

MUSIC IN ANCIENT ISRAEL/PALESTINE WITH REFERENCE TO
TONALITY AND DEVELOPMENT OF THE PSALMS

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MUSIC IN ANCIENT ISRAEL/PALESTINE (AIP) WITH REFERENCE TO
TONALITY AND THE DEVELOPMENT OF THE PSALMS

by

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I declare that

“Music in Ancient Israel/Palestine (AIP) with reference to tonality and development of the
Psalms”

is my own work and that all the sources that I have used or quoted have been indicated and
acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software.

I further declare that I have not previously submitted this work, or part of it, for
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A handwritten signature in black ink, appearing to read 'Wynand Johannes Christian Pretorius', with a horizontal line underneath the name.

21/06/2018

SUMMARY

Music has formed a part of human life as far back as demonstrable. Music existed long before musical instruments made their appearance. The examination of textual evidence read in conjunction with the available archaeological evidence from the time and area clearly demonstrates which musical instruments were available and the instances they were used at. It clearly points to the lyre as the primary proponent of the musical culture of the time with regards to melodic music. This is confirmed from what we learn from the ancient tuning tablets. There thus is a direct demonstrable connection between the instrument and the theory of the time. Work done on the musical elements of the cantillation marks of the Hebrew Bible comfortably fits into this framework and appears to be a direct influence on the manner in which the Psalms were sung and composed. A combination of literary, archaeological and musical sources can thus be used within a literary and historical approach to demonstrate the availability of musical instruments in AIP, the manner in which tonality was recorded and its influence on the development of the Psalms.

KEY WORDS

Ancient Near East, Archaeomusicology, lyre, open-ended-multi-stringed instruments, lyre, Nippur tablets, musical notation, cantillation marks, Psalmody.

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DEDICATION

With love I dedicate this work to my daughters, Arnè and Christi.

Talent is cheaper than table salt. What separates the talented individual from the successful one is a lot of hard work – Stephen King



MUSIC IN ANCIENT ISRAEL/PALESTINE WITH
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King David – painting by Chagall

1. CHAPTER 1 INTRODUCTION

1.1 MUSIC AND CULTURE IN HISTORY

Music has formed a part of human life as far back as is demonstrable. It is found in every sphere of life as an expression of emotion, as an instrument of pleasure and as motivation. It even transcends our physical life forms and is found in our visions of the spiritual world. At first man simply spoke, but tone and pitch must be added to enhance any experience and illuminate story telling. Tone, pitch, and melody must develop by everyday means, in singing or humming when working the fields, working at home, putting a baby to sleep, alleviating menial tasks, killing time, breaking monotony and enhancing everyday life.

Archaeo-musicology is a fairly new development within the realm of Biblical Archaeology, but is now more active and actively pursued than ever before. There is a new interest in music and the musical instruments of AIP. New archaeological finds bring new knowledge as archaeologists learn to look for artefacts previous unnoticed. Newer methods of excavation, collection, recording and reporting of data play an important role. Musical instruments developed and concomitantly tonality and the manner in which music was written down originated and developed. The interest in the musical culture of AIP has stimulated study and greatly enhanced our knowledge of all aspects musical.

Religion was (is?) an important part of everyday life. God/the creator you believe in, could be seen, and experienced in everyday objects, in everyday happenings, in the weather, in the seasons, in the growth or failure of crops, in prayer, in sacrifice and in cultic objects specifically created for religious purposes. Music and culture is inherent to man and must be viewed in the totality of life. Culture has identity. It belongs to the people and allows for development of a unique footprint of a nation. Music, like culture, is not transferred genetically, but is learnt from our fathers and their fathers. Local culture exists within a more global/larger culture, but it defines the way people view themselves, the way they act and the way they interpret their value

system. Music forms but one part of the culture of a nation, but it is an inextricable part, tangled into the fibers of who we are. Music, like culture and life, is alive, never stagnant, and constant interaction brings forth development, not only on a global scale, but also on a localized scale, allowing for the development of music and musical culture unique to a certain people. This also is true for AIP, although admittedly, contact and interactions with surrounding ethnic groups undoubtedly took place, exercising their influence and promoting change and development.

A timeline can be drawn and inferred with regards to musical instruments, although music already existed long before the appearance of instruments. It stretches from the prehistoric time into our current age and will probably continue indefinitely. Modern genetic studies have indicated a genetic Adam and Eve originating from central Africa and through following the genetic genome we can now plot the migration of ancient man through the north of Africa, northwards into eastern Asia as well as Western Europe and further.



<https://genographic.nationalgeographic.com/results/infographic>

Fig 1.1 Ancient human migration patterns from the National Geographic genetic study.

BBC News reported on 25 May 2012 that the oldest musical instrument ever discovered, is a flute made from bone which was found in the south of Germany

and dates from 36000 BCE. We can find evidence of this in the article by Thomas Higham et al, "Testing models for the beginnings of the Aurignacian and the advent of figurative art and music: The radiocarbon chronology of Geissenklösterle", published in the Journal of Human Evolution, vol 62, nr 6, June 2012, pp 664-676. This practically predates all other aspects of known visual arts (Sieberhagen, 2011: 6). If music (at minimum vocal types of music) existed even before this, as we claim, it is possible that it originally came from the bowels of Africa as a single entity, spread across the world with the spirit of man - similar to the migratory patterns now being studied and compiled by the genetic study undertaken by the National Geographic.

The people of AIP thus developed their own musical culture (Braun 2002: 2). Of this we read in especially the Bible. We find in the book of Psalms references of the nation expressing their spirituality, lamenting and sorrow, love and prosperity, as well as a means to relay tales and fables from the past. Music becomes a language in its own right and it transcends age, race, and social status.

Some archaeological data has been unearthed and must be explored. This is true for the existence of, and development of musical instruments in AIP, and reference should also be made to the instruments of neighboring nations – people that ancient Israelites came into contact with, whether friend or foe. We will find and endeavor to confirm that music in AIP was performed in physical, religious, and social settings and developed primarily in the period up to 400CE. Music is known to exert its influence in certain situations (Miell et al, 2005: 10,12). Think of the singing from the crowds at sporting events. It can be used to reach a purpose. A positive feeling is created when music is joyful and fast, while when soothing it creates a feeling of tranquility. Music gives outlet to our emotions and conveys this feeling, not only in everyday life, but also in religion; it also exists as a pure art form in dedicated musical performances. Music can also be used to convey a specific message. It can convey information prompting action, the most notable example that of the ram's horn at the walls of Jericho.

Musical instruments are closely related to geographic areas and thus can convey information with regards to the local culture of the time, and underlying to this, the musical culture (Burgh 2006: 42,43). It is possible to infer from the musical instrument the music played. It logically is a two way interaction, because while the instrument conveys knowledge about the local culture, the culture also conveys knowledge with regards to the instrument. Because music often requires specialized and developed technique, both musical instruments and musicians become a commodity sought after not only by the common man, but also by the affluent and royals. The Iron Age was a time when cultural development and music reached a peak in AIP (Burgh 2006: 2,43; Sieberhagen 2011: 7).

The music of famous modern composers like Beethoven and Mozart can be conveyed and performed only because their work is available in written form, using a method of notation well developed and known widely. Little knowledge exists about how tunes/melodies were written down, remembered, or transferred from one region to another/one generation to another/one nation to another in AIP. Some suggestions have been made, even by some of the biggest names in Ancient Near East archaeology like Braun, McCorkle, Burgh, , but the multiple references in the Hebrew Bible with regards to music, musical terminology and instruments cannot be ignored. The Bible describes several instances where music forms part of the religious cult, as part of processions, as an integral portion of religious feasts and sacrifice. We find the nation jubilantly singing after war in 1 Samuel 18: 6, singing at feasts and weddings in Psalm 78: 63, accompanying the prophecies of Jeremiah in Jeremiah 31: 4,5, singing while offering in Amos 3: 5 and singing the praises of their almighty God in Psalm 147. It is sacrilege to imagine that this all would have been lost because there was no existing knowledge, firstly of writing and secondly of a system of notation. In fact, we know that the art of writing was known and available and developing. Perhaps we merely have to search for the musical within this?

The Psalms are primarily poetic in form and are supposed to be sung. They display rhythm, rhyme, and melody. This did not spring up overnight but slowly developed as music/musicology developed. Is the music, tone and melody universal and how is that carried over? How was the knowledge of melody and rhythm transferred and taught? When the Psalms, that were supposedly written/composed as songs, were penned down, was tone and melody recorded as well, or implied in any manner? Our understanding of modern tonality is described in the Encyclopedia Britannica (Encyclopaedia Britannica, electronic edition, 2018, at <https://www.britannica.com/editor/The-Editors-of-Encyclopaedia-Britannica/4419>) as the

“principle of organizing musical compositions around a central note, the tonic. Generally, any Western or non-Western music periodically returning to a central, or focal, tone exhibits tonality. More specifically, tonality refers to the particular system of relationships between notes, chords, and keys (sets of notes and chords) that dominated most Western music from c. 1650 to c. 1900 and that continues to regulate much music”.

We endeavor to gain as much possible knowledge from available texts and by studying the instruments of AIP and its neighbors. Merely reading from the Hebrew Masoretic text is insufficient - the Bible would mention the name and the use of a musical instrument, but would give no description otherwise because this was regarded as secondary to its use within the religious cult - and we use every resource available to us including translations of the Bible and the writings of authors like Josephus Flavius and Philo. But relying only on what we read in the Bible and its relevant texts, is looking at only a part of the picture. Large strides had been made in the last few decades, confirmed by the plethora of scholarly articles published in the last few decades.

It was a big breakthrough when the first four Mesopotamian tablets were translated and explained. This was followed by the translation of several other fragments. We will confirm this in chapter 5. Archaeology, therefore, is directly responsible for our knowledge about the technicalities within ancient music. This did not completely

answer all our questions, but certainly made some inroads with regards to our understanding, and with constant revision and rethinking of what is available, corrections and advancement would take place where previously there was uncertainty. In this context, it is therefore important to know the development of music even before ancient Israel, as well as to know the music of its neighbors at the time when contact was made. For a long time it had been construed that we did not have any musical record from AIP, but of course it has been proven incorrect.

For a long time, our knowledge of music and musical instruments completely relied on what we read in the Bible. Archaeology would improve this thinking. What we found in archaeological excavations forced us back to the Bible and our textual sources, forced us to reread these and to rethink the musical terminology, the origins thereof and its development. And the full-circle appears to be completed when we start thinking in terms of singing, how singing was applied in the religious cult, and thus what the Psalms might have sounded like. There are incidentally 12 terms in the Old Testament used for vocal music, which is more than that for instrumental music. It would be a major tragedy if the music of the Psalms had been completely lost, not transferred orally and neither in written form. We can of course visit modern Jewish communities in the area of ancient Babylon, now Iraq and Yemen, in the hope that they have preserved something of the actual ancient music and sound. They have been relatively insulated from non-Jewish communities and have had practically no contact with westernized music. But they unfortunately have been in contact with Islamic music for many years and this would not have failed to exert influence.

1.2 PROBLEM STATEMENT

In the view of the unique setting of AIP, both geographically, politically and culturally, it should be possible to highlight firstly, the musical instruments of the time and place, then secondly, to illustrate how the instruments were adapted and developed and the applications thereof. It is important to equate this knowledge to the musical instrumental names and terminology that we find in the Bible and other texts, and to understand why these were used, how these were used, and how we should interpret

these within our modern framework of understanding. We attempt this by transcribing our current and modern understanding and knowledge on to the available archaeological evidence and texts.

The relevant question therefore to ask is: *Is there a demonstrable pattern in the development with regards to the availability of musical instruments of AIP, of our understanding of how tonality developed in AIP, how it was written down and assisted in the composition and development of the Psalms?*

1.3 HYPOTHESIS

A combination of literary, archaeological and musical sources can be used within a literary and historical approach to demonstrate the availability of musical instruments in AIP, the manner in which tonality was recorded and its influence on the development of the Psalms.

1.4 MOTIVATION

The expected contribution lies in the combination of historical background with the development of musical instruments, of our understanding of how musicality and tonality developed in AIP, how it was written down and assisted in the composition and development of the Psalms. Ample data is available in printed form with multiple papers and contributions available in the public domain. These will be used and quoted extensively throughout this study and are listed in the attached bibliography, including to online links where applicable. The aim of this study is to combine the current knowledge into creating new knowledge.

The objectives to be attained in this study are mainly threefold:

Investigate the presence of musical instruments from AIP using the available literary, archaeological and musical sources,

Investigate, describe and explain how musicality/tonality developed and the ways in which it was written down or recorded,

Investigate and analyze the Psalms in order to understand and explain how the Psalms developed in both a literary and musical form; can rhythm, rhyme, melody and tonality be attributed to the Psalms?

1.5 RESEARCH METHODS

Boyer published his model of Scholarship in 1990 (pp15-25). He proposed 4 types of scholarship. A shortened explanation of the Boyer models of Scholarship can be found as a two-page article published on May 2015 at <https://www.scribd.com/doc/266054201/boyers-model-of-scholarship> :

- a. Scholarship of discovery – this is original or new research. It advances knowledge.
- b. Scholarship of integration – this method integrates information extending across disciplines, or across different topics within a single discipline, or across time.
- c. Scholarship of application – this integrates education with community development. This will then benefit individuals and groups of people.
- d. Scholarship of teaching and learning – this has the opportunity of public sharing. It allows for application and evaluation by others.

In my view, within the creation of this dissertation, there is a combination of scholarship of discovery as well as scholarship of integration.

Scholarship of discovery allows for the use of new archaeological evidence.

This obviously enhances current knowledge as described in the definition.

However, there is integration with biblical studies and history with regards to the references to the Bible used within this study. This represents scholarship of integration with the use of information extending across disciplines.

I will use as my base a theological and historical approach.

My main focus therefore is on evaluation, musicography, Archaeomusicology and historiography.

Historiography refers to the study of the methodology of historians and the development of history as a discipline, and to a body of historical work on a particular subject. This covers how historians study a specific topic using specific sources, different techniques, and different theoretical approaches. It allows for dedicated study of a specific single subject, for example Christendom, East Asia, or even a person like Napoleon.

The body of historical work on this particular subject covered in this particular study begins with the Bible as its primary source, and then also includes archaeological evidence as source. It addresses textual criticism, discoveries, archaeology, Biblical literary approach, Bible studies, historiography, and history of early Israel.

The Oxford dictionary (2018, online version at <https://en.oxforddictionaries.com/definition/musicography>) refers to "Musicography" as the writing on the subject of music. Archaeomusicology explores the role of music in ancient Israel and Palestine cultures.

Historical archaeology is the study of cultures with some form of writing. The study will rely heavily on written sources with relation to tonality and how it was recorded. A textual and literary approach still is very popular in Old Testament studies and will already be important in understanding and describing musical instruments from AIP and will also be applied in deconstructing the manner in which tonality was recorded.

The proposed work is thus historically and archaeologically driven, and what we find within the archaeological world will (in this study) not be used for spiritual and/or theological justification.

2 CHAPTER 2 SOURCES

2.1 INTRODUCTION

In evaluating the music and available instruments from AIP, three distinct types of sources exist:

- Literary
- Archaeological
- Musical

Although a great deal of source material originating from the Ancient Near East is available, it is important to extract and emphasise what is meaningful. It is not the primary area of study of this dissertation and a simplified view of the available sources is considered. Nevertheless, it is important with regards to any source material to understand:

- the timeline and chronology,
- where it originated from,
- its earliest known history, and
- the genre to categorise artistic composition with reference to similarities in form, style and subject matter, as well as specific individual characteristics.

Even though we apply ourselves diligently, in practice, it is difficult to attain this and sometimes impossible. Much of what we know today is based on philological (the study of literature and art disciplines relevant to literature or to language as used in literature - Webster dictionary), iconographical and archaeological research. This often is done by archaeologists who are not musicologists. Reciprocally, it sometimes is done by musicologists who are not archaeologists. This can obviously be detrimental. Also, the field does not only include archaeology, musicology and philology, but it would assumedly be expected of the learner/researcher to have knowledge of musical techniques and of related arts.

Musical sources are few. This includes not only musical notation, but also literary sources concerning music and technical matters about music. Fortunately, this concept changes as our knowledge increases and more of the “secrets” hidden within archaeology and its artefacts are deciphered.

Archaeological sources are more numerous and archaeo-musicology has recently developed into a meaningful field of study.

2.2 LITERARY SOURCES

Literary sources are abundant and not only convey musical information, but also convey information about the circumstances in which music was performed with regards to religious life and rites, and everyday life. On the down side, much of what we have was produced by copying from another source document. The date of the document's origin consequently is different from the ancient source and leaves us at the mercy of the accuracy of the copyist, if there is no similar document for comparison. Although it is true that much of the music in antiquity was vocal in character, we still have to rely on written sources to inform us about the vocal music. John Arthur Smith in 2010 published "Music in Ancient Judaism and Early Christianity" and points out that several problems exist with regards to the interpretation and evaluation of musical literary sources:

- Precise dating is often impossible and it is sometimes only possible to establish a source as belonging to a certain period.
- Transmission of texts in itself is wrought with vagaries. The original text may have originated in two distinct periods.
- Some texts may have been written long after a certain period which it narrates and archaizing (deliberately employing archaic words and expressions in order to give a text an elderly or archaic appearance) could have been employed.
- Texts may have undergone several revisions. Each revision renders the opportunity for assimilation and shedding of material.

The dating thus commonly is by general consensus.

- Some musical and music -related terms have been lost/forgotten over time. This is compounded by corruption of texts due to frequent copying.
- Translations of terminology is not always reliable. This is especially true if some confusion already existed with in the original text.

2.2.1 The Hebrew Bible

Philology, linguistics and etymology all constitute valuable aids in understanding the ancient Semitic and Hebrew texts. Luckily, most of the available ancient texts are now available in some translated form. Modern English translations are widely available, but these might not necessarily reflect the intended nuances of the original text or language. This would be especially true for technical terms of which musical terminology forms an obvious group. They help us to understand the meaning of terms and idioms, and can even suggest meanings that are worthy of consideration if the meaning had not previously been established. It is however, very important to understand that neither etymology nor linguistics can truly supply the meaning of a term, but will only help to clarify the meaning. Linguistics study the technical aspects of how a language functions. Etymology is the study of the origin of the word and the historical development of its meaning, i.e. how the meaning had changed throughout history. It is not a definition in itself, but an explanation of what the words meant. It therefore is in essence a retrospective study, wherein itself lies some danger, as the investigation of such a meaning might possibly be different from our modern understanding of the term. It is important to use every method available to us to deduce a contemporary meaning of a specific term, including etymological and linguistic, and to determine the context in which it was used. It unfortunately happens that these criteria/our use of these criteria not always agree, but it would nevertheless be a mistake to rely on only a single system.

The Hebrew Bible is freely available as an English translation in many forms. When possible, I used the JPS Tanakh which is published by the Jewish Publication Society. It dates from 1985. This is generally available, and free, together with some other interesting works, at either <http://nocr.net/bexpo/english/engtnk/index.php> or <http://www.jewishvirtuallibrary.org/the-tanakh-full-text> .

Literary sources with regards to music vary greatly with regards to chronology, origin and type. Noteworthy sources include the so-called Dead Sea Scrolls, as well as other historical and rabbinic writings. Of fundamental importance, however, is what we now know as the “Hebrew Bible”. It is understood that these all originate from the Masoretic Text. We will

again meet the Masoretic Jews when investigating cantillation marks now added to the Hebrew text. The Hebrew Bible also contains four passages that were written in Aramaic. These are found at:

- Jeremiah 10: 11
- Daniel 2: 4 – 7: 28
- Ezra 4: 8 – 6: 18
- Ezra 7: 12 – 26

The books of the Hebrew Bible most likely had been settled by the first century CE. The dates on which the individual books were composed often still remain contentious. Many books also do not have a single author. It also is true that many books have undergone revision and redaction.

It is important to remember that the Bible was originally written in Hebrew with a few chapters in Aramaic. Transliterations of the ancient Aramaic and Hebrew text are available. This allows for reversal into the original text, but also allows for a non-Hebrew speaking reader to render an approximately correct pronunciation. Each character in the text represents a unique sound in the Hebrew language. However, the *lingua franca* in the post-exilic period was Aramaic. Old Biblical Hebrew had been reduced to a literary language and was only read by the most educated and was not spoken in everyday life. The precise meaning of some words or phrases must have already been lost in this period, because the vocabulary and grammatical construction is different (Shanks 1995: 86-7). It is easy to understand that younger generations of Jews returning after 70 years in exile now only spoke and understood Aramaic. Translating the Bible then already started:

⁷Jeshua, Bani, Sherebiah, Jamin, Akkub, Shabbethai, Hodiah, Maaseiah, Kelita, Azariah, Jozabad, Hanan, and Pelaiah, who were Levites,^[b] explained the law to the people as they stood in their places. ⁸They read out of the book of the law of God, translating and giving the meaning so that the people could understand what was read.
Nehemiah 8: 7, 8 (HCSB)

I have made use of frequent quotations from the English Bible. Most of the English quotations used in this work are taken from the New King James Version of the Bible. Different editions are used to illustrate certain specific points and differences, but those editions are all indicated. Both BibleGateway at <https://www.biblegateway.com/> and

Bible Hub at <http://biblehub.com/> provide several translations and versions of the Bible available today.

2.2.2 The Septuagint

In the last three centuries BCE the Hebrew Bible was also translated into Greek, dating to about 250 BCE. This is now known as the Septuagint (LXX) and must therefore have existed in Alexandria by the middle of the 3rd century BCE. This translation was done at the request of an Egyptian King named Ptolemy Philadelphus (Collins 2000: 20 - 57). The legend is that 72 learned scholars were sent from Jerusalem to prepare this translated text, hence the name thereof.

This translation represents a literary source that predates the Hebrew Masoretic Text, and thus becomes a valuable aid to the Hebrew text, with the Codex Sinaiticus and the Codex Vaticanus that both date from the 4th Century CE. It also was in a language – Greek – that was the common language in Alexandria.

One problem that exists today with regards to the interpretation of ancient Greek texts does not lie within the linguistics or the etymology, but exists because of the state of its ancient orthography. Orthography deals with written language. It constitutes the norms of spelling, hyphenation, word breaks and punctuation. And here-in lies our modern dilemma as ancient Greek was written in unbroken, unpunctuated uncial (derived from the Late Latin *unciales litterae* meaning rounded unjoined letters- incidentally the forerunners of our modern capital letters) script. Separation of words, paragraphs and punctuation is only found from the Middle Ages onwards and in no way can we guarantee that the separations we find in texts today are as they were initially intended. The Septuagint, as we read it today, contains many paragraph markings as well as syntactical dots and writings in different colours.

We accept that the Masoretic Text was probably completed sometime in the 10th – 11th century. It was a task completed by a group of Jewish scholars and rabbis known as the Masoretes, tasked at restoring the Old Testament to its original form, removing mistakes and alterations that had been made during the period of Babylonian captivity; also to

prevent future alterations and changes. The standard Masoretic Hebrew text has always widely been accepted as the gold standard and norm, but we find small differences in the Septuagint that are an indication that the translators already were working from a Hebrew text that was different from the Masoretic Hebrew text. The order of books is different from that in the Masoretic text and some books have different chapter and verse divisions. Similar to the Hebrew text, the Septuagint did not escape its versions of variations, recensions, modernizations and translations, the latest authoritative into English by Albert Pietersma and Benjamin Wright in 2007. The Septuagint also contains additional material not found in the Hebrew Bible. In the Book of Psalms a 151th Psalm is added, as well as some additions to the book of Daniel. There is a further series of books not found in the Masoretic text, including notably the Psalms of Solomon. Most of these additional books appear to have originated from the early Hellenistic to the early Roman periods and some of them contain material pertinent to music.

2.2.3 **The Vulgate**

The Vulgate is a Latin translation of the Jewish texts, as well as Old Testament Apocrypha and now is widely available. Most of the apocryphal texts are also contained in the Septuagint. It dates from about the late fourth century CE. It is important to remember that surviving copies of the Latin translation predates surviving Masoretic texts by a significant figure.

In the period from about 100 – 200 CE the spread of the Roman Empire was so great that the most common language was Latin. Greek remained the language of the elite; the Old Testament already existed as the Septuagint, and so was available to anyone who knew Greek. It is obvious that some of the populations of the Roman Empire would not be fluent in Greek, but mostly knew Latin. Thus, early translations appeared in Latin, but these often were of poor quality and they also often differed from each other. Eusebius Hieronymus Sophronius, now known as Jerome was born in Italy in 345. He was a devout Christian and scholar and was instructed by Pope Damasus I to produce a translation of the Bible into Latin that would correct the inaccuracies of the previous translations. Damasus believed that creating a single standard Latin text would promote universal doctrine.

The church father Jerome is commonly attributed with the translation of the Vulgate and it is said that he began this translation of the Bible from Greek to Latin in 382. For 23 years he worked on the project alone and finished in 404. Because he used the common or vulgar language of the time it was known as the *editio vulgate*. It ultimately became the official Latin version of the Bible in the Catholic Church. While Jerome certainly was responsible for some of the translation of the Vulgate, it rather in fact is a collection of translations from different times (Smith 2011: Kindle electronic version location 374). Smith furthermore confirms that Jerome did try to translate the Psalms, but that these did not gain much acceptance, in fact, his own corrected Latin version was already well known and more popular.

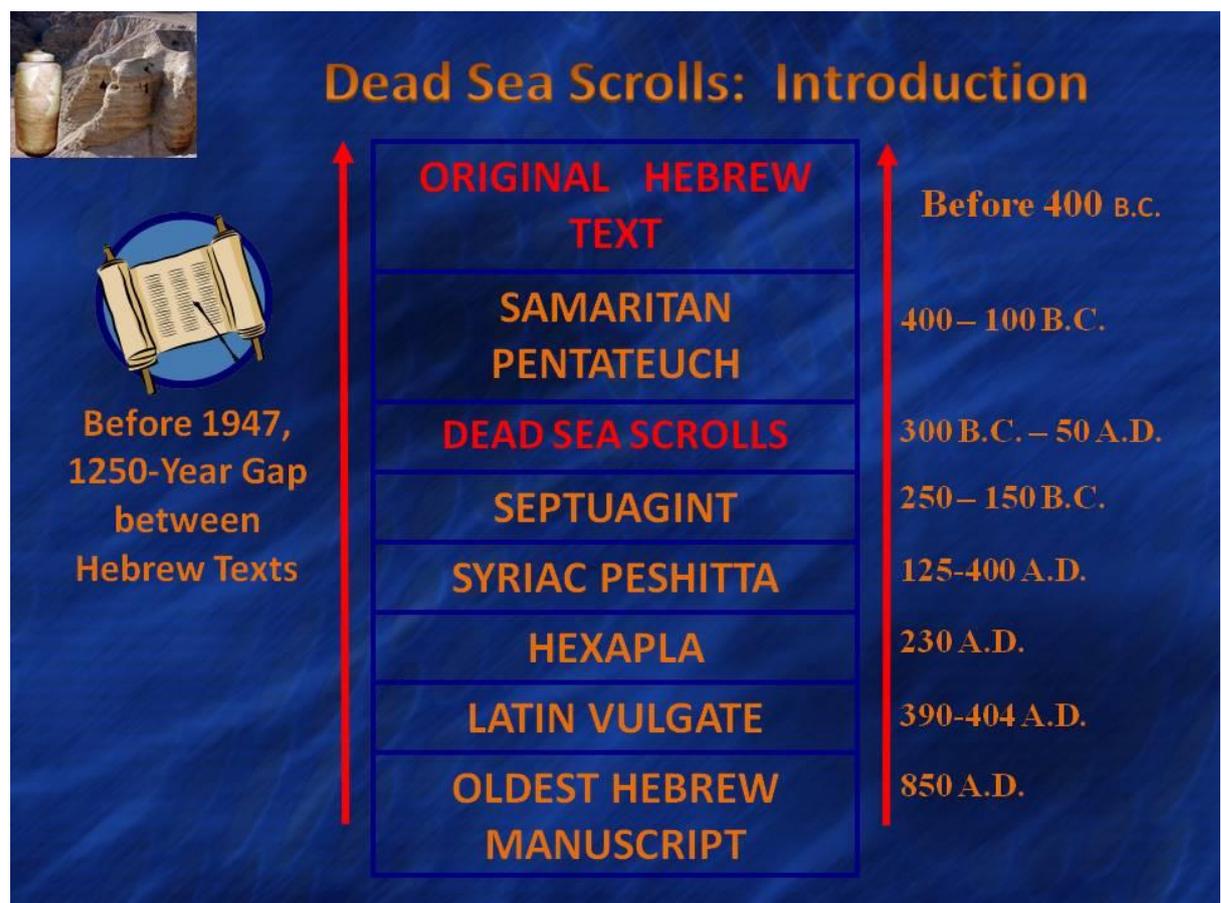


Fig 2.1 Painting by Vincenzo Catena depicting Saint Jerome in his study, dated about 1510, presumably engaged in the translation of the Bible into Latin, i.e. the Vulgate – own photograph from the British Museum.

The earliest surviving copies of the Masoretic text dates from about 900 CE. This appears to be a collection of translations from different times and traditions and it dates from the late 4th to the early 5th century. By that time, Latin had become the language of the church and still is in use today.

2.2.4 The Dead Sea Scrolls

The popularly known Dead Sea Scrolls is a large quantity of texts that were discovered at 13 different sites in and near Qumran on the north western shore of the Dead Sea. These were discovered in the period between 1946 and 1957. These documents are a collection of 981 different texts and were found in 11 different caves, ultimately forming a complex body of work. It is believed that they were stored there by the Qumran community and we believe that they lived in this area between 150 BCE to 68 CE (Smith 2011). The texts were radiocarbon dated to the last three centuries BCE and the first century CE.



<http://mybiblicalstudy.weebly.com/dead-sea-scrolls.html>

Fig 2.2 Timeline positioning the Dead Sea Scrolls

There are only two known portions of texts believed to be older than the Dead Sea Scrolls. Most are written in Hebrew with a few in Aramaic and Greek. These texts are written on parchment, papyrus and on copper. Some are in poor condition, but those that can be identified have been divided into three groups:

- Copies of texts of the Hebrew Scriptures
- Texts originating from the Second Temple Period, not taken up into the Hebrew Bible
- Manuscripts relating to local rules and beliefs.

The Dead Sea Scrolls also contain unique hymn and Psalm texts. There is a scroll containing canonical as well as non-canonical psalms (11QPs) excavated from Cave 11. Some Psalms (1Q10-12, 1Q16) and possible hymns (1Q36-40) were found in cave 1. A version of for e.g. Psalm 89 was found in cave 4 (4Q236) but is in a poor condition. The so-called “Songs for the Holocaust of the Sabbath” (4QShirShaba) apparently is concerned with praises sung by the angels to God.

Most of the Scrolls can be found in the Shrine of the Book which is on the grounds of the Israel Museum. It is kept under the ownership of the government of Israel but ownership is disputed among the state of Israel, the Hashemite kingdom of Jordan and the Palestinian Authority. Several scrolls were also found at Masada, a mere stone’s throw from the Dead Sea.

2.2.5 Additional Jewish Sources

Additional sources of importance are the work by the Jewish philosopher Philo of Alexandria (15 BCE – 50 CE) as well as the Jewish historian Flavius Josephus (37 – 100 CE). The works of Philo contain descriptions of Jewish religious communities while Flavius Josephus wrote about Jerusalem and the history of the Jewish people. This work about Jerusalem consists of seven books, were completed in 79 CE and describes Jerusalem in the period dating from 175 BCE to 70 CE. There is a second important work by Josephus which consists of 20 books and which describes the life of the Jewish people from the earliest times to 66 CE at the outbreak of the

war with the Romans. These books, including the mammoth 20 books of Flavius Josephus can be found at the Loeb Classical Library, <https://www.loebclassics.com/>

2.2.5.1 *The Talmud*

The Talmud is the first rabbinic source of further importance. It basically represents the written form of all the laws, regulations and teachings that had been gathered. This previously existed in an oral tradition.

The Talmuds are collections of discussions that are based on the text of the Mishnah. They were completed in about 400 CE and consists of the Babylonian Talmud and the Jerusalem Talmud which incidentally was not compiled in Jerusalem but elsewhere in Israel. The Talmuds quote a passage from the Mishnah and directly follows that by an explanation of the meaning, with references to opinions of different rabbi's, as well as other textual sources. These discussions are contained in the Gemara. The Jerusalem Talmud is shorter, it has less information and thus carries less authority. Closely related to the Talmud is the Midrashim which represents critical biblical explanations and interpretations made by various rabbi dating from the 5th tot the 12th centuries CE.

2.2.5.2 *The Mishnah*

The Mishnah is a systematic arrangement of topics and contains disputations (debates or arguments), discussions, observations, and opinions. This was compiled in approximately 200 CE by Rabbi Judah ha-Nasi (Judah the Prince). The Mishnah is an important source as it gives insight into daily Jewish life, especially with regards to synagogue worship, while it also contains descriptions of the Jerusalem Temple. Copies of the Mishnah were widely distributed and were discussed and argued over for many years. The Mishnah contains six Orders and each order contains many Tractates. These were all recorded and resulted in the Gemara.

The Hebrew used in the Mishna is a particular dialect/variation of post-Biblical Hebrew and therefore it is difficult to translate, but it nevertheless is in existence in Hebrew, as well as parallel Hebrew-English versions, and translated English versions.

2.2.5.3 *The Tosefta*

The Tosefta is a supplement and complement to the Mishnah. It was compiled in 250 – 300 CE and follows the same basic structure of tractates. It contains most of the material found in the Mishnah, but includes additional older and more recent opinions. The translation done by Zuckerman in 1880 still is available (and apparently used), but more recent translations are also in existence.

2.2.5.4 *The Targum*

My understanding of the Targum is that it represents explanations of the Tanakh, often in a spoken form. As the *lingua franca* of the time was Aramaic, it would make sense that most of the Targum would also be in Aramaic. In this study, however, I did not make use of this in favour of the original Hebrew.

2.2.6 **Other Sources**

Egyptian songs and poems, Babylonian Psalms, and Akkadian and Hittite temple rituals make up another large source of available texts. These date from 3000 BCE to approximately the Second Temple Period.

The Peshitta represents the Bible as translated for the use of the churches in the Syriac tradition. I have only made use of this as a single reference.

2.2.7 **Christian Literary Sources**

Early Christian music is referenced in the New Testament books of the Bible, and it implies that Christian music begins, like Christianity itself, from Jewish culture. It is accepted that the New Testament books are Christianised, but they are also concerned with the Jewish people in that important period around the destruction of Jerusalem and the Jerusalem Temple in 70 CE. It therefore reflects something of Jewish life of the time. Closely associated to Christian

writings is the source material of early apocryphal literature. These have also been widely translated, and include the large body of writings known as the Nag Hammadi codices (Smith 2011. Kindle electronic version location 447-493). These were discovered in Egypt in 1945, have been translated into English and represent extensive Gnostic literature.

Lastly, there is a large body of work which represents prescriptions and accounts of liturgical process. These writings relate to the early Christian theologians and are found in works like the Apostolic Constitutions. In the apostolic constitutions the church orders are described and expanded and it now appears to be a compass at work from different sources, different regions and different historical periods. We now think that it represents the ordering of the Christian church and its liturgical procedures at approximately the last quarter of the fourth century. There are musical references in seven of the eight books.

Of further special interest are the descriptions of liturgies and liturgical music in Jerusalem by the lady Egeria. She kept these as a diary during her travels in Turkey, Palestine and Egypt in 381-384 CE.

2.2.7.1 *The Christian Bible*

As general progress plowed onward, so did the level of literacy of the general population increase, and translations of the Bible aimed at being read by the general populace first became available in the 14th century. The very first major English translation was made using the Vulgate, rather than the Hebrew text, and was compiled by John Wyclif in the 1380's. A shortened version of Wyclif and how the Bible came to life in 1382 can be found at <https://biblemanuscriptsociety.com/Bible-resources/English-Bible-History/Wycliffe-Bible>.

These were widely read in spite of being denounced by the church. Henry VIII in 1534 refused to recognize the authority of the Pope, initiated the Church of England, and licensed only the Matthew Bible of 1537. King James I of England (previously King James VI of Scotland), commissioned the well-known King James version of the Bible. This he did after concerns were raised by a group of Puritans about the availability of several translations. The Puritans

were a protestant movement of the 16th and 17th centuries who felt that Queen Elizabeth left the reformation of the Church of England incomplete. They displayed critical censorious beliefs with regards to morals, especially with regards to pleasure and sex, and their aim apparently was to simplify and regulate forms of worship. 54 learned scholars translated the Old Testament Masoretic Hebrew text and the New Testament Greek text. This took place between 1603 and 1610 and is also referred to as the Authorised Version (AV) (15).

These learned translators probably had the same problem as the 72 translators of the Septuagint as well as any other translator in that they cannot be recognized as musicologists and so none had studied music as an academical subject. It is thus fairly certain that they sometimes/often ran into problems in translating musical terms, musical ideas, and names and identities of musical instruments. In such a circumstance one is left with two choices:

- Firstly, one can simply guess.
- Secondly, one can use the terms or names known from the orchestra of your own era, and thus also commonly known and understandable by the populace.

The Biblical equivalent of the ram's horn is still in use today; even cymbals and drums can be identified with certainty; bells are also fairly reasonably identifiable; and there are clear Biblical instructions on how to produce a metal trumpet. With the rest of the terms and instruments we can use all the available textual, archaeological, linguistic and ethno-musical evidence in order to come to a probable answer. Sometimes we have to admit defeat (at this stage) and say that we simply do not know.

2.3 ARCHAEOLOGICAL SOURCES

Musical archaeology or musico-archaeology is a fairly new field of study. It has however grown rapidly in recent time with more and more scholars showing interest and devoting time to this specific field of archaeology.

Archaeological artifacts and findings have been documented in articles and published books in recent time. Archaeological sources therefore now are relatively numerous. They not only originate from Palestine but from all over the Near East, and cover most periods of antiquity. Literary sources are most numerous and therefore constitutes an important source.

Some of these artifacts are of actual musical instruments, or fragments or pieces of musical instruments, figurines, illustrations and mosaics. These artifacts can often be matched to instruments named in the ancient literary sources and often to musical instruments named in the Hebrew Bible. Smith in “Music in Ancient Judaism and Early Christianity” (2010) implies that none of the archaeological finds can be directly relevant to early Christian music, because early Christian music seems to have been entirely vocal in character. Nowadays there are several available publications that document these archaeological artifacts. However, in his now well-known book Braun (2002) points out the fact that there are practically no music archaeological finds in the near East from about the first 300 years of the second Temple period. This is a crucial time in Jewish timeline and history and represents the society, culture and timeline after the exile. With regards to this, we therefore rely heavily on the Hebrew Bible and especially the book of Psalms, Ezra, Nehemiah and Chronicles.

These artifacts, their origins and the philology surrounding the instruments will be discussed at length in the following chapter.

2.4 MUSICAL SOURCES

As previously stated, musical sources are scarce. This not only includes sources of musical notation but also includes other literary material which concerns itself with the technical matters about music. There are no remains of musical notation, nor are there any technical descriptions of music still in existence from Ancient Israel. There are recently published articles attempting to convey the musicology of the period, especially with reference of music originating from Mesopotamia, but at least two different sets of sources relevant to musicology of the ancient Jewish music are to be found (below). The relevance of these documents are in doubt. They unfortunately originate from and are produced by cultures foreign to ancient Israel; furthermore, they originate from an era that predates the building of the first Temple.

These documents are well worth mentioning and examining.

- The first is a set of documents on instructions of seven tuning patterns for the Babylonian lyre which was constructed with seven strings.
- The second group of artifacts originate from Ugarit and consist of fragments of tablets with primitive musical notation.

The last mentionable source is the so-called Oxyrhynchus hymn. This is the earliest known manuscript representing a Christian hymn which contains both lyrics and music notation. It was written around the third century CE and only discovered in 1918 in Egypt. The hymn is written in Greek and the musical notation is written in Greek vocal notation. It is entirely diatonic which more or less corresponds to the white keys of the modern piano. Smith once again points out that because this is the only known example from the period, it therefore is impossible to categorically state whether this is a singular event, or whether it represents the typical music of the time (Smith 2011: Kindle electronic version location 522).

These archaeological sources will be described later *in situ*. I have often used The Exhaustive Concordance of the Bible (Strong's Concordance) as a point of beginning when describing some instruments. It is available of a completely free online tool at <https://biblehub.com/strongs.htm>. The capital letter "H" refers to the Hebrew word numbers and the number given can be found within the index. Not only does this indicate the original word, a transliteration and definition, but there is a cross reference to other concordances and helpfully a list of instances where the term/word is found in the Bible.

3 CHAPTER 3 ARCHAEOLOGICAL SOURCES

3.1 INTRODUCTION

Music and musical instruments must have also formed a part of everyday life and religious life of the people of ancient Israel and Palestine. Like today music was woven into every aspect of life and society, work, religious worship, in feasts and celebrations and in military activities. It would accompany shepherds watching over their flocks of sheep, it was used to sooth a depressed king and it also is attached to specific acts of God, for example the destruction of the walls of Jericho. This can be confirmed by artefacts and in ancient texts that convey the presence of musical instruments and music. This portion of archaeology is now known as musical archaeology or Archaeo-musicology. Musical archaeology is a relatively new arm of archaeology and provides an exciting new method of research into the lifeways of previous societies and it brings a new comprehension into life in ancient Israel and Palestine.

