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Mesopotamian Music Theory Since 1977

Bathja Bayer's survey, as presented in this volume, discusses the first five Mesopotamian music theory texts that had been published by 1977, including the Hurrian hymn from Ras Shamra/Ugarit.¹ Since that time, seven more pertinent cuneiform texts have been brought to bear on the subject, and several new interpretations of the materials have had a significant impact on our understanding of ancient Near Eastern music theory and practice.

I discussed the first five texts, as well as one other (Kilmer 1984). In order to keep the texts straight in the order of their discovery, I numbered them as follows (note that Bayer labels them differently):

- The Neo-Babylonian (NB) mathematical text, CBS 10996 [Bayer's text no. 2: K-MdSt Key-Number Table]
- The NB lexical text, UET 7, 126 (one of the sources for Nabnitu Tablet 32) [Bayer's text no. 3: L-St/L-Md, or L-St *nabnitu*/L-Md *nabnitu* String List/Mode List, U.3011]
- The Middle Assyrian (MA) song catalogue, VAT 10101 (KAR 158) [Bayer's text no. 1: C-Md Song Catalogue]
- The Old Babylonian (OB) retuning text, UET 7, 74 [Bayer's text no. 4: P-Md-St/X-MdSt Procedure Text/Mode-String Fragment, U.7/80]
- The Hurrian cult hymn, h.6, from Ras Shamra, ca. 1400 BCE [Bayer's text no. 5: H-Md (Nt), e//RS h.6]
- The Neo-Assyrian (NA) music instruction text for performing gesture prayers, BM 65217 + 66616

¹ I am pleased to have had the opportunity to read Dr. Bayer's manuscript; it had been long awaited by the many scholars concerned with the cuneiform texts that deal with ancient Near Eastern music theory and practice. My disappointment is that Bayer never concluded her observations of the Hurrian hymn "notation" with an attempt to show just how those musical instructions would have been applied to the lute. In 1976 I heard Bayer's presentation (in Jerusalem) of a paper on that subject, and I had the good fortune in 1977 to discuss the matter with her once again. I take the liberty of recalling her main points here. The music terms developed for the tuning of lyres or harps were transferred to the long-necked lute as fretting instructions. She found this convincing because the number signs used in the Hurrian hymns are normally not more than four, thus appropriate for the fingers of one hand. She assumed, in 1976, that String 1, Akkadian *qudmu*, was the highest pitch, thus the lute's sound box is drawn at the head/front of the lyre. By 1977, however, she had changed her opinion: *qudmu* should be the lowest pitch. Unfortunately for us, she seems never to have worked out these ideas in detail.

After 1984, six more music texts came to light:

- The MB lexical text, N 4782 (one of the sources for Nabnitu 32)
- The OB hymnody text, N 3354 + 3355 + 7679 + 7745
- The OB/MB fragmentary song catalogue, BM 59484
- The OB hymnody text UM 29-15-357 + N 2030
- The OB/MB retuning text fragment, UET 6/3, 899
- The NB star-diagram tuning text, CBS 1766

In 1981, Aaron Shaffer published Text 7. This fragment, from Nippur, whose obverse parallels Text 2 from Ur, provides the names of the nine musical strings, permitting us to extend the list in Text 2 to add the seven standard Akkadian scale names (known from the other texts) alternating with their *sihpu*-forms. While Shaffer suggested that Akkadian *sihpu* referred to the scales' "inversions," Crocker and Kilmer (1984) argued that the term should refer rather to the "plagal" forms of the seven "authentic" scales. Shaffer's small Nippur fragment made it possible to restore the entire set of seven scale names, both "authentic" and "plagal," in the NB source of Nabnitu 32. (For a completely different interpretation of *sihpu* as representing the interval of a second [two adjacent strings], see Jerome Colburn's (2009) contribution.)

