultimately resigning himself to writing the colophon on the lower edge and keeping it brief. He noted that he did not finish copying the original and would have to transfer the remaining text to a second tablet. The original contained a lot of broken passages that the scribe marked in his copy with *hepi*-glosses.<sup>57</sup>

<sup>53</sup> On this phenomenon during the Neo-Assyrian period, see Maul, Manasterska 2023, 9.

<sup>54</sup> Bartelmus 2016, 290.

<sup>55</sup> For the drawing of rulings on student exercises in the first millennium BCE, see Gesche 2001, 57 and 206; Maul, Manasterska 2023, 9-10.

<sup>56</sup> See Maul, Manasterska 2023, 31.

<sup>57</sup> Worthington 2012, 25-7.

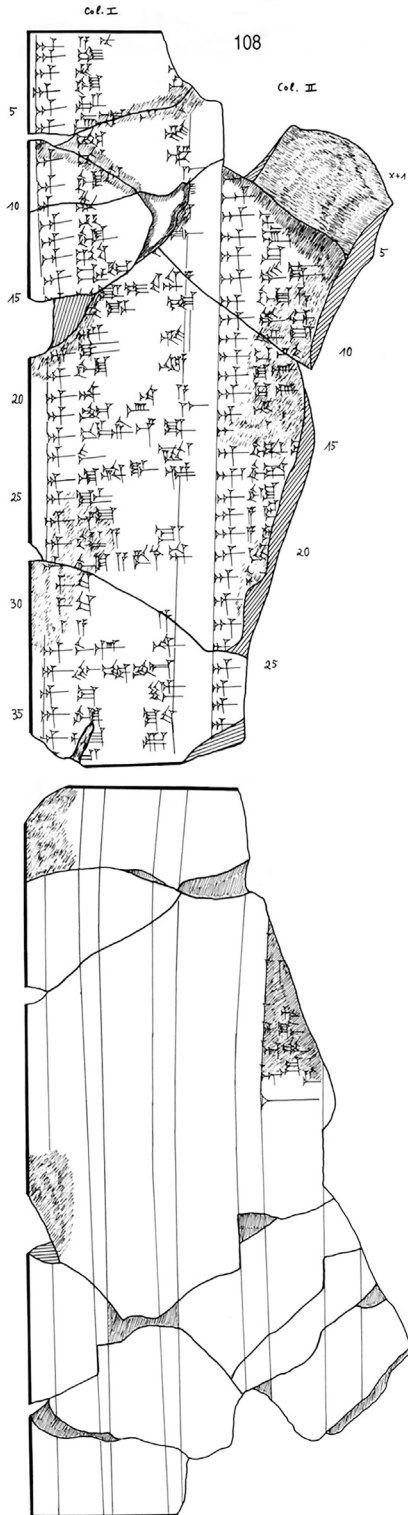


Figure 6 SpTU 3 108 copy by von Weiher 1988

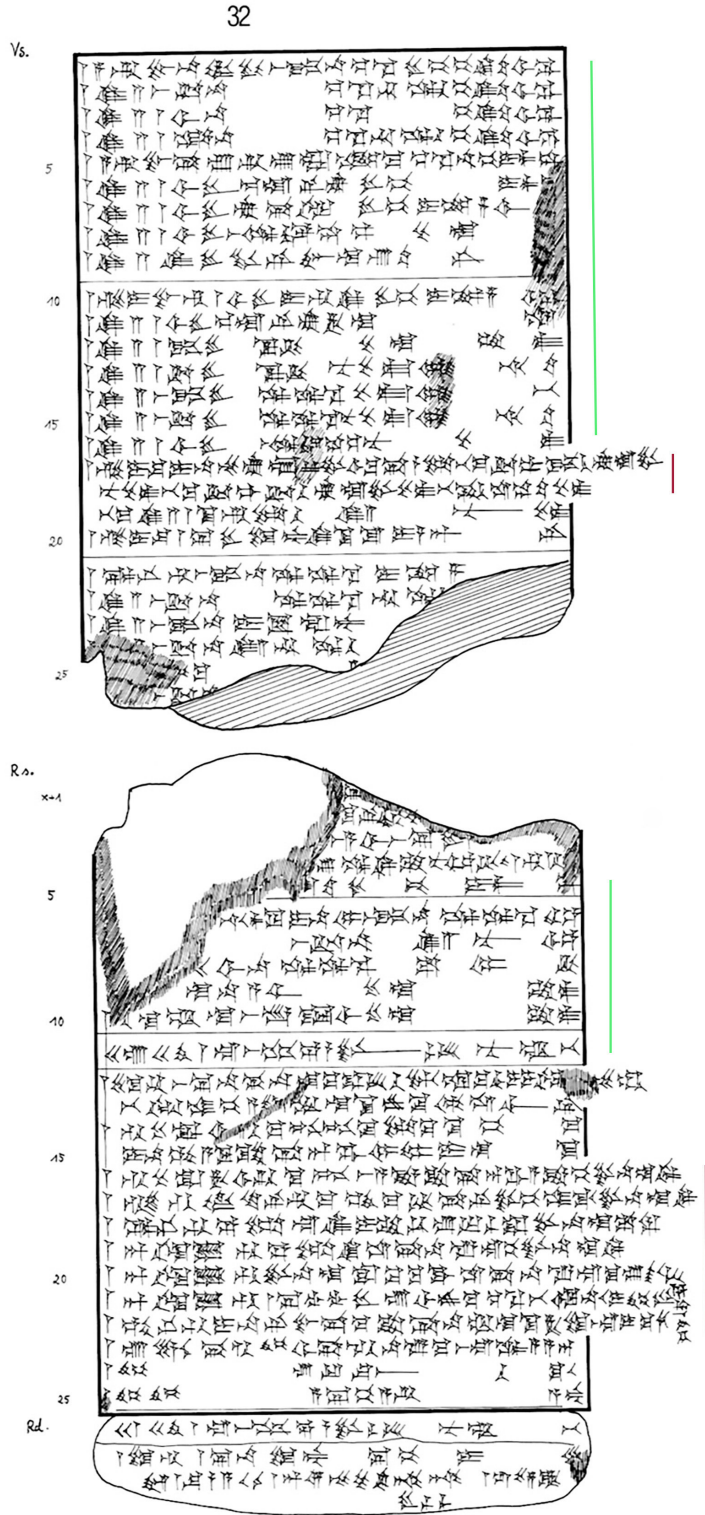


Figure 7 SpTU 2 32 copy by von Weiher 1982

The colophon of tablet *SpTU* 2 34 may explain why some scribes struggled to estimate the available writing space on their tablets. *SpTU* 2 34 is another instance of a ‘non-canonical’ (*aḥû*) tablet of *šumma ālu* copied by Iqīšāya [fig. 8]. In a part of *SpTU* 2 34, but also at the beginning of the obverse and of the reverse of *SpTU* 2 32, Iqīšāya did actually followed the procedure he learned during his scribal training: he aligned the text to the margins of the tablet and tried to avoid placing too few signs in the right half of the line.