Braun (2002: 5) states that archaeological and iconographic evidence remains the most reliable source for information about the musical culture in Ancient Israel and Palestine. Most of the available relics are now to be found in collections and museums. However, one does not have to search that far, because the internet is filled with information and depictions, while several books with photographs, drawings, descriptions and explanations are freely available. I have consulted several of these amongst other Bayer (2002), Montagu (2002), Smith (2011), Braun (2002) and Dumbrell (2005) and quoted these extensively. The main drawback remains the literal absence of archaeological findings from the post-exilic period after the second Temple. Smith (2005) describes this as a period crucial in the history of Judaism, representing a period of renaissance in the culture and society. Although the absence of iconographic material is often explained on the basis of the prohibition against imagery in the Bible, but more recent studies point to the fact that both the ancient Israelite culture, as well as ancient Israelite religion never was iconoclastic in essence (Braun 2002: 6)

Merely a few generations after Adam music already had been invented. By the time we get to ancient Palestine and the Hebrews, many instruments existed. Due to the timespan of centuries that elapsed between ancient Palestine and our current time it can be difficult to identify some of the instruments mentioned in the Bible. The Hebrews had a commandment

against creating images and therefore we rely heavily on other sources as well as sources derived from nations surrounding Palestine.

When we open our modern Bible and read about the harp and organ we obviously know what we mean by that. But the question is what the Bible – and possible other textual sources - meant by using those terms. Instruments change with time and so do their names, the meanings of those names, what the instruments looked like, how they were played, and what they were used for. The Bible in English as I/we know it unfortunately is a mere translation. The Old Testament was written in Hebrew with a little Aramaic thrown in between. We must keep in mind that the *lingua franca* at that stage was Aramaic and that Hebrew was a more educated literary language. When the Israelites returned from exile only the oldest people would have known some Hebrew, while the rest of the people had only learnt Aramaic while in exile. This was the common language in Babylon at that stage and they would have used this for day-to-day communication. The original Hebrew text was later translated into Greek and even later into Latin. These all contain subtle differences, possibly because the translators were not all using the same textual source. Many translations followed, not only into English but into every other language conceivable.

It must be understood that music in ancient Palestine did not evolve in a cocoon. Looking at the history of ancient Israel/Palestine we find that its closest neighbours played a role in and influenced the local culture. Also, no nation can be invaded several times over hundreds of years and not come into contact, and not being influenced by the invading cultures. There are similarities in the music of the Semitic nations. This includes Babylonia, Assyria and the Hittite Empire. This is obvious because of the close relations between the Hebrews and the other Semitic nations. Excavations have, for example at the site of Qitmit found the remains of an Edomite rattle. A relief from the south wall of the temple of Sannacherib (704 – 681 BCE) depicts three captured Israelites performing on lyres.

Organised temple music already existed in early Babylonia. Singers in temples were a well-known phenomenon and they used several instruments like harps, lutes, and “oboes”.

Jewish music must have begun in early tribal life, and we will try to reference this from the Bible and other ancient sources. Once the kingdom was established in Israel, the nation became more settled and musical activities increased. Music was elevated to a new level of

status with the adoption of liturgical music in union with ritual ceremonies. Music with reference to religion became important and music formed a tight union with ritual ceremonies. They used instruments similar to the Phoenicians, Assyrians, Greeks and Egyptians.

The early musicians, whether they were singers or instrumentalists, were highly trained and professional. According to the Mishnah their training lasted about 5 years. This is congruent with the upsurge in religious and ritual music and allowed for large choirs and orchestras to be present within the temple. One such music school apparently was led by the prophet Samuel. In "The Theatre before the world: Performance history at the intersection of Hebrew, Greek and Roman religious processional" in the Journal of Religion and Theatre, volume 5 number 1, Summer 2006, which can be downloaded at http://www.rtiournal.org/vol_5/no_1/krahenbuhl for free, we read of this public school which taught prophets and holy men. But it also trained sacred-rite musicians. This public school was not restricted to the royal or priestly class and could explain how the shepherd boy David suddenly appeared on the horizon as a minstrel to King Saul (Braun 2002: 69).

There is an apparent lull in musical activities during the Babylonian exile. This is easy to understand in view of the destruction of the First Temple and exile of the Jewish nation to Babylon during the 7th century BCE. By the time they returned, it appears that the Psalms had already been written and the typical practice of antiphonal singing between the cantor and the congregation became common (Amzallag 2014: 27-34). Temple music became extravagant and elaborate. It was at its peak at approximately the early Christian period. It was performed by highly trained male choristers in large choirs. Sometimes the voices of boys were added and many instruments were used by the temple orchestra. At the destruction of the Second Temple in 70 A.D. the Israelite nation was dispersed in exile (Diaspora) to other countries and came into contact with the multiple other cultures, not only restricted to the Near East but also of Spain, the German Rhineland and Italy. Now the temple was destroyed and slowly being replaced by the synagogue.

There is very little known about early Christian music. Hebrew music however must have had a direct influence on musical practices of the early Christian church. Eric Werner in "The Sacred Bridge", Columbia University Press, 1959: 419, 466 (available as a free archived download at <https://archive.org/details/sacredbride007175mbp>), writes that the connection

between Hebrew and Christian chants have been scientifically investigated and proved. It must be noted that the Levites were appointed by David to serve in the temple and to enhance the music of the period. This art, this musical art created by the Levites, was lost in 70 A.D. when the Second Temple was destroyed by Emperor Titus. This event not only caused the Levites to flee from Palestine, but so did the majority of Israelites.

Musical notation as we know it today was not known in ancient Palestine. The Hebrew alphabet however, allowed for special symbols which would indicate how the music was to be performed.

Much of the data concerning musical instruments is obtained from images, i.e. iconographic depictions and ancient texts. This is because most instruments are made from fragile materials. Like modern times, these instruments were made from wood, gut from animals was used for strings, and skins of animals were used for drums. Unfortunately, these materials don't survive well over millennia. Four main groups of instruments have conventionally been identified, according to the Hornbostel/Sach-system. Espie Estrella (2017) explains that the system already was developed in 1914 by German musicologist Curt Sachs who was an expert on the history of musical instruments and Erich Moritz von Hornbostel, an Austrian musicologist who was an expert on the history of non-European music. The system is based on the location of the vibrations created, i.e. how the musical instruments produce sound. The system and its explanation rendered by Estrella is quite comprehensive but the elements applicable to music from AIP are:

- a) Chordophones: Chordophones or string instruments. Strings were constructed from various materials and stretched over a flat surface. Strings could be strummed or plucked by the fingers, or strummed using a plectrum. The strings would vibrate and produce sound, sometimes improved by the presence of a sound box or a resonator. The most common string instruments were the lute, lyre, harp/psaltery, and zither.
- b) Aerophones: Wind instruments are quite often mentioned in the Bible. These were used during religious and cultic ceremonies but they also had a secular use. Although references are to be found in the Bible, these are often very sketchy and discreet descriptions of these instruments or often not found. Wind instruments succeeded percussion instruments but came before string instruments. It is easy to imagine some of the wind instruments being associated with music per se, for example a flute or a

reed pipe. Therefore trumpets and shofars are more commonly classified as signalling instruments.

- c) Membranophones: This refers to instruments consisting of a frame covered with a membrane or animal skin over the opening. The musician would beat on this by hand. The best-known membranophone of course is the drum.
- d) Idiophones: These are so-called self-sounding instruments. These instruments produce sound produced from the material of construction. They were made from wood, ivory, metal or clay. Examples would obviously include rattles or castanets and cymbals and tambourines. Some of these, for example castanets could have been used in religious services, but these would obviously make wonderful children toys!

Membranophones and idiophones can be seen as an under-division of the percussion group of instruments. Percussion instruments were developed to indicate rhythm. The very first manifestations of music most likely existed as percussion and later on, firstly the voice, and then other musical instruments were added. Dancing is one of the most fundamental expressions of rhythm and dancing was often reflected as part of daily life.

The Hornbostel/Sach system was introduced in 1914 and it still fits nicely into our modern concept of instruments. It should be questioned whether musical instruments should be divided into categories purely on their morphological appearance. Dumbrill (2005: 178) makes the compelling argument that a drum with snares does thus not become a stringed instrument. Several other classification systems have been proposed, for e.g. blown, strung, or unclassified or bare. Dumbrill (2005: 178) argues that a soundbox is similar to a drum fitted with strings and that all stringed instruments with a soundbox or soundboard belongs to the percussion family. In simplistic terms a soundbox is a resonator; a soundboard is an amplifier. Assyrian musical terminology often refers to a stringed instrument using the determinative “wood” and percussion instruments by “leather”. A different approach would be to simply name and investigate the types of instruments as they are found within the Bible. Excluding the human voice, a different approach can also be applied, dividing the types of instruments into:

- Melodic instruments
 - string instruments

- lyre
 - harp
 - lute
- wind instruments
 - reed-pipe
 - flute
- concussion instruments
 - melodic cymbals
- Rhythmic instruments
 - percussion instruments
 - frame drum
 - rattles
 - shakers
 - concussion instruments
 - cymbal clappers
 - finger cymbals
 - wooden clappers
 - rhythm bones
- Signalling instruments
 - blown instruments
 - shofar
 - silver trumpets
 - percussion instruments
 - bells of gold

In order for the human ear to perceive something as musical it should consist of repeating soundwaves. The most obvious are the tones of a piano. Non-tonal sounds, for example those originating from a drum, are made up out of nonrepeating soundwaves.

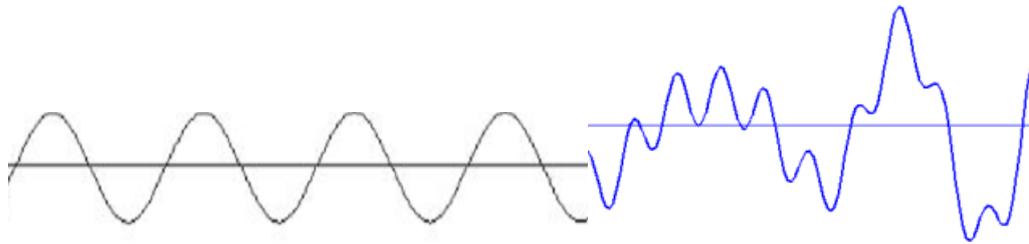


Fig 4.1 Repeating sound wave

Non-repeating sound wave

The tonal instruments, i.e. lyre, harp, melodic cymbals, reed-pipe, flute and voice would obviously be involved in discussions of tone and tonality; and of those, the polyphonic instruments, that is the harp and lyre would be of utmost importance, other than the human voice.

3.2 LYRE

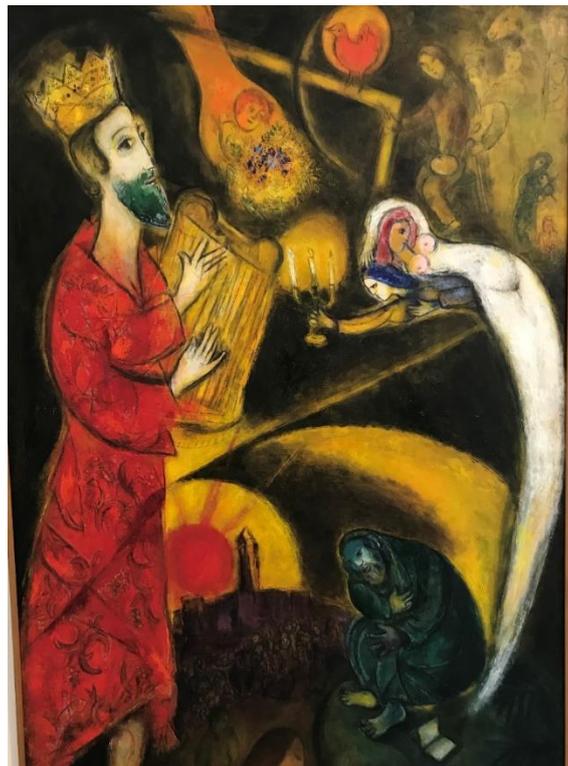


Fig 3.2 King David – painting by Chagall. Own photograph from the Chagall museum, Nice.

Sing to the LORD with the lyre, with the lyre and melodious song.

(Psalm 98: 5)

3.2.1 Introduction to the lyre

We have previously seen that the oldest human origins are from the central portions of Africa and that multiple migratory roots originated from this. This is in the approximate region of modern Ethiopia. If man originated from this area it doesn't sound too far-fetched to look for the origins of the lyre in this region as well. There are ancient lyre type instruments, the *begena* and the *krar*, that have been in use in the area of Ethiopia for hundreds of years. The *begena* is a larger instrument and it has six strings. It is held vertically when played and is more within the base range. The *krar* is smaller, tenderer in voice, has six strings and is held either vertically or horizontally. We generally believe that the *begena* predated the *krar* (Rowan 2013). Furthermore, it is very interesting to note that the oldest lyres found in the city of Ur very much resembles the instruments still found in Ethiopia. Braun (2002) has a slightly different view and speculates that the lyre originated from early dynastic and Akkadian Mesopotamia that it then migrated through the Negev and into Egypt and from there into Ethiopia. We will see that there is great variation in size of lyres, that the strings were made from different available products and that the strings were attached using leather thongs, small wooden sticks and pegs.

We understand that the lyre must have evolved from the very first primeval arched harps.

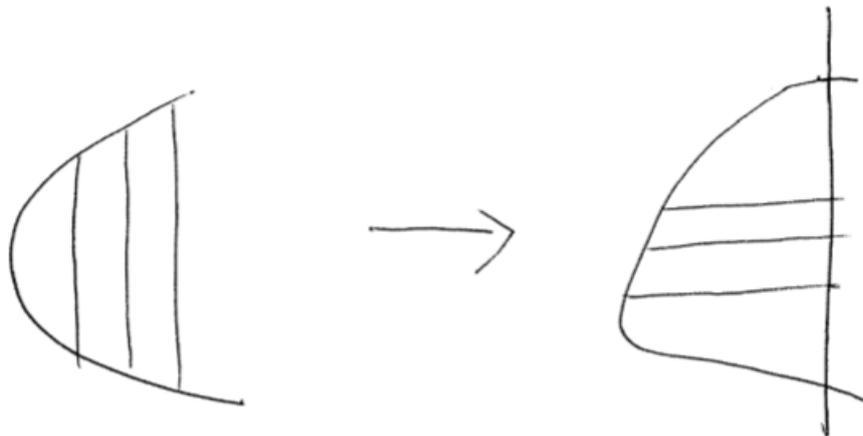


Fig 3.3 Open-framed harp and lyre

Some distinguishing differences immediately become visible. Firstly, the strings are placed running at a 90° angle to that of the harp. Obviously the yoke was added and attached at both extremities of the bow. The yoke of the lyre is obviously different from the closed arch frame

harp type. This type of harp is seen in art from the Cycladic civilization, from the early Bronze Age, approximately 3200 – 2000 BCE. The harp seems to have disappeared from ancient Israel and Palestine and illustrations of the harp, found on the rock etchings in Megiddo date to about 3300 – 3000 BCE. This is prior to Biblical times and the only depicted stringed instruments found in the geographical area of AIP is the lyre. Both lyres and the sistra were known during the Middle Minoan Period, 2100 – 1500 BCE, having been preceded by the harp, of which we have iconographic depictions from the Bronze Age. The development of the lyre continued, demonstrable into the Late Bronze Age and thereafter, but the development was also geographically bound. While the bovine type instruments were on the foreground in the Ancient Near East, the Aegean lyre developed into the tortoise-shell lyre and the concert lyre/*phorminx/kithara* (Younger, u.d.)



<https://za.pinterest.com/pin/415949715571255904/>

Fig 3.4 Bronze figure with lyre, Aegean, Geometric Period.



Fig 3.5 Arched closed-frame harp – own photographs from the Metropolitan Museum, New York.

The strings of the lyre now run in the same plane as the soundboard. This is an improvement as vibrations from the strings are now transmitted indirectly by means of the bridge. The soundboard is also pushed in downward due to the force of the tension of the strings. To allow for this the soundboard would have to become thicker, also, it now had to be constructed from wood, rather than skin in order to allow for added forces. The result is an improved sound texture and an obvious increase in intensity.

From this period, where the lyre birthed from the harp, a transitional stage must have existed, even if it was very short-lived. The closed frame harp probably represents this phase most optimally and Dumbrill (2005: 233) mentions a single instance of iconographic evidence of a lyriform harp or a harp like lyre.

In 1998 Bo Lawergren published his classification system of the early zoomorphic lyre. In his article "Distinctions among Canaanite, Philistine and Israelite lyres and their global lyrical contexts" he divided the lyres from the late fourth to early third century BCE into either thick or thin (1998: 43). This degree of thickness would probably refer to the soundboard. Unfortunately, because the soundboard was manufactured from wood, none of the remains

of the lyres excavated by Woolley had an intact soundboard due to natural decay. It also is practically impossible to determine any variation of the volume of the sound box from iconography. Dr D Collon opted for asymmetric and symmetric. Dumbrill (2005: 233) chose to replace these with lateral and frontal. The lateral group represents the side view of the instrument/bovid, while the frontal is the front view of the head of the animal, the so-called acrocratic representation, with *acro-* derived from the Greek *âkros*, meaning “the topmost” or “highest” and therefore indicating the feature with the highest visual value. The frontal group can be divided again into two main groups. The symmetric lyres with five or six strings were designed for pentatonism; and the asymmetrical group with at least seven strings but as many as 11 strings, more apt to fit diatonism.

Zoomorphic instruments are a regular phenomenon in early Mesopotamian iconography. The explanation for this still is uncertain. Leon Crickmore (2009: 53) suggested an interesting take on the zoomorphic references. He proposes that in ancient times a distinction was made between music theory and music practise. The point of contention is whether one uses one’s ears or one’s mind, i.e. one should not use mathematics and mathematical ratio’s when judging the notes of a scale, but rather one’s ears. He also provides us with a free translation of Boethius (*De Institutione Musica*, I, 34: extract):

There is a great distinction between musicians and performers. The latter sing or play, while the former understands what constitutes music. And someone who does something without understanding its nature, is by definition a beast.

This division between the theoretical and the performing pillars of the arts may have originated in Mesopotamia and would thus explain the iconographic evidence illustrating musicians as animals.

In the case of the harp, the strings all would have been manufactured from the same material. Therefore the mass would have remained constant. Also, because the sound of a string is best when it is strung close to breaking point, the sound of the harp would only be determined by the length of the strings. On the other hand, in the case of the lyre, the strings also are not of similar length, though less so than for the harp. The middle string would be slightly shorter than the lateral strings at the outer sides. Because the strings are of much the same length, the instrument maker would have to compensate with variable mass and tension. The maker

of a lyre would therefore have to take into consideration the fact that if the strings are of equal length and of equal mass, then pitch can only be altered by the tension of tuning. If the strings are stretched within a parallel frame like the lyre, it is impossible to produce a diatonic scale without breaking the frame and/or strings. If the strings are made of variable mass but they remain equal in length and tension, then once again a harmonious diatonic tuning scale would be impossible.

There is iconographic evidence of a pentatonic tuning arrangement on early Uruk zoomorphic lyres. These instruments were mostly manufactured with a total of five strings, alternatively short and long strings. The shorter strings would be approximately two thirds the length of the longest strings and the most logic configuration would be

short string, long string, short string, long string, short string.

We can therefore accept

that the second string would be a fourth below the first,

that the third would be 1/5 above the previous,

that the fourth string would be a fourth below the previous,

and that the last string would be 1/5 above the previous.

This would produce

f – c – g – d – a,

which in essence is the archetypal pentatonic arrangement, and this the notion that the early bovid form lyres were intended for pentatonic tuning. It also therefore explains the reason for the trapezoidal shape of the frame.

It still remains an accepted fact that the lyre is the only stringed instrument to have been found in Canaan, Ancient Israel and Ancient Palestine – at least thirty separate examples (Braun 2002: 18). Importantly, harps dating to the pre-Hellenistic period have not been found in this region (Braun 2002: 23). There is a large treasure of iconographic representations of the lyre indicating that this was a very popular string instrument. Development happens over time and it is interesting to note that instrumental design tends to unify and become more repetitive and similar. This also is true for the lyre. From 312 – 63 BCE, the Seleucid period,

only the frontal lyre survives, all of them are symmetric with very little variation in construction. Musicology has also obviously evolved and there is a better understanding of pitch. This means that there was a better understanding of the relation between length, mass and tension of the string with pitch. And so predominantly symmetric instruments reappear at this time, but no longer in pentatonic arrangement.

The very first reference to a musical instrument found in the Bible is already found in Genesis 4 : 21. In portion the Hebrew Bible refers to:

kol-tōfēs kinnōr v'ūgāv,

translated as

“ all who handle *kinnōr* and *ūgāv*”

but confusion already begins at this very first biblical reference, and multiple terms in multiple translations of this verse only add to the confusion:

et nomen fratris eius Iubal ipse fuit pater canentium cithara et organo –Vulgate

ὁ καταδείξας ψαλτήριον καὶ κιθάραν, (who invented the psaltery and harp) - LXX

And his brother's name was Jubal; he was the father of all those who handle the harp and organ. – KJV

And his brother's name was Jubal: he was the father of all such as handle the harp and pipe. – ASV

His brother's name was Yuval; and he was the ancestor of all who play lyre and flute. – CJB and HCSB

His brother's name was Jubal; he was the father of all those who play the lyre and pipe. – ESV

His brother's name was Jubal; he was the father of all who play stringed instruments and pipes – NIV

His brother's name was Jubal. He was the father of all those who play the harp and the horn. – NLV

Lyre. N., k *kinnōr* / כְּנֹר [H3658]. 1. This is a generic term for an ancient class of string instrument used to accompany voices and other instruments. It is the only instrument from the Ancient Near East which has a double plural form, the first is masculine *kinnōrîm* and the second indeed feminine *kinnōrôt*.

It was one of the three primary instruments used by the Levites along with the harp and melodic cymbals. The image of the lyre is now widely regarded as the symbol of music. It can be found throughout the world, most notably on every Steinway piano.



Fig 3.6 The symbol on my own Steinway piano

The Akkadian *kinnaru* probably refers to a lyre and appears to be a precursor to the Biblical *kinnōr*. Kinnaru is found on Hittite (occupants of the region Anatolia prior to 1700 BCE) tablets from Mari dated 1700 BCE and Alalakh 1500 – 1400 BCE. Mari was an ancient Semitic city in Syria on the western bank of the Euphrates. It was a trade center between 2900 – 1759 BCE. Alalakh was a Bronze Age city state capital in Turkey's Hatay province. It was occupied from before 2000 BCE, was destroyed in the 12th century BCE and never rebuilt.

With reference to the text in Genesis above, the *kinnōr* certainly was not a psaltery and most probably not a harp; and to complicate things further, neither was the *'ūgāv* a harp nor an organ. The psaltery is a flat instrument consisting of a wooden box with wire strings. This can be plucked with the fingers or played with a plectrum. There is no evidence of any such instrument existing in biblical times. It is only found much later, around the 12th century CE. The translation of a so-called organ is much easier to rule out. This was only invented around 250 BCE by an Egyptian named Ctesibius (Editors of the Encyclopaedia Britannica, 2018) . It would have been impossible for Jubal to know the organ.

The Hebrew word *kinnōr* /כִּנּוֹר is a masculine noun and now defined as a lyre. The origin of the word is uncertain and several theories around the origin of this word exist. There exists the trilateral root *knr* which apparently is present in practically all of the languages found in the Ancient Near East, also present in Assyrian, Hurrian, Hittite, and Ugaritic and on Egyptian texts. There are cuneiform tablets discovered at Tell Mardikh, the ancient Syrian city state Ebla, on which this word is found. These date from 2400 BCE. Kolyada points to the work of C. Engel, J. Weiss, K. Bemzinger, S. B. Finesinger, C. Sachs, B. Bayer, A. Tomaschoff, L. Koehler, A. Sendrey, T. C. Mitchell, D. G. Stradling and K. A. Kitching and concludes that the *kinnōr* was very much like the Greek lyre or kithara (Kolyada, 2014). This makes a very compelling argument. The strings most often were made from the small intestines of sheep, as confirmed in the Talmud. Metal strings would have been unknown during this period. Interestingly enough, the Talmud also prescribes the replacement or repair of a broken string and indicates that a knot in the middle should be avoided (y. 'Erub. 103a) and that it should only be tied up again when in the temple (m. 'Erub. XI: 13).

In the Bible, this is mentioned 42 times and translated as a harp in 9 instances, harps in 8 instances, lyre 16 times and lyres 15 times. The lyre was well known from the Late Bronze period (1500-1200 BCE) to the Hellenistic period (4th century BCE). It is an instrument with a very long history in biblical times. We find the very first reference to a *kinnōr* in Genesis and we also find a similar reference in the very last book of the Hebrew Bible, in that of Maccabees which is found in the Apocrypha, thought to originate shortly before the Christian era. David is often described as a singer and musician. There also are several references connecting David and the lyre, that in spite of many "harp" translations.

It is very apparent from the Bible that David was a gifted musician. We also know for sure that music was an important part of daily life as well as religious life especially during the time of the Kings of Israel, Saul and David. And furthermore, Saul and David had a very special relationship. It therefore is enlightening to take a step backwards, away from archaeology and have a quick peek into the life of Saul and David.

Music also played an important role in the life of Saul. Music was mentioned at the climaxes of Saul's life. When Saul met Samuel, the prophets were prophesying with music. Only the next day he was anointed as the first king of Israel. Music played an even greater role in the life of David. His music brought him to the royal family and to Saul. It brought him joy. It was an important part of rejoicing. It helped him through his sorrows. It strengthened him in times of battle. Importantly, it also brought him a more intimate connection with God. David is an important reflective character in the story of Jesus Christ. With reference to the Bible, the name of Jesus appears 990 times while David is mentioned 983 times. The Psalms formed an important part of his life. When something went wrong

in his life, David wrote a psalm. If David felt joyous about something in his life, David wrote a song. When he went through tragedy, David wrote a psalm. When he was rejoicing, David wrote a psalm. Many of the great events that took place during David's life are seen in the Psalms through the eyes of David. And thus, we find many similarities between David and Jesus Christ:

- David took care of his flock of sheep and he even killed a bear and a lion in order to protect his flock. Jesus conquered death and Satan in order to protect his flock.
- David came to be known as the Shepherd of Israel, as we read in 2 Samuel 5: 2. Jesus was the Good Shepherd according to John 10.
- Jesus came from the line of David which means that they had the same ancestors.
- David was a man after God's heart. Jesus is part of the holy Trinity and therefore is one with God the Father.

These all lead to the conclusion that David was an important poet, writer and musician within the realm of the Psalms. And by extension, the instrument in his hands becomes important for the same reasons.

¹⁶ Let our lord now command your servants who are here with you to look for a man who knows how to play the lyre. 1 Samuel 16: 16 – CJB (Complete Jewish Bible)

²³ So it was that whenever the [evil] spirit from God came over Sha'ul, David would take the lyre and play it, with the result that Sha'ul would find relief and feel better, as the evil spirit left him. 1 Samuel 16: 23 – CJB

Both these verses were written several centuries later than the one in Genesis. In the Vulgate this is translated as *citharam*, while the Greek reference in the Septuagint is translated as *kinuran*. This term appears to be a transliteration of the Hebrew word *kinnōr*. The one thing all the texts appear to be in agreement with, is that this was a string instrument, played with the hand. The four references found in 1 Samuel all stressed the fact that it was played with his hand, and this therefore must have been of importance. The bow, now very well known to play several stringed instruments was only invented in 800 CE; this in spite of the fact that the Modern Hebrew word for violin is *kinnōr*.

It also is very unlikely that the instrument known as a *kinnōr* by Jubal would be the same instrument as known and played by King David. The time span between these two instances is just too large. The fact remains that this was a lyre rather than a harp (Montagu 2002).

Montagu (2002: 269) also confirms that the lyre was well known in this time and was played throughout much of AIP. The harp was used in Egypt and Mesopotamia, but there is no evidence to be found of its use in AIP.

We are not sure where exactly David learnt his musical skills. It is possible that when Saul drove David away, while seeking refuge with Samuel, he studied Scripture and the law, learned how to write his Psalms, but also learned musical skills. There was the daily musical processional up the hill of God to the altar in which David most likely would have taken part. He already had impressive musical skills before this as displayed while playing for Saul. This he probably learnt as a shepherd in the field. It is possible that he made himself a lyre, learned how to play this and practised for many hours in order to improve his skills. There were defining moments involving music in the life of both Saul and David. Music was important in the culture at the time, but also played a role in their lives as individuals. Music is a way in which humans honour and praise God. We know from the Bible that David was a man after God's own heart, and so, if David was close to God, then music would have strengthened this relationship. Music draws people closer to God. Music and songs can serve as a reminder of the important principles in life. Songs recite the qualities of God and can serve as a reminder of what God has done in the past, not only in the time of David, but also in modern time. David used the music of the Psalms to relay the greatness of God.

In the Bible we read of several instances where music played an important part. These references are found:

Prophets	1 Samuel 10 : 5
Trumpet	1 Samuel 13 : 3
David and the harp	1 Samuel 16 : 14 to 23
The thousands and ten thousands	1 Samuel 18 : 6 – 9
Saul tries to kill David while playing the harp	1 Samuel 18 : 10
Saul tries to kill David while playing the harp again	1 Samuel 19 : 9
Saul prophecy	1 Samuel 19 : 20 – 24

There are multiple references to David with regards to the Psalms. Other moments found in the Bible are:

David and the harp	1 Samuel 16 : 14 to 23
Thousands and ten thousands	1 Samuel 18 : 6 – 9

Saul tries to kill David while playing the harp	1 Samuel 18 : 10
Saul tries to kill David while playing the harp again	1 Samuel 19 : 9
Thousands and ten thousands again without Saul	1 Samuel 21 : 10 and 11
Thousands and ten thousands again without Saul again	1 Samuel 29 : 5
Saul and Jonathan's dirge/requiem	II Samuel 1 : 17 to 27
David singing about the Ark of the covenant	I Samuel 6 : 5
Bringing the Ark to Jerusalem	II Samuel 6 : 15
Absalom's spy's signal when trying to overthrow David	II Samuel 15 : 10
Sheba's revolt attempt against David	II Samuel 20 : 1 and 22
David's Psalm	II Samuel 22
David's instructions to anoint Solomon	1 Kings 1 : 34
The anointing of Solomon	1 Kings 1 : 39 and 40

The lyre was neither known nor indigenous to early Egypt. The Egyptians only encountered the instrument in the 16th century BCE when they invaded Palestine and Syria. The *kinnōr* was one of the most commonly known instruments in Palestine already from the Late Bronze Age. It reached a pinnacle with King David who apparently was a very talented musician and player of the *kinnōr*. It therefore was an important instrument.

But there still remains some confusion with regards to the terms "lyre" and "harp". There are some writers that express the feeling that the only difference is that of size and number of strings. According to the Talmud the *kinnōr* was made with 7 strings. This is confirmed by artefacts from the Greek culture depicting the *phorminx* and *kithara*. These were similar to the lyre, but the *phorminx* was a simpler instrument used by the commoners, while the *kithara* was a large instrument, most likely used for public performances. Structural difference of significance have already been pointed out.

The lyre was often produced using wood. Understandably very few artefacts have survived the test of time. It sometimes was decorated with silver and gold. There are multiple depictions of lyres, but more of this later. The lyre was a U-shaped instrument. It had parallel

arms which were asymmetrical in orientation. A transverse rod would connect these arms and the strings were placed vertically, running down across the front of the sound box. The strings were held separate from the surface of the sound box by a bridge. The strings were also wound around a lever in order to facilitate tuning.

The *beganna* is a lighter type of lyre now mostly found around Ethiopia, Sudan, Kenya and Uganda. This has similar tuning levers.



<https://www.europeana.eu/api/v2/thumbnail-by-url.json?size=w400&uri=http%3A%2F%2Fwww.mimo-db.eu%2Fmedia%2FCM%2FIMAGE%2FCMIM000019977.jpg&type=IMAGE>

Fig 3.7 Beganna

It is suggested that the *beganna* might be a Semitic type of lyre, because it is similar to those found at Ur. More interestingly, the notion still exists that the Ethiopian royal house descended from the house of King Solomon and the Queen of Sheba, making a further connection.

The so-called David mosaic dates from approximately 509 CE. This was found in the synagogue at Gaza. This impressive mosaic demonstrates David playing a lyre (apparently using a long plectrum) which contains the same type of levers. Unfortunately this is the only resemblance.



<https://pbs.twimg.com/media/CMCBgPtVAAAvSmj.jpg>

Fig 3.8 David mosaic from Gaza

There thus exists several illustrations of the lyre, with the most obvious artefacts from the Hellenistic period which illustrates King David playing the lyre. We know from the Hebrew text of the Bible that what he played was known as the *kinnōr* and so it becomes easy to make the assumption that the *kinnōr* was the name for the lyre and that it should be translated as such.



Fig 3.9 Lyre (restored) now kept in the British Museum, probably Sumerian in origin (own photographs)

More detailed images of the lyres used by the Levites have been preserved on coins. This already proves that the instruments used by the Levites were more advanced. We see that the Levite instruments had a back plate that was hand carved. They were the first instances of very rudimentary fingerboards and it allowed them to play additional notes. This development and evolution of the lyre is even mentioned in the Bible when Solomon receives sandalwood from Tyre, which he uses not only for the temple, and his own house, but also for harps and lyres:

And the king made of the algum trees terraces to the house of the LORD, and to the king's palace, and harps and psalteries for singers: and there were none such seen before in the land of Judah. 2 Chronicles 9: 11 (KJV)

It was widely used during cultural, social and religious events. It was especially important within the more affluent portion of the community. It was used during cultic dances and ceremonies. It also was used during feasts.

- The music of the lyre was heard in the temple as in:

And David spake to the chief of the Levites to appoint their brethren to be the singers with instruments of musick, psalteries and harps and cymbals, sounding, by lifting up the voice with joy 1 Chronicles 15: 16 (KJV)

and also

Also the Levites which were the singers, all of them of Asaph, of Heman, of Jeduthun, with their sons and their brethren, being arrayed in white linen, having cymbals and psalteries and harps, stood at the east end of the altar, and with them an hundred and twenty priests sounding with trumpets

2 Chronicles 5: 12 (KJV)

- In an attempt to calm Saul's spirit David played the lyre. In this instance, it most likely was played as a solo instrument, carrying the melody. When thus played as a solo instrument, one would have to be able to play a sufficient number of notes to create a recognizable and repeatable melody. This was technically more difficult and required a great amount of skill.

And it came to pass, when the evil spirit from God was upon Saul, that David took an harp, and played with his hand: so Saul was refreshed, and was well, and the evil spirit departed from him. 1 Samuel 16: 23 (KJV)

- it was also played during banquets and festivities. In this instance, it would not have been used as a solo instrument, but would have been used as an accompanying instrument.

and Mattithiah, Eliphelehu, Mikneiah, Obed-edom, Jeiel, and Azaziah were to lead the music with lyres according to the Sheminith. 1 Chronicles 15: 21

In the Hebrew text we find the word *l'natsacha*. This means “to oversee or support” and its relation to the *kinnōr* confirms the supporting function of the lyre with regards to singers.

There were two available methods of tuning a lyre. The first is so-called cyclical beginning with perfect fifths and perfect fourths, which is followed by fine-tuning the other thirds and sixths by ear. This is also known as Pythagorean tuning. The other method is so-called divisively. This method of tuning brings forth so-called just intonation and uses the exact mathematical ratios in order to provide a musical string into specific pitches and ratios. Our modern way of tuning is called equal temperament and this was created to produce a perfect chromatic scale of 12 notes. This would enable us to perform music in any of the 12 keys of the chromatic scale with acceptable tone and purity. In the case of equal temperament the sound waves generated are slightly asymmetrical because of the altered ratios. When we make use of just tuning we create intervals in which the frequencies are related by ratios that can be given in whole numbers. Justly, these intervals are written as ratios with a :, for example 3:2 or as a fraction, for example $3/2$. The entire process of cyclical tuning relies on the ear of the musician and I can confirm from personal experience that tuning the perfect fourths and fifths are much easier than tuning the thirds and sixths by ear. It sometimes takes a bit of time finding the exact sweet spot of the third and sixth. Cyclical tuning would therefore be most applicable in instances of monophony. Once polyphony and harmony in cords come into play then divisive tuning becomes more acceptable. I will further on refer to especially the paper by Ann Kilmer (1979: 131-149) on one of the Mesopotamian tablets which is regarded as a guide to retune a lyre from the initial cyclical sound to divisive tuning by ear.

We know that the lyre was a well-used instrument by the ancient Greeks, but we also know that the music was complex and chromatic in scale. This represents a problem if a lyre with seven strings was diatonically strung, but this can be overcome by raising the pitch a semitone using the knuckle or the nail of the thumb of the left hand on a string, much like a freight. If

this was impossible, the lyre would not have been able to follow the vocal line exactly. And while we know that the technique is definitely possible and that the ancient Greeks also used chromaticism, this technique is not found in any other culture, especially in Africa where lyres have been in use since antiquity. Luckily, it appears that the technique of string holding was well known in Egyptian harp playing as early as 2320 BCE (Levy 2013: WWW Document at “Ancient Egyptian Harp Playing Techniques”) and copying this technique on to the lyre would be an acceptable.

Because it contained 7 strings the most logical way to tune a lyre would be to use the 7 consecutive diatonic tones, similar to the white notes of a piano. The 7 strings would therefore be tuned as F-G-A-B-C-D-E. Obviously, this would allow the musician to produce a melody. However, if it was used as an accompanying instrument it would probably be more important to play chords than a simple melody. Then maybe the strings could be **strung** differently, but it could also be **tuned** differently. One would then leave a gap between each note and tune the lyre to F-A-C-E-G-B-D. This would allow the musician to play most of the major chords, but would not allow him to carry a melody. But we already know that the lyre was used as both a melodic and an accompanying instrument. This was achieved by taking the monochord and placing a bridge off-centre and closer to the heel of the instrument. This would allow the tuner to create either a perfect 5th or perfect 4th division for each string. Now the lyre had two separate playable areas on each string. There would be one below the middle bridge and one above the middle bridge. Obviously, these would be tuned to different keys and the musician would be able to produce two separate sets of chords. Also, consecutive tones could now be played by alternating between the lower and upper playing areas.

The reference to *sheminith* in 1 Chronicles 15 : 21 creates some confusion.

¹⁹ So the singers, Heman, Asaph, and Ethan, were appointed to sound with cymbals of brass;

²⁰ And Zechariah, and Aziel, and Shemiramoth, and Jehiel, and Unni, and Eliab, and Maaseiah, and Benaiah, with psalteries on Alamoth;

²¹ And Mattithiah, and Eliphelah, and Mikneiah, and Obedom, and Jeiel, and Azaziah, with harps on the Sheminith to excel. 1 Chronicles 15: 19-21 KJV

Sheminith can be translated as “on the eight”, “above the eight” or even “in front of the eight”. This reference to “eight” creates some confusion. Could this now refer to the number of strings on a lyre? Or does this simply refer to the usage of a metal bridge which would tune the strings an octave higher? It now appears that adding an additional string, either as a D at the base or possibly a G sharp, with the addition of fingerboards, would raise the lower playing area by half a tone. Now the lyre could be played in two keys producing twelve chords and also at least nineteen playable tones.

Josephus told us that the *nēvel* was played with the fingers, most likely a plucking technique with both hands; Josephus also tells us that the *kinnōr* was played using a plectrum, although one can also pluck individual notes just as well with a plectrum (Levy, 2013. WWW Document at “References to the *kinnōr* in the Text of the Hebrew Bible”). One must take note of autoharp technique which means stopping the strings that the player does not want to sound by placing the fingers or the hand on those strings and sweeping across all the strings with a plectrum in order for the free strings to vibrate and sound. This can be done by hand but is more effective with a plectrum. We have no reason to doubt these descriptions by Josephus but in one Samuel 16 : 16 we read that they searched the country to find somebody to play the *kinnōr* כִּינּוֹר, *bayādō*, with his hand. Bayer expresses her doubt about this, but the matter still remains open for discussion.

Time also is a factor and we now accept that the *kinnōr* is much older than the *nēvel*. And so who is to argue that an instrument which is played by hand in the time of David should not be played using a plectrum in the time of Josephus. This becomes even more true if one accepts that the *nēvel* had in the meantime been developed and that it was better suited to finger playing while the older *kinnōr* was more suited to playing with a plectrum. Montagu (1992) describes a more modern example of this phenomenon, when Vivaldi and Mozart had written music for the mandolin which was then manufactured with strings of gut and was plucked with the fingers while today the same instrument has steel strings and is played with a plectrum.