As noted by Bayer and others, it is Text 4, the OB retuning text from Ur, that was crucial for our understanding, because it provides the step-by-step tuning procedures for the strings of a lyre (or harp). From this text, as demonstrated by Wulstan (1968), we learn that the tritone in each of the seven scales was called the "unclear" (Akkadian *la zakû*) interval. In Gurney's and Wulstan's 1968 publications it was assumed correctly that in Text 4 the tuning was carried out in two different tuning cycles: the first would have been accomplished by lowering (or loosening) the string pitches by a semitone, followed by an instruction described in a partially broken line that separated the two sections (the broken line had been read as NU.SU.U[D?] 'no further'[?]). It was assumed that the second section would have given the procedures for raising (or tightening) the strings. These interpretations were based on the assumption that the nine strings or notes moved upward or ascended in pitch.

R. Vitale, in 1982, questioned that assumption primarily based on the name of the third string, "third, thin" (Akkadian *šalšu qatnu*), and also on the Sumerian description of the fourth string as "small." He reasoned that if the third string were "thin" and the fourth "small," they would have been the highest pitches; therefore, the tuned set of strings, i.e., the scale, should be moved downward. That observation, however, was not convincing in and of itself at that time.

By 1990, T. Krispijn had solved the dilemma by re-reading the partially broken line of the retuning text as Akkadian *nu-su-h[u-um]* 'to tighten' (instead of the

earlier attempt at NU.SU.U[D?] ‘no further’[?]). Thus, the first tuning section was the tightening of the strings by semitones. This reinterpretation led Krispijn to additional new readings of the text, notably of line 19: instead of understanding *te-n[i]-m[a]* as “you alter” (from the verb *enû*), he now read *te-ni-e’* ‘you loosen’ (from the verb *nê’um*).

The resulting changes in translation of a generalized tuning procedure of the first section turned Gurney’s (1968) “If the harp is (tuned as) X, and the interval Y is not clear; you alter the (string) N, and then Y will be...” into his new (Gurney 1994) rendering (lines 1–12), “If the instrument is (tuned as) X, and the (interval) Y is not clear, you tighten the (string) N, and then Y will be clear.” The preceding procedures were summed up as “tightening.” The second tuning section of the same text is now translated as follows: (lines 13–20) “If the instrument is (tuned as) X, and you have played an (unclear) interval Y, you loosen the string N and the instrument will be (in the tuning) Z.” The second section was presumably and logically summed up as: “[loosening]”. This newer interpretation is generally accepted today.

That the seven Mesopotamian musical scales (at least as early as ca. 1800 BCE) were heptatonic-diatonic scales has been proven to the satisfaction of cuneiformists and musicologists alike. It should be noted here that, thanks to the observations of Wulstan (1968) and Kümmel (1970), it was recognized that the ancient Mesopotamian musicians/“musicologists” knew what we call today the Pythagorean series of fifths, and that the series could be accomplished within a single octave by means of “inversion.” Kümmel taught us that the names given to the seven tunings/scales were derived from the specific intervals on which the tuning procedure started. For example, if the tuning procedure started with the interval *išartu* ‘normal’, the resulting scale was called *išartu*.

However, the change in our recognizing of the scales as moving downward rather than upward means that *išartu* 2–6 was no longer string 2 (RE) up to string 6 (LA), but rather 2–6 as 2 (TI) down to 6 (MI). As Crocker (1997: 195) emphasized, “The principal difference brought about by Krispijn’s restoration (of *nu-su-h[u-um]*) is that the seven octave segments (or intervals) receive different names” (than those they bore earlier). Thus, *nīd qabli* “fall from the middle” was, before Krispijn (1990), the scale from C-C (ascending). After 1990, it is E-E (descending). As a result, all the pre-1990 ancient Near Eastern music texts (e.g., the Hurrian hymn) could now be revised using descending scales (see West 1993–1994; Hagel 2005; Dumbrell 2005; Colburn 2009).

As it stands now, the names of the nine strings are as follows:

	Sumerian Names	Akkadian Names	Translation
1.	sa-di	qudmû	fore
2.	sa-ús	samuššu	next
3.	sa-3-sa-sig	šalšu qatnu	third, thin
4.	sa-4-tur	Ea-bānû	Ea-creator
5.	sa-di-5	hamšu	fifth
6.	sa-4-a-ga-gul	ribi uhrî	fourth from end
7.	sa-3-a-ga-gul	šalši uhrî	third from end
8.	sa-2-a-ga-gul	šini uhrî	second from end
9.	[sa-1]-a-ga-gul	uhrû	end

(It should be noted that R. Dumbrill [2005: Book 1, 19] believes that, in view of the fact that there are nine strings, we should refer to this set of nine strings/notes as an “enneachord” (or as an “enneatonic” system, like “pentatonic” or “heptatonic”).