<sup>58</sup> After spacing his signs quite generously as well as leaving enough room between the protasis and apodosis of the omens separated in two quasi columns marked with the sign MIN in the middle of the obverse, Iqīšāya realised that he would not have enough space to accommodate the remaining text on the reverse unless he adjusted the spacing [fig. 8]. The signs on the reverse are much denser, and some of the lines end on the right edge of the tablet. In the colophon, Iqīšāya states that the original from which he copied was a writing-board from Nippur, and that he did not complete the copy.<sup>59</sup> The fact that the original was a writing-board may explain some of the difficulties this scribe faced in assessing the necessary space on a clay writing medium – without the panels that a writing board was likely to possess. *SpTU* 2 34 contained only the initial portion of the manuscript on the writing-board which Iqīšāya copied. The writing-board was probably designed to accommodate many more lines of the original composition than Iqīšāya’s tablets.<sup>60</sup> As will become apparent, in many cases the authors of copies based on a writing-board manuscripts could solve the issues of space more efficiently. In any case, only eleven tablets found in Ue XVIII had colophons that indicate that their original source was a writing-board.<sup>61</sup> Various genres, including commentaries, are represented among these tablets. Only four of these copies exhibit any signs of the scribe’s struggle to fit all the contents of the original in his tablet and the subsequent failure of planning to accommodate the text in the available space.<sup>62</sup>