The *kinnōr* clearly was a solo instrument and was used either by itself or with the voice. The *nēvel* (which sometimes is viewed to be a larger type lyre with more strings and lower pitched) is only described as a solo instrument once in Psalm 144. Otherwise it always appears accompanying other instruments, supporting the notion that it was a lower pitched

instrument. Already in 1870 Engel described three different types of lyre found on iconographic depictions. The basic construction remains the same, but he distinguished a type where the front bar is curved (more than the oblique bar that we have met commonly), and he assumes that this could be to facilitate the tuning of the strings. The third type more resembles the Nubian type harp which was made of wood and leather. The Nubian type lyre is commonly known as the *kissar*. A performer would hold the kinnōr in an upright position with one arm of the instrument under his left arm. Ancient writers like Josephus agree with more modern scholars that the kinnōr was usually played with a plectrum. We know that there are several references to playing the instrument by hand, especially with reference to King David. Perhaps it would be the intention to point out that this was a solo type performance, not including singing. This would have been untypical, accepting that the lyre primarily was an instrument for accompaniment.

In antiquity the strings mostly were made of gut, but must have been quite different from polished gut strings in use today. Strings used for instruments in AIP most likely were produced with closely wound gut fibre (Levy 2017. WWW Document at “Gut string vs Silk?”). The exact recipe used by each maker was a closely guarded secret. Adding glues and binders would be necessary not only for the construction, but also to improve sound. This included substances like powdered silver and gold, jade, lapis and other rock crystals. Apparently adding a substance like ground silver to a string will give it a clear and incisive tone, because of the specific gravity of that metal. Strings made from silk is a more recent development, dating from approximately 500 CE. The tone created by strings manufactured from natural fibre (like silk) is of better quality and more colourful than modern synthetic strings (like nylon). The ancient strings however were created using natural substances, like gut or hair, rendering a unique tone and personality to that specific string because it always would have slight inconsistencies and an evenness. Strings made from natural products are more prone to breaking, but also would not stay stable and in tune for very long. Constant re-tuning would be necessary. The strings made from gut must go through a process during which they are hardened. This leaves them brittle and if they are bent or cracked the purity of the tone would be lost. Of importance is the fact that the sound of the lyre, as for any wooden soundboard instrument, actually relies more on the quality of the wooden soundboard, rather than purely on the quality of the string. Friction type of tuning pegs did not exist in antiquity and tuning

was done by using leather wraps, knots and tuning levers. There are instructional videos available online which demonstrates this system, which clearly is quite intricate.

Biblical references to the lyre totals 42:

Genesis 4 : 21	Genesis 31 : 27
1 Samuel 10 : 5	1 Samuel 16 : 16, 23
2 Samuel 6 : 5	1 Kings 10 : 12
Isaiah 5 : 12	Isaiah 16 : 11
Isaiah 23 : 16	Isaiah 24 : 8
Isaiah 30 : 32	Ezequiel 26 : 13
Psalms 33 : 2	Psalms 43 : 4
Psalms 49 : 4	Psalms 57 : 8
Psalms 71 : 22	Psalms 81 : 2
Psalms 92 : 3	Psalms 98 : 5
Psalms 108 : 2	Psalms 137 : 2
Psalms 147 : 7	Psalms 149 : 3
Psalms 150 : 3	Job 21 : 12
Job 30 : 31	Nehemiah 12 : 27
1 Chronicles 13 : 8	1 Chronicles 15 : 16, 28, 21
1 Chronicles 16 : 5	1 Chronicles 25 : 1, 3, 6
2 Chronicles 5 : 12	2 Chronicles 9 : 11
2 Chronicles 20 : 28	2 Chronicles 29 : 25

The *kinnōr* was a very popular instrument and this is displayed in the large array of iconographic material of this instrument. It also is the only chordophone confirmed by discovery of archaeological artefacts in areas of ancient Israel during the Iron Age. Many of the references from the Bible, above, attributes the sound of the lyre as pleasing and favourable. We read in m. 'Arak. 10b about a specific *kinnōr* which even was kept on the altar of the Jerusalem Temple. It apparently was of amazingly gentle timber, lost forever when the instrument was damaged.

3.2.2 Ur – graveyard of the lyre

The ancient Mesopotamian city of Ur is mentioned in the Bible when in Genesis 12: 4 and 5 we read about “Ur of the Chaldees” which apparently was the birthplace of Abraham.

Much of what we know of the people and culture of early Mesopotamia comes from this archaeological site, especially the Royal Cemetery at Ur. It was inhabited from about 5500 BCE until it was abandoned in about 400 BCE because of difficulties with its water supply. Sir Leonard Woolley spent twelve seasons of excavations here. He dug on an unimaginable scale. In the 1920s he started excavation at the Royal Cemetery. It contained 16 Royal tombs along with 2000 simple burial tombs. It rendered spectacular finds of gold and silver as well as semi-precious stones. It also rendered the remains of court attendants who were buried at the same time as the Kings and Queens. This obviously pointed towards so-called human sacrifice.

Nearly half a million cuneiform tablets were excavated from near Eastern sites that would provide insight into the musicology of the time and place. These depict instruments, singers, rituals and other events in which music played an important part. Physical remains of musical instruments made for an exciting find, including four large lyres, two harps and the remnants of pipe instruments.

One of the most famous objects from the Royal Cemetery is the Great Lyre from the King’s Grave. It was lying against the Northwest wall of the death pit. A second lyre was found on top of the head of one of the bodies leaning against the wall and is now in the British Museum.



<http://sumerianshakespeare.com/117701/117901.html>

Fig 3.10 Great Lyre from the King's Tomb

All the bodies beneath the instruments were identified as women because of their jewellery. Not all musicians playing the lyre are female. There is evidence of male lyricists as well. There is a male banquet depicted on the Standard of Ur. In the top register on the right is a depiction of a male lyricist.



https://commons.wikimedia.org/wiki/File:Standard_of_Ur_-_Peace_-_Detail_Top_Right.jpg

Fig 3.11 Detail from Standard of Ur.

Behind him is a figure with long hair, probably a singer. The upper part of the body of both the lyricist and singer is shown naked. The wide band over the shoulder of the lyricist appears

to be attached to the lyre for support. Take note of the bottom part of the instrument which demonstrates an obvious bull's head.

The lyre Woolley found was approximately 1.4 m in length. The sound box and arms were of plain wood with decorations. Keeping in mind that this is a Sumerian type lyre which had 11 strings and that the much simpler Egyptian lyre only had 4 strings, we can deduce that Sumerian music written for the lyricist was more complicated than its Egyptian equivalent. Although most of the lyre was constructed using plain wood the front of the sound box was decorated.



[\(https://za.pinterest.com/pin/366621225892653523/\)](https://za.pinterest.com/pin/366621225892653523/)

Fig 3.12 Detail of front panel of Great Lyre.

The front panel is trapezoidal in shape. It consists of four plaques which diminish in size from top to bottom. The background of each panel was cut away and so the figures stood out clearly. The background was filled with bitumen. Each panel tells a fascinating story, but our

interest primarily lies in the panel third from the top. It depicts an orchestra of animals. There is a seated ass/donkey with his tail up against his back. It has humanlike fingers which are spread and plays a lyre with eight strings. This lyre is once again decorated with a bull's head. On the other side of the panel is a large bear helping to support the large lyre. At the feet of the bear is a small animal, perhaps a fox, with large ears and a long bushy tail. It appears to be sitting on the right foot of the bear. The Fox holds a *sistrum* in his right hand, while his left hand is resting on an object lying across his knees.



<http://www.penn.museum/sites/expedition/the-musical-instruments-from-ur-and-ancient-mesopotamian-music/>

Fig 3.13 Detail from the panel on the bull-headed lyre.

While excavating the Royal graveyard parts of 9 lyres were discovered. The lyre of Ur reads as a fascinating story.



<http://www.lyre-of-ur.com/history.htm>

Fig 3.14 One of the 3 original lyres of Ur found in 1929, held in the museums of Pennsylvania, London and Baghdad. The instrument depicted above is about 4550 years old and therefore predates the construction of the great pyramids.

When excavating the royal graves they found tens of bodies dressed in similar costumes, with identical jewellery, headdresses covered in gold and beads as well as silver. In the corner of one of the graves they found a pile of musical instruments, obviously very deteriorated. This was 3 lyres and a harp (Braun 2002), although Montagu (2002: 277) estimates this at nine instruments. He also indicates that these instruments would originate from about the time of Jubal. The original instruments were manufactured using wood, but they were richly decorated with gold, silver, copper, lapis lazuli and mother of pearl. These materials did not deteriorate as badly as the wood over the millennia and it is these materials that enable us to reconstruct the instruments showing us its form and dimensions. Sir Leonard Woolley who was leading the expedition at that time describes the scene as:

“... As if last player had her arm over her harp... Certainly she played to the end”.



<http://www.lyre-of-ur.com/pictures.htm>

Fig 3.15 Musical instruments found in the Royal graveyard

The instruments were restored and given to the museums that took part in the excavation. The finest example, the Golden lyre of Ur is depicted above and is in the Baghdad museum.

In April 2003 tragedy struck. The Iraq Museum in Baghdad was looted and many artefacts including this old lyre was damaged. Pieces of the instrument were picked up in the car park, broken into pieces. It had been stripped of its silver and gold. The head of the bull was later found in the National Bank of Iraq. Mr Andrew Lowings found the story of musicians dying along the instruments extremely compelling and he gathered a team of contributors, helpers and experts to recreate this instrument. And so this project began in 2003. He had the idea of recreating the lyre using the authentic materials and methods as they were known. And so follows an amazing story speckled with enthusiasm, contributions and donations, easily found online – and it makes for truly amazing reading; by 2004 the damaged instrument from the Iraq Museum in Baghdad was recreated. Invitations have been received to perform the instrument in various venues. Great efforts have been taken to create something that is authentic and true to the known evidence.

The so-called Queen's Harp is now exhibited in the British Museum. The reconstructions found here were done in 1971-2 from one of the 9 lyres found in Ur by Leonard Woolley, numbered 121198. It is interesting to note that prior to July 1955 the instrument had eleven strings. When it was repaired, an additional pin was found and thus an additional string was added. It was again reconstructed in 1971-2 and underwent X-ray imaging. Buried in the

plaster that Woolley cast the instrument in, another pin was found. This also was removed from the plaster and fitted on the upright arm.

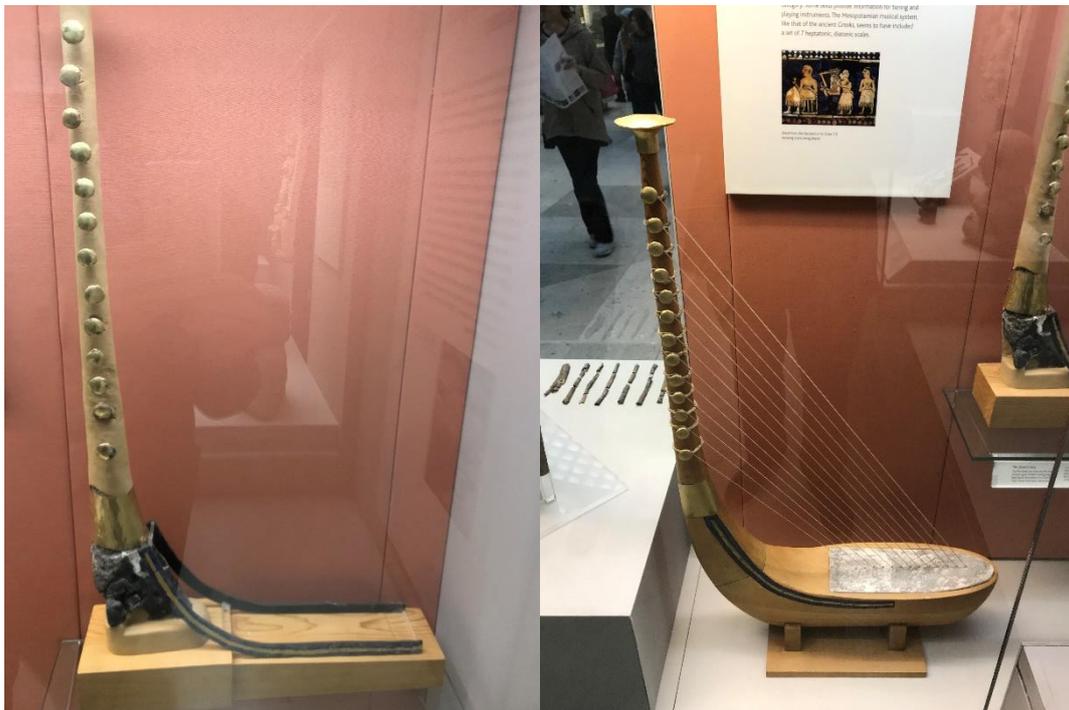


Fig 3.16 Queen's harp from the Royal cemetery in Ur – own photographs from gallery 56 in the British museum

The instrument is boat shaped and now has 13 string as explained above. The reconstruction of the instrument was made on the basis of images found on seals as well as from the sketches made at the time of excavation. The tuning pins are made of gold and it also was decorated with lapis lazuli.

Several cylinder seals were also uncovered. As the name indicates these seals are cylindrical objects made of a hard material. The sides are carved with a design and so when it is rolled across a malleable material the engraved design is left as a mirror image. It is interesting to read that so many impressions were found in the rubbish layers into which the tombs were dug that it is called the seal impression Strata.



(<http://balkhandshambhala.blogspot.co.za/2013/03/lady-puabi-2600-bc.html>)

Fig 3.17 Cylinder seal with modern impression.

3.2.3 Cylinders

This dark blue cylinder is made from dark blue lapis lazuli. It was found against the right upper arm of a queen. The scene depicts only female characters as can be deduced from the length of their skirts which contain a fringe, as well as long hair drawn together at the back of the neck. In the bottom portion, to the right side is a scene of musicians. There is a woman playing an instrument with four strings. She is accompanied by two other women who play clap cymbals and perhaps also were singing.



(<http://www.penn.museum/sites/expedition/the-musical-instruments-from-ur-and-ancient-mesopotamian->

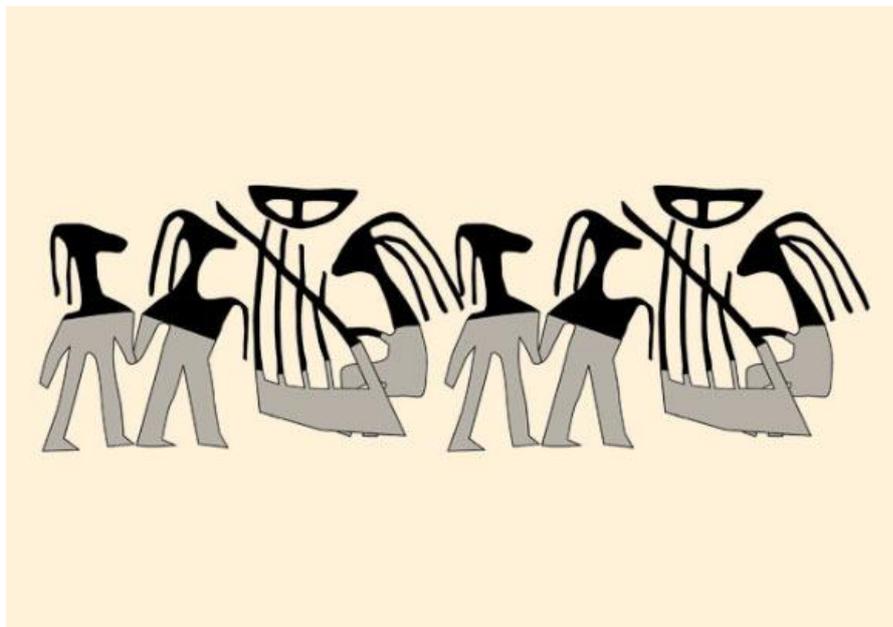
[music/\)](#)

Fig 3.18 Impression of scene from gold cylinder seal.

A golden cylinder seal was found in one of the graves in the cemetery. Obvious festivities are depicted in the top portion of the seal. In the bottom, there are two figures playing clappers as well as a seated musician playing a bovine lyre. Although these figures are fairly simple stylistically, the depiction of the lyre is very accurate if compared to the Great Lyre from the king's tomb described above.

3.2.4 Beth Ha-Emeq

A very early musical scene, of which an impression was found in the 1970s at Beth Ha-Emeq is regarded by some as the earliest known depiction of a music scene in Israel. The impression appears to be approximately 5000 years old and dates from the early Bronze Age.



<http://www.sci-news.com/archaeology/science-seal-impression-musical-scene-02851.html>

Fig 3.19 Reconstruction of music scene.

The importance of this scene lies in the possible symbolic content. There are two standing and one seated figure in each scene. It probably depicts a sacred marriage between a king and a goddess, represented by a priestess. It depicts music and dancing, a banquet, the meeting between the king and the goddess and lastly the act of sexual congress between

them. It therefore represents a sacred marriage rite. The seated figure appears to be a musician playing a lyre. The instrument is well-known from this period. Researchers believe that this is the first depiction of a figure playing an instrument on a seal impression from the third millennium BCE.

3.2.5 Megiddo

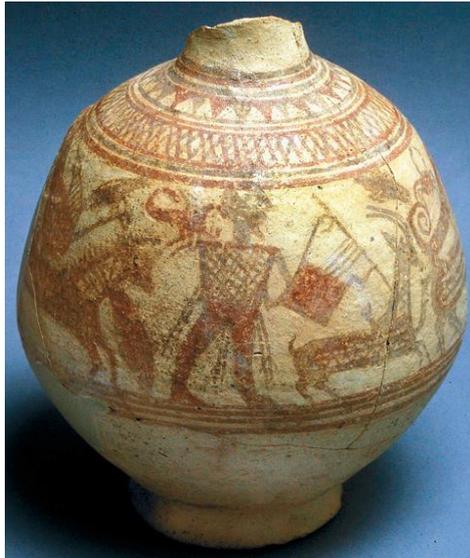
From the excavation of Megiddo this ivory fragment was dated to the 12th century BCE



http://www.bible-archaeology.info/bible_city_megiddo.htm

Fig 3.20 Ivory fragment from Megiddo.

and a jar was dated 1150 to 1000 BCE.



http://www.bible-archaeology.info/bible_city_megiddo.htm

Fig 3.21 Jar from Megiddo.

Both these artefacts depicts the *kinnōr* and come from an area as well as a time in which David was king of Israel. These possibly could give us an idea of what the *kinnōr* looked like on which David played.

The jar depicted above comes from stratum IV in Megiddo. It is in the shape of a Philistine beer container and at the top is decorated with geometrical patterns. There also is a musician with a beard. He is playing an instrument with 4 strings, possibly an Eastern type *kinnōr*. The musician leads a procession of animals containing a lion, gazelle, dog, horse, birds, fishes, crabs, and scorpions towards a tree. The drawings in red and black is typical of bichrome Philistine type of art. Depictions of *kinnōr* found on copper plates in Cyprus also only had 4 strings. This probably represents a developmental phase of the *kinnōr*.

Braun (2002) divides the iconographic evidence of the lyre into 4 groups:

- large asymmetrical *kinnōr* with uneven arms and rounded or rectangular resonators
- smaller symmetrical *kinnōr* with rounded or rectangular resonator
- asymmetrical *kinnōr* with parallel arms and rectangular resonator
- symmetrical *kinnōr* with curved arms and rounded resonator.



(http://www.bible-archaeology.info/bible_city_megiddo.htm)

Fig 4.22 Ivory carving from Megiddo.

We meet this plaque again because some confusion exists with regards to whether the instrument depicted is a harp or a lyre. The instrument originally was described and catalogued as a harp. This artefact was found in the Royal Palace along with several other valuable pieces. It is engraved on ivory and approximately 27 centimetres long. This is in an apparently typical Canaanite style and according to Braun also depicting a typical Canaanite incident. Braun explains that the scene depicts a ruler on his throne, holding a small jar which is a symbol of power. Before the throne is a woman. Her dress reaches down to the ankles and has the appearance of a Syrian dress, handing a lotus flower to the ruler. Next is an apparent female figure with a *kinnōr*. She is seen from the left and only the posterior side/back side of the *kinnōr* is visible. This asymmetrical instrument with 9 strings has a flat base, is of eastern origin and is unique in design. It is held under the left arm. It is uncertain whether this musician is simply providing music to the ceremony or whether the musician represents a gift indicating the high status of *kinnōr* musicians and their instruments. It is important to note that the *kinnōr* is held under the left arm. This technique was not known in Egypt and most likely would have been of Canaanite origin. This technique of playing the *kinnōr* only surfaced in Mesopotamia about 500 years later in the new Babylonian age.

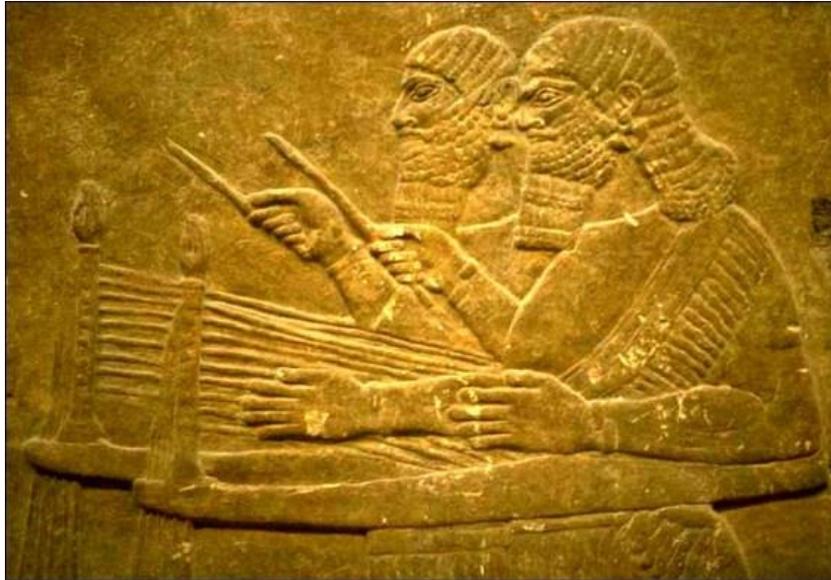


Fig 3.23 Prisoners playing lyres, (detail), southwest palace of Sennacherib, Nineveh – own photographs from the British museum

3.2.6 Nineveh

This new technique of holding the instrument under the left arm is first seen in the alabaster reliefs of Sennacherib in Nineveh. This Assyrian relief was found against the wall of the southwestern palace in Nineveh and depicts Sennacherib triumphantly moving into Israel. As loot and re-compensate he took gold, silver, luxury goods as well as the daughters and wives of King Hezekiah, but then also demanded male and female musicians, most likely from the Royal household. This relief shows three typically Semitic *kinnōr* players. These most likely represent prisoners of war.

The instruments they are playing has the appearance of an asymmetrical *kinnōr* with 5 strings. The design of this instrument appears to be fairly simple, probably an indication of a traditional type instrument, rather than a large instrument played by professionals.



(<http://www.ancient-origins.net/news-general/ancient-sumerian-song-recreated-3400-year-old-cuneiform-tablets-001905?nopaging=1&qt-quicktabs=0>)

Fig 3.24 Relief from palace, Nineveh, 7000 BCE.

This bas relief that was found in the Palace at Nineveh illustrates how the lyre strings are struck with a wooden batten, rather than being plucked with a plectrum. The left hand dampens the sound of strings not supposed to be sounded.

Several of these reliefs are now displayed in the British Museum in London and the artistry thereof is amazing. On the next relief we see three musicians being marched away under escort. They appear to come from the west of Assyria and possibly are Phoenician. This relief comes from the South-West palace in Nineveh and dates to about 700 – 692 BCE. The depiction of the lyre found herein is typical of the instrument and the era. The scenes here depict what is referred to in Psalm 137:

..they that carried us away captive required of us a song..



Fig 3.25 Captured musicians – own photograph from the British Museum



Fig 3.26 Defeated soldiers and musicians Assyrian army in campaign 645 BCE. Panels from the palace of Assurbanipal in Nineveh. Own photographs from the Louvre, Paris.

In the North palace of Nineveh, room E, a relief is found dated from about 645 – 635 BCE. This is on panel 5. It is Assyrian in origin and depicts musicians accompanying a tame lion in a garden. Of interest is to note the similarity of the shape of the instrument to that found on ivory carvings in Megiddo.

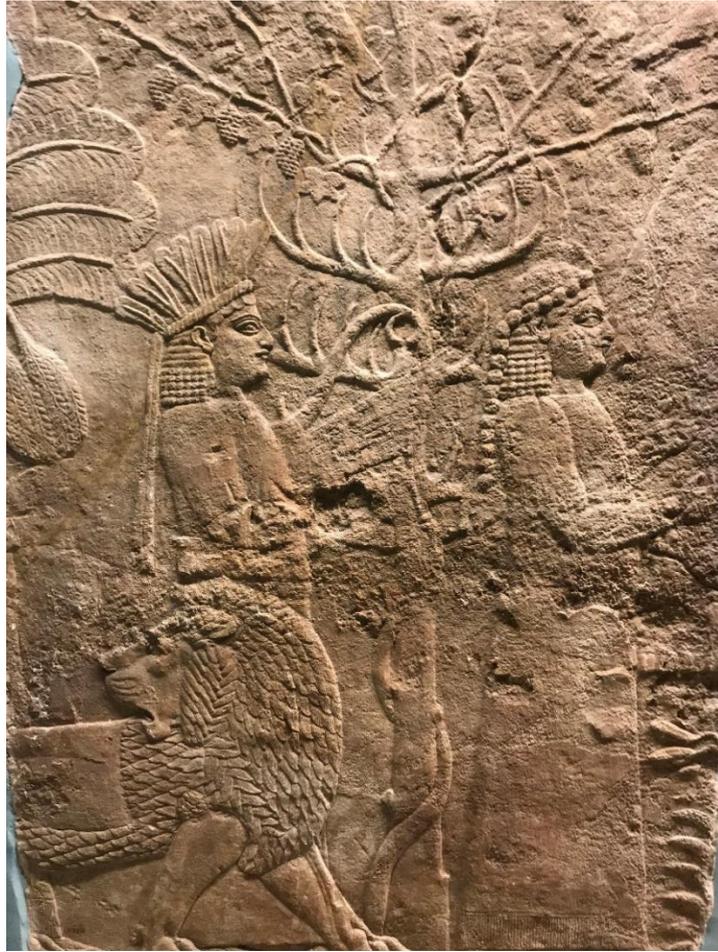
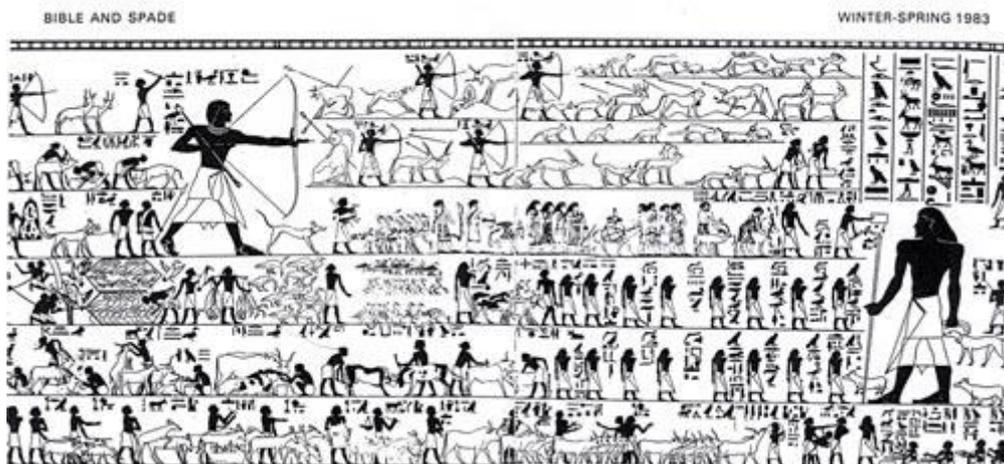


Fig 3.27 Musicians playing the lyre – own photograph from the British Museum.

3.2.7 Beni Hasan

Beni Hasan / Beni-Hassan / Bani Hasan is an ancient Egyptian cemetery site. It is named after the local Bedouin tribe living here for centuries and is situated in the region now known as Middle Egypt. It was mainly used as a cemetery during the Middle Kingdom from the 21st to the 17th centuries BCE. Little of the city is left. Here a mural painting was uncovered dated 1890 BCE. It is located on the north wall of a tomb that belonged to the local governor of the time, Khnumhotep III. There are also two other tombs of Khnumhoteps at the site. Khnumhotep III was the local governor of the Antelope province and his tomb was horizontal cut and consisted of an open outer court, a doorway to the main chamber as well as a smaller shrine room. This was all cut into solid rock. The main room is approximately 11 x 10 m in size and about 6 m high. The interior walls were covered with inscriptions and paintings depicting the life and special events of the interred. The walls were covered with multiple scenes including wrestling matches from beginning to end.

On the northern wall a very special mural was found.



<http://www.biblearchaeology.org/post/2009/09/09/The-Beni-Hasan-Asiatics-and-the-Biblical-Patriarchs.aspx>

Fig 3.28 Rendering of the coloured north wall painting



<http://www.biblearchaeology.org/post/2009/09/09/The-Beni-Hasan-Asiatics-and-the-Biblical-Patriarchs.aspx>

Fig 3.29 A colour rendering from row 3.

The larger figure in the top left is Khnumhotep as a hunter, while the double sized figure in the bottom right depicts him with a long staff. In the 3rd row from the top we find a scene of a caravan of people from Siro-Palestine approaching the governor. Egyptologists today conveniently refer to these people as Asiatics and they were known to regularly cross from Canaan into Egypt. They did not often come this far south however. To have this painted onto the wall of your tomb must indicate that this must have been a significant event.

There are some very interesting facts about this portion of the mural painting. Just note the difference in skin colour. Egyptian men were often depicted with a red skin colour while a yellow skin was the standard convention to indicate Mediterranean world foreigners. Strangely enough, Egyptian women were also depicted with a yellow skin, possibly because they stayed inside and kept away from the sun. People from Africa like the Nubians and

Cushites are depicted with a darker skin and also have slightly different physical characteristics.

It appears that the people depicted here represent a family of traders. There are two Egyptians introducing the foreigners and both are identified by the inscriptions before them. The Scribe of the Royal Documents, Neferhotep, is in the lead and is carrying a document. The other is the Overseer of the Hunters, Khety.

There also is a distinct difference in clothing. The Egyptians wear traditional white linen kilts, but the Asiatics wear multi-coloured garments. The four women wear coloured robes down to the ankles. We know that white was the basic colour of linen and wool and so the multi-coloured garments must have represented a considerable financial investment. See that the Egyptians appear to be barefoot while the foreigners all appear to wear sandals. The Egyptian characters who are normally clean-shaven wear wigs and a royal goatee. The foreign men have full beards and full heads of hair.

The animals depicted here probably represent gifts to the governor. One donkey appears to be carrying bundles of coloured cloth while the donkey at the back appears to be carrying cloth and other equipment, probably associated with metalworking.

The women do not appear to be carrying anything at all, while all the men appear to be carrying something. Note the gentleman second to last who is carrying a *kinnōr* and plectrum. This depiction is regarded as an exceptional case of iconographic evidence regarding music of Canaan found outside of Israel/Palestine - some other examples will follow later. And it is with interest that we look at the musical instrument in detail. This appears to be a new type of lyre which is smaller, lighter, more portable, and more symmetrical in construction. It also is held in a horizontal position for ease of playing, which is different from the heavier, larger older type lyre which was carried vertically. We now know that the instrumentalist is a Syrian trader (Dumbrill 2005: 283). His instrument therefore would be better known in Syria and Ancient Egypt.



(http://www.bible-archaeology.info/musical_instruments.htm)

Fig 3.30 Copy of the small Hebrew harp on the Beni Hasan mural, Egypt 1800 BCE. Potsdam Public Museum

Bayer (1982: BAR 8:01) points out that the harp was known in the 19th century BCE in Egypt, but that no local lyre was known. And so the outline of the instrument appears to be correct as well as the manner in which it was held and played. The bridge however appears to be absent and 8 strings are depicted.

3.2.8 Kuntillet Ajrud

Kuntillet Ajrud is an archaeological site dating from the 9th and 8th centuries BCE. It is situated in the Sinai Peninsula. This Arabian name means “the solitary Hill of the Wells”. In ancient times this must have been a lush oasis providing the only source of water in an otherwise arid area.

The site was primarily excavated by the Tel Aviv University archaeologist Zeév Meshel in 1975/76. They uncovered a fortress type main building with two rooms. Both rooms contained paintings and inscriptions on the wall and a large water jar / *pithoi* was found in each room. Paintings and inscriptions on both jars were found to be made by different artists over a considerable period of time. These also contain the now contentious inscription “Yahweh of Samaria and his Asherah”.



(https://en.wikipedia.org/wiki/Kuntillet_Ajrud)

Fig 3.31 Drawing from Kuntillet 'Ajrud.

The artwork on these jars demonstrate cows, erect figures as well as a seated female musician with a *kinnōr*. The shape of the *kinnōr* corresponds with what we found on the ivory plaque at Megiddo. It is difficult to ascertain how many strings this instrument has. There are two depictions of this small symmetrical *kinnōr*. The first is at an angle low to the body which is the correct manner of playing while an incomplete *kinnōr* is held horizontally in the air. There are several interpretations with regards to the seated female musician. These range from her being the consort of Yahweh to a possible goddess and to a mere musician creating music.

3.2.9 Ashdod

The first settlements at Ashdod dates to the Canaanite culture of the 17th century BCE. Ashdod is the largest port in Israel and located on the Mediterranean coast. It is in the ancient temple where they found a small handmade statue of a terracotta musician.



(Braun 2002; 173. III 1V.33)

Fig 3.32 Terracotta statue of musician with *kinnōr*.

The musician carries a small symmetrical *kinnōr* of approximately 40 to 50 cm. The sound box is round and there apparently are 4 strings. It is held in the left hand, against the upper right chest and the right arm is elevated in order to play the strings with a plectrum.

From its bowels Ashdod also gave up an incense burner made from terracotta. This contains an ensemble of 5 musicians. The 5 instruments are identified as a *toph*, *chālīl*, *kinnōr*, cymbals and a double flute *chālīl*. When we look at the figurines of the musicians we find that their facial features are poorly defined but that the eyes are overstated and that they all have strange ears. Braun again points out the “new” technique of playing these instruments (Braun 2002: 69). The double flute *chālīl* is played in a vertical position in keeping with Greek technique found later. There is a small symmetrical *kinnōr* with side arms extending beyond the transverse rod. This we know stems from the Kassite era and is played at shoulder height. This playing position originated in Cyprus at about the 9th century BCE.



(King & Stager 2001: 290, ill 161.)

Fig 3.33 Terracotta incense burner from Ashdod with five musicians.

Different interpretations are given for the ensemble of musicians. Dothan expresses the opinion that the musicians probably formed part of a Philistine cult similar to the temple musicians (1981: 93,94). The ensemble can also be interpreted as a group of Royal musicians. It also is noteworthy to understand that the double flute *chālīl* would be the main instrument carrying the melody, while the other instruments would provide backup.

3.2.10 Seals

Instruments were also depicted on seals. A few examples of these exist and the *kinnōr* was no exception.

3.2.10.1 *Timnah*

Timnah was a Philistine city in Canaan and we read of this in Judges 14. Apparently, Samson travelled to Timnah in order to find himself a wife. On the way there he kills a lion. Today Timnah is identified with Tel Batash. It was first uncovered from 1977 to 1979. The site is approximately 4 ha in size and was first settled in the Middle Bronze Age. Excavation continued in the 1980s and 1990s and uncovered 12 strata of continuous settlement.

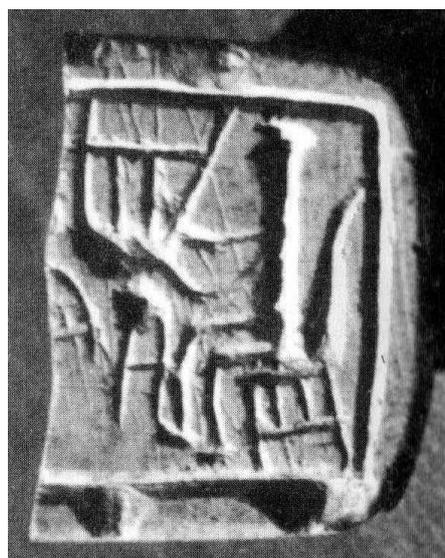


(Braun 2002: 155. ill. IV.24)
Fig 4.34 Tell Batash seal.

This seal from Tell Batash dates from the 12th to the 10th century BCE. It depicts a rectangular and symmetrical *kinnōr* with only two parallel strings. This is regarded as a seal exhibiting Philistine cultural influences.

3.2.10.2 *Ashdod*

At Ashdod a seal was uncovered of a sitting musician with a U-shaped symmetrical *kinnōr*.



(Braun 2002: 155. ill. IV.25)
Fig 4.35 Fragment of Ashdod seal

During the late Bronze Age and Early Iron Age the city of Ashdod flourished under its Philistine control. Music played an important role in the community and this seal indicated the status of the musician as artist and possibly as maker of instruments. It must be remembered that seals were of high social and economic status and probably more relevant within the affluent population as well as among the more important ruling class.

This seal is a portion of a slate seal dating from the 10th to the 8th century BCE. It shows a sitting, once again possibly naked musician, playing on a U-shaped *kinnōr* which is symmetrical and contains two strings. Except for the instrument held in the artist's hands a second instrument is seen overturned at the base of the chair.

3.2.10.3 *Haifa scarab seal*

The scarab type seal with oval shape was found at Haifa. Once again, this dates from the 10th to the eighth century BCE. It is from northern Palestinian origin and depicts a sitting musician with a *kinnōr* with two strings as well as a female dancer with a *toph*.



(Braun 2002: 157.ill. IV.26.)
Fig 3.36 Haifa seal.

Brown (2002: 157) confirms that the combination of a chordophone and a membranophone was well known within northern Palestine and therefore, due to the Philistine influence, connects this seal to the Philistine musical cultus.

3.2.10.4 *Mount Nebo*

Two separate seals have been discovered at Mount Nebo and in Tel-Aviv.



(Braun 2002: 158. III. IV.27)
Fig 3.37 Limestone seal from Nebo

The seal from Nebo is a cylindrical seal. It's is made from limestone and is approximately 70 x 47 mm in size. The imprint of the seal can be seen and depicts musicians with a *chālil* and *kinnōr*. There also are symbolic signs. This was found in a fort on the Tel of Mount Nebo and dates to the Iron Age.



(Braun 2002: 159. III IV.28)

Fig 3.38 Seal from Tel Aviv.

The illustration above shows the seal of Tel Aviv from front and back. It is made in order to produce a stamp. Note the presence of erect musicians with a *chālīl* and *kinnōr*, and it also demonstrates similar symbolic signs as the previous.

They date from the same period and are so similar with regards to stylistic features that Braun feels that they might have come from the same workshop.

1. Both depict *kinnōr* remindful of the flat base eastern type *kinnōr*. Both are of the symmetrical type *kinnōr*. The *kinnōr* from Mt Nebo has three strings. The *kinnōr* from Tel-Aviv has six strings.
2. Both also have depictions of a *chālīl*. There is some confusion with regards to the instrument here called a *chālīl*. It could represent a double reed flute, according to Braun (2002: 158) but has also been described as a double-oboe or double-clarinet. This disparity most likely is due to the size and style of the seal.
3. The clothing of the male *kinnōr* musician as well as of the female *chālīl* musician also are comparable.
4. Both depict a sickle moon – which is the emblem of the Old Babylonian Moon god, Sin from Haran. The sickle moon is a well-known symbol within Mesopotamian iconography and has been known since prehistoric times. It sometimes is decorated

and other times not and it is often used in conjunction with other gods or goddesses. It is believed to have magical protective powers. When we read in Job 31: 26 – 28

²⁶ if I look at the sun^U when it shines
or the moon as it rises in steady splendor,
²⁷ so that in the depths of my deceived heart
I worshipped them with my mouth and hands, (NKJV)

It appears that moon worship as practiced by the Moon cults might come into play here. It is indicative that the Moon cult and its activities were well known in ancient Israel during the Iron Age and that ensembles containing string and wind instruments played a role within the cult.

5. There is an altar in the shape of an *ankh*-symbol. *Ankh* is an object or design resembling a cross but having a loop instead of the top arm. It is used in Egypt as a symbol of life.
6. There is a holy tree.

3.2.10.5 *Tell Keisan*

Tell Keisan is situated on the Akko plain between Haifa and Akko. It connected the coast with the hills of lower Galilee. It was excavated by John Garstang in 1935 and 1936 and again in 1971 – 1980. It was first settled in the Early Bronze Period and strata 12 – 9 referenced to Iron Age I especially delivered spectacular results. The Tell Keisan seal is of an erect musician holding an asymmetrical *kinnōr* with possibly six strings. The seal is dated 9th – 7th century BCE.



(Braun 2002: 160. III IV.29)
Fig 3.39 Seal from Tell Keisan.

Again, this seal is very similar the two above:

- The Mesopotamian sickle moon is visible
- There is an Egyptian *ankh*
- The musicians with their clothing and instruments are stylistically similar.

The question (again?) arises whether these are not perhaps from the same workshop? Similar to the Jerusalem seal, the Keisan seal depicts a mixture of religious symbols, i.e. the sickle moon and the *ankh*. This apparently was acceptable within musical traditions. The presence of the *kinnōr* on these seals is indicative of the status of the *kinnōr* as well established instrument of the time.