The following table gives the names of string pairs or intervals of fourths and fifths that gave their names to the scales whose tuning procedure started on that interval:

	Akkadian Names	Translation	Corresponding Greek Name
1–5	nīš tuhri	‘rise of the Achilles tendon’	Mixolydian
2–6	išartu	‘normal’	Lydian
3–7	embūbu	‘reed pipe’	Phrygian
4–1	nīd qabli	‘fall of the middle’	Dorian
5–2	qablītu	‘middle’	Hypolydian
6–3	kitmu	‘closed’	Hypophrygian
7–4	pītu	‘open’	Hypodorian

The name of the string pair 1–5 had been hitherto read as *ni-iš GABA-ri/nīš gabarî* ‘rise of the duplicate’. Our new reading comes from Text 11, recently published in the journal *Iraq* by S. Mirelman and T. Krispijn (2009; see below).

The intervals of thirds and sixths that were used in tuning and performing, but which were not used to denote scales, are named as follows:

7–5	šēru	‘song’
1–6	šalšatu	‘third’
2–7	rebūtu	‘fourth’
1–3	isqu	‘throwstick’
2–4	titur qablītu	‘bridge of the middle’
3–5	titur išartu	‘bridge of the normal’
4–6	serdū	‘lament’

The seven musical scales/tunings are presented here (note that, in the exhibition catalogue, *Sounds of Ancient Music* p. 26, one of the seven scales, the second from the bottom of the list, was inadvertently left out):

E	F	G	A	B	C	D
E	F#	G	A	B	C	D
E	F#	G	A	B	C#	D
E	F#	G#	A	B	C#	D
E	F#	G#	A	B	C#	D#
E	F#	G#	A#	B	C#	D#
E#	F#	G#	A#	B	C#	D#

The remarks that follow concern the newer texts, not known to Bayer.

Text 6: This NA text, probably from Sippar, presents instructions for the musical performance of gesture prayers (Akkadian *ikribū*) “for the king”; the prayers are listed by their opening lines and are preceded by the string/note on which to start (or end) the piece. The text ends with further instructions that are not yet understood, but which contain the known interval/scale name *išartu* ‘normal’, the term *piz/smu*, which occurs only in this text and in Text 7, and an otherwise unknown term, *maZrūtu*. These three terms are followed by instructions for the hands and fingers, perhaps relating to fingering techniques on a stringed instrument. These terms may refer, if not to scales, to hymn “types” (Kilmer 1984, 1997).

Text 7: This is the fragmentary MB text from Nippur, mentioned above, that parallels the lexical text Nabnitu 32. Text 7 permits us to restore the list of “authentic” and “plagal” (Akkadian *sihpu?*) scale names that follows the names of the nine musical strings in Nabnitu 32. It also introduces the new term, *pis/zmu*, perhaps another scale name, which is also found in Text 6.

Texts 8 and 10: OB Nippur gives us several joinable fragments of musical instructions for performing royal hymns (Kilmer and Tinney 1996, 1997; Kilmer and Peterson 2009). These texts use the standard scale and string names, but add the Akkadian terms *zennum* and *gennum*, which may mean “tune” and “test.” Any “notation” that may be derived from or assumed for these instructions is

“skeletal” at best or may be a form of instrumental “tablature” (Kilmer 1992; cf. Colburn 2009).

Text 9: While this fragmentary OB song catalogue may originally have included scale names or other useful information connected with certain songs (as is true of Text 3), this fragment contains only five titles of *irtu* ‘breast/love’ songs and a two-line *mehrum* ‘antiphon’ belonging to them (Finkel 1988).