One question that remains unanswered because of the lack of data is how and when pupils learned to apply the so-called ‘firing holes’ to the tablets.<sup>63</sup> This practice is well known in the Neo-Assyrian scholarly tradition, especially in the ‘Libraries of Ashurbanipal’.<sup>64</sup> A certain continuity of scholarly practices existed between Nineveh and Uruk, due to the persistence of the Assyrian tradition in the southern city.<sup>65</sup> Nevertheless, only twenty tablets found in Ue XVIII contain ‘firing holes’.<sup>66</sup> In two cases, the holes were clearly used to decorate a colophon. *SpTU* 2 6, containing Ardat-Lilī incantations, was written by Ištar-šum-ēreš for his father Iqīšāya, descendant of Ekur-zakir. *SpTU* 2 33 contains excerpts of *šumma ālu* and was written by Mannu-iqāp, also descendant of Ekur-zakir, at the end of the third century BCE.<sup>67</sup> In the colophon, he identifies himself as a healer and announces that he wrote the tablet for his father Nidinti-Anu.

Tablets with ‘firing holes’ from the houses of the healers encompass various genres (lexical, mathematical, divinatory, magical or historical), and their formats vary, with heights ranging between 7.8 cm<sup>68</sup> and 20 cm.<sup>69</sup> Further analysis of the tablets in Baghdad would be necessary to gain a better understanding of this phenomenon in the tablet collections of first-millennium BCE Uruk.<sup>70</sup>

<sup>58</sup> On this phenomenon during the Neo-Assyrian period, see Maul, Manasterska 2023, 10.

<sup>59</sup> *SpTU* 2 34, r. 27’ and r. 29’.

<sup>60</sup> For writing-boards, see the article of Cammarosano et al. 2019.

<sup>61</sup> From the Šangi-Ninurta collection: *SpTU* 5 254, *BaM Beih.* 21, 483 and 545 (W.23291-x), *SpTU* 3 84, *SpTU* 1 56, *SpTU* 4 151, *SpTU* 3 66, *SpTU* 4 127. From the Ekur-zakir collection: *SpTU* 2 34, *SpTU* 3 85, *SpTU* 1 90, *SpTU* 4 162. While these tablets include explicit mentions of their originals, it cannot be ruled out that in some cases the mention of the original writing-board was simply omitted.

<sup>62</sup> *SpTU* 2 34, *SpTU* 3 84, *SpTU* 3 85, *SpTU* 4 162.

<sup>63</sup> On this name and on this topic, see Taylor 2011 and Corò, Ermidoro 2020 with cited literature.

<sup>64</sup> For these multiple texts assemblages, see Robson 2019, 12-23.

<sup>65</sup> On this topic, see especially Beaulieu 2010.

<sup>66</sup> *SpTU* 2 2, *SpTU* 2 6, *SpTU* 2 8, *SpTU* 2 12, *SpTU* 2 13, *SpTU* 2 16, *SpTU* 2 33, *SpTU* 2 38, *SpTU* 2 46, *SpTU* 2 51, *SpTU* 3 58, *SpTU* 3 89, *SpTU* 3 91, *SpTU* 3 97, *SpTU* 3 119b + *SpTU* 4 191, *SpTU* 4 121, *SpTU* 4 127, *SpTU* 4 142, *SpTU* 4 176, *SpTU* 4 187. One tablet comes from Niniveh but was kept in Uruk: *SpTU* 2 46.

<sup>67</sup> The colophon of *SpTU* 2 33 poses a problem: Mannu-iqāp introduces himself as A šá <<DIŠ>> DUMU-A.NI, ‘the son of his son’, but without naming his father. Pearce, Escobar 2018, 269 consider this to be a mistake and that Mannu-iqāp would be the son of Nidinti-Anu. If the identification is correct, he would be the identical with the scribe of the contracts *BRM* 2 31 and *YOS* 20 54, in which he presents himself as the son of Nidinti-Anu. See also Ossendrijver 2011, 217-20.

<sup>68</sup> *SpTU* 2 33.

<sup>69</sup> *SpTU* 3 119b.

<sup>70</sup> Neither the excavation report nor the *SpTU* volumes indicate the thickness of the tablets.

Vs.