3.2.10.6 *Scaraboid seal*

The scaraboid seal from the Israel Museum is oval in shape. It is of unknown origin and has an inscription reading “Belonging to Ma’adanah, Daughter of the King”. There is an asymmetrical *kinnōr*, with S-shaped arms, a rounded sound box with a rosette in the middle, either a sound opening or merely decorative.



(<http://www.dokomedia.com/sealofmawadana.html>)

Fig 3.40 Modern recreation of the scaraboid seal.

Norman Avigad, who was an Israeli archaeologist and lived from 1905 – 1992 saw this as the first true Hebrew depiction of a *kinnōr* similar to the *kinnōr* of King David and the temple orchestra (1978: 151). This article by Avigad beautifully describes the seal of brown jasper with orange colored spots. He confirms that the exact provenance is uncertain, but that it is said to have been found in Jerusalem (1978: 146 footnotes). It is well preserved and belongs to the collection of Dr R Hecht. These can be bought online for a mere \$16.95 where it is advertised as the representation of the lyre that King David played on. There are however some questions with regards to this view:

1. The rounded sound box is uncommon in the asymmetrical *kinnōr*
2. There is no textual reference to a 10 string Near Eastern lyre of the Iron Age.
3. There is no textual reference to a rosette - the first is by Josephus 600 years later.
4. There are questions about the number of strings.
5. There are questions about the side arms that are bent outwards.

Braun (2002: 162) points out that no single instrument as symbol has been found on an artefact before the Hellenistic period. In his 1978 article Avigad explains that it remains the first known seal designated to the daughter of a king (pg. 147) with the name of the king omitted as also found on other similar inscriptions. The basic shape of this instrument is also

confirmed as common to the countries of the Ancient Near East (Avigad 1978: 150) and furthermore assumes that the princess must have been an ardent player of the instrument and therefore chose this as her personal emblem (1978: 151). It would have simplified the dating of the artefact had the name of the father/king been available and the only other possibility is to evaluate the calligraphy found on the seal. It appears to be typical of the semi-formal type of writing found in Judah in the 7th century (Avigad 1978: 151).

3.3 HARP



Fig 4.41 In the Metropolitan Museum, New York
Statuette with triangular harp: Ancient Near East Exhibit – own photograph

God, I will sing a new song to You; I will play on a ten-stringed harp for You
(Psalm 144: 9)

3.3.1 Introduction

The harp most likely is the oldest form of a string instrument, and we have already noted that the lyre was birthed from the harp. The harp must have originated from the archer's bow and a set of strings, made from gut would have been strung within the crescent shape of the bow. There are iconographic evidence of the harp, already well developed in the Bronze Age, 2200

– 1200 BCE. Iconographic evidence from the Uruk period show instruments with 3 strings. This would have resulted in a simple tuning involving a tonic, and then either a fourth or fifth or octave:

c – g – c, or

c – f – c, or

c – f – g, or even

c – g – a.

Some confusion still exists with regards to the translation of the Akkadian word *sammû*. Most notably is the persistence of the authoritative Chicago Assyrian Dictionary with the translation as “lyre”. Additionally to differences already mentioned it is well worth pointing out the presence of holes in the frame of the harp to allow for the replacement of broken strings. These holes in the frame would be unnecessary in the lyre due to its construction. Furthermore, there is evidence from old Babylonian texts of harps fitted with a leather soundboard. None of the lyres found during excavations were fitted with leather soundboards. Because of the way they were constructed, the soundboard of a lyre could only have been constructed from wood. The last bit of proof of existence of the harp comes from Esarhaddon. Esarhaddon was the youngest son of Sennacherib and was a king of the Neo-Assyrian Empire reigning from 680 – 669 BCE. In 667 BCE he defeated the Sidonian king Abdi-Milkutti. He had him beheaded, hung his head around the necks of noblemen and paraded them around the streets of Nineveh to the sounds of singers, accompanied by the *sammû*. The most popular instrument played by the military at that time was the *sammû* which we know is a vertical harp.

There thus is compelling evidence that the harp as an instrument existed well before the evolution of the lyre. Some iconographic evidence will be presented later.

We first meet this instrument in 1 Samuel 10 : five.

וְתַף נֶבֶל וְכִנּוֹר, with a *nēvel v³ tōf v³ chālīl v³ chinnōr*

Harp: n., *nēvel* / נָבֵל [H5035]. 1. Ancient string instrument with 10 or more strings. It is used in conjunction with the lyre to accompany singers. Plucking the strings with the fingers would produce sound. It was mostly used as a melodic instrument. We must not forget that the instrument we find in the Bible had already undergone much improvement/development from the early Assyrian instruments described above. Braun (2005: 22) points out that it derives from the root term *nv*l and that it could be vocalised as either *nēvel* or *naval*. The meaning of these two words could either be the same or different.

At this stage, we should also make mention of the term *asor* which is derived from the numerical *āšarā* meaning 10. The term *asor* is used three times in Psalm 33: 2, 92: 4 and 144: 9. It nevertheless appears as related to the noun *nēvel*, but in Psalm 92: 4 there is the conjunction “and” which might indicate two different instruments. The Vulgate refers to “*psalterio*” in these instances. There are several other references using *asor* as a generic type of term simply meaning a 10 stringed instrument. The current majority opinion now indicates the *asor* and *nēvel* as two different instruments – more on this follows.

Nōvel, is often translated as psaltery, and in some instances as a viol. There now exists compelling arguments to say that the *nōvel* was not a psaltery and we are very certain that it definitely was not a viol. The initial idea was that a *nōvel* was a small rounded harp as used by Egyptian musicians. These still survive in central Africa today, but there is no evidence for the use of any form of a harp in AIP in biblical times. We therefore now must wonder whether this is a different type of lyre from that which we know as the *kinnōr*. We know with some certainty that the psaltery did not exist in AIP. This instrument was more widely used in Europe in the Middle Ages. The Greek word *psaltōrion* is the root for the derivative *psalterium* and the meaning of the word indicates something that was plucked with the fingers. It can therefore be applied to the harp, but the harp was very rarely used in Greece from the late fourth century BCE onwards. *Nōvel* sometimes also equated to *nabla*, and that most likely is because of a similar spelling. The three consonant letters of *nōvel* are

נבל, nūn-vēt-lamed,

which are the same three consonant letters of *nabla*

νβλ, nu-beta-lambda.

The next operative question therefore would be what a *nabla* was? Martin West (1992: 77) thought that it was a Phoenician type harp, but again there is no archaeological evidence for the existence of harps in Phoenicia. So could it possibly have represented a type of lyre? Bathja Bayer (1963: 37) certainly appears to think so. She motivates this referencing Josephus' Antiquities and the Mishnah. From this we deduct that the *nēvel* was a larger instrument than the lyre, and that the pitch was lower. The *nēvel* had thicker strings made from the large intestines of animals and therefore it was more appropriate to pick this with the fingers rather than to play it with a plectrum.

Nēvel is the Hebrew word most commonly used for a harp. It is a masculine noun and in the King James Version Old Testament Hebrew lexicon is defined as:

1. a skin-bag, jar, pitcher
 - a. skin-bottle, skin
 - b. jar, pitcher (earthen)
2. harp, lute, guitar, musical instrument

which could be a reference to the shape of the sound box. The 10 strings were attached into groups of 5 on either side of the assembly. This was a large heavy instrument. It was almost a metre in height and therefore it was not carried around easily. It was thus an instrument mostly used during large ceremonies and concerts.

Both Braun (2002: 22) and Bayer (1963: 29,30) make reference to the term meaning a leather bag, sack or wineskin. Within the timeline of AIP these terms appear at very much the same period as when we read of the musical instrument. Interestingly enough both Braun (2002: 24) and Bayer (1982, online document) also made surveys of the illustrations found on the coins of the Bar Kochba Rebellion.



<https://www.redbubble.com/people/photostock-isra/works/13474548-bronze-coin-from-the-shimon-bar-kochba-revolt-132-135-ad?p=greeting-card>

Fig 3.42 Coins from the Bar Kochba Revolt showing the *kinnōr* and the *nēvel*.

This they did in order to differentiate between the *nēvel* and the *kinnōr*. Both assume that the taller and more elegant looking instrument would represent a lyre, while the stockier and bulky looking instrument rather would represent the *nēvel*. And so, while we bow to superior knowledge and experience, we must firmly be reminded that this is only an assumption.

It is interesting to note the line down the middle of the depicted lyre. This is similar to the line found on the back of the Greek kithara, two instruments literally identical. It is suggested that this ridge comes from the original soundbox which was made from the shell of a tortoise and would represent the spine.

When we look at Psalm 98: 5

Sing unto the LORD with the harp; with the harp, and the voice of a psalm. (NKJV)

it creates a distinction between the lyre and the harp. It appears that the harp was more associated with the melody and thus we understand that the lyre was more of an accompanying, cording instrument, and that the harp was more of a melodic instrument.

Some texts referred to the harp as an instrument with 10 strings:

Praise the LORD with the lyre; make music to Him with a ten-stringed harp.

(Psalm 33: 2 NKJV)

but then we for example read Psalm 92: 3

Upon an instrument of ten strings, and upon the psaltery; upon the harp with a solemn sound. (NKJV)

The first reference to 10 strings might not specifically be associated with the harp. In this instance, it might refer to the 10 different tones used in the Hebrew musical system, with specific references to the *trope* symbols of the Psalms:

E – F – F#- G -G# - A – B \flat - B – C – D

The pitch of a string would obviously depend on the length, diameter of the string and how tightly it was tensioned. The harp was tuned and then the pitch of the strings could not be changed again. The harp was a gentle instrument and much softer than the lyre and therefore in early texts we read that within an ensemble the ratio of harps was much greater than the ratio of lyres.

Praise the LORD with harp:

sing unto him with the psaltery *and* an instrument of ten strings.

This we read in Psalm 33: 2 with the original Hebrew

b^a kinnōr; b^a nēvel ‘āsōr zamm^a rū-lōo,



Fig 3.43 Element of a harp, New Empire, 1551-1070 BCE, wood and plant fibres. Own photograph from the Lyon Museum.

The presence of the Hebrew word *asor* / אָסוֹר causes even more confusion. It originates from *eser* meaning 10 or a decade. This means that references to a *nēvel asor* as found in for example Psalm 33: 2 refers to a *nēvel* with 10 strings and that *asor* simply represents a shortened form of this name. Some translators believe this term is used to refer to a *zither* with 10 strings. In Psalms 92 the Hebrew Bible, with reference to the term *nēvel 'āsōr*, separates this into two instruments

‘alēy ‘āsōr va‘alēy nāvel, “upon the ‘āsōr and upon the nēvel”.

The commonly used AKJV also applies this division and refers to

“the psaltery, and an instrument of ten strings”.

It becomes confusing again when the Targum reverses the trend and refers to

al pum kinnara da‘asretey nimin vaal pum nivla,

“with the voice of the *kinnōr* ten-stringed and the voice of the *nēvel*”

Furthermore

upon an instrument of ten strings, and upon the psaltery;

upon the harp with a solemn sound. (Psalm 92: 3 –AKJV)

now actually describes three instruments.

Several new questions arise:

- Were there two types of *nēvel*?
- Was there an ordinary instrument as well as an instrument with ten strings?
- Was one instrument a lyre?
- Why are there multiple references to the *nēvel* but the instrument with ten strings is only found in Psalm 33 and Psalm 144?

Bathja Bayer (1968: 100) points to the fact that the term *'āsōr* as found in Psalm 33, 92 and 144 – and here always associated with *nēvel* – appears in the Hebrew Bible as אָסוֹר בְּעֶשֶׂר (*b'e'āsōr*) and then refers to the 10th day of the month. It is because of this association that we accept that the meaning in the Psalms is that of 10 stringed instrument; this in spite of the fact that the usually correct form of ten should be

עֶשֶׂר, *'eser*.

According to Montagu (2002, kindle edition location 803) three possibilities thus exist:

1. That in the time of the Psalmist the *nēvel* had ten strings
2. That the term *ʿāsōr* has a totally different meaning – one which we don't know
3. That the *nēvel* in the time of the Psalmist had 10 strings, but that it had acquired 2 more strings by the 1st century AD (at the time of the writings of Josephus and the Targumist); but the *kinnōr* always had 10 strings.

This last option being the most logical and probable. And if we continue in following the thought process of Bayer (and thus become Bayer followers and supporters), then *kinnōr* would be the more elegant instrument, the lyre; while *nēvel* would be the more bulky, stocky, sack-like instrument, BUT both of them a lyre and NEITHER a harp nor a psaltery.

In spite of the reasoning above, a search of the Bible with reference to “harp” using e-Sword shows multiple verses and matches. Some of these are very familiar. The very first referenced verse is already found in Genesis 4: 21:

Gen 4: 21: and his brother's name was Jubal: he was the father of all such as handle the harp and organ.

1Sam 16: 23: and it came to pass, when the evil spirit from God was upon Saul, that David took a harp, and played with his hand: so Saul was refreshed, and was well, and the evil spirit departed from him.

Psa 98: 5: Sing unto the LORD with the harp; with the harp, and the voice of a psalm.

Psa 33: 2: Praise the LORD with harp: sing unto him with the psaltery and an instrument of ten strings.

The use of the word “and” in this last verse is extremely important as it indicates a basic difference between the harp/psaltery and a different instrument of 10 strings, therefore most likely the lyre.



(http://www.bible-archaeology.info/musical_instruments.htm)

Fig 3.44 Psaltery, string instrument which is triangular in shape. Potsdam Public Museum.

The Masoretic text sometimes give very specific instructions with regards to the harp, not only about its function but also of the number of notes or playable tones. Our understanding of the instruments is further improved when the text makes a distinction between the harp and the lyre, if correctly interpreted and translated. In some translations, Psalm 98: 5 makes such a distinction confirming that the lyre was used for accompaniment and the harp for carrying the melody (McCorkle, 2012), but this free distinction is not confirmed in the Authorised King James version of the Bible and neither can I find this in the Orthodox Jewish Bible.

Two basic types of harp were initially found in ancient Egypt. The first is a small portable type harp, possibly carried on the shoulder. The second was a larger, the arched bow harp or the angular harp. Several depictions of ancient Egyptian harps are found and date back as far as 2550 BCE. As previously stated, the strings of the harp could be plucked with the fingers or they could be played using a plectrum. When the technique of one-handed playing was applied, then one hand would manipulate and shorten the string which then allows the other hand to pluck that string, whether open or shortened. This technique would obviously allow for a multitude possibilities of tones and pitches. When playing using a two handed technique, then the fingers of both hands can be used for plucking the strings, therefore mostly open strings (with no applied shortening). This technique would allow for the playing of chords.

Biblical references to harp equals 27 occurrences.

1 Samuel 10 : 5

1 Kings 10 : 12

Isaiah 14 : 11

Amos 6 : 5

Psalms 57 : 8

Psalms 81 : 2

Psalms 108 : 2

Psalms 150 : 3

1 Chronicles 13 : 8

1 Chronicles 16 : 5

2 Chronicles 5 : 12

2 Chronicles 20 : 28

2 Samuel 6 : 5

Isaiah 5 : 12

Amos 5 : 23

Psalms 33 : 2

Psalms 71 : 22

Psalms 92 : 3

Psalms 144 : 9

Nehemiah 12 : 27

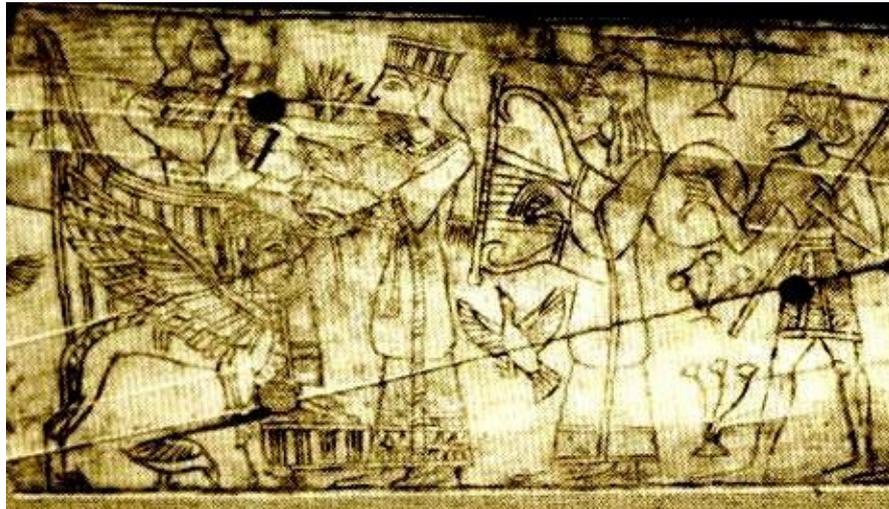
1 Chronicles 15 : 16, 20, 28

1 Chronicles 25 : 1, 6

2 Chronicles 9 : 11

2 Chronicles 29 : 25

Braun points out that there is no archaeological evidence of a harp from the pre-Hellenistic period to be found in ancient Israel.



<http://israelfact.blogspot.co.za/2014/06/censorship-spies-and-tzitzit.html>

Fig 3.45 Part of an ivory carving found in the ruins at Megiddo dating from the late Chalcolithic period / Copper Age, approximately 3300 to 3000 BCE.

Engel (1870: 16) already describes a type of harp which he identifies as Assyrian. (This admittedly comes from a source dated long ago, but no reference should be negated only based on age, especially if this is based on sound principles.) The harp would be small enough to be carried while either standing, walking or dancing by both male and female musicians.



<file:///D:/The Music of the most ancient nations pa.pdf>

Fig 3.46 Assyrian type harp according to Engel

Very often these types of instruments would be ornamented with tassels from the lower part of the frame. Most notably is the absence of the front pillar, which in the modern configuration of the harp resists the tension of the strings. The absence of the front pillar in what Engel describes as the Assyrian harp is found in practically all the harps of the Asiatic nations. The harp is for example not a very popular instrument in the region of Persia currently, but it used to be a well-known instrument, depicted on rock sculptures found at the town of Kermanshah. Furthermore, this type of harp have similarities with the earliest

harps of the Irish and Scottish and in some circles it is thought probable that this type of Asian harp preceded that later developed in European countries.

The thinking on this construction type is that if it was made from wood, then not much tension could be applied to the strings and one therefore questions the quality of sound. Ivory and metal would allow for a stronger construction, both substances well known in this period of time. The number of strings visible on bas-reliefs appear to differ and it is therefore unsure whether the number of strings truly differed, whether it was unimportant to the artist to depict the correct number of strings, and lastly whether poor preservation is to blame. It also is extremely interesting to note that in many cases the number of strings do not correspond with the number of tuning pegs. We have previously noted that the strings of the *kinnōr* were made from the small intestines of sheep, but according to the Talmud the strings of the *nēvel* were made from the large intestines of the sheep (m. Qinnim III: 6). The strings were of unequal length and they were strung underneath the sound box. All the references with regards to the number of strings are more in number if compared to the *kinnōr*. The instrumentalist would hold the instrument against his chest and then pluck the strings with the fingers. The *nēvel* was larger in size than its cousin the lyre, thus its strings were longer, and so it would produce a more powerful or loud sound. We have a fairly good grasp on how the lyre was tuned, but similar knowledge of the tuning of the harp is absent.

The wide distribution of a similar appearing harp underlies its importance and use and would urge for the search to find concomitant similarities in music. Similar ancient instruments have been known as the Persian *chang*, the *saun* from Burma and the Finnish *kantele*, not even mentioning the harp from Egypt. The old Oriental type harp has practically disappeared and is now only rarely found in Asia.

3.3.2 Megiddo

In stratum VII of Megiddo archaeologists found the base of a statue of Rameses VI who ruled from about 1148 to 1142 BCE. Within the Royal Palace they found a large number of ivory objects including an ivory plaque called “the Celebration of Victory”. This depicts a Canaanite king on his throne obviously celebrating with a feast. There are bound, naked prisoners only wearing headdresses led out before a chariot. Of importance is the presence of a possible

harpist. This ivory carving therefore confirms the presence of the harp (*nēvel* as per Bayer) as an instrument within the early Bronze Age as seen and classified by the excavators. Braun also classifies this instrument under one of the 4 types of lyre.

Braun confirms once again that no other depictions of a harp have been found since, but at this stage one has to refer to the frescoes found in the necropolis of Maresha.

3.3.3 Tel Maresha

Tel Maresha/Marissa is an archaeological site in the south of Israel. It was first excavated by the Palestine Exploration Fund and most of the artefacts from this venue can be found in the Istanbul Archaeology Museums. The site contains about 3500 underground chambers or rooms connected by an intricate network of tunnels. It is carved into the soft chalk of Lower Judea. This complex of caves accommodated many of the everyday needs of a community dominated by the Idumeans. The caves of Tel Maresh were found filled with earth and debris that was tossed down from the houses above. Interestingly, the excavation of the caves is handled primarily by the “Dig for a Day” principal, where volunteers spend a few hours every day unearthing whatever is left behind by the Idumeans and other people. Multiple caves have been laid bare, with multiple rooms of varying uses. There were water cisterns, and oil presses, housing units, places for prayer and multiple burial rooms.

There are about 800 bell-shaped pits which appear to be the remains of quarries, possibly from the 4th to 9th centuries CE. The soft stone that was mined here was burnt for lime and it was used in mortar and plaster. The Columbarium was used to raise pigeons for their meat and for their dung which was used as fertiliser. This portion dates to approximately 200 BCE and was shaped like a double cross. It housed approximately 1900 niches for doves. During the Hellenistic period a group of Sidonians settled here. They created a beautifully decorated tomb dated to approximately the 3rd to the first centuries BCE.

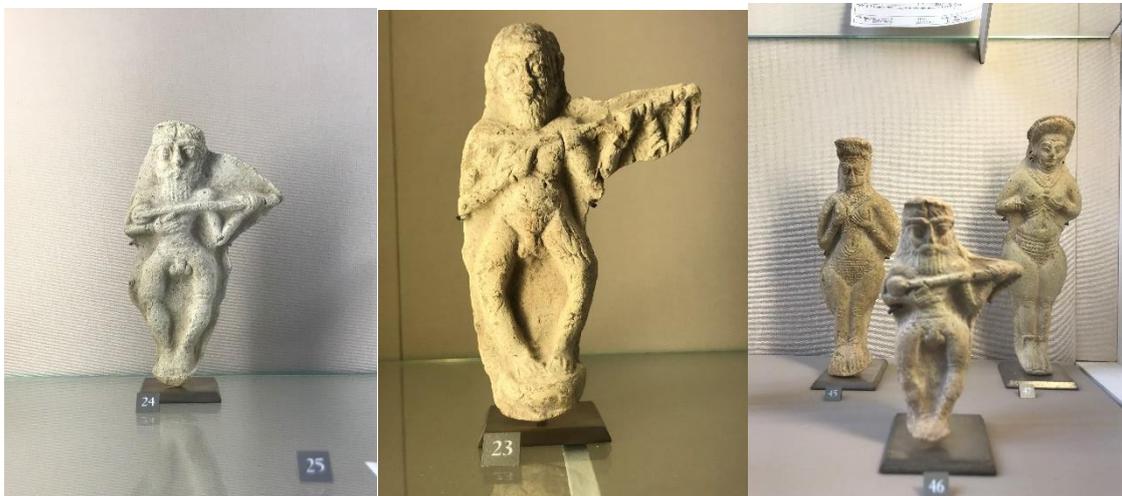


(<http://biblelandpictures.com/product/1474-maresha-fresco/>)

Fig 3.47 Portion from Maresha fresco.

Several frescoes were found in the necropolis of Maresha. One of these depict a harp player and a double pipe player. These frescoes date from about 250 - 200 BCE. The frescoes have unfortunately faded in reaction to contact with open air, but luckily paintings were made before fading became too extensive. Notably, the instrument on the left does not represent a typical lyre and is therefore interpreted as a harp.

3.4 LUTE



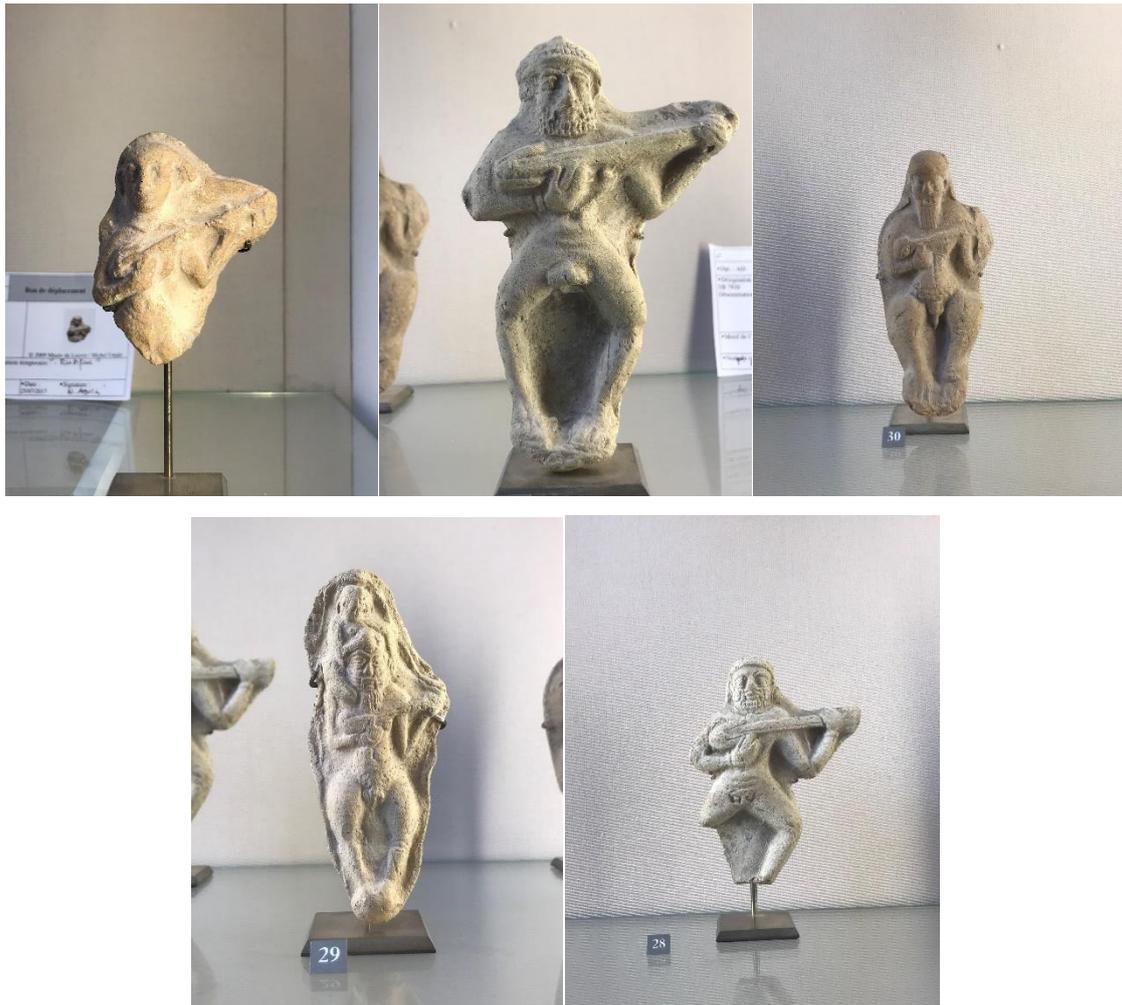


Fig 3.48 Collection of clay moulded lute players. Own photographs from the Louvre, Paris.

3.4.1 Introduction

The origins of the lute are uncertain and some confusion exists regarding the origin and name. However, there is no doubt that it can be classified as a chordophone because it is a string instrument. It is different from the harp or lyre in that it has an either short or long neck. Similar to the lyre, the lute probably also evolved from the bow harp, via the arched harp. It is again conceded that there is no iconographic evidence of a bow harp other than the philological term *giš.p/ban-tur* meaning a “small wooden bow”. It nevertheless is very difficult to imagine both the lyre and the lute developing from any other similar instrument. One can easily imagine that the bow of the harp simply straightened in order to create a new instrument. This thus created the neck of the instrument which would allow for frets or a fingerboard. It also is speculated that the lute predated the lyre. This is contrary to recent

thoughts that incorrectly considered the lute as a development of the lyre; and it is the development of frets that accentuates the importance of the lute as this created the possibility for a single string to produce more than one sound.

In the process of the evolution of the lyre, when the neck of the harp was straightened, it became necessary to add a bridge to allow distance between the body of the instrument and the strings. The addition of the bridge also influenced the volume control of the instrument. The higher the bridge, the greater the pressure on the soundboard because of the thickness of the bridge and by the resistance of the strings it caused, and therefore the greater the volume.

The lute already was known in Mesopotamia before 3000 BCE. The European lute which is a long neck instrument developed from this and the near Eastern *oud* as well. The *barbat/barbud* was a 2-stringed lute that originated in Central Asia. The *oud* seems to have derived from the *barbat*



http://www.metmuseum.org/toah/hd/lute/hd_lute.htm

Fig 3.49 The barbat or lute originated in Central Asia.

The biblical lute however appears to be an instrument with 3 strings, although none have survived in ancient Israel. Some Egyptian instruments have been uncovered. The body often was made of wood while the belly of the sound box was made from skin. Reference to a 3-

stringed instrument can be found in 1 Samuel 18: 6. David returns triumphantly after his war against the Philistines. Apparently, this was a joyous event and there was singing and dancing. Music was provided with tambourines and 3 stringed instruments.

Young's literal translation:

And it cometh to pass, in their coming in, in David's returning from smiting the Philistine, that the women come out from all the cities of Israel to sing -- also the dancers -- to meet Saul the king, with tabrets, with joy, and with three-stringed instruments;

However, the Study Bible and the King James Bible in the same verse for example merely refers to musical instruments:

[It happened as they were coming, when David returned from killing the Philistine, that the women came out of all the cities of Israel, singing and dancing, to meet King Saul, with tambourines, with joy and with musical instruments.](#)

The New Living Translation refers to tambourines and cymbals:

When the victorious Israelite army was returning home after David had killed the Philistine, women from all the towns of Israel came out to meet King Saul. They sang and danced for joy with tambourines and cymbals.

Joachim Braun in 2002 published his excellent book named "Music in ancient Israel/Palestine. Archaeological, and comparative sources." In this book, he not only documents and describes proximately 650 archaeological and iconographic findings from the 10th century BCE, but he also interprets these and place them into perspective with regards to time, location and use in daily life. In this book, he obviously refers to the so-called 3 stringed instrument referred to in 1 Samuel 18: 6. The word originally used for this instrument appears to be *salisim* which is the plural of *sis* [H7797] which is translated as "to exult or rejoice". There are opinions that this derives from the Akkadian word *schalaschtu* and the Hebrew base word מספר (*salos*), both meaning *three*.

As we now know the lute and lute-like instruments had been in use for hundreds of years before it surfaced in Palestine during the 16th century BCE. The first iconographic evidence is Egyptian in origin and appears to be due to Hyksos influences of approximately 1650 to 1550

BCE. The lute apparently was popular from the 16th to the 13th century BCE and then practically disappeared from the horizon.

3.4.2 Tell el-'Ajul

The site of Tell el- 'Ajul is found within Gaza. It was a fortified city dating back to approximately 2000 BCE and was a stronghold of the Hyksos Empire until about 1550 BCE. When the Hyksos were expelled from Egypt they fled to Saruhen, but armies of Egypt laid siege to the town for three years, then seized it and razed it to the ground.

It was first excavated from 1930 to 1934 under the well-known Sir Flinders Petrie. He thought it was the site of ancient Gaza, but in the 1970s Aharon Kempinski identified it with the city of Sharuhen. Excavations were once again undertaken in 1999 and 2000, but currently all work has been interrupted due to political circumstances. There is an interesting and noteworthy discovery of imported pottery from Cyprus. Mycenaean and Upper Egyptian pottery was also found.



(Braun 2002: 81. ill.4.)

Fig 3.50 Terracotta statue of musician with lute from Tell el-Ajjul from Hyksos period.

This little statue of a musician playing a lute stands approximately 9 ½ cm high. It is very similar to examples of lute players from the Babylonian period. Examples of these can apparently be found in the Museum of Iraq displaying a similar headdress and musical instrument.



<https://za.pinterest.com/glasstronomix/miniature-artifacts-israeli/>

Fig 3.51 Bronze figurine from Beth Shean.

3.4.3 Beth Shean

An erect bronze figurine of a musician playing a lute found at Beth Shean dates to approximately the Hellenistic period. This can be seen in the Haifa Museum. It once again is a naked figurine approximately 15.6 cm high. She wears jewellery and an impressive headdress, but otherwise appears to be naked. It appears that she is holding the lute in the correct playing position.

3.4.4 Dan

The biblical city of Dan now is an impressive archaeological site stretching over approximately 25 ha. It was the central city of the northern tribe of Dan. It is now known as Tell Dan or Tell el-Qadi and is situated near Mount Hermon at the source of the Jordan River. The site of Dan was already identified in 1838, but the most impressive excavations began in 1966.

Because Dan was in a crucial geographical location it was often attacked and archaeological excavations laid bare a city with massive walls. Not only did Dan mark the northern boundary of Israel it apparently also was the northern centre for worship of the fertile gods and Samson, the strong Israelite of whom we read in the Bible, was a Danite. It also houses the temple of Jeroboam which housed the well-known Golden Calf and which obviously was a threat to the

religious centre of Jerusalem. The site is also very famous for the discovery of the Tell Dan Stele.

It also gave us one of the most interesting examples of a musician playing a lute.



<https://za.pinterest.com/webprom/archaeology/>

Fig 3.52 Dancing musician from Tell Dan, Late Bronze period



<http://www.gettyimages.fi/detail/news-photo/terracotta-relief-depicting-a-musician-artefact-from-larsa-news-photo/142931314#terracotta-relief-depicting-a-musician-artefact-from-larsa-iraq-picture-id142931314>

Fig 3.53 Relief of musician from Larsa, Ira Babylonian civilisation, 18th century BCE

This depiction of a musician playing a lute was found within one of the inner rooms, possibly a room where concerts and gatherings were held. There is some controversy whether this

simply represents a musician playing the lute or whether it represented the symbol / seal of a guild, possibly of lute players. Note the obvious similarities to a terracotta relief of a musician playing a lute from Larsa in modern Iraq. Historically Larsa was an important city in ancient Sumer, now known as Tell as-Senkereh.

Nevertheless, this plaque (above) illustrates the so-called “Dancer of Dan” which is a depiction of a dancer playing the lute and obviously dancing to the music thereof. Braun describes several interesting characteristics associated with the Dancer of Dan. It once again is noteworthy to note the similarities with the relief from Larsa. The lute has a long neck with a short box-like sound box, with the instrument held in the oblique playing position, possibly due to Kassite influences. The short dress might be of Hittite origin. However, the high position of the right arm with the sound box below the arm and the playing hand in the middle of the instrument is pointed out on the relief of the Dancer of Dan. It is insinuated that this is indicative of a folk musician. In my personal opinion - and I am no expert by any means, other than previously playing the guitar and banjo - I don't find this deduction agreeable. In my opinion it would be very difficult for a happy and jolly musician playing the lute and dancing to the music to keep his right arm clutched to his side. I think that the position of the right arm merely mirrors the position of the right leg in a rhythmically dancing, happy and joyful musician. I would be happy to concede in the presence of overwhelming archaeological evidence proving otherwise.

3.5 REED-PIPE

3.5.1 Introduction

After that thou shalt come to the hill of God, where is the garrison of the Philistines: and it shall come to pass, when thou art come thither to the city, that thou shalt meet a company of prophets coming down from the high place with a psaltery, and a tabret, and a pipe, and a harp, before them; and they shall prophesy (1 Samuel 10: 5 - KJV)

This verse in Samuel is the first Biblical reference to a *chālil*. This is quite surprising. There is no mention of the *chālil* in the five books of Moses, or in Joshua, or in Judges. The reference above in 1 Samuel 10 is the first. Thereafter it is only mentioned a few times - five in total in the Hebrew Bible. It is believed that the instrument was in widespread use throughout the

region of AIP, and the bare minimum of five references is a contradiction. It was obviously very common in post-biblical times and there exists numerous illustrations of this in the mosaics dating from the first few centuries CE. The Talmud refers to this instrument as do the Apocrypha.

Reed-pipe. n., *chālil* / חָלִיל [H2485]. 1. This is a double reed woodwind instrument. It produces a piercing nasal sound, much like a modern oboe. 2. Arabic *mizmar*. In Modern Hebrew the term *chālil* means the instrument that we now know as the recorder.

The word *chālil* derives from the verb *hālal* meaning “to be hollow” and this confirms the fact that it was a type of pipe. The Babylonians knew this instrument by the word *malilu* and the Assyrians as either *halhallatu* or *hallalu*. It is possible that the Jews received this instrument from Asia Minor being of either Phoenician or possibly Syrian origin (Kolyada 2014). It commonly is translated as such and the verse in 1 Samuel 10 implies that it must have made quite a loud sound extending above the other instruments and people. From this we infer that it is likely to have been reed-blown. Montagu in “Musical Instruments of the Bible” (Kindle Locations 824-825) compares this to a shawm, which was a musical instrument from the Renaissance and a forerunner of the modern oboe. It was a double-reed instrument, conical in shape, and apparently had a penetrating tone.



<http://www.ancestral.co.uk/shawms.htm>

Fig 3.54 Small shawm

The problem with this reference is that the earliest archaeological evidence for a similar type conical instrument dates from the Etruscan tribe of the Faliscans from the early 5th century

BCE, which is only much later. The (Greek) LXX translates *chālīl* as *αὐλός (aulos)* while the Roman term is that of *tibia*, as used in the Vulgate. This commonly refers to a **pair** of pipes held together in the mouth - while the term *monaulos* refers to a single pipe instrument. These instruments, we think, were cylindrically bored rather than conically bored. Cylindrically bored refers to instruments where the bore diameter is constant throughout the instrument, until, at the end, where it flairs out at the bell section. This is known to give a well projected and direct sound, similar to our modern trumpet. Inversely, with conical bore the diameter and cone shape increases throughout the length of the instrument. This provides a warmer type sound as found in the modern French horn (esp. vs the trumpet). We have several archaeological finds depicting this instrument. These also demonstrate that two pipes were held divergently, one in each hand.

Either reed or wood was preferred in the construction of the cultic *chālīl*, because of its beautiful sound and also because of its aesthetics. If the *chālīl* was covered by metal the sound was different and it was regarded as unclean. Since it could be cheaply made from reed, this was a very popular instrument of the common people because of its distinctive timber/sound. It is described as an “ecstatic” instrument meaning that it conveyed and expressed a feeling of happiness or joy. It was therefore extensively used during celebrations. Also, because it can sound very emotional (refer to the modern oboe), this was often used at funerals. It would emulate the wailing of the mourners and increase the feeling of sorrow. The Arabic *mizmar* still is in use today in traditional dances and celebrations. When reading the Bible, the *chālīl* apparently never was used by the Levites, but there are references to it being used by the prophets and by the common people. There exists several Greek pots displaying the *chālīl* and from these we learn that it often was played by Greek dancers, frequently by girls appearing less than respectable; but it was also played by men, like soldiers, and there is a biblical reference to it being used at the crowning of King Solomon.

The *monaulos*, single reed pipe, also was used in ancient times and it still survives today. It still is played using a large double reed. These are found

in Turkey – the *mey*

in Iran – the *balaban*

in Iraq – the *karnata*

among the Kurds – the *pik*

in Central Asia – the *duduk*

in China – the *guan*

in Korea – the *piri*

in Japan – the *hichtriki*

This obviously provides excellent examples of the ancient times and we are thus quite certain of what we are dealing with.

Chālīl in Arabic is translated as *zummāra*. EJ Brill's First Encyclopaedia of Islam, 1913 – 1936 informs that *zummāra* originated from the Middle Ages and that it is an extension of *diyanai*, which was the double reed instrument invented by the Persians. The meaning of the word is “joined” and indicates that this without any doubt is a double reed pipe. Several options exist with regards to the configuration of the pipes. Both pipes would often have holes, typically 5, and a tune/melody could be played on both. The pipes often were not of the same length allowing for the pitch to differ by an octave. Another type, where only one pipe has holes, the second serves as a drone. It is known as a *zummāra* when the pipes are of similar length. When the drone pipe is longer than the chanter pipe, then it was called an *arghúl*.



https://www.europeana.eu/portal/en/record/09102/_ULEI_M0002236.html

Fig 3.55 Zummara

Examples of illustrations have been found on wall paintings from the 5th dynasty in the Old Kingdom of Egypt, around about 2500 BCE, and examples have been dated to the Egyptian New Kingdom – the period when the Israelites were in Egypt, confirming that they must have had intimate knowledge of the instrument.

There exists no connection between the term *chālōl*, (its first letter ח) ,meaning hollow, and *hallel*, (its first letter ה), which is derived from the root *alalu*, meaning to shout aloud. *Hallel* most likely is indicative of the onomatopoeic sound of ululation.

Understanding how these were played causes very little problems, whether single or double pipes. Each pipe would have typically five or six holes, each covered by the fingers of the hand. In the case of a double reed instrument the two pipes could be either lashed together with twine or could be glued together with wax. The mouthpiece was constructed from cane and would leave one end free in order to vibrate. The whole of the mouthpiece would be taken into the mouth in order to allow the mouthpiece to vibrate. The two pipes thus played together would produce a more resonant and interesting sound than playing on a single pipe alone.