Text 11: Although fragmentary, this second OB retuning text from Ur has given us a new reading for the interval/scale name previously read as *nīš gabarī* (or *GABA-ri*) ‘rise of the duplicate’. In this text, which closely parallels Text 4, where *nīš GABA-ri* is expected, the text writes instead *nīš tu-uh-ri* ‘rise of the Achilles tendon (referring to heel of the foot?)’ [the cuneiform sign *GABA* also has the syllabic value *-tuh-*] (Mirelman 2008; Mirelman and Krispijn 2009).²

Text 12: An incompletely inscribed NB(?) tablet of uncertain provenience, previously thought to be an astronomical text, turns out to be a music theory text, which, illustrated with a seven-pointed star, has been dubbed a “visual tuning chart.” While not all the cuneiform signs are clearly drawn (probably the work of an ancient student), it is obvious that the text uses the well-known string names of the seven-note musical scale. This tablet represents the earliest ancient example thus far of a circular chart with star points used to illustrate tuning procedures (Horowitz 2006; Waerzeggers and Siebes 2007; Horowitz and Shnider 2009; Friberg 2011).

Text 5, the Hurrian hymn from ancient Ugarit, modern Ras Shamra, has received a great deal of attention over the years and has been interpreted in many different ways (at least fifteen) by scholars (musicians, musicologists and Assyriologists) around the world. It would require too much space here to review those many interpretations (not all of them have been published) in detail. Suffice it to say that the different interpretations center on the function of the Akkadian interval names (plus the relatively few Hurrian terms that occur among the music instructions) and the number signs in the music instructions that form the second part of the text, following the Hurrian words of the song. The instructions consist of an interval name followed by a number sign: for example, “Middle (strings 5–2), 3.” Some scholars believe that only one member of the two-string-pair names would relate to the melody (or the accompaniment) of the piece; some believe that both members would have been used while others suggest that the octave of one of the strings/notes would have been tacitly included. As for the numbers themselves, they have been interpreted as a reference to the selected number of notes from the interval that is named; some have suggested that the

² Kilmer (2000: 116) misprinted *tuhāru* (‘ibex’) in reference to decorative animal heads for a *sammū* ‘lyre’. The correct Akkadian translation of ibex is *turāhu*.

numbers express melismatic decorations around the last note of the interval; others suggest that the numbers refer to musical measures; while still others believe that the numbers indicate the number of times to repeat the interval. Concerning any musical movement suggested by the instructions, some see it as a purely melodic stepwise motion, one note at a time; some suggest that both members/notes of the named intervals could have been played simultaneously (see Kilmer 1997; Dumbrill 2005, for more detailed discussions). Another debated feature of the Hurrian hymn(s) is the relation/coordination of the instructions to/with the lyrics. The most recent audio recording (that I am aware of) that demonstrates the Hurrian hymn in both its ascending and descending renderings may be found in Smith 2003.

An additional text, not appearing on the text list above can be found in R. Dumbrill's (2005) comprehensive collection and review of all subjects and evidence relating to ancient Mesopotamian music. There is a partially broken cuneiform tablet of uncertain provenience from a private collection (the Schøyen Collection MS 5105), which Dumbrill labels as "an anonymous O.B. Music Text." It contains two signs that have been read as PA and TU and number signs ranging from 1 to 14. Dumbrill's analysis argues for a musical interpretation of the numbers. I leave it to others to follow his discussion and interpretation.

Several of the newer studies deserve special mention: West's (1993–1994) analysis of all the Hurrian hymns from Ugarit, even the most fragmentary; Hagel's (2005) detailed examination of the frequency of all the musical intervals used in the Hurrian Hymns, and Dumbrill's (2005) re-renderings of them.

It is true that new readings and interpretations of all the evidence, not only the Hurrian hymns, are generally welcomed by all, even when there are conflicting views. After Gurney's (1994) restudy of Text 4, based on Krispijn's re-reading of NU.SU.U(D) 'no farther' as *nu-su-h[u-um]* 'tightening', two musicologists, Crocker and West, approached the evidence and the problems quite differently, as may be seen in their thoughtful and lively (if sometimes contentious) contributions on Mesopotamian Tonal Systems (Crocker 1997; Gurney and West 1998). Many of us, Assyriologists not trained in music, find some of the musicological arguments difficult to digest.

Any and all new information concerning ancient Near Eastern music theory and practice is not only welcome, but also continues to generate a certain excitement among cuneiformists, music historians and the general public, as has been the case since the 1970s when our evidence from cuneiform tablets first became known worldwide.

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