Handwritten musical notation on a staff, featuring a treble clef and a key signature of one flat (B-flat). The notation includes various musical symbols such as notes, rests, and bar lines. The text is written in a cursive script, likely a historical form of German or Latin. The staff is numbered 1 through 35 on the left margin.

Rs.

Handwritten musical notation on a staff, featuring a treble clef and a key signature of one flat (B-flat). The notation includes various musical symbols such as notes, rests, and bar lines. The text is written in a cursive script, likely a historical form of German or Latin. The staff is numbered 1 through 35 on the left margin.

Figure 8

SpTU 2 34 copy by von Weiher 1982



### 3.3 Transition from Students to Scholars

Not only does the house of the healers in Uruk provide evidence of the initial stages of the school curriculum, but it also supplies exercises undertaken by advanced apprentices aiming to attain the status required for membership in the urban educated elite of Babylonian society. *SpTU* 4, 195 – discovered in Ue XVIII – contains a bilingual incantation against evil demons possibly originating from the second tablet of the *saĝ-ba* series (ll. 6-10) [fig. 9].<sup>71</sup> The excerpts from these series may have been studied at the same phase as *ur<sub>5</sub>-ra = ħubullu* V. Indeed, the entries 47-56 from this lexical composition are written in the reverse of the tablet.<sup>72</sup> Excerpts from *saĝ-ba* II are also found alongside excerpts from *ur<sub>5</sub>-ra = ħubullu* V in the corpus of Neo-Babylonian school texts from Nippur.<sup>73</sup> Furthermore, school exercises with excerpts from both series were also found in Assur. There they seem to belong to the third stage of scribal curriculum, with the lexical excerpts copied before the literary ones.<sup>74</sup> In Babylonia, the series *saĝ-ba* and *ur<sub>5</sub>-ra = ħubullu* were often studied together with another incantation series, *udug-ħul*.<sup>75</sup> Due to disturbances in the level in which *SpTU* 4, 195 was discovered, the attribution of this tablet to the collections of the Šangi-Ninurta or to the Ekur-zakir descendants proves a challenge.<sup>76</sup> In any case, it serves as an exemplary illustration of an exercise falling under type 2a, according to Gesche's classification, which represents the second phase of the pupil's curriculum.<sup>77</sup> It may have been the stage prior to copying complete tablets of scholarly series. Tablets of type 2a typically have a portrait format, are slender, and vary in size, with extracts from various lexical and literary series copied only once. They often end with a date, including the day and month. Completion of this second elementary phase signifies the attainment of familiarity with the ancient textual tradition.<sup>78</sup> Lexical lists consistently hold a central role among these exercises.

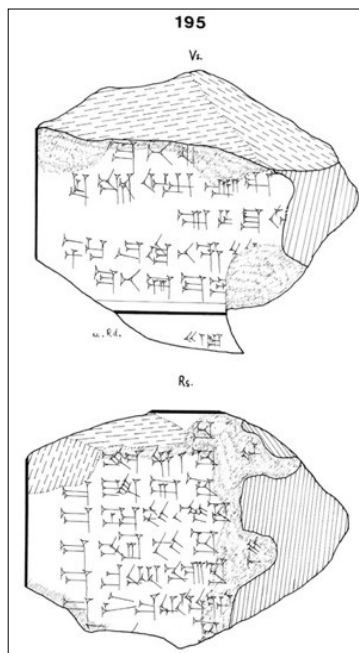


Figure 9  
*SpTU* 4 195 copy by von Weiher 1993

<sup>71</sup> *SpTU* 2 3 also contains an excerpt of *saĝ-ba* I, which was found in the layer II of Ue XVIII (see von Weiher 1979, 100).

<sup>72</sup> The findspot of the fragment was “Ue XVIII 2, Schicht III, Füllschutt” (von Weiher 1979, 96).

<sup>73</sup> See Jiménez 2022, no. 31 (*ur<sub>5</sub>-ra = ħubullu* V, VI and VII).

<sup>74</sup> See Maul, Manasterska 2023, 12-20, Table 4, and the tablet no. 21 with an excerpt of *saĝ-ba* II and *ur<sub>5</sub>-ra = ħubullu* XVIII.