An unsolved problem exists with the double reed played with divergent pipes. The problem exists with regards to the instruments having either five or six holes and the position of the hands most commonly demonstrated at the lower end of the instrument. One hand would obviously be on each pipe. Both hands also appear to be at the same distance down on each pipe. It is therefore technically impossible to cover all the holes at any one single instance. It is important to remember that it is the uppermost open hole which determines the pitch of the note. If the hands are thus moved closer to the mouthpiece, leaving the further most holes open, there would be no acoustical problem, except that the range would be limited. And because the uppermost open hole determines the pitch, closing the holes below that has very little effect. Placing the hands near or at the lower end of the pipes would leave open holes above and there are artefacts showing only three fingers apparently covering holes. This would severely limit the range. There is no illustration of the hands only covering the holes on a single reed, thus using the second as a drone; nor is there any evidence of one

hand being placed lower on one pipe and higher on the other. This dilemma remains unsolved.

We know that many instruments found their way all over the world in an unchanged or similar form than the ones known in AIP. The reed pipe and double reed is one of those examples. They are found, for e.g., in several paintings dating to the 16th and 17th centuries. It is interesting to note that the position of the hands of the musician had been “corrected” in these later works. Below is a painting by the famous painter Peter Paul Rubens, who lived in 1577 – 1640. It is a painting of a Roman triumph from about 1630. The plane of the picture should be read from right to left and incidentally illustrates maidens leading the way, followed by pipers and animals for the sacrifice. The pipers are clearly visible, playing double reed pipes. The position of the hands are again of importance, in the apparently correct position, which is different from all iconographic evidence from AIP.



Fig 3.56 A Roman Triumph depicting musicians with double reed pipes own photograph from the British Museum.

We also know that the pipes could be bound together in a horizontal manner. This configuration is wonderfully illustrated in another painting, this time by Paris Bordone who lived from 1500 to 1571. It is of a pair of lovers, possibly Mars and Venus. The overall theme of the painting might be fictional, but the woman holds pipes in her right hand, correctly depicted.



Fig 3.57 A Pair of Lovers – own photographs from the British Museum.

There are 7 biblical references to the reed pipe:

1 Samuel 10 : 5

1 Kings 1 : 40

Isaiah 5 : 12

Isaiah 30 : 29

Jeremiah 48 : 36

Braun (2002) describes 11 archaeological artefacts of the *chālīl*. It appears that the *chālīl* was well known and present within ancient Israel. The technique involved with playing the *chālīl* changed over time from the early Iron Age to the Persian age and there also are some differences found in instruments from the North or the South of the country. Braun divides these into three groups:

1. Egyptian-Canaanite
2. Terracotta bell-shaped
3. Other terracotta

The Period of the 12th - 10th century BCE is known for its strong relations with Egypt. There are two well-known artefacts associated with the relationship between Canaan and Egypt.

The musical term *mašrôqîṭā* originates from the verb *šāraq*. It is a woodwind instrument of reed type, or possibly like pan pipes. In development it is visualized that this follows on the single reed instrument, to the double reed and then multiple reeds as found in the pan pipe. This is similar to the Greek instrument *syrinx*. Opinion on this however is not unanimous. This instrument is found in Daniel 3 with the other instruments of the orchestra of Nebuchadnezzar II. Third and second century BCE figurines of Syrian origin exist holding instruments similar to the pan pipe. There even is a depiction of Jesus Christ as the good Shepherd holding a pan pipe in his right hand. This unfortunately is only from approximately the fourth century CE.



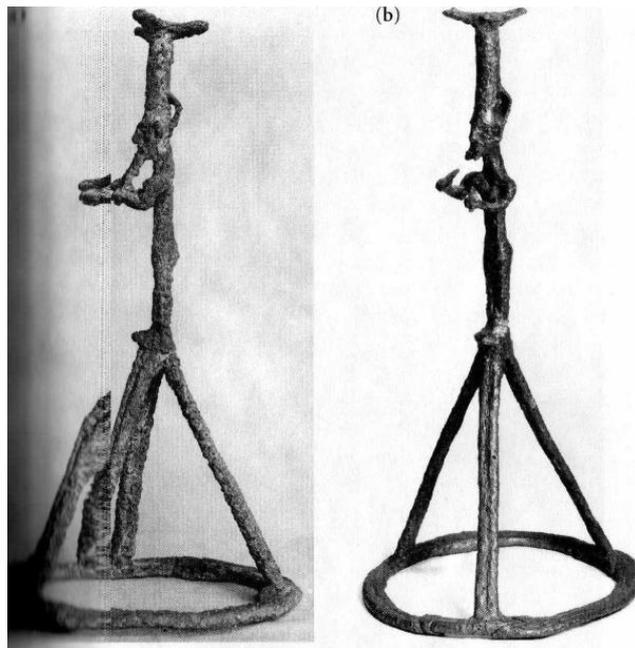
http://www.badnewsaboutchristianity.com/bd0_ideas.htm

Fig 3.58 Jesus Christ on a floor mosaic from the Cathedral of Bishop Theodore, Aquileia.

The Greek Bible translates *mašrôqîṭā* as *syrinx*/ σύριγξ, with the Latin Vulgate using *fistula*. The Modern Hebrew meaning remains that of “a whistle”.

3.5.2 Megiddo

Megiddo was exceptionally generous towards archaeologists and rendered a very rich find in data and artefacts. And so, it is that we find a bronze figure from Megiddo.



(Braun 2002: 135. ill. IV.13)

Fig 3.59 Bronze figure from Megiddo with *chālil* on stand.

This bronze figurine from the ruins of Megiddo dates to approximately the ninth century BCE and is of a female musician playing the *chālil*, not the flute as sometimes described. The figure is erect and naked. She wears either a high headdress or crown and is holding a *chālil* in both hands. The statue is based on a tripod, mounted on a ring, which is quite typical of the period of the 12th - 10th century BCE. She represents either a temple goddess or temple prostitute which would either elevate or decrease the status of the *chālil*, depending on your interpretation.

3.5.3 Tell el-Far'a-North

In Tell el-Far 'a-North/ Tirzah excavators found a statue of a *hamadryade*. The tell stands near the source of the Far 'a brook which flows down into the Jordan. The French school of Archaeology in Jerusalem conducted nine seasons of excavations on the site. Interestingly enough, the identification of Tel El_Far'ah was based on the archaeological finds. These excavations showed occupation from Neolithic to the Iron Age.

The Hamadryas baboon is native to the Horn of Africa and to the Arabian Peninsula. It was a sacred animal to the Egyptians.



(Braun 2002: 136. ill. IV.15.)
Fig 3.60 Faience statue of sitting Hamadryas.

This faience statue is interpreted as a Hamadryas baboon in sitting position playing the *chālīl* (faience - glazed ceramic ware, in particular decorated tin-glazed earthenware of the type which includes delftware and majolica - Oxford dictionary). As mentioned these baboons were regarded as holy and sacred and were regarded as a depiction of intelligence, wisdom, and sexual activity. Once again this doesn't get my personal vote. In my view these two characters - the statuette and the baboon - differ tremendously and the facial features of the statue does not appear to be that of a baboon. Should one not perhaps look at other translations of Hamadryad for example a kind of nymph in Greek mythology or should the term Hamadryad itself perhaps be reconsidered?

Nevertheless, this is a wonderful depiction of the double flute *chālīl* and is the earliest archaeological iconographic evidence thereof. It shows the two tubes of the flute which are of unequal length and are held in a symmetrical position. According to Braun (2002: 134, 135, 144) this is characteristic of instruments found in the central portions of Israel. Double flute

chālīl from the eastern and southern parts of the country are characterised by two parallel tubes in a position fixed together.

The second category of iconography is that of bell-shaped terracotta *chālīl* musicians - again referring back to the classification of Braun. These were found in Achziv, Shikmona and Acco and mostly depicted female musicians.



(Braun 2002: 136; ill. IV.14.)

Fig 3.61 Female musician from Achziv.

3.5.4 Achziv

This figurine found at Aksib/Achziv is that of a female musician. It dates from the 10th to 7th century BCE. She is playing the *chālīl* with raised elbows. A fragment from a statue from Shikmona also demonstrates a female musician playing the *chālīl*. It dates from the same period.



(Braun 2002: 138; ill. IV.16.)
Fig 3.62 Shikmona fragment.

While the figurine from Shikmona has decorated hair or possibly a wig, the lady from Achziv apparently has short hair. This is traditionally accepted of females of dubious character and it confirms the status of the *chālīl* as an instrument connected to prostitution.

We have previously seen the terracotta reliefs from Beth Shean depicting musicians playing the *chālīl*.

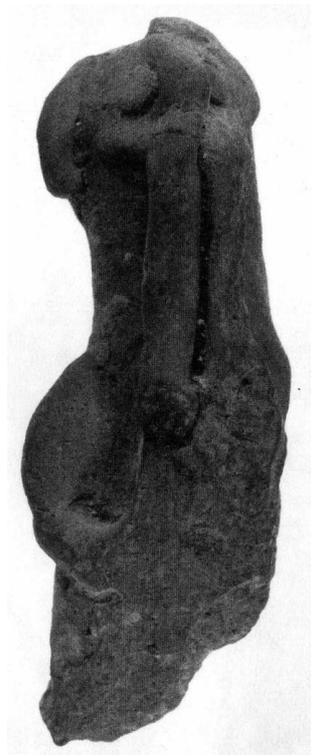


(Braun 2002: 141. ill. IV.18.)
Fig 3.63 Plaque of musician from Beth Shean.

3.5.5 Beth Shean

This plaque from Beth Shean demonstrates a female musician playing a double reed *chālil*. This dates 10th to 7th century BCE and is of a semi naked female musician. She is apparently wearing an elaborate wig. Note that the instrument is played with the elbows in a normal position adjacent to the body. This is in contrast to the bell-shaped statue above with raised elbows. Are the raised elbows perhaps merely a sign of gaiety or depicting joy?

We have also previously met Qitmit and its famous terracotta plaques.



(Braun 2002: 142. ill. IV.19)
Fig 3.64 Chālil musician: Qitmit plaque.

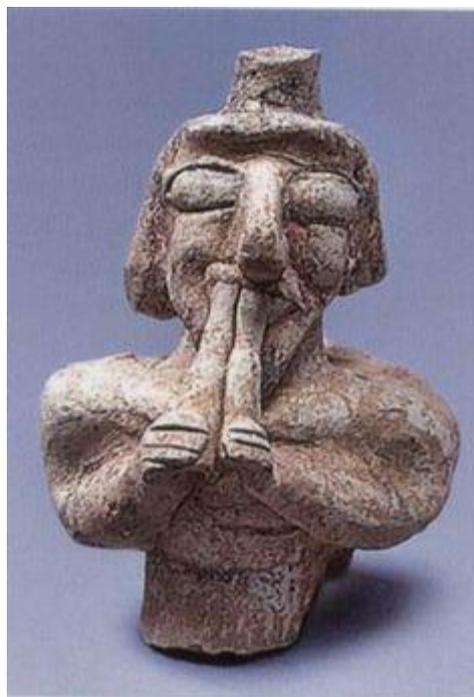
3.5.6 Qitmit plaque

This plaque is from the 10th to 7th centuries BCE and depicts a *chālil* musician from the Edomite region. The *chālil* is obviously damaged but would have ended in a bell shape. Note the expanded cheeks of the musician, obviously from playing a wind instrument.

3.5.7 Tell el-Milkh

Tel Malhata / Tell el-Milkh means “the Hill of Salt” and is an archaeological site in the northern Negev desert. It is small, less than a hectare in size.

Excavations took place in 1967 and 1971 and then again in 1981. Seven more archaeological campaigns took place between 1990 and 2000. Six levels of occupancy were identified, ranging from Middle Bronze Age at level VI to late Roman age at level I. It is a modest site with an earthen rampart topped with a wall.



<https://za.pinterest.com/pin/354799276864389621/>

Fig 3.65 Double flute player, Tell Malhata, Iron Age II.

The discovery of this bronze statue in Tell Malhata is an important finding due to its detail. It shows a musician playing bell-shaped instruments. Braun indicates a direct association with the Edomite art of Qitmit indicated by the material, the style, and the craftsmanship.

This detailed figure stands about 10 cm high. It appears to be male. It wears a headdress indicating an official position within the cultus or perhaps the military. The face, including the

eyes and nose, is well shaped and the hands are in an elevated position, holding the musical instrument against the lips. The instrument is identified as a *zamr/zurna*. These double reed wind instruments are most common to Middle Eastern music and there are different versions and different names in different countries. In Yemen it is called the *mizmar* and other terms include *zamr*, *zammara*, *arghul* and *mijwiz*. *Mizmar* as well as *zamr* and *zammara* have the same linguistic root. *Zurna* is a woodwind instrument. It is used to play Middle Eastern folk music and is a conical double reed instrument. It is similar to the *mizmar*.

This conical double tube instrument / *mizmar* was not well known during this period and probably dates from around 600 BCE. There are horizontal lines at the bottom end of the instrument, possibly sections of horn later added as decoration. If both tubes of the instrument had holes, then a tune could be played using both sides. If only one side had holes, then the side with no holes would be used to play a constant baseline.

Bell-shaped double flute instruments were popular in the Edomite area but developed into the single flute instrument found during the Hellenistic period.

The ancient city of Raqmu today is known as Petra. It is in the south of Jordan and it is famous for its spectacular architecture cut into the rock. It was first discovered in 1812 and it is named amongst the New Seven Wonders of the World. Interestingly enough it was chosen by the Smithsonian Magazine as one of the 28 places to see before you die. Archaeologist also found a terracotta figurine of a male *chālīl* player in Petra. This confirms that the *chālīl* had progressed from an instrument played by women in a secular context to an instrument played by men in either a cultic or military environment.

3.6 THE FLUTE

3.6.1 Introduction

Flute. n., *‘ūgāu*, / *uggab* / עֻגָב [H5748]. This is a hollow and tubular wind instrument. It is of the flute type but also is a generic term for the woodwind instruments, i.e. both flutes and reed instruments, in general. This is one of the very first instruments that we read about in the Bible in

Genesis 4: 21. There are three more biblical references to this instrument found in Job 21: 12, Job 30: 31 and Psalm 150: 4.

It is made of bone, bamboo, wood, ivory or metal. It is closed on one end and the sound is created by gently blowing across the tube. This probably represents one of the oldest and also one of the simplest of instruments. Braun (Braun 2002: 111, 112) confirms that the flute was widely available in ancient Palestine for more than 2000 years. The Targum is an Aramaic paraphrase of the Hebrew Bible. It originates from the 1st century AD, at a time when Hebrew was declining as a spoken language. The Targum translates *'ūgāu* as *abuva*, but the term *abuva* is used elsewhere for a reed instrument, rather translated as *chālīl*. *'ūgāu*, is mentioned in the Bible only four times – twice in Psalm 150 and twice in Job (21: 12 and 30: 31) - and thus we know very little about this. In none of the four textual references do we find any description of the instrument, but its connection in Gen 4: 21 and its combination with other string instruments in Psalm 150 suggests that it is used as a general term referring to woodwind instruments.

Etymology is of little use. There apparently is no agreement with regards to the origin of the word. There is a vague connection with the term *גב*, which means “lust” or “sensual love”, but this is of no help in view of the fact that many other instruments have also been connected to this term. The etymology of the term remains contested, also because we know so very little about the instrument itself. The most acceptable view is that the word originates from the Hebrew verb *āga^o / āgab* which means “to be too attractive / to love passionately / to be charming” and then linking this with a relatively small instrument of pleasant and gentle sound. We know that the flute in ancient times often was associated with love. Researching the Aramaic term *abuv* indicates the root term “hollow”. The word is found in the Mishna in Arachin 2: 3 and means “flute, pipe or reed”. *Abuv* replaced the term *ugav* in the 2nd Temple period due to Aramaic influence. In Modern Hebrew *abuv* is now widely known as “oboe”. Bartenura wrote a widely accepted commentary on the Mishna in 1549 and argues that the *chālīl* is a musical instrument and that *abuv* is the thin reed at the head of the *chālīl*. It is now accepted that *chālīl* should be viewed as a type of oboe, i.e. it contains a reed, and that flutes do not contain reeds.

The earliest specimens must have been made from bone as the early Israelites would have had easy access to bones. The sound was created by blowing over the top of the tubular instrument, much like we would blow over the top of a soda bottle to create a note. Tubes of different length could be bound together which would allow the musician to play individual tones. In modern times the pan flute would be an excellent example.

A more advanced type of flute is the end blown flute. Holes are drilled into the tube at varying sequences and notes of different pitch could be created by opening and closing the holes with the fingers. Transverse flutes as we know them today probably only originated later in history.

The flute or pipe was widely used, not only in the temple but also by common people. It produced bright sounds applicable to festivities, or a soft moaning sound probably heard at funeral rites.

Four (Five) Biblical references (NKJV) are found:

His brother was named Jubal; he was the father of all who play the lyre and the flute.

(Genesis 4: 21)

singing to the tambourine and lyre and rejoicing at the sound of the flute.

(Job 21: 12)

My lyre is used for mourning and my flute for the sound of weeping

(Job 30: 31)

Praise Him with tambourine and dance; praise Him with flute and strings

(Psalm 150: 4)

My hands crafted a pipe and my fingers a lyre

(Psalm 151: 2 11 Q45 28: 4 DSS)

The translation in Psalm 150 is worth investigating further. The term used here, *minnim*, is often used for a generic group of string instruments, in several translations rendered as “organ”. Semantic parallelism or parallel sentence structure makes sentences more concise by eliminating unnecessary words, while still assuming several underlying complete sentences (A complete explanation of parallelism can be found at <https://www.slideshare.net/Bhattigr8/types-of-parallelism>). Semantic parallelism is typical in ancient Hebrew poetry and it is suggestive that the term *’ūgāu* in this instance underwent such a transformation. It initially was the name of an instrument but over time evolved into a generic term for all kinds of flutes. The peculiarity is that the Egyptian word *ma.t* initially also was the name of an end blown flute, but over time underwent transformation to later on include all the woodwinds (Kolyada 2014).

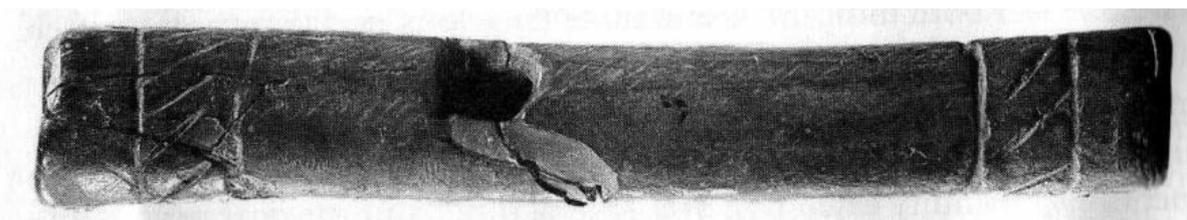
One of the earliest examples of the flute was found at Megiddo dated to the 3rd century BCE



(Braun 2002: 111. ill.29)
Fig 3.66 Single flute from Megiddo.

It had no decorations and was made from hollow bone. It would produce mainly two notes with a third possible note if played as a transverse flute. The flute was not as commonly used as the reed pipe. Mention is made of a transverse flute above, but the transverse flute was unknown in this region and era and it only arrived in this area at about the 11th century CE. The type of flute therefore mentioned in the Bible most likely would be a rim-flute or an end-blown flute. This means that the instrument was played by blowing against the edge or the rim at the top of the tube by holding the instrument slightly obliquely downwards with the top partly between the lips. This is similar to the manner in which the pan flute is played in modern times. This type of instrument is still used in the Near and Middle East, and Northern Africa.

More recent discoveries include a flute found at En-Gedi, also known as Tell Goren. It is the largest oasis along the western shore of the Dead Sea and thus have been inhabited since the Chalcolithic period / Copper Age. This is where David found refuge while fleeing from Saul, we read in 1 Samuel 24. There is a temple dating from 4000 - 3150 BCE and a nearby cave where significant findings were excavated. It is suggested that articles from the temple rituals were hidden in the cave for safekeeping.



(Braun 2002: 111. ill.30)
Fig 3.67 Decorated En-Gedi flute.

This flute found in Tell Goren was found in what appears to be a perfumery. Characteristics of the period is decorations with the Opal Balsem mark which is also seen on this flute.

3.7 CYMBALS

3.7.1 Introduction

Cymbal. N., *tsef* / מצילה [H6738] / *tsetselim* / *tziltzilim*. This is a very broad term used for this family of instrument of round bronze or brass plates. These can either be struck together or struck with a mallet, or rubbed together. They obviously differ in size and method of playing. Therefore, these can be either concussive, percussive or perhaps even sometimes melodic.



<http://www.theoi.com/Gallery/Z39.2.html>

Fig 3.68 Tsetselim – cymbals, Roman mosaic

Cymbals made from bronze obviously were costly, and more so for the common man. Braun (2002: 107,109) even expresses the view that the Israelites did not have the knowledge to produce or repair cymbals made from bronze. However, not every reference in the Hebrew Bible should be translated with cymbal. Two very specific types are mentioned. One was

specifically used by the Levites while the other was used by the common people. Like today, the Hebrew word for cymbal also referred to a family of instruments.

The large thin cymbals seen in military and marching bands today are called crash cymbals or hand cymbals. This is a modern instrument and not really ancient. The ancient type cymbals were slightly smaller in size and thicker in calibre.



<http://www.piney.com/Mu1Cor13.html>

Fig 3.69 Cymbals.

Cymbals even smaller than those above are referred to as finger cymbals. These could be worn on the hands, famously by dancers.

Josephus however only describes a single kind as broad and large. It therefore is not surprising that among the Hebrews only the broad and large cymbals were permitted and used at religious functions.

tse/ / root, n., 1. single cymbal plate. 2. single finger cymbal. 3. single circular plate.

Tsel-tsel / double root, n., 1. two cymbal plates. 2. a single pair of finger cymbals.

Similar words are also found in Turkish and Arabic. The Turkish word *zil* refers to a single cymbal plate. The corresponding Arabic word is *sil*.

These three words obviously sound similar and obviously had a common etymologic origin. It is interesting to note that the Hebrew word *tse/* is also used in connection with the locust (*cicada*), a fishing spear and a decorative plate-ornament attached to a horse's bridle.

Finger cymbals were used in a pair, most commonly one pair per hand. The small instruments are often used by dancers. They can be struck rhythmically and produces a high-pitched note or tinkle. Skilled dancers and musicians can create complex rhythmic patterns with these small instruments.

Praise Him with melodious cymbals, Praise Him with cymbals of shouting. (Psalm 150: 5)

(αἰνεῖτε αὐτὸν ἐν κυμβάλοις εὐήχοις αἰνεῖτε αὐτὸν ἐν κυμβάλοις ἀλαλαγμοῦ - Septuagint)



(http://www.musicofthebible.com/extra_cymbals.htm)

Fig 3.70 Melodic cymbals of the Levite Singers

Melodic cymbals. n., pl. *metsiltayim* / מִטְּסִילְטַיִם [H4700]. Originates from *tsasal*. 1. These were cymbals that could produce a specific pitch. They are larger in size than finger cymbals. 2. Crotales. 3. Cymbals played by Levite musicians in order to provide a tuning reference for the harps and lyres, and also to indicate the beginning pitch for singers. Both *tsetselim* and *m^etsetselim* are etymologically identical, but are never mentioned together in the Bible. It may be that they refer to the same instrument but that different names were used during different historical periods; *tsetselim* used earlier in 2 Samuel 6: 5 and Psalm 150: 5 and *m^etsetselim* used later as in the book of Chronicles, Ezra and Nehemiah. The exception on this opinion is J. Braun who thinks that the replacement was deliberate in order to avoid any confusion and association with the term used during pagan cults. *Tsetselim* were constructed from either bronze or brass, with bronze instruments obviously creating a sound of better quality and vibrancy. Kolyada (2014) points to the use of the *tsetselim* prior to the first Temple period. It was used in pagan rites, specifically to attract the attention of the attending deities. As an instrument it was available to any member of the community regardless of tribe, sex or

age. When used in the music of the temple, it was used to indicate different sections of the liturgy, but it was also used as a signal to the choir to start singing, possibly indicating unified pitch. At that stage the *tseltselim* was removed from the hands of the common folk and only professional musicians were allowed to play the instrument. It was again introduced into secular use in the post-Temple period.

These were always produced in a pair. One was held in the right hand and one in the left hand and were struck together in order to produce sound. More specifically, they were often tuned to the pitches of A and C to allow them to praise and play the name of God. They produced a clear sound with bright pitch. It was of a defined musical tone.

Again, looking at Psalm 150: 5 we note the Hebrew phrase *batseltsala shama* which literally means “cymbals of *shama*”. This is traditionally translated as “with loud sounding cymbals”. The Greek Septuagint however refers to this as “with cymbals of melodious sound”. This is a subtle but important variation. The reference to cymbals of melodious sound could only fit one type of cymbal. This is the larger variety of the ancient cymbal which was pitched and tuned. Today we would refer to the cymbals as *crotales*. And so, when we specifically look at Psalm 150: 5 again there are 2 types of contrasting cymbals:

“Praise him with cymbals of melodious sound (*that is, crotales*).

Praise him with cymbals of *teruah* (*that is, cymbal clappers*).”

The first portion of Psalm 150: 5 use the double root *tsel-tsel* which is the word for “2” or “a pair” of cymbal plates. All other references to the melodic cymbals used by the Levites use only the single root *tsel* in the dual form. Singular use of the term *tsiltsal* by the Talmud is motivated by the fact that it can be done by one person and that it only needs one action (b. ‘Arak. 17b). The double use of a singular root would indicate that they consisted in pairs similar to, for e.g. eyes, hands and feet. It also is noteworthy to look at the Hebrew word *shama* when it is used in connection with the melodic cymbals. This is found in Psalm 150: 5 but also in five other references when the cymbals of the Levites are mentioned. It appears that this word *shama* would refer to what we today know as “pitch”.

b’tsel-tsa-la sha-ma = “with pitched cymbals” (Psalm 150: 5)

um-tsel-ta-yem mash-me-em = “and cymbals of pitches” (1st Chronicles 15: 16)

bem-stel-ta-yem na-cho-shet l'hash-me-a = “with cymbals of bronze for the pitch” (1 Chronicles 15: 19)

u-vem-tsel-ta-yem mash-me-em = “and with cymbals of pitches” (1 Chronicles 15: 28)

bam-tsel-ta-yem mash-me-a = “with cymbals of pitch” (1 Chronicles 16: 5)

um-tsel-ta-yem l'-mash-me-em = “and cymbals for pitches” (1 Chronicles 16: 42)

As previously mentioned, the Levites used the melodic cymbals as a tuning reference for string instruments, as a pitch reference for singers at the beginning of a song and for playing the name of God. Mishna 3, chapter 7, Tractate Tamid reads:

“When he bent down to make the libation the deputy would waive the banners, ben-Arza clash on the cymbals, and the Levites would break into song”.

When an ensemble of musical instruments play together it is essential to find a reference. If all were not in tune, then the music would sound like the ramblings of a madman. And so, it was that the melodic cymbals were used as a tuning reference. Similarly, if one sings in a choir with no defined pitch, it creates a situation where every man sings for himself and the music makes no sense at all. And so, it is common practice for the conductor of the choir to indicate the reference pitch before singing commences. Remembering that these cymbals were pitched at A and C, it fits perfectly into the primary tonality of the psalm manuscripts which is A minor. The clash of the cymbals as indicated in the Tractate Tamid text above, with the Levites breaking into song is a perfect example of cymbals indicating pitch prior to singing.

These cymbals would obviously suffer from metal fatigue, cracking and overuse. Unfortunately, once broken or cracked, they just never sound the same, no matter how meticulously repaired. It makes for interesting reading of how the cymbal in the Sanctuary became damaged. And to make matters worse, there apparently only was one single cymbal!

There were never less than six inspected lambs in the cell of the lambs, sufficient for a Sabbath and the [two] festival days of the New Year, and their number could be increased into infinity. There were never less than two trumpets and their number could be increased into infinity. There were never less than nine lyres, and their

number could be increased into infinity. But there was only one cymbal.
(Talmud - Mas. Arachin 13a)

As the Israelites did not have the knowledge to repair this themselves, craftsmen from Alexandria were summoned to repair the cymbal. Apparently when it was patched, it could no longer make the pleasant sound it originally produced. And so it was that the patch was removed, and the pleasant sound returned, although broken.

Our Rabbis taught: There was a pipe in the Sanctuary which was smooth and thin, made of reed, and from the days of Moses, [and its sound was pleasant].⁶ The king commanded to overlay it with gold, whereupon its sound was no more pleasant. Then its overlay was taken off, and its sound was pleasant again as before. There was a cymbal in the Sanctuary from the days of Moses, made of bronze, and its sound was pleasant; then it became damaged. The Sages sent for craftsmen from Alexandria of Egypt, and they mended it, but its sound was not pleasant any more. Thereupon they removed the improvement and its sound became as pleasant as it was before. A bronze mortar was in the Sanctuary, from the days of Moses, and it would mix the drugs. When it became damaged the Sages sent for craftsmen from Alexandria of Egypt who mended it, but it would no more mix the drugs as well as it used to.⁷ Whereupon they removed the improvement, and it would mix them well again as before. These two vessels were left over from the first Sanctuary, and after they had been damaged there was no remedy for them. (Talmud - Mas. Arachin 10a)

Playing the cymbals is not as simple as just banging the two parts together. This would produce a dull sound and probably would damage the instrument. Some skill is involved, only if limiting hand contact to the cymbals themselves in order to produce a more resonant sound. Sound is also improved by creating a slightly sliding clash. The large cymbals could either be held vertically or horizontally. Both these techniques were known in AIP and are found on surviving pottery artefacts. It is interesting to note that the KJV describes the sound as loud, but Coverdale uses “well-tuned” and Wyclif uses “well-sounding”. There is a difference in sound if the instrument is held vertically versus horizontally, firstly because grip and contact with the plates are different. In the horizontal position the top plate would hang

below the hand while the bottom plate would only be supported by the thumb. This would produce a more gentle sound. The vertical position would be applied for keeping strict rhythm.

Only two Biblical references to cymbal clappers:

2 Samuel 6: 5

Psalm 150: 5

We consistently find *tsetselim* translated into the English word cymbals. Biblical references to melodic cymbals total 14:

1 Chronicles 13: 8

1 Chronicles 15: 16, 19, 28

1 Chronicles 16: 5, 42

1 Chronicles 25: 1, 6

2 Chronicles 5: 12, 13

2 Chronicles 29: 25

Ezra 3: 10

Nehemiah 12: 17

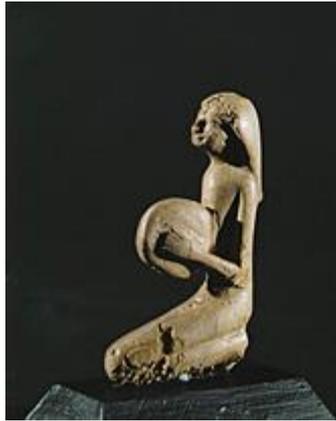
Psalm 150: 5

Archaeological evidence surprisingly again is relatively scarce.

3.7.2 Ugarit

Ugarit was an ancient port city and important enough to be fortified with a wall. It is now to be found at Ras Shamra. It perhaps dates from 6000 BCE.

At its peak, it traded with Egypt, Cyprus, Aegean, Syria, the Hittites and most of the eastern portion of the Mediterranean. Ugarit was mostly forgotten until a farmer accidentally stumbled onto an old tomb in 1928. The site has been under constant excavation since. Ugarit is considered to be typically Canaanite. The current name is Ras Shamra. The most striking finding however is that of a scribal school and libraries of tablets. The Hurrian songs were discovered here which illustrated musical notation of the time. The music found in this is a series of 2 toned intervals played upon a 9-string lyre. On the top of the slope some tombs were explored. They date to the Middle Bronze Age and late Bronze Age. Objects found in these tombs were typical of the period and included bronze objects like weapons, tools, and utensils. They also discovered an ivory statuette of what they described as a kneeling musician playing cymbals. This style was common in the Levant and Egypt.



(<https://www.lessingimages.com/viewimage.asp?i=08020855+&cr=12&cl=1>)

Fig 3.71 Kneeling Ivory statuette from tomb 3464, Ugarit (Ras Shamra), Syria.

There now is some contention about this statue. It appears that the instrument played is a single instrument and that the visible hand is closed, possibly beating on a drum, rather than striking cymbals. It remains an important find though.

3.7.3 Megiddo

Tel Megiddo is situated in the north of Israel, about 30 km from Haifa. It is one of the most important city mounds in Israel. It rises about 60 m above the plane and is approximately 7 ha in size. During the Bronze Age, it was an important Canaanite city and during the Iron Age it even became a royal city in the kingdom of Israel. It is in a very strategic location at the head of the pass through the Camel Ridge and overlooking the Jezreel Valley. Because of its strategic location, it was the site of many a battle.

Megiddo has already been excavated three times and is under excavation again. Excavation started in 1903 and ended in 1905. Digging again started in 1925 until the outbreak of the Second World War. Excavations again started in 1960 and lasted until 1971 and most recently digging again started in 1994. Most notable finds include the great temple, a collection of jewellery pieces found in a jug in 2010, thin ivory carvings and two stable complexes.

Bronze finger cymbals from the late Bronze Age were found near the *Migdal* temple.



<http://www.bible-archaeology.info/music.htm>

Fig 3.72 Bronze cymbals excavated at Megiddo, possibly of Phoenician origin.

Bronze cymbals dating from the 14th century BCE were discovered in a Canaanite shrine in the lower city of Hazor.

3.8 FRAME DRUM



Fig 3.73 Mary dancing. Painting by Chagall, Chagall Museum, Nice - own photograph.

3.8.1 Introduction

²⁷ Why didst thou flee away secretly, and steal away from me; and didst not tell me, that I might have sent thee away with *simchāh* (any joyful occasion), and with *shirim* (songs), with *tōf*; (timbrel, tambourine) and with kinnōr (harp)? (Genesis 31 : 27 – Orthodox Jewish Bible)

In other translations, for example the authorized King James Version of the Bible, the translation of “*tabret*” is found.

²⁷ Wherefore didst thou flee away secretly, and steal away from me; and didst not tell me, that I might have sent thee away with mirth, and with songs, with *tabret*, and with harp?

In this setting *tabret* means a small *tabor* or a small drum. The most usual translation for this refers to a *timbrel*. The Tyndale Bible is the first English translation made directly from Hebrew and Greek texts. In this version the above text is translated as:

Wherefore wentest thou away secretly vnkowne to me and didest not tell me yt I myghte
haue broughte yt on the waye with myrth syngynge tymrells and harppes

This represents the only other musical reference found in Genesis.



Fig 3.74 Females playing the tympanon, terracotta, Kition, Cyprus, VIII – V BCE. Own photographs from the Louvre, Paris.

Frame-drum. n., *tōf* / *toph* / *top* / תוף [H8596] 1. Indicating the sound of beating on a frame drum of the ancient Semitic people. The term is obviously onomatopoeic, not only in Hebrew, but also in the other applicable ancient languages:

Sumerian-	<i>dup, tup, adapa</i>
Assyrian-	<i>tuppu</i>
Akadian-	<i>dadpu, tampaŌa</i>
Phoenician-	<i>mtp̄p</i>
Ancient Egyptian-	<i>dbdb, tbu, and</i>
Arabic-	<i>duff.</i>

It was constructed with a metal or wooden frame and was covered on one or on both sides with animal skin. Kolyada (2014) mentions that the Jewish *tōf* was round while the Arabic type *duff* was square in shape. It usually is associated with female players, both young and old, and was used in celebrations of a secular origin and also with dances. One would hold the drum with the left-hand and strike the

drum with the thumb, forefingers and/or wrist of the right hand creating rhythmic patterns. It was an instrument of merriment, linked to terms like “mirth” in Job 21: 12 and “dancing” in Judges 11: 34. It is used as a means of praising God. We don’t find any references in the Bible describing its use in the temple, and there is only one instance where the word *tōf* is used in a non-musical sense. This apparently is found in Ezekiel 28: 13 where it refers to a precious stone which belongs to the king of Tyre.

The Hebrew word *tōf* is commonly translated with words like the English tambourine, *timbrel* and *tabret*. The Latin Vulgate use the translated term *tympanum* which is a collateralized variation of the Greek term τύμπανον. Accordingly, the Septuagint uses the correct term *tympanum* in all but one instance found in Job 21: 12, where it errs in its translation as *psalterion*. The term *timbrel* as found in the Tyndale Bible is an old English name and it refers to what we now call the tambourine, which includes small cymbals cut into the side of the instrument to produce a jingling sound. The frame drum however was a simple frame over which skins were stretched and it contained no tinklers or other metal additions like the modern tambourine, *timbrel* and *tabret*. Identifying this instrument as a tambourin with the addition of tinkling discs is not right. There is no instance in any of the early iconography or figurines that displays jingles or cymbals as now found in the tambourine. The Talmud uses two analogues. The first is *erus* which is a decorated variety of the *tōf*, only found later. The second is *tabla’*, described as a plain tambourine, later decorated with bells.

This musical instrument, the frame drum, was widely known in Palestine and in the ancient Near East and often used in all sorts of celebrations. The frame drum is also found in areas of northern Africa. The *tōf* / תוף is translated as a tambourin in the Biblehub Jewish dictionary.



Fig 3.75 Tambourine (?) player, probably Cypro-Archaic, made at Kition, 600 – 480 – own photograph from the Dublin Museum of Archaeology.

Apparently, the base noun *ṭp* is found as early as the 14th century BCE in Sumerics, Akkadian, Aramaic, Arabian, Phoenecian and Egyptian. This however is indicative of a drum. Therefore, apparently, in the Old Testament *tōf* should be translated with a drum in all instances. The new Grove Dictionary of Musical Instruments translates the Hebrew word *tōf* as tambourine. The other English translations would therefore obviously be *timbrel* or *tabret*. These are then described as frame drums without jingles. The Oxford Companion of Musical Instruments therefore also apparently incorrectly describes historical tambourines as ancient frame drums without jingles.

The Hebrew word *tōf*, as well as its translation of drum can be confirmed with other names like tom-tom, conga or conga drums, tambour, etc., all being so-called onomatopoeic. Onomatopoeia is defined as the formation of a word by imitation of a sound made by or associated with its referent. Most obvious examples would be “gaggle”, “honk”, “boom” and “meow”.

A distinction should be made between tambourin and small hand drum or possible frame drum. What we understand in modern times as tambourin has developed into a crescent -shaped jingle instrument. The so-called Biblical tambourin is an instrument of totally different production. James Blades wrote “Percussion instruments and their history” in which he refers to instruments of the period approximately 1100 BCE. Blades was a well renowned percussionist himself and his e-book is available as a free download at Free-Ebooks.net. He writes, “in Biblical references the word tinkling

and metal are used in connection with bells and cymbals, not with tabret or timbrel (commonly translated as tambourin).” This gives us an indication that when we in Biblical scriptures read the word “tambourin” or “tabret” or “timbrel” we might as well read this as “frame drum”.

These small drums were most likely manufactured from wood covered by animal skin. It is held in the one hand and played by the other hand and fingers. They are highly versatile and are capable of providing a dynamic sound. They could practically be of any size and shape, although mostly they were small hand drums. Smaller size made them much more portable and might be one of the reasons why more women played them in Biblical times.

- The women would use these when dancing:

Exodus 15: 20 (KJV) And Miriam the prophetess, the sister of Aaron, took a timbrel in her hand; and all the women went out after her with timbrels and with dances. (Exodus 15: 20 (KJV))

- They were also used during celebrations, in this instance religious celebrations:

And David and all the house of Israel played before the LORD on all manner of instruments made of fir wood, even on harps, and on psalteries, and on timbrels, and on cornets, and on cymbals. (2 Samuel 6: 5 (KJV))

The frame drum would commonly be used in conjunction with other instruments, for example a cord-like strumming instrument and perhaps a singer. The singer would sing the song, a lyre would play the chords and the frame drum would provide rhythm. However, because they were so easy to produce, carry around and play, this was a common instrument among the general population and often was used as a solo instrument.

Some skill is required if one wants to play the drums well. They can produce a whole variety of tone color and pitch, and this is possible if one plays the drum using your hands and your fingers. Producing music using a drum is far removed from beating the drum, no matter how skilled or technically adequate the timpanist may be. Throughout the Near and Middle East the frame drum is mostly held vertically. The frame rests in the palm of the hand with the head of the drum facing outwards. The fingers of the supporting hand is therefore on the drum head. This means that the drum is held between the palm and the thumb, held there securely, but that the fingers are free to produce rhythm and strokes on the head. The

supporting hand only plays near the rim, while the other hand is free to play anywhere on the head itself. The pitch can also be changed by the supporting hand applying pressure on the head. Increased pressure would obviously raise its pitch. And with these easy applications, not only the pitch can be changed, but there also is a large tonal variation in both the various types of strokes and the location of those strokes. This is a technique that can easily be demonstrated today and therefore there is no reason to believe that the players of the biblical times in AIP would not have mastered the same skills.