<sup>75</sup> From Nippur, see for example CBS 8801 published by Veldhuis 2014, 411-13 and Jiménez 2022 no. 26 in which the excerpts of *saĝ-ba* I and II are followed by *udug-ħul* X and *ur<sub>5</sub>-ra = ħubullu* VII and VIII. See BM 38657 and BM 33540 for other Neo-Babylonian school exercises with excerpts of *saĝ-ba* and *ur<sub>5</sub>-ra = ħubullu* (IV, V, VI). Gesche 2001, 809 offers more examples of school tablets in which excerpts of *udug-ħul*, *saĝ-ba* and *ur<sub>5</sub>-ra = ħubullu* were learned together.

<sup>76</sup> The tablet comes from “Ue XVIII 2, Schicht III, Füllschutt” (von Weiher 1979, 96). See about this context Clancier 2009, 398.

<sup>77</sup> Gesche 2001, 50-2.

<sup>78</sup> For another example, during the Neo-Assyrian Period see Maul, Manasterska 2023, 14. The tablets from Assur underlines that “es ging mehr darum, die zukünftigen Schriftgelehrten mit dem uralten Sprach- und Schrifterbe Mesopotamiens vertraut zu machen”.



o. 1'	<i>ma-mit<sup>r</sup>er<sup>l</sup>-[še-ti ú-tam-mi-ka]</i>	
o. 2'	<i>udug ħul sil<sub>x</sub>(EZENXA<sup>7</sup>)-lá [d<sup>l</sup>alad ħul sil<sub>7</sub>-lá]<sup>79</sup></i>	
o. 3'	<i>ú-tuk-ku le[m-nu dup-pir še-e-du lem-nu dup-pir]</i>	
o. 4'	<i>saĝ-ba ki nu<sup>l</sup>(BE)-un-t[e-a-ta<sup>7</sup> giš-ħur nu-dib-ba]<sup>80</sup></i>	
o. 5'	<i>ma-mit e<sup>l</sup>(É)-ma<sup>r</sup>l<sup>l</sup>-[te-ħu-u i-tu-šá ul in-né-ti-iq]<sup>81</sup></i>	
loE	<i>it<sup>il</sup>KIN<sup>82</sup></i>	
r. 1'	<i>[xxxx]gigir<sup>l</sup></i>	<i>[xxxxx]</i>
r. 2'	<i>[giš]NE.x.(x)gigir<sup>l</sup></i>	<i>x [x x (x)]<sup>83</sup></i>
r. 3'	<i>giš<sup>l</sup>á-kár gigir</i>	<i>[šikšu]</i>
r. 4'	<i>giš<sup>l</sup>saĝ-kul<sup>l</sup>-háš<sup>l</sup>-gigir</i>	<i>[šikšu]</i>
r. 5'	<i>giš<sup>l</sup>naĝ-kul-gigir</i>	<i><sup>r</sup>bu<sup>l</sup>-[bu-tu<sub>4</sub>]</i>
r. 6'	<i>giš<sup>l</sup>umbin gigir</i>	<i><sup>r</sup>ma<sup>l</sup>-[ga-ar-ru]</i>
r. 7'	<i>giš<sup>l</sup>gaĝ-umbin-g[igir]</i>	<i>sikkat magarri]</i>
r. 8'	<i><sup>r</sup>giš<sup>l</sup><sup>r</sup>gul<sup>l</sup>-<sup>r</sup>gigir<sup>l</sup></i>	<i>[ħalmadru]</i>

Translation of the passage of saĝ-ba :

o. 1' I have pronounced against you the curse of perjury on earth! o.2-3' Evil demon, disappear! [Evil spirit, begone!] The curse of perjury! Wherever it comes from,<sup>84</sup> [its borders cannot be crossed!]

It is conceivable that writing the excerpts of saĝ-ba and ur<sub>5</sub>-ra = *ħubullu* constituted two distinct exercises conducted during instruction, each with a different aim: to impart Sumerian and Akkadian vocabulary for objects of all kinds, as well as Sumerian and Akkadian verbal formulae, and to provide pupils with the basic knowledge of exorcism. The rationale behind these exercises likely involved oral transmission by the teacher, with the tablet serving as the tangible outcome of the instructions given.<sup>85</sup>

The presence of the school tablets in the houses of Urukean healers raises questions about their preservation and purpose. It was probably more common to throw them away after a finished exercise, unless they were recycled.<sup>86</sup> While reference work tablets copied by more experienced apprentices could be integrated into the collection of the teacher, it is not likely that the teacher frequently consulted school tablets.<sup>87</sup> If these texts were not part of a depot that was discarded, a possible reasons for their preservation could be their legal significance. It is likely that scholars, like other craftsmen, signed apprenticeship contracts with the families of apprentices outside of their own.<sup>88</sup> One can imagine that in certain cases, the preservation of the apprentices' tablets could serve as legal proof that their training had indeed taken place. It might partially explain why Iqīšāya retained tablets from the apprentices of the Kurī and Gimil-Anu families. Their tablets already represented the stage of copy-

<sup>79</sup> The sign *sil<sub>x</sub>* looks like in BM 41016, o. 18': <https://www.ebl.lmu.de/fragmentarium/BM.41016>.

<sup>80</sup> The scribe in this manuscript puts the Sumerian form in the negative: *nu-un-te-a-[x]*, whereas the other manuscripts have an affirmative verb form: *im-mi-in-te-a-ta* (with the prefix *i-*) or *mu-un-te-a-ta* (with ventive), see Schramm 2001, 82, manuscripts A, A<sub>3</sub>, A<sub>4</sub> et C<sub>3</sub>. See also the parallel in the Neo-Babylonian school exercise BM 38657, o.1: *saĝ-ba ki nu-te-a giš-ħur<sup>l</sup>(PĀR) nu-d[i b<sup>7</sup>-ba<sup>7</sup>]*. May the existence of several Sumerian variants suggest that the aim of this particular lesson was for the pupils to translate the Akkadian version into Sumerian?

<sup>81</sup> The other manuscripts have the sign E instead of É, see Schramm 2001, 82.

<sup>82</sup> Or '21' UDU'. The passage should be collated. For an example of a school exercise with a date, see BM 38657 or BM 54197 (Gesche 2001, 382-3) and Jiménez 2022 no. 26 and 31.

<sup>83</sup> *erín*(ZAB) and not *erím*(NE.RU) is expected here, see for example BM 33540, r. 3, another Neo-Babylonian school tablet with an excerpt of saĝ-ba I and several excerpts of ur<sub>5</sub>-ra = *ħubullu* (IV, V, VI). The visible remnants of the sign after NE do not resemble a RU, unless the scribe put considerable space between the vertical wedges. However, the horizontal wedge of RU is still not visible.

<sup>84</sup> Literally, 'Wherever it comes near!'. The scribe of *SPTU* 4, 195 seems to have written *bīt* (É)-*ma*: the house, instead of the preposition *ēma*: 'whichever/whatever'. It is also possible that the sign É was preferred exactly for its double meaning and/or because the expression: 'he approaches the house', referring to demons was common in *āšipūtu* texts.

<sup>85</sup> See about this topic in Neo-Assyrian school context Maul, Manasterska 2023, 20-2 and for the Neo-Babylonian period see Gesche 2001, 168-9 and Jiménez 2022, 26-7. The cues and errors in Jiménez 2022, no. 26 are strong arguments for affirming that excerpts on school tablets were copied from memory.

<sup>86</sup> See also for the Neo-Assyrian school exercises from the house of the healers in Assur: Maul, Manasterska 2023, 3-5.

<sup>87</sup> Clancier 2009, 225-9; Veldhuis 2014, 419; Jiménez 2022, 22.

<sup>88</sup> On this topic see Hackl 2010; 2011 and Frahm 2020.

ing entire reference works, but some errors made by the apprentices demonstrate their didactic use.<sup>89</sup>

The activities of apprentices copying reference works have been repeatedly discussed in the edition of tablets from Uruk. What still needs to be emphasised is that the tablets collections of the descendants of Šangi-Ninurta and Iqīšāya demonstrate the interdisciplinary nature of the apprentice healers' curriculum during the fifth and fourth centuries BCE. The mathematical, astronomical and astrological texts are far more prominent than for example in the library of Kišir-Assur in the Neo-Assyrian period.<sup>90</sup> This hints at the scholarly evolutions that took place during the fifth century BCE and impacted the practices of the healers.<sup>91</sup>