Biblical references, 19 in total:

Genesis 31 : 27	Exodus 15 : 20
Judges 11 : 34	1 Samuel 10 : 5
1 Samuel 18 : 6	2 Samuel 6 : 5
Isaiah 5 : 12	Isaiah 24 : 8
Isaiah 30 : 32	Jeremiah 31 : 4
Ezequiel 28 : 13	Nahum 2 : 7
Psalms 68 : 25	Psalms 81 : 2
Psalms 149 : 3	Psalms 150 : 4
Job 21 : 12	1 Chronicles 13 : 8

When looking at a picture or drawing of a tambourin it is easy to see why it is mentioned under membranophones as well as idiophones. The portion with stretched skin can obviously be beaten and played by hand, while shaking the tambourin would elicit sound from the small attached cymbals. The Hebrew word *toph* obviously did not refer to this instrument.



(<https://za.pinterest.com/pin/109986415870883508/>)

Fig 3.76 Modern type tambourine

The translation of the Hebrew term for tambourin still is being debated. The word derives from the root *nua* / נוּא [H5128] which means to quiver, wave, waiver, tremble, or totter. However, some linguistics understand this to mean “shake” while some understand the term as “rattle”.

Idiophones obviously were simple to produce; they were available in abundance and the opportunities for use were multiple. These instruments basically produced noise. A sound is produced with no specific pitch and no specific tonality. The material used for producing these instruments obviously would determine the sound that it creates. Think specifically of rattles, cymbals, and bells, all producing a sound specifically adherent to the material it was made of.

Idiophones because of their simplicity have been in use for the longest period of time extending from the early Stone Age / Neolithic period (the Neolithic period began in about 10,200 BCE and it ended between 4500 - 2000 BCE) and still is in use today.

It is interesting to note the presence of jewellery made from bone fragments, animal teeth and shells. When worn, these would obviously create sound, most likely music in the ear of the bearer. This phenomenon where idiophonic building stones were used to create something worn in everyday life is called syncretism. Syncretism according to dictionary.com is “the attempt to re-conciliation or union of different or opposing principles, practices, or parties, as in philosophy or religion”.



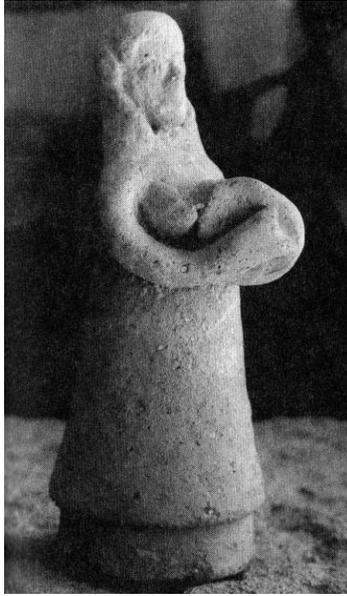
(King & Stager 2001: 350. ill. 220)

Fig 3.77 What is she playing?

When we consider the earliest archaeological artefacts, it becomes clear that the round disc held by the figurine creates some confusion. Exactly what is she holding? Is it maybe a bread? Is it a plate of some sorts? Or is it perhaps a hand drum? Braun conveniently divides the iconography related to drums into 2 groups. The first group consists of bell-shaped statuettes while the second group consists of terracotta reliefs.

3.8.2 Mount Nebo

Mount Nebo is a small ridge in Jordan. We read about this in the Hebrew Bible as the place where Moses was granted the privilege of viewing the Promised Land. On the highest point a Byzantine church and monastery was discovered during excavations in 1933. The church is in the pattern of a basilica and probably erected to commemorate the place where Moses died. Several stunning mosaic floors have been found and have been recently renovated. This is also the site where some of the earliest bell-shaped statuettes of musicians were found.



(Braun 2002: 123. Fig IV.4(a))

Fig 3.78 Statuette of musician from Mount Nebo playing a toph.

3.8.3 Achziv

Achziv is an ancient site on the Mediterranean coast in the northern part of Israel. Today it is of course known as Tel Achziv and it lies between 2 streams, close to the border Lebanon. Excavations have revealed a walled city that existed here from approximately the Middle Bronze period. Excavations have taken place from the 1940s and continues to the present. Archaeologists have found several cemeteries surrounding Tell Achziv. This revealed a variety of burial practices and also interestingly enough a cemetery for the burial of cremated remains of adults. We now know from both textual and archaeological data that women often played the frame drum, as seen with several statuettes unearthed here.



(<http://www.alamy.com/stock-photo/figurines-and-bc.html>)

Fig 3.79 Tambourine (?) players, clay figurines of women musicians dating 8-7th century BCE.

These statuettes depict women playing a larger type *toph* which was held with the left-hand at the bottom and played by the right hand, which is similar to the statuette found of the musician from Mount Nebo.



(http://www.bible-history.com/past/phoenician_goddess_figurines_740_BC.html)

Fig 3.80 Phoenician figurines of goddesses as musicians playing *toph* and *halil*

3.8.4 Tell Shikmona

Similar statues have been found at Tel Shikmona. This is also situated on the coast south-west of Carmel. There was no port, but the surrounding area was used as agricultural grounds. Several burial sites were found. The earliest excavations started in 1963. Excavation laid bare public buildings and dwellings, remnants of the city wall, oil presses, storage rooms, locally manufactured pottery and imported figurines.



(<https://za.pinterest.com/pin/555772410239989559/>)

Fig 3.81 Female musician from Shikmona.

This figurine of a female musician from Shikmona is ceramic and dates to the 9th - 8th century BCE. It is the typical bell-shape. It depicts the typical position with the left-hand at the bottom and the right hand striking the *topf*. She is in the erect position, typical of the artefacts found in approximately the 8th century BCE within this region. Also, the braided hair and simple dress is typical of the period.

Up-to-date approximately 40 examples of terracotta relief artworks have been found. These once again are mainly of female figures holding a *topf*. It is interesting to note that these were not found in the Phoenician and Philistine coastal regions, but are widely found in ancient Palestine. There is a strong Egyptian influence with reliefs found in especially Megiddo, Beth Shean and Transjordan.

3.8.5 Beth Shean

Beth Shean became a major Israelite administrative centre after the death of King Saul. Even so, it was an important site long before the Kings of Israel reigned over it. Multiple excavations have taken place and have revealed 6000 years of history of settlement at the site. During the Late Bronze Age the Egyptian Pharaohs ruled over much of Canaan and Beth Shean was an important administrative centre.



(Burgh 2006: 32. Fig 2.7)

Fig 3.82 Relief plaque from Beth Shean illustrating a female musician with a *toph*.

This is a small figurine in terracotta which stands about 7 ½ cm tall. There are obvious similarities with the musician holding the *toph* at the bottom with the left hand - with the *toph* obviously projected on the right side of the relief. Musicians depicted in this way, according to Burgh, each have unique facial features and therefore all look different. Braun goes so far as to insinuate that these are of known musicians of the area and time.

3.8.6 Tanaach

Tanaach / Ti'inik is a Palestine village in the West Bank. Just to the east of the town is a mound which was the site of the city known in biblical times as Tanaach/Tanach. The town is now under Jordanian rule. Several interesting artefacts have been found here including 12

Akkadian cuneiform tablets. Excavation began in 1870 with Victor Guerin, and was followed in 1882 by a survey funded by the Palestine exploration fund. Excavations also found a naked figure with detailed headdress as well as a band around the middle and around the ankles.



(Braun 2002: 128. Fig IV.7)
Fig 3.83 Female musician with *toph*.

What is instantly interesting is the round object held with both hands in this instance. Both Dever and Braun indicate that this cannot be interpreted as a *toph*, because it is slightly ovoid in shape and because of the elaborate decorations on the shape. For some reason, Burgh sees this as a *toph*; in this instance, unfortunately he doesn't have my vote.

3.8.7 Megiddo

Similar figurines have been found at Megiddo and it is noteworthy that these also carried their instrument in both hands and that the round disc that we interpret today as a *toph* also appear to be decorated.



(<http://www.lessingimages.com/search.asp?a=G&gn=080513&page=1&ipp=96>)

Fig 3.84 Figurines from Megiddo.

3.8.8 Tell el-Far'ah

Tell el-Far'ah (North) is an archaeological site in the hills of Samaria in the West Bank. This is the site of the biblical city of Tirzah. Initial excavations were undertaken between 1946 and 1960. In strata representing the early Bronze Age several housing units were found as well as the earliest pottery oven of its kind. They also found a temple and olive press. It was an important town in the Early Iron Age and formed the centre of a network of villages. Numerous artefacts from here included figurines, arrowheads, four-room houses, cow heads, horses, so-called tambourine players and figurines representing the goddess Asherah. Israel Finkelstein wrote a very interesting article "Tell El_Far'ah and the early days of the Northern Kingdom " which can be downloaded for free at https://www.academia.edu/4062301/Tell_el_Farah_Tirzah_and_the_Early_Days_of_the_Northern_Kingdom and which makes for very interesting reading.



(Burgh 2006: 37 Fig 2: 12)

Fig 3.85 Terracotta relief plaque (9th to 8th century BCE) of a female musician with a drum, found in a cultic context.

One of the interesting finds is that of a terracotta relief plaque of a female musician apparently holding a *toph*, according to Burgh. Now the disc is carried on the left with both hands. The body of the figure is decorated with geometrical patterns as well as transverse and oblique lines. Note that the apparent *toph* is also richly decorated.

According to the Old Testament the drum did not form part of official religious or temple rites. References are cultic in character and the iconography appears to support this. Iconography with regards to the *toph* have mostly been found cultic contexts, rather than in religious contexts. There is a definite erotic undertone with artefacts from the Iron Age betrayed as naked, while the terracotta figurines also are associated with fertility and sexuality. This is all accentuated by the presence of the *toph*.

3.9 RATTLES AND SHAKERS

3.9.1 Introduction

⁵ David and the whole house of Israel were celebrating before the LORD with all kinds of fir wood instruments, lyres, harps, tambourines, sistrums, and cymbals. (2 Samuel 6: 5)

Shakers and rattles. n., pl. *Mena'anayimi/mena'anim/ מְנַעֲנָעִים* [H4517].1. These are small handheld instruments used during celebrations and dances. They were most likely made of clay, would be hollow and would contain pebbles or nuts inside which would rattle when shaken. The Hebrew root of this word *nua* designates a shaken instrument. This could represent a rattle or a sistrum.

Rattles were made from clay and shaken by hand. These were obviously quick and easy to produce and therefore freely available. It could be used in the gatherings of large groups of people. Several well-preserved rattles had been found giving us an idea of the sound that it produced. When shaken it would produce a very recognisable sound, obviously easily reproducible today.

There is a single reference in the Bible in 2 Samuel 6 : 5 as above.

3.9.2 Bethel

There are several references to the city of Bethel in the Bible. It means “House of God”. It was located between Benjamin and Ephraim and apparently was the site where Jacob, while fleeing from his brother Esau, fell asleep and dreamt of a ladder stretching between heaven and earth. Bethel was excavated between 1934 and 1960. The report on the Kyle Memorial excavation at Bethel by William Albright can be read at http://www.jstor.org/stable/1355123?seq=3#page_scan_tab_contents but a single artefact found here is of importance with regards to music and musical instruments.



Fig 3.86 Jacob's Ladder – painting by Chagall, own photograph from te Chagall museum, Nice.

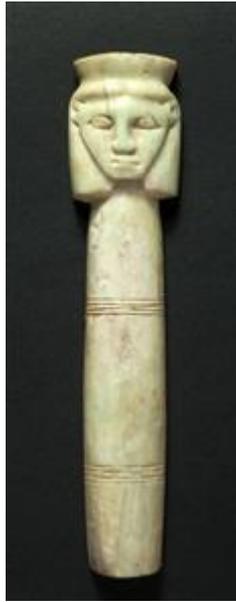


Fig 3.87 Handle of rattle.

This apparently represents a handle sistrum, possibly of Egyptian origin. It is dated to the late Bronze Age and was manufactured using hippopotamus ivory. It is 15.5 cm in length and 3.5 cm in height. This find confirms an Egyptian influence within this area during the late Bronze Age, but this is agreed to have been produced locally.

3.9.3 Tell Shikmona

Tell Shikmona is situated near the coast and the modern city of Haifa. The bulk of excavations took place in the 1960s and 1970s by J Elgavish. A new series of excavations started in 2010 headed by Dr Michael Eisenberg. The Tell is dated from late Bronze Age to late Byzantine period.



<https://za.pinterest.com/boguszko/ancient-egypt-percussion-musical-instruments/>

Fig 3.88 Pair of Egyptian wooden clappers.

Early Egyptian type bronze sistrams were also excavated at Beth-Shean.

3.9.4 Tell Beit Mirsim

Tell Beit Mirsim lies on the border between Shfela and Mount Hebron. William Albright led the first excavations between 1933 and 1936. The town has a typical Palestinian outlay and makes for interesting reading in the article by Albright “The excavations at Tell Beit Marsim” in the Bulletin of the American Schools of Oriental Research, number 23, October 1926, page 2 – 14. The New Unger’s Dictionary describes how they found complete sets of gaming pieces from what appears to be a royal palace. They found dolls with movable joints and lifelike hair and toys including whistles, and rattles. These rattles were manufactured using terracotta and were about 10 cm high. They were not only used as toys but were also found in tombs, probably as offerings.

3.9.5 Debir

In Debir they found hollow, hourglass-shaped terracotta pots containing small stones. When shaken, this must have sounded very much like a rattle. Debir appears to be one of 11 cities in the Highlands of Judah. The majority of consensus is that Edh-Dhaheriyeh, which is situated about 17 km south-west of Hebron is the site of the ancient Debir, but there still is some doubt. It used to be an important city with several roads meeting in the area. EW Heaton published his book "Everyday life in Old Testament times" 1956. On page 199 he describes this reference to the term sistrum:

".. It is possible that the same Hebrew word was used for many different kinds of rattle; some have recently been excavated at Debir. These specimens are made of clay and look rather like a stubby hour glasses. They are hollow and contain a pebble. Anybody who has heard Latin American music (and who in these days has not?) Will know how rattles are used and what of kind of din they make."



Fig 3.89 Terracotta rattles.

3.9.6 Hazor

Hazor is mentioned in the Bible 18 times. The first excavations there was led by John Garstang in 1928. Further excavations took place in the 1950s and 1960s. Excavations started again in the 1990s. A fragment of a Sphinx was discovered in 2012. It still is uncertain how the Sphinx came to rest here but it is one of only a few monumental Egyptian statues that were found in the Eastern Mediterranean. Hazor was a Bronze Age city in Canaan and was declared a UNESCO world Heritage site.



(Braun 2002: 101. III.18, Hazor. III. 19, Gezer)
Fig 3.90 Bell shaped rattle from Iron Age II stratum at Hasor.

When we take into consideration the chronology of hourglass shape clay rattles to bell-shaped clay rattles, it becomes evident that this is a transitional stage in the run-up to the production of rattles produced from metal.

3.9.7 Qitmit

The Archaeological site of Qitmit lies in the Negev desert to the south. The site was discovered in 1979 during surveys undertaken at Tel Malhata. Qitmit lies on the top of a mountain and demonstrates only one period of occupation from the late 7th to the early 6th century BCE. Archaeologist discovered many figurines, statues and ritual objects, interpreting the site as a sanctuary of non-Judaeen origin, possibly Edomite. The pottery found here indicates that people had moved from lands east of Wadi Arabah into the eastern Negev desert. The cultic objects found within the shrine are of obvious Edomite origins.



<http://www.khouseafrica.com/Archaeology%20Trends.html>

Fig 3.91 Statue from Qitmit

One of the interesting pieces found at Qitmit is a head statue of a semi-divine or divine figure. It originates from the Edomite shrine and is approximately 12 cm high and 9 cm wide. The statue is hollow inside and at the top there is a relatively characteristic rattle shape as found in ancient Palestine. Also very characteristic of bronze age rattles is the grip in the neck area.

There thus is evidence of rattles in the region of Palestine dating from the Late Middle Bronze Age (2nd millennium BCE) to the Iron Age (1200 - 586 BCE). Despite all this, there had been no findings of any Israelite or Palestine sistrams / rattles as yet, maybe because of the fragile material used in construction. Later on, these would be replaced by objects made of metal.

3.10 CYPRESS WOOD INSTRUMENTS

3.10.1 Introduction

Cypress wood instruments. n., pl. *berosh* / בְּרוֹשׁ [H1256]. 1. When we refer back to the text found in 2 Samuel 6 : 5 it refers to all kinds of cypress/fir wood. This would include instruments like wooden clappers and rhythm bones.

Wooden clappers. n., pl. This would represent a simple instrument consisting of 2 parts that could be struck together. They were made from either wood or ivory. It is interesting to note that clappers originated as hunting instruments. Hunters would strike the two semi-circular pieces together in order to stir flocks from the underbrush. When they flew away the hunters would throw the clappers at the birds.

Rhythm bones. n., pl. These instruments provided a rhythmic accompaniment to dancing. 2 small curved pieces of wood or bone or ivory were held in one hand and struck together.

2 Samuel 6 : 5 is the only applicable biblical reference.

3.11 SHALISHIM

⁶And it came to pass as they came, when David was returned from the slaughter of the Philistine, that the women came out of all cities of Israel, singing and dancing, to meet king Saul, with tabrets (*tuppīm*), with joy (*simchā*), and with instruments of musick (*shalishīm*)". (1 Samuel 18: 6 – KJV; Hebrew added by student)



Fig 3.92 Shalishim.

3.11.1 Introduction

Shalishim. n., pl. *shalishīm*/ שְׁלִישִׁים [H7991]. 1. This is a word of unknown meaning and variously translated. It probably comes from the verb *sālal* meaning “to ring, tinkle, and resound”. The instrument most likely was of a Syrian origin and similar to other onomatopoeic instruments it has similar sounding names in the other ancient languages. With regards to musical instruments, this is the only reference used in this sense in the Bible. Neither the LXX nor the Vulgate gives a clear answer. The LXX uses

κυμβάλοις, cymbals

and the Vulgate

sistris, which is the plural of *sistrum*.

Above is an Egyptian rattle with bars in a hooped frame which made a rattling sound. The Vulgate assumes the root of *shalishīm* to be threes, maybe suggesting that the instrument may have been manufactured with three bars. Bathya Bayer (1963) points out that the only artefact of this ever found in Biblical Israel clearly is Egyptian in origin and from about 5 or 6 centuries earlier. It thus has no Israelite relevance.

The most probable explanation is that the word probably is onomatopoeic, which means that the given name mimics the sound made by the instrument, in this case *shlshlsh*. This points

towards some type of a rattle. It is important to distinguish these from the rattles/bells added to the hem of the High Priest's robe. The Aramaic translation for these rattles on the High Priest's robe is *zaggin*; the Targum translates *shalishim* into Aramaic as *tsetst^alin*. The verb of this word is *tsiltse* and means to ring clearly or to clap. This is closely related to *tsil* which undoubtedly means cymbal.

3.12 SHOFAR/HORN



https://www.wantitall.co.za/musicalinstruments/shofar-kosher-rams-horn-instrument-natural-shoffar-shophar-schofar-judaica-gift-rosh-hashanah-jewish_b00870wk76

Fig 3.93 Shofar

¹⁶And it came to pass on the third day in the morning, that there were thunders and lightnings, and a thick cloud upon the mount, and the voice of the **trumpet** exceeding loud; so that all the people that *was* in the camp trembled. ¹⁷And Moses brought forth the people out of the camp to meet with God; and they stood at the nether part of the mount. ¹⁸And mount Sinai was altogether on a smoke, because the LORD descended upon it in fire: and the smoke thereof ascended as the smoke of a furnace, and the whole mount quaked greatly. ¹⁹And when the voice of the **trumpet** sounded long, and waxed louder and louder, Moses spake, and God answered him by a voice.

Exodus 19 : 16 – 19 (AKJV)

In both verse 16 and verse 19 the Hebrew word for the trumpet is שרפר, *shōfār*. The same translation of trumpet is also found in verse 13

¹³ there shall not an hand touch it, but he shall surely be stoned, or shot through; whether *it* be beast or man, it shall not live: when the trumpet soundeth long, they shall come up to the mount.

but in this instance the Hebrew word is that of יָבֵל, *yōvēl*, which means ram. In the Targum, in all three verses, the word is given as *shofara*, and we can therefore safely say that *shofara* equals *yōvēl*.

Shofar : n. *Shofar*/שׁוֹפָר/šôpār [H7782] is the Hebrew masculine noun for a horn for blowing. 1. It is a non-musical signalling device. It is made by cutting and smoothing the hollow horn of an animal. Sound is created by buzzing the lips at the small end. Because it can only play a few tones, the calls that were used consisted of sequences of long and short notes. 2. Ramshorn. It possibly represents a combination of the Hebrew word šû / hollow, empty and *par* / bull; or possibly from the Assyrian word *šapparu* for “wild goat of the ibex family”.

It is a ritual ancient Hebrew instrument, taken over by the Jews from the Syrians which has survived into modern times. It is quite easy to imagine this as a single instrument, but there is a possibility that more than one version existed. It originally was curved in shape but later on appeared as a more straight instrument. Throughout the passage of Joshua 6 we find reference to *shōfārōt hayōvālīm*

while verse 5 refers to

that when they make a long blast with the Ram’s horn - *keren hayōvāl*,

and

when ye hear the sound of the trumpet - *qōl hashōfār*,

all the people shall shout.

We already know that *yōvāl* means a ram, being the normal animal used in producing the instrument. This is confirmed by the reference in the Targum of *shofaraya dakeren dikhraya*, which literally means “from the horn of a ram”. It is therefore highly suggestive that the repeated use of the term *shōfārōt hayōvālīm* would indicate that this differed from the ordinary Ramshorn. It might be indicative of a different instrument to be used on different occasions. Apparently the same instrument could have been made using the horn of a wild goat, a ram, an antelope or a bull. The use of a horn from a bull was rare because there exists the negative association with the golden calf. The naturally curved type

instrument made from the horn of a wild goat or a ram was preferable to the Talmud (m. Ros Has III: 2). It is possible that this instrument (*yōvəl*) was larger in size and that it, according to the Talmud, apparently was susceptible to uncleanness because it was constructed with a wide bell made of metal which could be removed. By the time that the Mishnah was compiled disagreement already existed, but the name of this instrument must have derived from the so-called Jubilee year. This is the year after seven cycles of seven years, thus the 50th year. In this specific year, the Tanakh specifically prescribes that a shofar of the alarm should be blown. This is the year that represents the liberation of Jewish slaves and also the return of any property to its original owner as we read in Leviticus 25: 9-10.

There are two other references to natural horns found in ancient texts. The Aramaic *qarna'* forms part of the court orchestra of King Nebuchadnezzar the second as found in Daniel 3, while the phonetically very similar Hebrew term *qeren* also refers to a horn. *Qeren* is more often used when referring to a natural horn from either a bull or an ox, but most biblical translations indicates no difference between *qeren* and the other types of horn. It is quite often used as a synonym for shofar and *yōvəl*.

This instrument had a wide variety of uses. It was readily available to common people because it was light, portable, easy to make and cheap. It was the ideal signalling instrument, because it could be heard over long distances. Blowing the *shofar* is a Jewish practice, but originates from a long history of blowing on animal horns in the Ancient Near East. However, long before they showed up in ancient Israel, horns were blown in ancient Sumer of the third millennium BCE. We read of instruments similar to the Jewish shofar in a literary fragment found at Tell Abu-Salabikh and in a parallel from Fara which was the Ancient Suruppak. Here we found the Sumerian verb *sig u-ra* which literally means "to blow the horn".

There is some inconsistency with regards to English translations. It is sometimes translated as either trumpet or cornet. However, the Hebrew word *shōfār* most consistently refers to this simple, non-musical instrument used for signalling and made from the horn of an animal. In Biblical times this was a priestly instrument. The Mishnah describes 2 distinct forms that were used in the temple. The first was made of ibex horn, ornamented with gold. This was sounded at New Year and during the Yovel days. The other was made of ram's horn with silver ornamentation and was sounded on fast days. When blown, this had a clear shrill sound but could only produce a few different sounds of poorly defined pitch.

The word *shōfār* is derived from the Akkadian word *shapparu*, meaning a wild goat. It was permitted to use the horn of a goat, or the horn of any kosher animal excluding the horn of a cow. The episode with the golden calf can probably be held accountable for this prohibition. And maybe this explains

the specific reference to *shōf^orōt hayōv^olīm*. This would mean that a horn of a goat, ibex or any other kosher antelope could be used, but that only the horn of a ram can be used in temple procedures.

Importantly we also read in the Talmud that no improvements or modifications were allowed in order to change the tone. These specific prescriptions are made in order to render it kosher, i.e. in order to satisfy the requirements of Jewish law (m. Kelim XI: 1):

- It was not allowed to plate the inside of the horn, only on the outside and then only if it does not change the sound. It was allowed to scrape the outer surface, producing a smooth surface.
- no holes could be plugged,
- if it cracked, it could not be stuck together again,
- the length could not be altered,
- the minimum permissible length was 3 hand breadths , so some of the horn was visible on each side of the hand, but
- it was allowed to shorten the instrument if it was too long,
- if it was split lengthwise it could not be used again, but it could be shortened if it was split across (assuming it still maintained the minimum permissible length),
- no steaming or boiling was allowed,
- the mouthpiece must remain plain so that nothing comes between the lips of the player and the horn and thus nothing could interfere with the sound

and thus, the tone was left unaltered.

The horn obviously had a narrower bore than the trumpet and also the mouthpiece would be much smaller and narrow. It is practically impossible to play this using the everted embouchure (with the lips protruding outwards) without getting hurt. It is better to attempt this in so-called *einsetzen*, where the embouchure is set to the inner part of the lower lip. *Einsetzen* is a term that we borrow from German orchestral horn playing. This technique allows the player to sustain notes much longer because back pressure is less.

Its use is mainly as a signalling instrument and the Mishnah consents that it is the obligation of everyone to blow for themselves. Strangely, women were allowed to blow, but then only for other women. And so could children.

Because of the small mouthpiece it could be difficult to play and sometimes the mouthpiece would be cut flat, carved out, or the horn could be softened by heat and the mouthpiece opened out or widened. I am not too certain about how this would be achieved or accepted under Jewish law.

Three different types of blasts on the Ramshorn were known. These same 3 calls are used in synagogues today:

1. Tekiah - this was a short introductory note, followed by a long single tone sound with a broken ending. This call is traditionally used to conclude the services on Yom Kippur.
2. Teruah - this is made up with a series of short staccato notes. This same signal was used on the 2 silver trumpets as an indication for the Israelites to break up camp in the desert. Teruah also refers to what is known as "ululation". This is a high-pitched warbling cry, most often performed by women and very often used as a war cry.
3. Shevarim - this alternated between the basic tone and overtones. It consisted of six notes going from low to high.

Much confusion still exists with regards to these three terms and the exact pitch they refer to. Some descriptions are to be found, but most are vague and of little help. It also is impossible to attach a specific key, because no two instruments are of similar length and bore. There also are subtle differences existing between different players and their students; and there is a demonstrable difference in how these calls developed between the Sephardim Jews and the Ashkenazi Jews – the Sephardim using narrow inflections and the Ashkenazi using two or three distinct overtones (Montagu 1992: 2456) The three most acceptable modern notations would possibly indicate the three major natural tones on a five-line staff, here produced following the example of Montagu (1992):

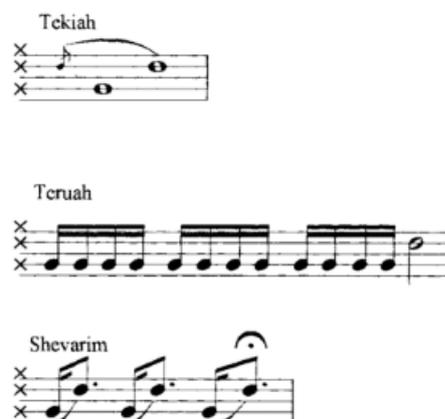


Fig 4.93 Sequences blown on the shofar

And although these are the 3 basic sequences known, these obviously could be arranged into different sequences in order to convey different messages. In ancient Palestine, the *shofar* as signalling instrument conveyed many different messages:

- in dire circumstances, it was used to signal the retreat

³ and he sees the sword coming against the land and blows his trumpet to warn the people. ⁴ Then, if anyone hears the sound of the trumpet but ignores the warning, and the sword comes and takes him away, his blood will be on his own head. ⁵ Since he heard the sound of the trumpet but ignored the warning, his blood is on his own hands.^[a] If he had taken warning, he would have saved his life. ⁶ However, if the watchman sees the sword coming but doesn't blow the trumpet, so that the people aren't warned, and the sword comes and takes away their lives, then they have been taken away because of their iniquity, but I will hold the watchman accountable for their blood. (Ezequiel 33: 3 – 6 (HCSB))

- it could also signal the all clear and safe

²⁷ After he arrived, he sounded the ram's horn throughout the hill country of Ephraim. The Israelites came down with him from the hill country, and he became their leader. (Judges 3: 27)

- it could instruct the military to move into formation and attack. During battles the ram's horns were sounded to instil fear into the heart of the enemy.

⁵ Declare in Judah, proclaim in Jerusalem, and say: Blow the ram's horn throughout the land. Cry out loudly and say: Assemble yourselves, and let's flee to the fortified cities. (Jeremiah 4: 5)

- it was blown to announce some of the holy days

⁹ Then you are to sound a trumpet loudly in the seventh month, on the tenth day of the month; you will sound it throughout your land on the Day of Atonement. (Leviticus 25: 9 NKJV)

- it was used to announce a new king

³⁴ There, Zadok the priest and Nathan the prophet are to anoint him as king over Israel. You are to blow the ram's horn and say, 'Long live King Solomon!' (1 Kings 1: 34 NKJV)

- and it preceded the Ark of the covenant when it moved in to Jerusalem accompanied by King David

²⁸So all Israel brought up the ark of the covenant of the LORD with shouts, the sound of the ram's horn, trumpets, and cymbals, and the playing of harps and lyres. (1 Chronicles 15: 28 NKJV)

The Mishnah also contributes to the list of occasions when the Ramshorn should be sounded:

- to confound evil, avert catastrophes or to frighten away demons
- when crops grow in strange ways
- when rain ceases to fall for 40 days in the middle of the rainy season
- if the rainfall is insufficient to fully cisterns and pits
- to combat pestilence, mildew, locusts, caterpillars, wild beasts and the sword.

For comparative reasons it is necessary to highlight the other uses for “horn” in the Bible. The Hebrew word is קֶרֶן, *qeren*, which refers to the horn of an animal. This term in the Bible is used in five different ways.

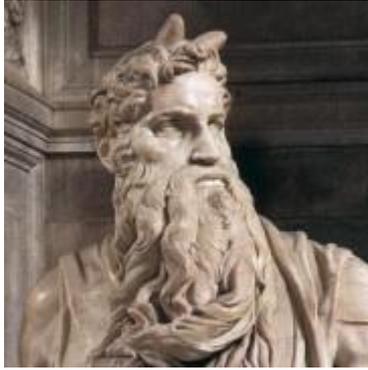
- It simply means the horn of an animal as found for example in Genesis.
- It refers to the use of a horn as a container. Of this we read in several instances, for example 1 Samuel 16 : 1

...fill thine horn with oil, and go... (KJV)

- Exodus 27 verse 2 refers to the horns, *qarnōt*, on each corner of the altar.
- It is used as a term of exaltation, for example when David refers to “the horn of my salvation”
- lastly, it has been mistranslated in Exodus 34: 29.

Moses wist not that the skin of his face shone while he talked with him. (KJV)

which is the the Hebrew word עוֹר קָרָן, *qāran ʿōr*. It now is a well-known fact that in translation Jerome mistook the verb *qāran* for the incorrect noun *qeren*, and so he translated it as *cornuta*, meaning horns. This would obviously explain the presence of the peculiar horns seen on the statue of Moses by Michelangelo.



http://www.irariklis-trivia.com/wp-content/uploads/2012/11/Moses2-20453_184x184.jpg

Fig 3.95 Statue of Moses by Michelangelo

Biblical references with regards to shofar totals 72:

Exodus 19: 16	Exodus 19: 19
Exodus 20: 18	Leviticus 25: 9
Joshua 6: 4, 5, 6, 8, 9, 13, 16, 20	Judges 3: 27
Judges 6: 34	Judges 7: 8, 16, 18, 19, 20 and 22
1 Samuel 13: 3	2 Samuel 2: 28
2 Samuel 6: 15	2 Samuel 15: 10
2 Samuel 18: 16	2 Samuel 20: 1, 22
1 Kings 1: 34, 39 and 41	2 Kings 9: 13
Isaiah 18: 3	Isaiah 27: 13
Isaiah 58: 1	Jeremiah 4: 5, 19, 21
Jeremiah 6:1, 17	Jeremiah 42: 14
Jeremiah 51: 27	Ezekiel 33: 3, 4, 5 and 6
Hosea 5: 8	Hosea 8: 1
Joel 2: 1, 15	Amos 2: 2
Amos 3: 6	Zephaniah 1: 16
Zechariah 9: 14	Psalms 47: 5
Psalms 81: 3	Psalms 98: 6
Psalms 150:3	Job 39": 24, 25
Nehemiah 4: 18, 20	1 Chronicles 15: 28
2 Chronicles 15: 14	

There is very little archaeological evidence with regards to the ram's horn. Braun (2002) on pages 25 - 27 and page 180 of his book refers to this phenomenon and indicates that the only iconographic evidence dates from the Roman period where it is seen in conjunction with other symbols like the *menorah* / 7-armed chandelier and vessels to hold incense for burning. There is some uncertainty about the reliability of these depictions.

In his article "The Shofar and the Ancient Near East" Wayne Horowitz points to a small vase from the Early Dynastic Period Adab. The Early Dynastic Period is the archaeological culture in the southern part of Mesopotamia, which is modern day Iraq, and which is dated to 2900 – 2350 BCE. On this small vase is a small quartet of musicians who play the harp, lyre, drums as well as an instrument which appears to be a bull's horn. There also is what appears to be a singer. The early Sumerian horn is similar to the Jewish *shofar* in the sense that it also formed part of the early temple rituals. In approximately 2100 BCE we find a reference to a musical instrument in a ceremony from a hymn of Gudea of Lagash to the goddess Nanshe which reads:

"Gudea, the governor of Lagash placed the Lyre, *Cow of Abundance*, among the drums, placed the sacred harp besides it.

While the sacred song, the harmonious song, is performed before her (the goddess), small copper ringers praise the temple,
the chief musician plays the ibex horn before her".

This text refers to the ibex horn, rather than the bull's horn. This is in concordance with the Jewish practice where the use of a bull's horn for a *shofar* is forbidden. It also is interesting to note that the chief musician is the one responsible for playing the ibex horn. This must be an indication of special skill required to play the instrument. And then in the Neo-Hittite period, around the turn of the century, we find a small statue of a male figure playing a *shofar*.



(Bible Lands Museum Jerusalem. Photographer: Moshe Caine)
Fig 3.96 Bronze male figure blowing shofar, Syrian? Neo-Hittite period?

This tiny figurine is from somewhere in Syria or Anatolia and now resides in the Bible Lands Museum in Jerusalem. What is further interesting is the second implement which he holds to his left ear and which has been interpreted as a device for listening.

The use of the shofar is fairly simple and well accepted. The shape appears to be incidental, being made from the horn of an animal. Instruments of similar shape can be found in the archaeological artefacts from as far as Ireland. Here metalworking in the Late Bronze Age, 1200 – 500 BCE, was advanced and it was a period of technological mastery by Irish metal smiths. They used a combination of techniques, like the use of clay molds and the addition of bronze to produce horns of similar shape as that we know as the shofar from AIP, while we are aware that contact between the nations date from about the 8th and 7th centuries BCE.



Fig 3.97 Horns of metal and bronze from the Late Bronze Age in Ireland – own photographs from the Dublin Museum of Irish Archaeology.

There even exist proponents of the theory that the Celts are descendants of the tribe of Dan from Israel; and they also point to several similarities with ancient Hebrew, esp. that of the harp which is the symbol of Ireland, while it played a role in ancient Palestine history and is (incorrectly) generally regarded as the instrument of King David.



Fig 3.98 The model for the insignia of Ireland is the oldest surviving Irish harp, the so-called Brian Boru Harp, probably dates from the Later Middle Ages – own photograph taken in the Trinity College Library.

3.13 SILVER TRUMPETS

⁸The sons of Aaron, the priests, are to sound the trumpets. Your use of these is a permanent statute throughout your generations.

(Numbers 10: 8 (HCSB))

3.13.1 Introduction

Trumpets: n., pl., *chatsotsrot* / hatsots^{rah} / חצצרה [H2680] 1. These 2 formed a pair of non-musical signalling devices made from metal. Josephus Flavius explains that the word *chatsotsrot* is a transliteration of *asosra*, meaning “to call or to summon”. Therefore, the

Hebrew word may refer to the call to assemble and not simply as to the trumpet as traditionally translated. The Hebrew term *hāsar* means “to be present”.

The *hatsots^erah* is an ancient straight trumpet of metallic origin, and while in the Bible we read of instruments created from mainly silver, the trumpet was also in secular use and then probably made from bronze as described in the Dead Sea Scrolls. The trumpet was a widely-used instrument. It was used during religious ceremonies, during military operations, for notifying people of feasts. This was a long, slender and straight instrument. The Levites used these to signal the breaking of the camp, to call assembly and for various other’s ritual functions.

Numbers 10: 2 and 7 referred to trumpets of silver made to exact specifications, and thus we can identify these with absolute certainty and with certainty we also know what they were used for.

² Make thee two *tzotzerot* (trumpets) of silver; of a whole piece shalt thou make them; that thou mayest use them for the calling of the Edah, and for the setting out of the machanot...

⁹ And if ye go into *milchamah* (battle) in your land against the enemy that oppresseth you, then ye shall sound a blast on the *tzotzerot*; and ye shall be remembered before Hashem Eloheichem, and ye shall be saved from your enemies. (Numbers 10 : 2 and 9 – OJB)

In these texts they appear to have been crafted from a single piece of beaten silver, as Moses was instructed on Mount Sinai; and consisted of a mouthpiece, a straight long body and they were flared at the end. They measured about 45 cm in length. It is important to point out that translations referring to a whole piece of silver or to a single piece of silver would be inaccurate. The Hebrew text refers to

keseḥ miqshāh,

and this refers to silver presented as a beaten work. The Greek terminology refers to silver beaten with a hammer

ξαργυῖας ξελατάς,

which is accurate. Similarly, Latin translations refer to

argenteas ductiles.

Translations referring to “a whole piece of silver” becomes misleading because it refers to casting, whereas the original Hebrew text prevents that by specifically demanding a beaten silver work. It identifies the need to turn a sheet of silver into a tube by hammering it.

The biblical description of how these instruments should be made, as well as the instructions of what they should be used for, leads to the easy conclusion of what these instruments represented. Like the *shofar* they were played by buzzing the lips on the mouthpiece while blowing and they also created a variance of sequences of long and short tones. Note that not only do we have several historical descriptions of these two silver trumpets, but we also have images from several sources as reference. They were relatively short in length, had a large bore and a wide mouthpiece. From images that we have of these trumpets we know that they consisted of a body, a mouthpiece and a knop of leather or fabric.

We are also lucky that Josephus Flavius described these instruments in one of his books. This can be found in *The Works of Flavius Josephus*, book 3, chapter 12, paragraph 6. He informs us that the silver trumpet of Moses was less than a *cubit* in length. Of course, we are unsure of how long a cubit exactly is. According to Braun (2002: 207,280) these trumpets were sculpted on the Arch of Titus in relation to the Tabernacle, and from this we can roughly calculate the length. We also know that the Egyptian royal *cubit* was approximately 52.4 cm. Moses would have known this because he was well educated in Egypt. Therefore, applying this measurement to the tabernacle, the length of the trumpets can in relation be calculated to around 45 cm. Montagu (2002: 501) refers to the same Arch of Titus in Rome. He also refers to the trumpets and states that they clearly represent Roman trumpets and are therefore much longer than a cubit. The trumpets on the arch of Titus according to Montagu carries no evidential value for the appearance of Israelite trumpets from the time of Josephus (incidentally a contemporary with Titus) and they also would not represent biblical instruments. Current estimations of the cubit range between 500 and 582 millimetres.

We must remember that these trumpets were quite different from the instrument we know as a trumpet in modern times. It was only capable of playing a single primary note and would therefore sometimes be used in place of the *shofar*. We already know from the texts above that they were used for calling of assembly and for breaking up the camp. Similar to the *shofar* it could produce the *teruah*, consisting of several short blasts. As we read in Numbers 10 : 5 and 6 this was the signal to set out and break up camp. Similarly, a sequence like the *tekiah*

was used to signal the community to assemble at the entrance of the temple. If only one trumpet was sounded, then only the head of the family had to assemble. If both trumpets were sounded, then the whole community had to gather.

There is a very close relationship between the *shofar* and the 2 silver trumpets. We read in Psalm 81: 3 that the *shofar* was used to herald the new moon. However, in Numbers 10: 10 this function was performed by the 2 silver trumpets. This is obviously with reference to the original Hebrew text. Because of this close relationship, one might feel that the *shofar* evolved into the trumpet, and rightly so. Both had a similar function. Both are played in the same manner. They sound very similar. Both have a very limited musical range. Three reasons for this evolutionary development spring to mind:

1. Metal trumpets are more consistent in sound and tone. This could vary per the size of the animal horn that was used.
2. Animal horns would crack and break and had to be replaced quite often. A metal instrument would last much longer.
3. Silver or metal trumpets are obviously more sanitary. Animal products tend to become smelly and often have a terrible taste, especially when wet.