The assemblages of the descendants of Šangi-Ninurta and Ekur-zakir include the expected genres of healers' professional literature (divinatory, magical, and medical texts) but also astronomical, astrological, literary, mathematical and cultic texts.<sup>92</sup> On the one hand the Šangi-Ninurta assemblage reflects the education of the healers in the house, the interests of Šamaš-iddin and Rīmūt-Anu in mathematics (but not in theoretical or mathematical astronomy)<sup>93</sup> and of Anu-ikšur's in commentaries, which represented 25% of the tablets found in this group.<sup>94</sup> However, fewer astronomical texts seem to have belonged to the Šangi-Ninurta archive<sup>95</sup> and the astronomical tablets found there are observational texts.<sup>96</sup> Furthermore, two astrological tablets of this assemblage used the zodiac, an astrological innovation whose emergence overlaps with the period of this family's activities in the fifth century BCE.<sup>97</sup> On the other hand Iqīšāya's collection highlights particularly the new importance for healers of recently established celestial knowledge, such as the zodiac, used in medical texts, or mathematical astronomy.<sup>98</sup> As M. Ossendrijver notes, the collection of Iqīšāya is the earliest one in Uruk that contains all categories of Babylonian astral science.<sup>99</sup> While eight astrological tablets employing zodiacal and later astrological methods were also owned and written by Iqīšāya himself,<sup>100</sup> some of the astronomical tablets belonging to the descendants of Ekur-zakir appear to be the work of scribes learning to write astronomical texts and perform astronomical calculations.<sup>101</sup> In addition, the tablets with colophons highlight that the education provided by Iqīšāya to his apprentices possessed a marked interdisciplinarity character. Anu-ab-ušur, who appears to have been trained by Iqīšāya, copied a tablet from the composition *Sakikkû*, a text studied by apprentice healers but also by members of the Babylonian scholarly elite who were not necessarily destined for this profession.<sup>102</sup> Indeed, the scribal training that the apprentices received in Iqīšāya's household not only served to teach them a profession, but also to pass on a system of values and a worldview.<sup>103</sup> Anu-ab-ušur never held the title of a healer, and there is no evidence that his family practised this profession in Uruk. Nonetheless, he also copied for Iqīšāya two commentaries on the *Enūma Anu Enlil*, which contain numerous astronomical explanations. In contrast

<sup>89</sup> See Clancier 2024, 294-5.

<sup>90</sup> There are few examples of astronomical or astrological tablets in the collection of the healers (N4) in Assur and no mathematical texts at all. About Kišir-Assur and his collection see Pedersén 1986; Maul 2010; Arbøll 2021. The collection of N4 in Assur contained only one commentary on the *Enūma Anu Enlil* series (*ACH. Supp.* 2 24). However, Frahm 2011, 270 and fn. 1279, and Arbøll 2021, 178-9 suggest that Kišir-Assur might not have been the copyist of this tablet, and that it is uncertain if he studied astrology at all. The series MUL.APIN was taught to Neo-Assyrian pupils during the elementary phase of their scribal training, even though it is completely absent in the Neo-Babylonian and Late Babylonian school corpus, see Maul, Manasterska 2023, 18.

<sup>91</sup> Britton 2010; Ossendrijver 2012, 1; Geller 2014; Stevens 2019, 46; Steele 2019 and Ossendrijver 2021.

<sup>92</sup> See Clancier 2009, 83-5 for a presentation of the corpus.

<sup>93</sup> Proust 2019, 126 suggest that the mathematical texts of Šamaš-iddin and Rīmūt-Anu betray two concerns of their authors: "on the one hand transmitting ancient mathematical knowledge, and on the other hand providing technical tools for quantifying, buying and selling land, perhaps in connection with the management of garden prebends".

<sup>94</sup> Frahm 2011, 291.

<sup>95</sup> Ossendrijver 2021, 331. However, as Steele 2019, 162 points out the lack of secure attribution of most of the astronomical tablets to a specific phase of the house's occupation makes it challenging to write a detailed history of the astronomical activities in the sector Ue XVIII.

<sup>96</sup> Steele 2019, 150-4 (*SpTU* 1, 100; *SpTU* 5, 267-8, 271).

<sup>97</sup> Ossendrijver 2021, 331-2.

<sup>98</sup> See for an overview Ossendrijver 2021.

<sup>99</sup> Ossendrijver 2021, 334.

<sup>100</sup> Ossendrijver 2021, 336.

<sup>101</sup> Steele 2019, 162.

<sup>102</sup> Gesche 2001, 213-15. See also the tablets Labat 1951b, 1: 200-13, pl. 52-6 (BM 92694) and Labat 1951a, 2: 7-17, pl. 3 (BM 76022) copied by Nabû-kušuršu, the apprentice brewer.

<sup>103</sup> Maul, Manasterska 2023, 21 remark that the excerpts were chosen for the Neo-Assyrian school exercises in order to transmit a system of values "fürs Leben".

to him, Anu-ab-ušur, descendant of Gimil-Anu, also apprentice of Iqīšāya, came from a family in which several members were attested as healers in Uruk. He copied for his teacher one tablet of the divination series *Alamdimmû*.<sup>104</sup>

#### 4 Conclusion

The insights offered by the two tablet collections are valuable in several ways. I aimed to show how, in the specific archaeological context of a house inhabited by at least two families, evidence of education conducted in a private setting is provided at various stages of apprenticeship. Even though tablets with colophons remain rare, there is information on at least three stages of a scribal curriculum:

1. learning how to prepare writing materials, practising the basics of cuneiform, and the proper way to hold a stylus, followed by the transition to learning layout organisation and the names of the gods or of cuneiform signs;
2. progressing to the introduction of the major cuneiform scholarly series;
3. copying reference works of cuneiform scholarship for the teacher's collection, likely accompanied by discussion their interpretation with the teacher, as evidenced by the presence of commentaries in these collections.<sup>105</sup>

Furthermore, the tablets of the Šangi-Ninurta and of the Ekur-zakir families provide rare glimpses into the cultural and political changes experienced by scholars in the Babylonian urban centres during the fifth and fourth centuries BCE, highlighting the growing importance of astronomy in scholarly education. Theirs is not an isolated example, but it remains the only one from this period coming from regular archaeological excavations and therefore possible to contextualise in concrete archaeological data. The same interest in interdisciplinary knowledge and the increasing use of astrology and astronomy are also evident in the collections of texts of other healers' families outside of Uruk. For example, Iprā'ya and his father, Marduk-per'u-ušur, descendants of Êṭiru, copied and wrote divinatory series, medical incantations or medical recipes, as well as commentaries, rituals, or astrological texts in Borsippa around 456-339 BCE.<sup>106</sup> One of their commentaries to 'Marduk's Address to the Demons' associated the epithets of Assalluḫi from literary composition with zodiacal constellations.<sup>107</sup> In Nippur, between the end of the fifth century and the fourth century, the descendants of Absummu also possessed a commentary of *Sakikkû*, with astrological and astronomical explications, a horoscope dated to 410 BCE, planetary observations for the years 365-364 BCE, several medical texts, and ritual texts for the temple of Ekur, presenting the beginnings of the use of the zodiac. These private collections, as the ones of the Šangi-Ninurta and the Ekur-zakir families, testify to the transformations in the practices of the healers during the fifth and fourth centuries BCE.<sup>108</sup>

<sup>104</sup> *SpTU* 4 150. For the sale contract of a healer prebend by the Gimil-Anu family in the Hellenistic period in Uruk see Corò 2018 no. 5, no. 90, no. 91. In the (school?) tablet VS 15 1 the Gimil-Anu family is listed together with the Ekur-zakir family among the seven healer families of the Rēš temple.

<sup>105</sup> On this question see Frahm 2011, 313-14 and Gabbay 2016, 13-24.

<sup>106</sup> See Finkel 1988, 153-5 and Schwemer 2009, 58 for the reading of the name. The astrological texts are commentaries using the zodiac, see Rochberg 1988, 284-90, Hunger 2004, and George, Taniguchi 2019 no. 214.

<sup>107</sup> BM 47529 published by <https://ccp.yale.edu/P461231>.

<sup>108</sup> See about this family Joannès 1992; Rochberg 1998; Robson 2019, 219-20, and Bácksay forthcoming.

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