And so, it was that the trumpet became widely used. They were sounded in the time of war:

¹² Look, God and His priests are with us at our head. The trumpets are ready to sound the charge against you. Israelites, don't fight against the LORD God of your ancestors, for you will not succeed." (2 Chronicles 13: 12)

they were sounded on joyous occasions:

¹⁰ You are to sound the trumpets over your burnt offerings and your fellowship sacrifices and on your joyous occasions, your appointed festivals, and the beginning of each of your months. They will serve as a reminder for you before your God: I am Yahweh your God. (Numbers 10: 10)

in the presence of the Ark

²⁴ The priests, Shebaniah, Joshaphat, Nethanel, Amasai, Zechariah, Benaiah, and Eliezer, were to blow trumpets before the ark of God. Obed-edom and Jehiah were also to be gatekeepers for the ark. (1 Chronicles 15: 24, NKJV)

Reproductions of the trumpet found in Tutankhamen's grave were used in experiments and this proved that they could produce three different notes of which only two were of any use. The lowest note is slightly dull, but the middle note is of excellent quality and this note will carry over large distances, for example over a battlefield. The third and highest note requires much lip pressure. This is uncomfortable and could even cause injury to the lips of the player. Some uncertainties exist with regards to the trumpet of Tutankhamen's grave, especially because this differs substantially from the Roman type trumpet seen on Titus' Arch in Rome. We are uncertain of exactly which type of mouthpiece would be used and a further uncertainty is the position of the lips of the player, the so-called embouchure.

We know that one can produce different sound overtones of the natural pitch of the instrument by changing the tension of the lips and the manner of blowing. On an instrument of fixed length, that is an instrument that contains no valves, the natural sounds of pitches can be thus produced. If the length of the instrument for example sounds according to C, then the lowest note would be middle C, the next note would be a 5th higher known as G, followed by the next octave which is C, and then E and G above that. The skilled player can vary the pitch of each note very slightly by either raising it a little or lowering a little until the shift comes and it jumps to the next natural pitch. In popular terms this is called deflection or lip bending or even sometimes blue notes. And as any student of the trumpet would know, it would anger your teacher tremendously if you "played between the notes" unintentionally. There also is a difference in tone if the player uses inverted embouchure, with the lips curled inwards, or everted embouchure, with the lips protruding outwards where the opposed vibrating areas would be the soft inner surfaces of the lips.

These trumpets were mostly used as a signalling instrument and for that purpose a single note would be adequate, especially if rhythm was attached.

Biblical reference to silver trumpets total 28 occurrences:

Numbers 10: 2, 8, 9, 10

Numbers 31: 6

2 Kings 11: 14

2 Kings 12: 13

Ezra 3: 10

Nehemiah 12: 35

Nehemiah 12: 41

Hosea 5: 8

Psalms 98: 6

1 Chronicles 15: 24, 28

2 Chronicles 5:12, 13

2 Chronicles 15: 14

2 Chronicles 23:13

1 Chronicles 13: 8

1 Chronicles 16: 6, 42

2 Chronicles : 12, 14

2 Chronicles 20: 28

2 Chronicles 29: 26, 27, 28

3.13.2 Bar Kochba Revolt

Some of the very earliest evidence with regards to trumpets dates from the Bar Kochba revolt. This was fought in about 132 – 136 CE when the Jews of the province of Judaea revolted against the Roman Empire. This is also known as the Third Jewish-Roman war or the Third Jewish revolt. This ended in a decisive victory for the Romans; the Judaeen population was annihilated, it led to the suppression of Jewish religious and political autonomy and worst of all, the Jews were banned from Jerusalem. Even the province of Judaea was destroyed, renamed and merged into the Syria-Palestine province. This however left us with the Bar Kochba Revolt coinage because large quantities of coins were issued in silver and copper by the Jews.



https://www.google.co.za/search?q=bar+kochba+coins&biw=1352&bih=932&source=Inms&tbm=isch&sa=X&ved=0ahUKEwic8vrqs5nQAhWIDMAKH9S9SBXUQ_AUIBigB#imgrc=aWLPQBypahXRnM%3A

Fig 3.99 Bar Kochba coins

These coins contained rebellious inscriptions as can be seen above where the obverse reads “To the freedom of Jerusalem” and the reverse inscription reads “Year two to the freedom of Israel”. The manner in which these coins were produced probably also infuriated the Romans even more. The Jews used foreign, but mostly Roman coins and used a file to remove the design from the original coin. This was often the portrait of the Roman emperor.

The first 10 silver coins and one bronze coin was found in the mid-nineteenth century. By 1881 the number had grown to 43 and many more coins have been found since.

3.13.3 Beth Shean

The mound of Tel Beth-Shean is seen above the Beth-Shean Valley. It is set on the base of the hill and is strategically well protected. The north and south sides are defended. The north and south sides are defended by deep ravines which converge to the east. It is next to the main road from the Jezreel and Harod valleys to the Beth-Shean Valley, even today still part of the international highway. There was an abundance of water and the lands nearby were fertile. It makes this the ideal place for a settlement. Before excavations started the south-eastern side of the tell was higher. It remained in use to the Hellenistic-Roman period and then the main part of the town moved down into the valley. It is only mentioned in the Bible a few times. In 1 Samuel 31: 12 we read, for example, that the Philistines exposed the bodies of Saul and his sons on the walls. 1 Kings 4: 12 tells us that David conquered Beth Shean, but the earliest mention of Beth Shean is found in the topographical list of Thutmose III in the Great Temple of Amon at Karnack dated 1468 BCE.

The first excavations here was from the University Museum of the University of Pennsylvania from 1921 to 1933. Most of the relics found during this period can now be seen in the Rockefeller Museum in Jerusalem. Then excavations were undertaken again from 1989 to 1996; 9 seasons, each lasting 6 weeks. This was undertaken under the direction of A. Mazar who worked under the auspices of the Institute of Archaeology of the Hebrew University of Jerusalem employing workers from the town of Beth-Shean, volunteers and archaeology students of the University.



Fig 3.100 Painted pottery sherd from Beth-Shean.

During the excavations of the Pennsylvania team a small segment of Area R in the north-eastern corner was excavated. This was related to the later phase of Level IX. Here they found evidence of a fierce destruction. Evidence from this area indicates that Level IX was destroyed in the 14th century, perhaps because of the riots which broke out against Egyptian rule. They unearthed a clay bath tub as well as a potsherd which was painted with a human figure. During this period of the 14th century Beth-Shean must have been an important Egyptian settlement providing control over water, adjacent lands and the main highways. This sherd shows a figure with a trumpet in his hands and it is estimated that the trumpet is approximately 60 cm in length while the distal widened portion is about 7 cm in diameter. Alan Rowe in 1940 discovered a broken mouthpiece from a trumpet dated to the end of the 15th century BCE which would be indicative that trumpets were known and used during this

period. A similar silver trumpet was also found in the tomb of Tutankhamen dating back to the second half of the 14th century BCE.

3.13.4 Carchemish

Carchemish was an important town in the northern part of Syria. The site of the town has been occupied since the Neolithic period. It is even mentioned in the Bible, for example Jeremiah 46: 2, 2 Chronicles 35: 20 and Isaiah 10: 9. Carchemish now occupies about 90 ha of land. Strangely enough, 55 ha forms part of Turkey while 35 ha forms part of Syria. The Baghdad railway runs through the middle of the ruins and forms the border between Turkey and Syria. On the Turkish side a military base has been built and therefore no access to that part of the site is now allowed. It has been the site of excavations since 1878, was interrupted by the First World War and excavations ended in 1920 with the event of the Turkish war of independence. Excavation work was once again resumed on the Turkish side in September 2011, after operations to clear up all landmines. An archaeological park will open on this site in 2017.

A large number of Hittite inscriptions and new -Hittite reliefs were uncovered by the British Museum expeditions. They also uncovered ancient sculptures and orthostats / large upright stones, remains of palaces, temples and defensive walls. There is a fabulous mosaic floor found in the Palace of Saigon II who ruled in Syria in 700 BCE. This demonstrates the level of artistry and craftsmanship available at the time.



(http://www.bible-history.com/past/musicians_horn_drum_relief_carchemish.html)

Fig 3.101 Relief of musicians playing a drum, with signalling instrument on left edge.

Braun also classifies the bronze figurines of Anatolia as well as the alabaster relief from Nineveh under the section containing the trumpet.

3.13.5 Arch of Titus

Flavius Josephus had referred to the trumpets made by Moses as a “little less than a cubit in length” and we also know that we are uncertain of exactly how long a cubit was. There is interestingly enough a source which we can use to figure this out. The Arch of Titus was constructed in 81 CE after the death of Emperor Titus. It is an honorary arch situated in Rome to commemorate the victories of Titus, including his siege of and victory over Jerusalem. This arch provides depictions of several artefacts from the Temple period. There is a menorah with 7 branches and 2 trumpets are clearly depicted.



<https://www.khanacademy.org/humanities/ancient-art-civilizations/roman/early-empire/a/the-arch-of-titus>

Fig 3.102 Arch of Titus, Rome, Italy.

This is a relief panel showing the spoils of Jerusalem being brought back into Rome. And if we look at this carefully we can see the silver trumpets and we can use this relief to roughly calculate the size of the trumpets.



<http://www.bible-history.com/archaeology/rome/1-arch-of-titus-bb.html>

Fig 3.103 Reproduction.

On this reproduction of the relief we can clearly see the 2 trumpets in relation to a table-like structure. This is the table for the bread of the Presence. This table was carried by 8 men.

In Exodus 25: 23 we read:

²³“Thou shalt also make a table of shittim wood: two cubits shall be the length thereof, and a cubit the breadth thereof, and a cubit and a half the height thereof. (KJV)

So, we can use the width of the table of one *cubit* as our reference point. But when we look at the depiction both trumpets appear much longer than a *cubit*, rather than less than a *cubit*. If we look at this carefully there is what appears to be an area of wrapping which secures each trumpet to a centre support and the table itself. This would be indicative of poles over which the trumpets were slid and attached to the table for transport. The idea of using internal support for storage and for transport of ancient trumpets is not unique. There also are other examples. A large silver trumpet was found in the tomb of Tutankhamen. This had an internal wooden core that was possibly used for transport and to prevent damage. And then we also have Numbers 4: 12

¹²And they shall take all the instruments of ministry wherewith they minister in the sanctuary, and put them in a cloth of blue and cover them with a covering of badgers' skins, and shall put them on a carrying pole. (KJV)

When stored in such a manner the mouthpiece would have been removed. The trumpets would then be guided down the supporting pole to the level where it caught on the bindings at the level of the leg of the table. If we now take the same image and place the trumpets sideways in relation to the table which we know is one *cubit* in width, we find that the trumpet indeed is a little less than a *cubit*. The trumpet measures about 7/8ths of a *cubit*. We remember that Moses was raised in Egypt and he must have known mathematics well. If we assume that the table was constructed using the Egyptian royal *cubit* of approximately 52.4 cm, this would make the trumpet with the mouthpiece approximately 45 cm in length. Just as Josephus had said, a little less than a cubit.

Due to its hardy manner of construction and its use for signalling, this is one of those more universal types of instruments that would have migrated to other parts of the world and would have remained in use for hundreds of years.



Fig 3.104 The Taking of Pisa – own photograph from the British Museum.

This painting is from the late 1460's and is one of a pair of panels depicting the taking of Pisa by the Florentines in 1406. Florence is visible on the left with the famous town of Pisa on the right. The siege lasted for eight months during which many people died of starvation. On the left of the painting is a mounted trumpet player, signalling on a gold instrument of similar size and dimensions as those described in the iconography of AIP.

3.14 SHELL TRUMPET

This was produced using the shell of *Charonia tritonis nodifera*. The trumpet made from a large sea shell has been in use since the 3rd century BCE. This shell trumpet still is in use in Yemen by fishermen while it is also used in folk dances in Spain. It most probably had been used as a signalling instrument and several examples have been found:

Tel Nami from the Late Bronze Age

Tel Qasile from the 12th – 11th century BCE

Hazor from the 9th century BCE

Shikmona from the Hellenistic period.

The bottom tip of the shell is cut off and then it could be used as a signalling instrument. The shell trumpet found at Hazor had a small hole near the “mouthpiece” and the note created by blowing could be altered by half a tone by placing a finger on the hole.



[https://upload.wikimedia.org/wikipedia/commons/thumb/5/5e/Conch_shell_trumpet%2C_Papua_New_Guinea%2C_20th_century - Royal Ontario Museum - DSC09586.JPG/1024px-Conch_shell_trumpet%2C_Papua_New_Guinea%2C_20th_century - Royal Ontario Museum - DSC09586.JPG](https://upload.wikimedia.org/wikipedia/commons/thumb/5/5e/Conch_shell_trumpet%2C_Papua_New_Guinea%2C_20th_century_-_Royal_Ontario_Museum_-_DSC09586.JPG/1024px-Conch_shell_trumpet%2C_Papua_New_Guinea%2C_20th_century_-_Royal_Ontario_Museum_-_DSC09586.JPG)

Fig 3.105 Shell trumpet with finger hole.

Braun expresses the possibility that the earlier use of the term *shofar* could have included the shell trumpet. These trumpets have been in widespread use over a long period of time, also taking into consideration that the cost of production was free! We read in Psalm 81: 3:

Blow the horn on the day of our feasts, during the new moon and during the full moon.

The trumpet is often connected to the moon cultus and the reference to the horn in Psalm 81: 3 might be in connection to the shell trumpet/horn rather than the ram's horn.

3.15 BELLS OF GOLD



<http://www.maryjnelson.com/wp-content/uploads/2015/07/tabernacletinkling-bells1.jpg>

Fig 3.106 Bells of gold

³³ And beneath upon the hem of it thou shalt make pomegranates of blue, and of purple, and of scarlet, round about the hem thereof; and bells of gold between them round about:

³⁴ A golden bell and a pomegranate, a golden bell and a pomegranate, upon the hem of the robe round about.

³⁵ And it shall be upon Aaron to minister: and his sound shall be heard when he goeth in unto the holy place before the LORD, and when he cometh out, that he die not. (Genesis 28: 33 – 35 KJV)

Bells of gold. n., pl. מְזַבְּצִים, *pa'amōn, pa'āmōnîm, sahab* / פעמן [H6472]; זהב [H2091]. These literally mean:

a “bell” and “to shimmer” or “as gold”. Thus small tinkling metal pendant or little bells.

These verses are the only Biblical references to *pa'amōn/c*, and thus some guesswork has always been necessary. We look to the Talmud for some explanation and we read that on the authority of Rabbi Judah that there should be 36 bells, 18 on each side. The Targum however refers to *zaga* which actually means a nutshell. This could describe small clapper bells or pellet bells, and we know that small clapper bells had been found in archaeological excavations in AIP. Pellet bells appear to be the more acceptable case and have been found more commonly in Mesopotamia, rather than in AIP.

As described in Exodus 39 these were sewn onto the hem of the priestly robe between pomegranates. A small clapper inside the bell would strike the casing as one moves and this would create a tinkling sound when walking.

Modern-day bells might have more than one use, but the gold bells found in the Hebrew texts referred to only this one usage. As Aaron and his sons walked around the bells would sound and act as a warning signal to prevent the death of the priests when entering or leaving the chamber of the Most Holy.

Biblical references to bells only total 7.

Exodus 28: 33, 34

Exodus 39: 25, 26

3.16 LOCUST

[Whirring insects will take possession of all your trees and your land's produce.](#)

(Deuteronomy 28: 42)

[Ah! The land of buzzing insect wings beyond the rivers of Cush](#) (Isaiah 18: 1)

Locust: n., *chagab* / חָגַב [H2284]. There is some connection with the cymbal in that it appears that a pair of platelike membranes were used to recreate the sound of the locust.

3.17 BELLS|OF HORSES

[On that day](#), the words
[HOLY TO THE LORD](#)
[will be on the bells of the horses](#) (Zechariah 14: 20, NKJV)

This text in Zechariah is the only reference to bells worn by a horse, and also specifically inscribed. From the Hebrew, we find the word *m^atsillōt*. The root of this clearly is *tsil*, here translated as “bells”, but we have already confirmed this to refer to “cymbal”. In spite of bells being commonly associated with horses, (prof C Scheepers, personal communication), this reference most likely refers to some type of a round, plate like object, more likely a so-called horse amulet or horse brasse, rather than a bell as translated here. They would hang from the harness of the horse and would jingle and clash together as the horse moved. The Targum uses כְּרוּבַת, *k^arūvat* which translates as “wrap” or “blanket”. Both the LXX and Vulgate use “bridle” or “bit” which is less helpful. However, if these were smallish rounded and thin plates of bronze, then these could even be embroidered onto a horse-blanket. Certainly these would make a clanging noise with the movements of the horse.

3.18 CYMBAL CLAPPER



http://www.musicofthebible.com/images/sm_cymbal_clappers.gif

Fig 3.107 Clapper

Praise him upon the loud cymbals: praise him upon the high sounding cymbals of *teruah*.
(Psalm 150: 5, NKJV)

Cymbal clapper. n., 1. This is a pair of small cymbals individually mounted on flexible prongs that could be shaken. This would cause the cymbal plates to strike each other consecutively in a rapid manner. These require very little skill to play. 2. Cymbal castanets.

The Hebrew reference to *teruah* refers to a rapidly oscillating rhythmic pattern of playing. There are 2 specific references that should be taken into consideration.

2 Samuel 6: 5 reads

[David and the whole house of Israel were celebrating before the LORD with all kinds of fir wood instruments, lyres, harps, tambourines, sistrams, and cymbals](#)

and read in conjunction with Psalm 150: 5 most likely refers to a cymbal clapper and not finger cymbals.

3.19 CORNET

Daniel 3 refers to several musical instruments. This passage in the King James version of the Bible refers to the “cornet”, later and more commonly translated with “trumpet”.



<http://mogensandresen.dk/history-brass-instruments/ancient/>

Fig 3.108 Cornets from the cave of King Tutankhamen

That at what time ye hear the sound of the **cornet**, flute, harp, sackbut, psaltery, dulcimer, and all kinds of musick, ye fall down and worship the golden image that Nebuchadnezzar the king hath set up:

⁶And whoso falleth not down and worshipping shall the same hour be cast into the midst of a burning fiery furnace.

⁷Therefore at that time, when all the people heard the sound of the **cornet**, flute, harp, sackbut, psaltery, and all kinds of musick, all the people, the nations, and the languages, fell down and worshipped the golden image that Nebuchadnezzar the king had set up.

⁸Wherefore at that time certain Chaldeans came near, and accused the Jews.

⁹They spake and said to the king Nebuchadnezzar, O king, live for ever.

¹⁰Thou, O king, hast made a decree, that every man that shall hear the sound of the **cornet**, flute, harp, sackbut, psaltery, and dulcimer, and all kinds of musick, shall fall down and worship the golden image:

¹¹And whoso falleth not down and worshipping, that he should be cast into the midst of a burning fiery furnace.

¹²There are certain Jews whom thou hast set over the affairs of the province of Babylon, Shadrach, Meshach, and Abednego; these men, O king, have not regarded thee: they serve not thy gods, nor worship the golden image which thou hast set up.

¹³Then Nebuchadnezzar in his rage and fury commanded to bring Shadrach, Meshach, and Abednego. Then they brought these men before the king.

¹⁴Nebuchadnezzar spake and said unto them, Is it true, O Shadrach, Meshach, and Abednego, do not ye serve my gods, nor worship the golden image which I have set up?

¹⁵Now if ye be ready that at what time ye hear the sound of the **cornet**, flute, harp, sackbut, psaltery, and dulcimer, and all kinds of musick, ye fall down and worship the image which I have made; well: but if ye worship not, ye shall be cast the same hour into the midst of a burning fiery furnace; and who is that God that shall deliver you out of my hands? (Dan 3: 5 – 15, KJV)

It is difficult to find any distinction between the term of cornet and of Ramshorn. The difference apparently is principally in the shape. The cornet is supposed to have less of a curved shape than the Ramshorn and trumpet.

3.20 LESSER KNOWN INSTRUMENTS AND FIGMENTS

There are some references to instruments about which we still are uncertain.

3.20.1 *Alamoth*

1 Chronicles 15: 20 (KJV):

²⁰ And Zechariah, and Aziel, and Shemiramoth, and Jehiel, and Unni, and Eliab, and Maaseiah, and Benaiah, with psalteries on *Alamoth*;

Alamoth / 'ălāmôṭ / אֱלָמוֹת is possibly derived from the noun meaning “the girl” or “a secret”. It also remains to be one of the unclear musical terms found in the Bible. Translated as “soprano voices of young women” is sometimes inferred. The singular form of this word, *almah*, means “a young women” and therefore we make this connection. The alternative is that this could be an instrument of high soprano pitch. There are however very few theories in existence that regard this term as a musical instrument (Kolyada 2014).

3.20.2 *Gittîṭ*

Gittîṭ / גִּתִּיט is an unsure musical term, possibly referring literally to “that which is from the town of Gath”; as a derivative from the verb *niggēn* “to touch the strings”; as a derivative of the noun *ga* “a winepress”. And so we surmise that it could represent a instrument or possibly a group of instruments from the Palestinian town of Gath, or even possibly describing the manner in which a stringed instrument should be played. In the first book of Samuel we read about King David and his stay in the land of the Philistines. In fact, with Achish, king of Gath. This is quite easy to understand that he could have taken back with him the local kind of lyre, which makes the first connection with the term the most probable. David most likely would not have taken a female choir back from Gath as sometimes claimed. This was considered sacrilegious as only the wives and daughters of the designated Levite singers would be allowed to take part in any ceremonial right within the cultus.

3.20.3 *Mahol*.

The Hebrew word *māhōl* is from the verb *hûl* and it has an Arabic equivalent *hala'/halaqa* meaning “to whirl, to spin, to dance in a circle”. In English it is commonly translated as dance, supported by the Septuagint, and as exists in Modern Hebrew. In spite of the clear origin of the word many translations using the name of an instrument is still to be found, the most common probably with reference to the *chalil*.

We meet this apparent “instrument” in Biblical texts like 1 Samuel 18 : 6

4 And it came to pass as they came, when David was returned from the slaughter of the Philistine, that the women came out of all cities of Israel, singing and dancing, to meet king Saul, with tabrets, with joy, and with instruments of musick (KJV)

5

and reference to this is also found in Psalm 150: 4 (KJV):

⁴Praise him with the timbrel and dance: praise him with stringed instruments and organs.

When one looks at the translation of 1 Samuel 18: 6, then the words “singing and dancing” originates from

lāshōr v^o ham^o chōlōt,

of which the literal translation is to sing and the *māchōls*.

When previously investigating Exodus 15: 20 with regards to the toph, we conveniently left the *māchōl* translated as dance. However, Psalm 150 lists the instruments used in order to praise God. When we carefully read Psalm 150 we will realise *māchōl* is the only term NOT translated as an instrument. If we look at the listed instrument further, we realise that the *chālil* is missing from this list – surely an instrument one might expect to be listed when describing instruments used for praise and at festive occasions. Both *māchōl* and *chālil* originate from the same linguistic root word *chāl/ chōl* which we have previously shown to mean hollow or maybe pierced. When the verses of Exodus 32: 19 and Psalm 30: 12 are read within context it is clear that it cannot be identified as a woodwind instrument.

wayəhī ka- 'āšer qārab 'el-hammaḥānē wayyar 'et-hā'ēgel ūmahōlōt!
וַיְהִי כַאֲשֶׁר קָרַב אֶל־חַמְחַמָּה וַיִּרְא אֶת־הָעֵגֶל וּמַחֲלֹת

And it came to pass, as soon as he came nigh unto the camp, that he saw the calf, and the dancing

Exodus 32: 19 KJV

One explanation for the translation into the English term “dancer/s” is because both the LXX and the Vulgate translate this as *choros*, similar to the English “choir”. And we know that this would rather not be a second reference to singers and thus rather to dancers. The connection to hollow might infer to round, i.e. round dances, rather than dances in a line or a square. What remains from this is probably the dualistic nature of the word, perhaps due to translation, but perhaps due to the intention of the word changing over time. Surely, Psalm 150 suggests that this might be an instrument, but for e.g. both 2 Samuel 6: 14 and 2 Samuel 6: 16 is read as David that “danced with all his might” and “leaping and dancing”, suggesting that the term refers to dancing.

Other troubling references with regards to Exodus 32: 19 exist, when we read about Moses returning from the mountain with the ten tablets containing the Ten Commandments.

ha'ēgel ūm^a chōlōt indicates calf and *machols*, but we clearly also read

vayar, indicating that Moses “saw” rather than “heard”.

Clarification of the famous letter of Jerome sent to Dardanus is necessary at this stage. It is said that this letter was written by Saint Jerome to the Gallic Christian known as Dardanus. The letter contains several illustrative drawings and the letter apparently explains the musical instruments mentioned in the Bible. It depicts the *chorus* as a trumpet type instrument with a central circular ring, which would allow air to go around on both sides. It is disputed whether many of the instruments described really existed as such, but what is certain is that there is no other proof of their existence. The letter dates from about 800 CE, many centuries after the life of Jerome, who died in 420. It thus must be a forgery and the illustrations therein regarded as such.

Biblical references are found in:

Exodus 15: 20

Judges 21: 21

Psalm 30: 12

Psalm 149: 3

Jeremiah 31: 13

Song of Songs 7: 1

Lamentation 5: 15

Judges 11: 34

Psalms 150: 4

Jeremiah 31: 4

3.20.4 *Nagînôt*

Nagînôt / נְגִינֹת is one of the very uncertain biblical terms. This is compounded by the fact that it is found in several different grammatical forms in the Tanakh. There are several biblical references to this term translated as a stringed instrument, although we are unsure about exactly which instrument. It could be used as a generic name or as a name for a group of stringed instruments. In other instances, the contextual interpretation of the term *naginôt* is more appropriately translated as “a song”.

We now more or less accept that it is defined as in musical term, but it could refer to a (group) stringed instrument, or possibly meaning to play on a musical instrument.

3.20.5 *Sheminith*

Sheminith / שְׁמִינִיֹת. Reference to this is found in Psalm 6. Strong’s Exhaustive Concordance explains this as probably an 8-stringed lyre. It could also possibly refer to an instrument either an octave lower or higher than the normal, but even of this we are unsure. The link made to eight or eighth is unproven and we have no way of knowing whether it refers to people singing in octaves or whether it implies that women sang parallel with the men. We don’t even know for certain that the seven note scale as we know it today existed in ancient Israel.

3.20.6 *Viol.*



<http://www.orpheon.org/OldSite/Seiten/education/ShapeUpEnglish.htm>

Fig 3. 109 Viola da gamba

This is an instrument that is played with a bow and no such instrument existed in biblical times. The viol was only invented in Spain around 1470 CE while the bow was invented slightly earlier, around 800 CE. It looks very similar to a cello and while playing it was held between the legs. While the cello has four strings this had six strings. It is possible that this term was chosen due to the confusion created when Jerome translated to *lyra* and not to the usually expected *psalterium*. In the King James version of the Bible we find more references to the viol:- Isaiah 14 : 11, Isaiah 5 : 12. This is complicated by the fact that the Hebrew term *nēvel* does not at all appear in either the Septuagint or the Vulgate or the Targum. In other verses translated as viol none of the textual sources agree

	Amos 5: 23	Amos 5: 32
English (KJV)	Viol	Viol
Hebrew	nēvel	nēvel
Targum (Aramaic)	kinnōr	nēvel
Greek LXX	Instrument/organon	organon
Vulgate	lyra	psalterium

One of the explanations for the use of the term viol, is that when translators met an unfamiliar word, they substituted this with something familiar. This used to be fairly common practice. Viol, at all levels appear to be a misnomer.

Another very interesting text is found in Amos 6: 5 which in the KJV also refers to the viol

...the sound of the viol.... (Amos 6: 5)

But it would be important to place this text in context as explained by Montagu (1992). The sentence already begins at verse 1 and is only concluded in verse 5. The essence of this reads as follows:

¹ Woe to them that...⁵ that chant to the sound of the viol, and invent to themselves instruments of musick, like David (KJV)

Where the English instruments of musick

In Hebrew *kālēy-shīr*, the tools of song

In Targum *manei z²mara*, the playing of instruments/music

In LXX *phonē tōn organōn*, the sound of the instrument

In Vulgate *vasa cantici*, tools of song

And which can be seen in conjunction with 2 Chronicles 7: 6, keeping in mind that Chronicles was written much later:

And the priests waited on their offices: the Levites also with instruments of musick of the LORD, which David the king had made to praise the LORD

Both these texts leave the impression/inclination that the instruments were invented by David. It is accepted that people, even shepherds could make their own instruments, but there is no other or earlier Biblical reference that David invented or made instruments himself.

3.20.7 Cittern

In the apocryphal book of Maccabees 4: 5 we read about the rededication of the Temple. This is the only reference to citterns. The Temple orchestra was involved:

Look, at what time and what day the heathen had profaned it, even in that was it dedicated with songs, and citherns, and harps, and cymbals. (KJV Apocrypha)

This description of the Temple orchestra is a little different from other Biblical references. There is no problem with “songs” as this comes from the Greek *ōdais*, odes or the Latin *canticis*. The cittern was a very popular instrument during Elizabethan England – a time which corresponds to the origin of the King James Bible. It is a string instrument although the strings were made from wire rather than gut. The back is flat and it was plucked. As an instrument it was sturdier than the lute; and because the strings were of wire, it kept its tuning much longer (than a lute which required several minutes of tuning with every repetitive use).



<http://www.tredwellinstruments.co.uk/capo-for-an-english-cittern/>

Fig 3.110 English cittern

It thus was a fairly popular instrument also used for informal purposes. It apparently hung against the wall in many a barber shop in Elizabethan times, ready to be taken down and played. Montagu (1992: 2019) points out that this simply is the problem of translating two terms for the lyre, kithara and kinyara. The same problem is to be found in Isaiah 5: 12 and in that instance the term viol is used. Why cittern is used in this instance relies on a bit of speculation. Apparently, while the Biblical text of Isaiah was translated at Oxford, the Apocrypha were translated at Cambridge, and so by implication, the more respectable viol was used in Oxford while the barber-shop cittern was used at Cambridge.

3.20.8 Shields

They decked also the forefront of the temple with crowns of gold, and with shields; and the gates and the chambers they renewed, and hanged doors upon them. (Maccabees 4: 57)

The reference to shields is of relevance in this text. In this instance the shields probably were those from the conquered Greek armies. They were hung as trophies. The pertinent question here is not about the origin or meaning of the word – these definitely were shields – but the question rather would be whether they were struck? The gong was known in ancient Greece and there is evidence, both Greek and Roman, of using the shield as a gong. The Korybantic dance relates the story of how the Korybantes danced and struck their shields with their swords in order to hide the birth of Zeus from his father, who would (apparently) surely have eaten him had he known of his birth.



<https://za.pinterest.com/pin/504614333227365756/>

Fig 3.111 Melkart shield

The Melkart Shield dates from about the 8th or 9th century BCE and it is kept in the museum at Heraklion. The central male figure is that of Zeus. He is flanked by the *kourētes/korybantes* who in Greek mythology are spirits who were appointed to guard Zeus, beating on their shields. Beating ones shield has survived into more modern times and the Zulus still beat their shields in order to scare off and intimidate the enemy.

And thus, if a shield was perhaps hung and beaten, it would act as a gong. It would not produce the resonant sound made by the modern gong, but a duller “dong” sound. Nevertheless, still a gong.

3.20.9 Dulcimer/Psaltery/Zither

This is an instrument described by Engel (1870) and he categorically states that it existed in ancient Asia. Very little reference to this instrument is now found in modern scholastic work. It is a box like instrument with several strings, even several octaves.



https://www.google.com/search?q=dulcimer&client=firefox-b&dcr=0&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjR0cDVnPbZAhUhcMAKHWMeClgQ_AUICigB&biw=835&bih=728#imgrc=TUmy-kPpi-82tM:

Fig 3.112 Hammered Dulcimer

The reason why this is now ignored by modern scholars is uncertain. It originated as the *Santur*, some 2000 years ago (New World Encyclopedia, Oct 2017 at <http://www.newworldencyclopedia.org/entry/Dulcimer>). Wood carvings depicting similar instruments being played with little hammers have been dated to about 1500 BCE and these were known over a large area extending from Greece to Mongolia. It is difficult to build and goes out of tune quite easily and quickly. It nevertheless is an interesting instrument and very much looks like a predecessor of the piano. It is played by striking the strings with hammers, and although scarce still is found in countries like Hungary where it was played by the gypsies. I was fortunate enough to see this played on several occasions with the musicians displaying amazing technique. It most likely fell into disuse because of the rapid development of the piano which is a far superior instrument.

The single pictographic evidence produced by Engel comes from a relief which is in bad condition and even that presents several questions regards construction. It does however appear that the strings were struck with a little hammer and the strings are in a parallel orientation, although running in a different orientation. We can furthermore refer to Daniel 3: 5, here from nonetheless other than the Authorised King James Version of the Bible:

that at what time ye hear the sound of the cornet, flute, harp, sackbut, psaltery, **dulcimer**, and all kinds of musick, ye fall down and worship the golden image that Nebuchadnezzar the king hath set up

This we can compare to the JPS Tanakh

3: 5 That at what time ye hear the sound of the cornet, flute, harp, sackbut, psaltery, **dulcimer**, and all kinds of musick, ye fall down and worship the golden image that Nebuchadnezzar the king hath set up:

which is different from the New King James Version and many other more modern translations which names only 5 instruments, leaving away the dulcimer:

⁵ *that* at the time you hear the sound of the horn, flute, harp, lyre, *and* psaltery, in symphony with all kinds of music, you shall fall down and worship the gold image that King Nebuchadnezzar has set up;

None of the modern scholars make much mention of the dulcimer, other than maybe in passing, much like Sachs (1940) who only mentions the "ancient 10 stringed psalterium" in passing as he discusses the origins of the harp. This group of instruments of zither-like construction would also include the psaltery. Interestingly enough, is that this group of instruments can be played by plucking the strings with the fingers, using a plectrum, hammered as when striking the strings with a small hammer or later, even bowed. Reference had been made to the Greek verb *psallo* from which *psalterion* is derived. These instruments, loosely grouped together under "zither" are all very similar in construction. The matter becomes more confusing when we refer back to the King James Version of the Bible and find several regional terms here translated with "*psaltery*" or "*psalteries*".

- *keli*, כלי, Hebrew: is translated from Psalm 71: 22 and 1 Chronicles 16: 5.
- *nevel* נבל Hebrew: by now a well-known term is found in several instances for example 1 Samuel 10: 5, 2 Samuel 6: 5, as well as multiple times in Chronicles and Psalms.
- *Pesanterin* from each Aramaic original in Daniel 3: 5, 7, 10 and 15.

3.20.10 **Shushan**

The Hebrew term *šūšan* is another of the unclear terms that we find in the Bible. We find this word in the heading of several Psalms and there is no agreement as to how this should be interpreted and translated. We have previously dwelled on the possible connection with lilies and when this

instrument is regarded as a bell-shaped instrument which resembles a lily, it appears to make some sense. The whole matter of this is not quite as clear-cut and adds to our list of terms where we have to concede defeat.

3.21 FOREIGN INSTRUMENTS

Then there is a collection of instruments the Israelites came into contact during their captivity in Babylon.

3.21.1 *Mashroki*

Mashroki is derived from the word “hiss” or “whistle”. It probably represents some type of pipe or whistle.

3.21.2 *Sumphonia*

Sumphonia is sometimes possibly incorrectly associated with a Greek word meaning drum. A more likely probability is that it came from the Greek word *sumphonia* which means “in unison”. It therefore could refer to the whole orchestra or the orchestra in totality. It is very unlikely that this term refers to a bagpipe as some people believe or that it refers to a dulcimer.

3.21.3 *Pesanterin*

Pesanterin, *pasantērîn*, Aramaic, is only found in this plural form and is of uncertain origin, possibly Aramaic or possibly from the Greek word *psalter*, with the ancient Greek word *psalterion* phonetically sounding very similar, even to the untrained ear. Migration of musical instruments and their relevant terminology happened quite often in ancient cultures, as previously demonstrated. It is suggested that this could be the name of a Chaldean a harp-like instrument, which was adopted by the Greeks and developed further. It is often translated such as in Daniel 3: 5, 7, 10 and 15, where it is described as an ensemble of instruments of King Nebuchadnezzar II of Babylonia. *Psalterion* on its own, we have already

seen connected to the Hebrew term *nēvel*. The result of this is the theory that the *psalterion* and the *nēvel* is one and the same instrument. It is not. The term psalterion has been described and translated as a Greek psalterion, a woodwind instrument, a triangular shaped instrument with strings, etc., a lyre, a dulcimer, a kind of sistrum, a horizontal harp, and an angular harp. Kolyada (2014: 104) confirms that the instrument must have been known to the Assyrians and points to the stone plate from Nineveh, dated about from the 7th century BCE which depicts a musician who is holding a stick and apparently playing on an instrument with eight strings resembling the *pesanterin*. This view now is in dispute. The plate possibly depicts a horizontal harp played with a long plectrum.

And so some confusion still remains. It could have been a string instrument similar to a dulcimer. In this instance strings would have been stretched over a square or trapezoid sound box and it would have been played with sticks. On the other hand it could have been an instrument similar to a harp, then plucked with the fingers.

Having said all that, it is interesting to note the opinion of Sendrey (1960: 162) was specifically chosen and used in the biblical book of Daniel. It places this instrument within a pagan context used during a pagan ritual, which is in contrast to the Jewish spiritual culture.

3.21.4 *Sabekka*

Sabbeka / שַׁבְּכָא. Once again, the origin of this Aramaic word is uncertain. It is related to the Latin word *Sambuca* and the Greek σαμβύκη. In the English translated King James Version of the Bible we read of the sackbut. This again appears to be a misnomer because sackbut is the English word for trombone. Perhaps the confusion exists due to the Aramaic word *sabb⁹chā*. It is possible that the translators were in doubt as to its meaning, and chose something that sounded familiar and similar. This instrument again forms part of the orchestra of the Babylonian king Nebuchadnezzar as we find in Daniel 3. As such it probably belongs to the Babylonian pagan culture even though it might have been a type of harp, possibly angular, thus stringed and plucked. An Aramaic based name possibly suggests an instrument with 7 strings. And then there also is a Roman word referring to the name of a tree. This could possibly have been used in production of the instrument. However, this definitely does not represent a so-called trombone. The LXX translate this as *sambykē*, and the Vulgate uses *sambuca*, both probably more correct. Nevertheless, much confusion again exists, other than the fact that it is accepted as a string instrument. Translations have been inconsistent including all types

of stringed instruments, but even a drum or a tambourine or a flute or a double reed flute. Even the oboe or bagpipe/sackbut can be found in some translations. It must be remembered that although the book of Daniel was written in Aramaic, it was written in approximately the second century BCE, while the narrative already took place in the sixth century BCE. The second century BCE origin of the book places it within the Hellenistic period and thus would probably represent and reflect musical practices known during the Hellenistic period. There is no similar modern Hebrew musical term.



<http://www.mfa.org/collections/object/bow-harp-4755>

Fig 3.113 African bow harp

3.21.5 *Qaytros*

The Aramaic word *qaytros* originates from Greek κιθάρις. It is a stringed instrument, most likely plucked. The phonetic pronunciation is very mindful of “guitar” or the Afrikaans word “kitaar”, and it forms part of the triad of the “Nebuchadnezzar orchestra” (see above), as read about in Daniel 3. This instrument apparently is not known within the Israelite musical culture and we once again accept that this term was specifically used to create a contrast between the two surgical Jewish music and pagan baloney and music.

3.22 EXAMPLES OUTSIDE PALESTINE

3.22.1 Introduction

We know that ancient Israel/Palestine did not exist in a cocoon. Aspects of everyday life were influenced by the nations around Israel in the Ancient Near East. We have touched on some

outside influences and influences from Mesopotamia, Greece, Egypt and later the Romans would make a major study on its own.

Scribal schools were well known in Mesopotamian culture where the main language taught was Sumerian and the main form of writing was cuneiform script. Akkadian was the important language of literature, education, and examination. In later periods Akkadian and other languages played an increasingly important role. Music and musical instruments formed an integral part in Sumerian and Akkadian texts and obviously had to be taught at these scribal schools. The scribe had to study the most important terms for musical instruments, for musical theory, the names of the parts of different instruments, as well as the names for different types of songs and for divisions of songs.

Mesopotamian music was highly technical and therefore professional musicians existed in Mesopotamia. The first group is called *nar* which denotes “musician” or “singer”. This artist was active at the Royal Court and mostly connected to the palace. To his disposal, he had both the bass lyre as well as the smaller higher pitched lyre and the drum. The second type of musician was called *gala* which is commonly translated as “lamentation singer”. It is often suggested that the *gala* was a counter-tenor and sometimes even a *castrato*. The *gala* played the harp and the metal drum.



<http://www.ancientpages.com/2016/10/01/lugal-anne-mundu-king-of-the-universe-and-powerful-leader-who-restored-sumer-to-its-former-glory/>

Fig 3.114 Relief from Adab with horizontal harp, 2800 BCE.

3.22.2 Adab

This relief was found at Adab. Adab was an ancient Sumerian city, located at the site of modern Bismaya in Iraq. It was occupied from at least the Early Dynastic Period. Today only a group of mounds remain. The first excavations took place in 1885 and continued to approximately 1904. The relief shows a horizontal harp in the left bottom. This particular type of harp/*balag* was known from the early third millennium BCE. This type of harp was played with a plectrum and the fingers were used to dampen the sound from the strings that must not sound.



(<http://hisd.tors.ku.dk/timeline02/>)

Fig 3.115 Stele from Ebla.

3.22.3 Ebla

Ebla was one of the earliest kingdoms in Syria. It was excavated from 1964 to 2011. The Stele found here dates to approximately 2400 BCE. It depicts an offering scene with a large drum. The drum was an important instrument in religious cultus and marked important moments in the ritual.



<http://www.waa.ox.ac.uk/XDB/tours/mesopotamia7.asp>

Fig 3.116 Ur-Nanshe: singer.

3.22.4 Mari

Mari lies on the Euphrates River about 80 km downstream from the Khabur confluence. Mari was well placed for trade between the Mediterranean and the Persian Gulf. It was inhabited from the fifth millennium and destroyed in 2350 BCE. This little statue is unusual. The hair and appearance is that of a *nar*. The archives of Elba list the names of musicians from Mari, indicating that they were sufficiently famous to be known afar. She is inscribed with her name Ur-Nanshe, shown in this seated position playing the harp, which has been broken away.



<http://chs.harvard.edu/CHS/article/display/6330>

Fig 3.117 Sumerian Bull-headed lyre with 'emergent' bull. Stele-fragment, Lagash, before 2100. Paris, Louvre AO 52.

3.22.5 Stele of Gudea

This represents a fragment of the Stelae of Gudea, who was the ruler of the city-state Lagas, dated to approximately 2150 BCE. It obviously depicts musical scenes with a large bovine-type lyre obviously depicted in the bottom part. Cylinder B X V was also uncovered here and describes similar activities as:

19. That the courtyard of the Eninnu may be filled with joy,
20. that together with the kettledrums, ala-instruments
and harps may sound in perfect concert
21. and that (Ningirsu's) beloved harp,
the Dragon-of-the-Land,
22. may walk in front of the procession.

Noteworthy is the appearance of a bull at the base of the instrument, very mindful of the bull type sound box found in ancient Palestine instruments.



(<https://www.studyblue.com/notes/n/art-history-335-test-1/deck/12172265>)

Fig 3.118 Votive plaques from Mesopotamia.

3.22.6 Votive plaques from Mesopotamia

These votive (offered or consecrated in fulfilment of a vow) plaques date from 2800 - 2000 BCE and originates from Mesopotamia. These mostly depict drinking scenes and interestingly enough either a harp or a lyre often forms a part of these. Once again, with reference to the plaque on the right which is from the temple of Ninhursag in Susa, there is a drinking scene with a bow shaped harp, a rectangular sound box in the shape of a bull, similar to the bovine type instruments found in ancient Palestine.



<https://twitter.com/sermedalwan/status/758716155892760576>

Fig 3.119 Terracotta reliefs with harp player, Eshnunna, 1800 BCE.

3.22.7 Tell al-Asmar

Eshnunna is the modern Tell al-Asmar, an ancient city just north of Baghdad in Iraq. It was occupied before 3000 BCE, expanded, was conquered by Hammurabi, fell into decline and was abandoned in the next century. Musical ensembles from this period used both the vertical and horizontal harp. We can read this in a hymn to King Iddin-Dagan of Isin which describes an orchestra before the statue of the goddess Inanna:

- 35. They play the silver algar-instrument (horizontal harp?) before her
- 38. The holy drum, the holy timpani, they beat before her.
- 41. The holy (vertical) harp, the holy timpani, they play before her.
- 79. The tigi-instrument (large lyre?), the kettle drum, the ala-instrument (drum?)
make a loud noise



(<http://moeandirene.blogspot.co.za/2013/04/museum-of-anatolian-civilizations.html>)

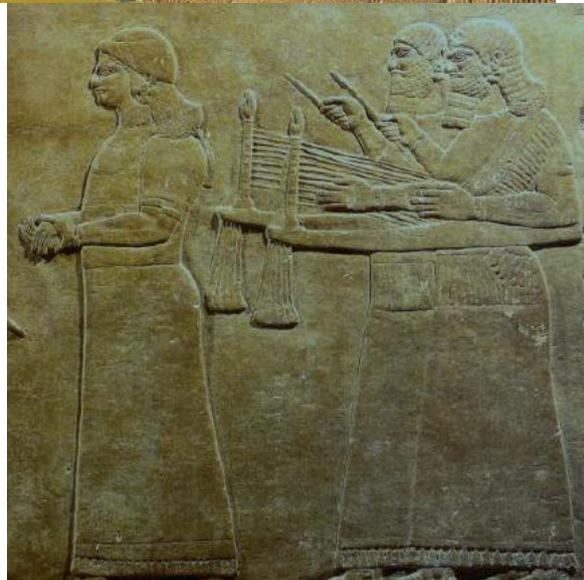
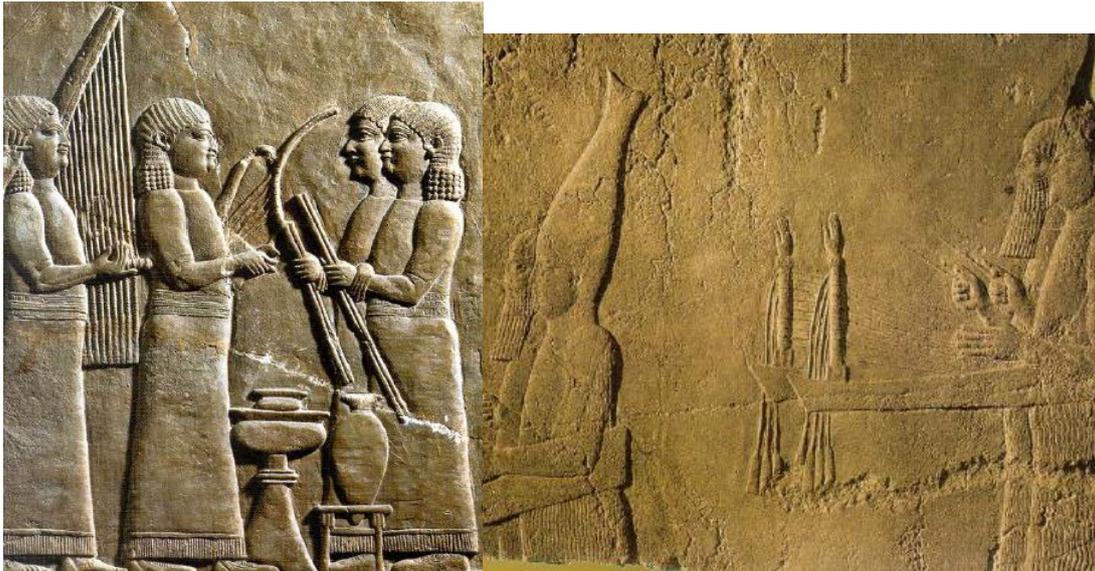
Fig 3.120 Reproduction from Vase from Inandik.

3.22.8 Inandik

The Vase from Inandik is a very famous archaeological object. These Huseyinded vases were early found at Hyseyindedede Tepe in Turkey. They were decorated with reliefs. Two of them were nearly complete and able to be restored. It also has depictions of the lute and tambourin(?) in an ensemble.

3.22.9 Nineveh

Sannacherib was the king of Assyria from 705 - 681 BCE. He is most famous for his military campaigns against Babylon and Judah as well as for his building projects. His most notable achievement possibly is the capital city of Nineveh which also housed his palace.



[\(http://www.ancientlyre.com/lyres_of_the_ancient_world/\)](http://www.ancientlyre.com/lyres_of_the_ancient_world/)

Fig 3.121 Reliefs from the Palace of Sennacherib.

The first image depicts an orchestra with imitations of Syrian type lyres played by courtiers. There also are two musicians with double-reed wind instruments. The second image again confirms the presence of the horizontal type harp, while the third image is that of a singer in front of harp musicians. The harps appear similar, are beautifully fashioned, are struck with a plectrum and the fingers of the left hand dampen the sound of the strings that are not supposed to sound. The evolution of the vertical as well as the horizontal harp can be observed on the reliefs of the Palace.



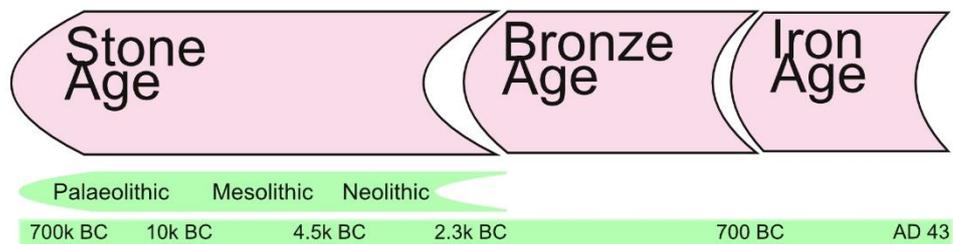
http://realhistoryww.com/world_history/ancient/Elam_Iran_2.htm

Fig 3.122 Orchestra after the Battle of Ulay.

3.22.10 **Battle of the river Ulay**

The battle of the Ulay river took place in 653 BCE and took place between the invading Assyrians under King Ashurbanipal and the kingdom of Elam. It was a decisive Assyrian victory. The battle is well-known because of the carvings found in Ashurbanipal's palace in Nineveh. There are multiple images of war with the torture and death of countless soldiers. The head of Teumman, the Elamite king, is depicted in nearly every panel. This portion of the relief shows an Elamite orchestra. It depicts multiple players of the harp, of double-reed wind instruments and of the tambourin. Interestingly enough is the large size of the harp which all contain more than 30 strings.

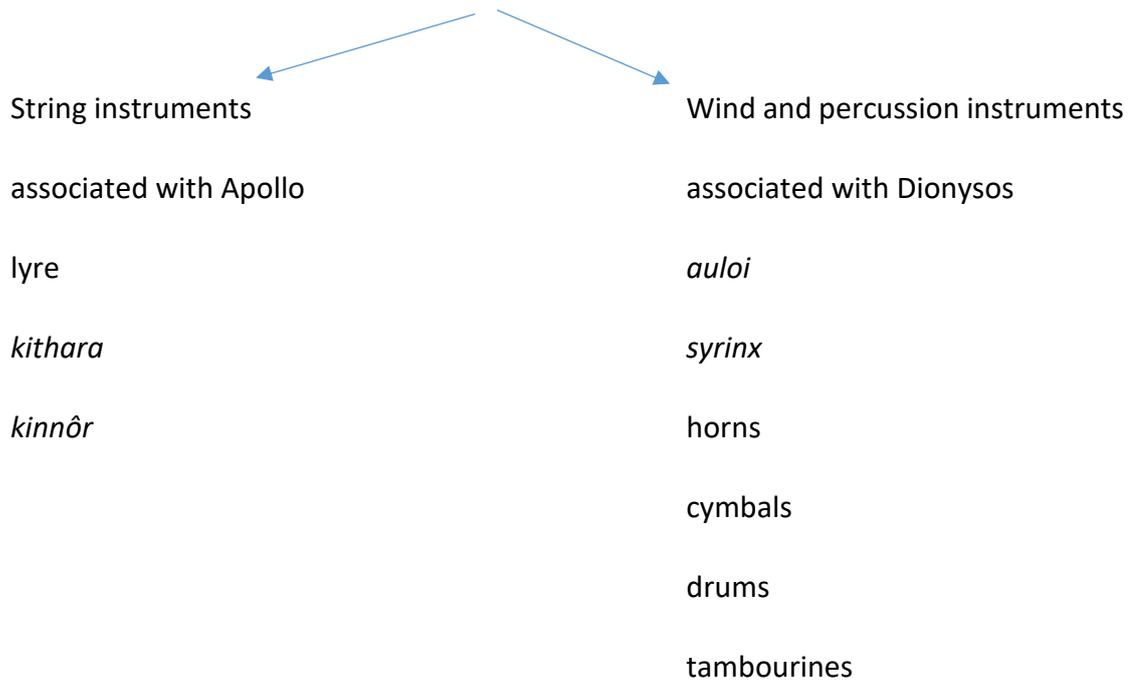
3.23 ALSO FROM ISRAEL



3.23.1 Introduction

We have taken some time to look at artefacts and data referring to Ancient Israel and found in this area. There exists Roman and Byzantine mosaics within Ancient Israel depicting musical instruments and musicians. Perhaps these are not purely Palestine at heart, this a brief indication of what the Israelites must have come into contact with, or perhaps the other way around, what the Romans came into contact with when they moved into Israel. It is well worth taking a look at musicians and musical instruments appearing in the mosaics of Roman and Early Byzantine Israel. We know that the civilisations of and around the Ancient Near East had a rich musical culture. When one thinks about the Ancient Near East the obvious knee-jerk seems to point towards Greek musical instruments, but Greek sources attest to the fact that many of their own musical instruments were adopted from ones already earlier known in the Near East. These include the *nebel*, *kinnôr*, *tympana*, and cymbals. Interestingly enough, within Greek mythology the *kinnôr* (or the Greek equivalent of the *kithara*) is associated with the god Apollo; cymbals are linked with the gods Cybele and Dionysus. And so it is fact that musical instruments in Roman and Byzantine mosaics would resemble the earlier counterparts found in the ancient civilisations of Israel, despite the great time gap.

Musical instruments depicted in the mosaics of ancient Israel with reference to the Roman and Byzantine periods can be divided into groups:

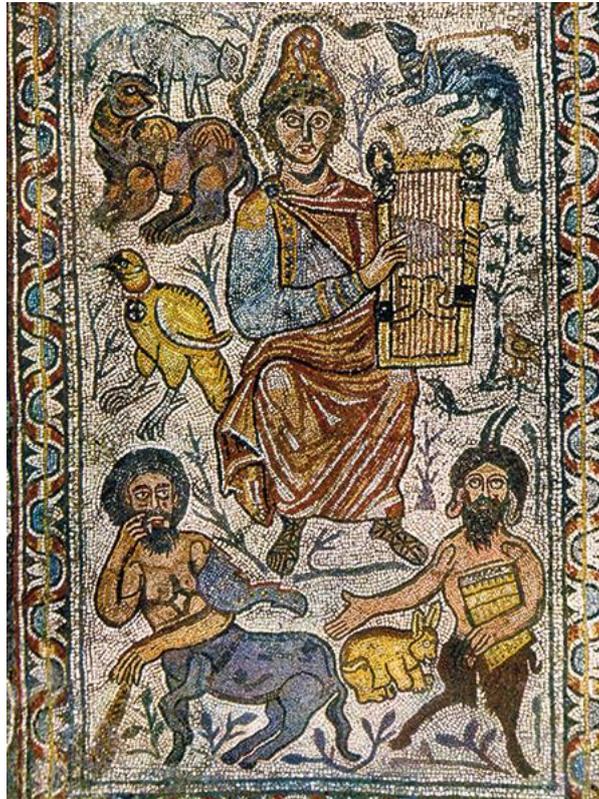


It is important to realise that there is a difference in the effect of the music of the two groups. The first group would produce harmonious music while the other group would create frenetic, orgiastic, rhythmical music. The first group would be to enlighten and heighten the spirit, while the second group leads to ecstasy, aggression and releasing one's lower urges. Quintillianus and Pythagoras, both very famous characters point out that the sound of string instruments elevate the human soul to the heavenly orbits, while the sounds of wind instruments brings the soul down to the lower regions. In most Roman and Byzantine mosaics, they therefore either appear separate or their significance differs. Just like in all other cultures music had an earthly as well as a sacred role and the magical qualities of music were transferred both to the musical instrument as well as to the musician. There are significant finds with regards to musicians and musical instruments that appear in Roman and early Byzantine mosaics in the land of Israel.

3.23.2 The Jerusalem Orpheus.

Orpheus is a name that we find in ancient Greek religion and myth. He was a legendary musician, poet, and prophet. Most stories about Orpheus is about his ability to charm all things with his music and around his attempt to retrieve Eurydice, his wife, from the

underworld. He is well-known for his charms and spells. His playing of the lyre and his singing is said to have had magical qualities.



[https://www.google.co.za/search?q=Fig+105:+The+Jerusalem+Orpheus.&biw=1126&bih=928&source=lnms&tbn=isch&sa=X&ved=0ahUKEwja9KGOsZ_QAhVqCMAKHRZxCDIQ_AUIBygC#tbn=isch&q=The+Jerusalem+Orpheus.&imgsrc=4medTwAWRI46sM%3A](https://www.google.co.za/search?q=Fig+105:+The+Jerusalem+Orpheus.&biw=1126&bih=928&source=lnms&tbm=isch&sa=X&ved=0ahUKEwja9KGOsZ_QAhVqCMAKHRZxCDIQ_AUIBygC#tbn=isch&q=The+Jerusalem+Orpheus.&imgsrc=4medTwAWRI46sM%3A)

Fig 3.123 The Jerusalem Orpheus.

The Orpheus mosaic was discovered in Jerusalem but it now is held in the Istanbul Museum. It decorated a small room most likely belonging to a small funerary chapel. It was found near the Damascus gate by H Vincent in 1901. This mosaic dates only to the late 6th century CE and is produced in the Opus Tessellate technique, which is the normal technique of Greek and Roman mosaics where they use tesserae / tiles larger than about 4 mm in size. This panel containing Orpheus represents the central rectangular panel. The mythological figure of Orpheus was often associated with the motif of Jesus as the good Shepherd in early Christian art.

Orpheus is the central character in the mosaic. He is shown as beardless and is therefore regarded as young, and he is in a sitting position. On his feet are sandals. He is dressed in the Oriental fashion with a richly embroidered tunic which is light blue in colour and has long sleeves. On his head is a so-called Phrygian cap. And in his left hand he holds a *kinnôr*. It rests

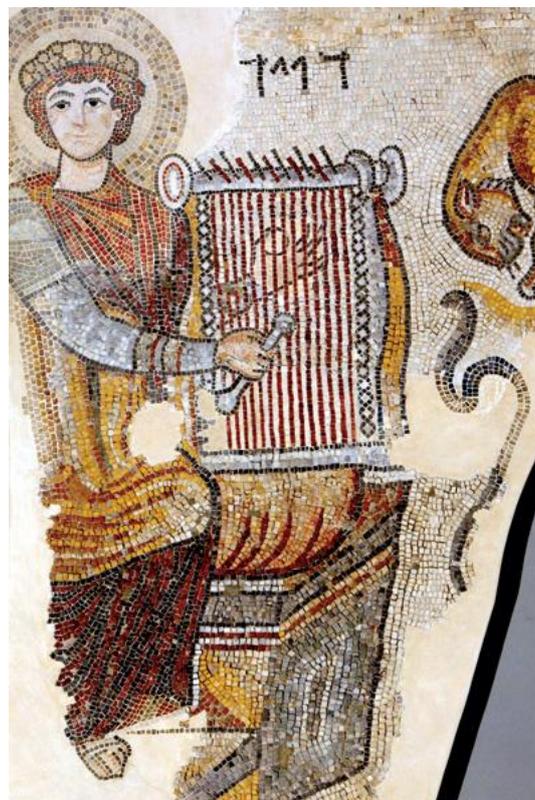
on his left knee. He is apparently plucking the strings with the fingers of his right hand. His musical instrument, interpreted here as either a *kinnôr* or *kithara* is unique in shape and it also has 11 strings instead of the usual 10 strings. It now becomes important to look at the linguistic character of the name *kinnôr* as found in the ancient civilisations of the Near East. We know that the *kinnôr* was well known in early civilisations of Ancient Israel. The *kinnôr* is frequently mentioned in the Bible and it also appears in texts from Phoenicia. It is interesting to note that the lyre was divinized in Mesopotamia, and as such could receive offerings. The goddess Inanna is closely linked to the lyre in Cimmerian and Hittite texts, as we read in “the Global Economy of Music in the Ancient Near East” published by JC Franklin in 2007. Lastly, we find that the term *kinnôr* not only refers to a musical instrument, but also to some deities in various ancient civilisations. Ugaritic texts list deities and there also is one named *kinnôr*. Such deities are listed and can be read in Canaanite, Phoenician, Cypriot, Akkadian and Ugaritic texts from the middle of the third millennium. The line between heaven and earth often was very vague and so it was that earthly characters often acquired themselves godly characteristics. We find the phenomenon of kings that also acted as priests who prophesied and played music. A good example is the Sumerian king Shulgi of Ur who praises his own virtuosity in the playing of instruments as the lyre. King David, of course, is an early example of a king and priest who was also a skilled musician. Nevertheless, several Phoenician kings were simultaneously king as well as priest of Ishtar. Kinnyrias was a legendary Phoenician king and also priest of Aphrodite who played the *kinnôr*. And so, we understand that not only did Orpheus have magical and godly powers, but that the instrument of the lyre (and possibly the harp) also were raised to a godly level, thus strengthening the powers of Orpheus.

The Jerusalem Orpheus mosaic is different from all other known Orpheus mosaics. Here we find the depictions of Pan and the Centaur. These two characters are at the bottom of the mosaic. What makes this special is that these two characters normally are associated with Dionysus, and so they appear to be out of place in this mosaic. Furthermore, in all other Orpheus mosaics the lyre/*kithara* is the only instrument depicted. In this mosaic there is a *syrinx* held by Pan. The explanation of this is complex but most likely, because both Pan and the Centaur are hybrid characters and have both human and animal natures, it could be interpreted as the allegory of the domestication of the bestial instincts of human beings

through the power of music created by Orpheus. Keep in mind that Apollo and Dionysus not only shared the same cultic site, but that they are in fact two different sides of the same god.

3.23.3 The David-Orpheus of Gaza.

In 1965, archaeologists discovered the site of the port city of Gaza. They also announced that they had uncovered a church. Famously, a mosaic of a musician wearing a crown and playing a harp was found. This mosaic dated to 508 – 09 CE and it is labelled in Hebrew.



(<http://musicofthebiblerevealed.blogspot.co.za/2011/08/two-articles-from-biblical-archaeology.html>)

Fig 3.124 Mosaic from Gaza.

It was originally described as a female saint playing the harp. Then Egyptian archaeologists stated that this in fact was David depicted as Orpheus. The Hebrew inscription at the top clearly reads “David” giving us an indication of who the musician is. Later on the mosaic was damaged and in 1967 it was transferred to the Israel Museum for restoration. It can now be seen at the Museum of the Good Samaritan.

Similar to the mosaic in Jerusalem animal figures are depicted on the side. The musician also wears a crown with a decorated blue frock and sandals. This once again demonstrates the culture of a pagan cult incorporating a Christian figure which was very common in the syncretistic milieu of the time. David is depicted as king and musician. His music has supernatural power and effect. It appears that he is seated on a throne and he is holding a *kinnôr* on his left side. It resembles the one from the Jerusalem Orpheus. His left hand is visible behind the strings and in his right hand is a plectrum. The instrument appears to be similar to the one found in the Jerusalem mosaic. The crown on his head befits a king. Because of everything we read it seems that King David was considered to have ordained everything related to Temple music, therefore instituting also the use of the *kinnôr*. The *kinnôr*, depicted above, was predominantly an instrument in the Old Testament. It had many functions according to these mosaics including the taming of animals, the taming of man's bestial instincts and as accompaniment to prophecy.

3.23.4 The Sheikh Zuweid Mosaic.

This is a small Bedouin town in the northern Sinai near the border with the Gaza Strip. Ancient Christian mosaics were found here in 1913 and they are currently preserved in the Museum of Ismailia.



<http://weekly.ahram.org.eg/News/12939/-/-.aspx>

Fig 3.125 Pavement mosaic.

The scene depicts Dionysus with multiple musicians and musical instruments.



Fig 3.126 Detail.

In the central portion of the mosaic there is a female centaur (A centaur, or occasionally hippocentaur, is a mythological creature with the upper body of a human and the lower body of a horse) that is harnessed to the chariot. She holds aloft an oversized lyre, equal in size to that of the satyr (one of a class of lustful, drunken woodland gods. In Greek art, they were represented as a man with a horse's ears and tail, but in Roman representations as a man with a goat's ears, tail, legs, and horns) riding the mule nearby. At her side there is a male centaur apparently holding two different instruments. In his right hand is a horn. In his left hand is a straight *keras*/pipe.

This is very similar to a 3rd century CE mosaic fragment from Gerasa in Jordan. In this mosaic two centaurs are also harnessed to the chariot, one holding a lyre and the other holding a double *aulos*. In this instance, the lyre is obviously secondary to the *aulos*. This fragment of mosaic is part of the ancient art collection of the Gale gallery and can be seen at <http://artgallery.yale.edu>. With reference to the mosaic of Acholla, dated to the second

century CE, the chariot is also yoked to a pair of (this time) male centaurs, but neither are holding any instruments.

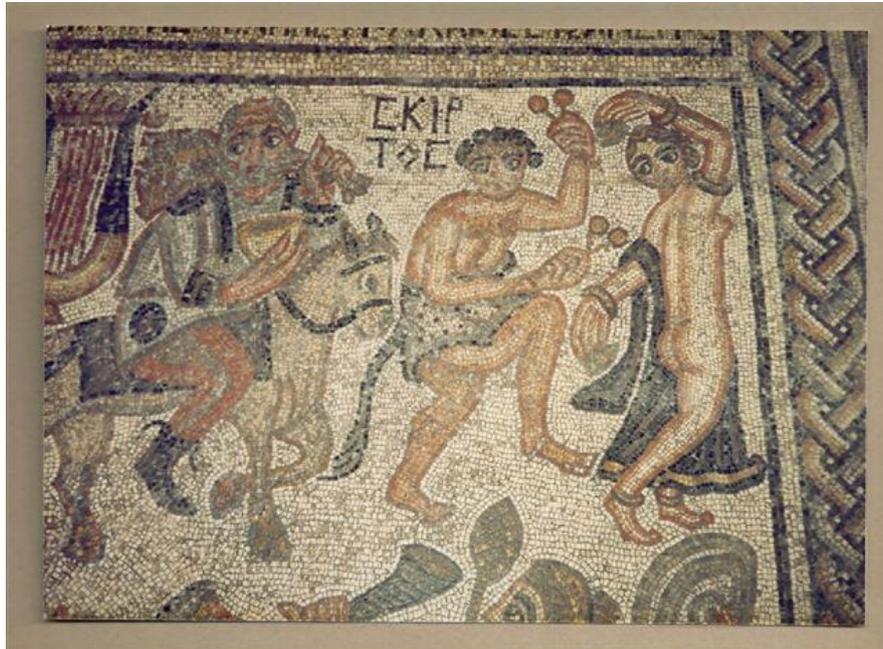


Fig 5.127 Detail

To the right of the mosaic there is a dancing satyr who is playing a pair of slap cymbals/clapper cymbals. Before him is a nude Maenad (Maenads are the immortal female followers of Dionysus, the god of ritual madness and ecstasy. Their name literally translates as "Raving ones". Often, the Maenads were portrayed as inspired by Dionysus into a state of ecstatic frenzy through a combination of dancing and drunken intoxication). She is dancing to the rhythm of the bells which she holds in each hand.



Fig 3.128 Detail.

In the bottom right of the mosaic there is another dancing satyr playing slap cymbals. The wind instrument with the bell-shape right next to it is a horn, possibly a conch trumpet.



Fig 3.129 Detail.

At the right of the mosaic there is a Maenad, once again dancing and playing a flat type of drum.

All the musical instruments depicted in this mosaic are usually associated with the cult of Dionysus. We have learned that wind instruments like these symbolised the urges and base-like passions of man and that these provided ecstatic ambience for the cult. These instruments were believed to release man's lowest and animalistic impulses. The large central *kinnôr* therefore creates a bit of a dilemma. It appears to be out of context. It is an instrument attributed to Apollo and his magical music. Opinions abound, but it appears that there is some merging of Apollo and Dionysus in this mosaic, similar to what we see in the Jerusalem mosaic.

3.23.5 Mosaic from the Roman Villa at Sepphoris.

Sepphoris/Zippori is an archaeological site and a small village located in central Galilee. It has been excavated over the last 30 years and revealed wonderful mosaics. It lies on a very strategic position on top of a mountain and archaeologists have found remains from as early as the middle Palaeolithic period. After the destruction of the second Temple the Jewish religion transitioned to a rabbinical state. It is interesting to read that the Talmud describes Sepphoris as the city of 18 synagogues and many famous rabbis.



<https://daydreamtourist.com/2014/05/27/sepphoris-israel/>

Fig 3.130 Mosaic from Roman Villa

This mosaic comes from the so-called Dionysus house and depicts the life of Bacchus and his followers. The large blank space on the left was kept open for large couches. There are several scenes with musical instruments, not a single panel including a lyre.



Fig 3.131 Detail.

On this panel we can see Dionysus in a lying position, raising a cup. A satyr plays a double *aulos* and there also is a maenad holding a *tympanum* in the air. An *aulos* is an ancient Greek wind instrument. It is sometimes incorrectly translated as flute, but similarly could be played as a single instrument or as a double reed instrument.



Fig 3.132 Detail.

In the panel above there once again is a god which is now lying in his chariot. He also is accompanied by a satyr playing a double *aulos*, similar to what we see in the previous scene.

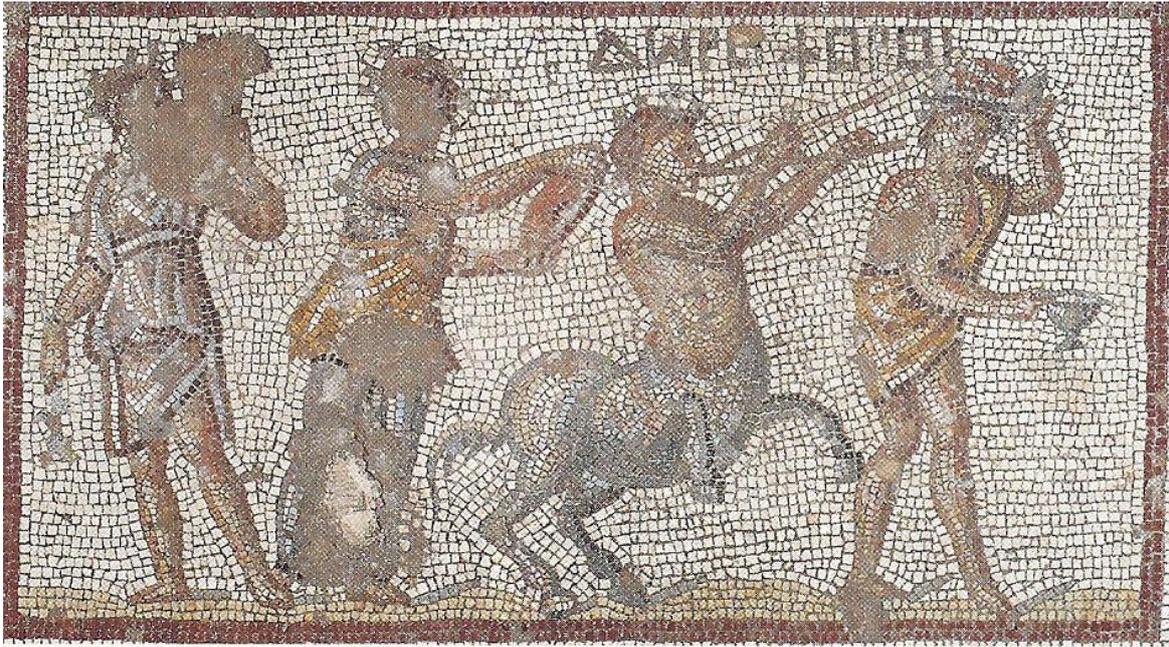


Fig 3.133 Detail.

In this panel, similarly, the *aulos* as a double reed instrument is again seen, but just behind the centaur is a Maenad who appears to be beating a frame drum.

3.23.6 The Synagogue at Sepphoris.

At the synagogue of Sepphoris excavators found a mosaic which included several musical instruments in various panels. Several of these have religious connotations and are similar to what we have seen in ancient Israel.



<https://daydreamtourist.com/2014/05/27/sepphoris-israel/>

Fig 3.134 Pavement mosaic from Sepphoris.



Fig 3.135 Detail.

On a single panel the sacred arc is seen in the centre. On both sides there is a menorah with seven arms as well as a horn with three rings. Apparently, this scene is frequently found in synagogue mosaics of early Israel.

There also is a panel depicting the consecration of Aaron, apparently with the golden bells hung from the hem of his garment still visible. Unfortunately, no satisfactory image of this could be found.



<http://www.pbs.org/wnet/story-jews/explore-the-diaspora/mosaic/>

Fig 3.136 Basket of fruit with cymbals.

In the next panel daily offerings of cattle, oil and flour are accompanied by two trumpets. It is labelled with the inscription *hazozrot*. Further on in the same band there is a basket of fruits and below it there is a pair of cymbals connected by chain.

3.24 THE VOICE

The voice most likely was the beginning of everything. Singing is both ancient and universal. It is found in every human culture, from the most primitive to the most elevated and developed. This is beautifully stated by Paul Bekker in his work "The Changing Opera" (New York NY: WW Norton & Co, 1936):

"In the beginning was the voice. Voice is sounding breath, the audible sign of life."

We know that singing is a basic trait of man, right from its earliest grunts to where we are as highly trained singers today. It is my contention that all people sing. Not all are opera stars, but we sing in the shower, or in the car, or when alone. We can trace the development of

vocal music and the voice through the ages. We believe that this is the single most important factor which distinguishes us and sets us apart from the other worldly creatures. Its origins have long been lost in antiquity and singing would predate the development of any spoken language. Ancient man would find a manner to communicate his feelings, even in the absence of the conveyance of their thoughts by speaking. In a state where no language had been developed, where nobody had thought of communicating their ideas and feelings, the ancient man would utter, improvise and imitate sounds from daily life. Some of these guttural utterances remain in more primitive tribes when they sing, pray, perform incantation and chant to the gods. We cannot point to a specific time when the simple imitations of the sounds heard in nature and in everyday life became meaningful, communicative and understandable, but it is logical to assume this step towards the creation of true language. There exists only a very fine line between speech and song. Koopman (1995) illustrates how music began with simple melodic patterns with just a few tones, first a single voice and then several voices in unison, to be followed by parallel singing, possibly by the addition of female voices. Add call-and-answer phrases as well as basses singing in drone, and canon. Eventually this all would evolve into a structure of scales and tonic, advancing to more modern ideas like melodic sequences and cadential formulate.

The early Mesopotamian cultures as far back as 3500 BCE would already consider music as an art. There are several ancient texts that confirm the presence of musicians, even professional musicians and music on all levels of life. It now is a well-recognized fact that the language spoken with in a specific culture has an influence on its musical expansion and *vice versa*. Koopman (1995) for example points to the absence of 6/8 metrics in Hungarian folk song and the development of classical vocal technique from an Italian speaking region.

Egyptian music is as old as the Mesopotamian counterpart, already in existence by the fourth century BCE. The Greeks were highly sophisticated people and they would have developed their own musical culture, but this was obviously influenced by the Egyptians. They used choruses and soloists in theatre and dramatic presentations and used music to enhance culture. We have the Greeks to thank for the Pythagoreans scale. This allowed for the development of more complex musical theory. Singing, instruments and professional musicians also were present in the Judaic culture. Importantly, the Psalms of David and the Psalms of Solomon were meant to be sung, either responsorial (soloist alternating with a

group), or antiphonal (alternating groups). It is quite possible that singing and especially communal singing was used as a tool to bond together the Jewish people during the period of the exile and when they were dispersed to Egypt.

Shortly after the fourth century CE, when Christianity became the official religion of the Roman Empire, three styles of chanting the melody evolved. The first is called syllabic, could be sung by either the priest or the congregation, and as the name indicates would consist of one note per syllable. The second is neumatic, made up of several notes for every syllable and was suitable for singing by the choir. The third style of chanting is melismatic, which is clearly aimed at soloists, and which allows for multiple notes per every syllable. True polyphony only arose in the ninth century CE, but the Renaissance in the years from 1450 – 1600 is sometimes referred to as “The Golden Age of Polyphony”. Musicians, instrumentalists and singers were better educated and trained. One of these training methods was developed by a monk, Guido D’Arezzo, who in the 11th century created the so-called Guidonian Hand. Today this is known as solmization, the very well-known tonic sol-fa which allows musicians and singers to sight read the music. As music and polyphony developed, rhythmic notation was introduced somewhere between the 14th to the 17th centuries CE. Music became more and more instrumental, leading first to the Baroque period (about 1600-1750) and then the Classical Period (1750-1827).

The voice remains one of the most magnificent and magical of all instruments. It is created at birth and merely consists of two small muscles. It allows us to whisper, to scream and everything in between. It produces pitch, or rather several pitches. It has percussive capacity and is immensely complex with regards to rhythm and tonality. The meaning of the same words can be changed completely by subtle changes in nuance.

Singing/the voice is frequently mentioned in the Old Testament, especially in the Psalms. In the Hebrew terminology of the Old Testament there are more than 12 terms for vocal music, outnumbering terms for instrumental music. In the Mishnah, we read about the choir of the Jewish Temple which consisted of at least 12 male singers aged between 30 and 50. Sometimes the voices of boys were added to add sweetness to the song. These singers underwent a five-year training programme, as stated before, before being admitted to the choir.

Treatise Tamid VII of the Talmud describes the daily sacrifice in the Temple and it employs “*dibber beshir*” which is translated as “spoke, in, or with, song”. This is with reference to the Levitical song. This reference must describe the basis of cantillation, a strong pillar of Jewish music. Written music fell far behind with reference to vocal and instrumental music. First, there was a solemn monotone of voice, but man would quickly observe the different effects that are produced when the pitch of the voice is altered. This is especially true in reading poetry and while reciting great deeds of the king, gods and the ancestors, and praising the greatness of the maker of the universe. And so next came simple changes in pitch, which developed into ornaments and graces which formed a part of the art of the reciter. In Genesis 31: 26 - 27 we read:

²⁶ Then Laban said to Jacob, “What have you done? You have deceived me and taken my daughters away like prisoners of war! ²⁷ Why did you secretly flee from me, deceive me, and not tell me? I would have sent you away with joy and singing, with tambourines and lyres

This is a clear indication that the ancient Hebrew people were well acquainted with music, song and dance, long before they were taken captive in Egypt.

The Mishnah also gives us an account of the musical routine at the Jerusalem Temple in the first century BCE. The temple musicians stood on a platform which was the division between the court of the priests and the court of the people.

- The day’s designated sacrifices took place.
- Then the mysterious *magrephah* was sounded.
- The priests entered the sanctuary itself while the Levites, commenced their musical performance.
- Two priests stood at the altar and blew the shofar.
- The Levites cymbal player sounded the cymbals, most likely as an indication of pitch for the Levite singers.
- The Levites started to sing the days allotted Psalm or possibly a section from the Pentateuch. In Tamid 7: 4 the Mishnah confirms that a psalm was sung on each day of the week. There are 15 Songs of Ascents, found in Psalm 120 – 134. This corresponds with the 15 steps of the temple.

- At the end of each specific section a trumpet would sound and the congregation would prostrate themselves.

“Psalm” derives from its cognate in the Latin Vulgate: *Liber Psalmorum* or *Psalmi* which in turn is derived from the Greek word *psalmoi* meaning “a song or song text specifically sung to the accompaniment of stringed instruments”. The Jewish translators of the Septuagint selected *psalmos* to translate the Hebrew term *mizmor*. In the Bible, the term *mizmor* is used exclusively within *k’tuvim* (Psalms is the opening book of the *k’tuvim* which is the third of the three sections of the Hebrew Bible.) It appears in the title of 57 Psalms but is never found within the body of the text. Questions are therefore raised concerning the use of *psalmus* as a translation for the Hebrew word *mizmar*, and it is suggested that the translators in Alexandria might not have known the exact meaning of the Hebrew word. It appears that the meaning of this term might long previously have been lost. Nevertheless, *psalmus* became accepted and so did the English equivalent *psalm*.

We currently find 150 Psalms in the book of Psalms in our modern Bible. They are believed to be an amalgam / combination of other collections, for example:

- The Korahite Psalms, accredited to the “sons of Korah” who were the descendants of the Levites who rebelled against Moses and Aaron. Look for these in your modern Bible at Psalm 42, 44 - 49, 84, 85, 87 and 88.
- The Psalms of Asaph. He was a Levite appointed by David as choirmaster in the temple service. See Psalm 50, 73 - 83.
- The Hallel psalms. Psalm 113 – 118.
- The Songs of Ascents. Psalm 120 – 134.

Furthermore, the other Psalms are attributed to:

- two Psalms bear the name of Solomon
- one is connected to Moses
- one is connected to Heman
- one is linked to Etan
- 73 Psalms are linked to David
- there are 49 orphan Psalms, now accepted as anonymous.

The prevailing view used to be that the Psalms originated only as late as the second century BCE. This is long after David and the prophets, even by many centuries. We now believe differently. Based on evidence in the Septuagint, as well as the absence of Hellenistic literary and theological influences, we must now allow that the Psalms as a whole existed before the second century BCE and that by the time of the second century BCE their importance and popularity had long been established. The composition of the Psalms therefore pre-date the second Temple era.

The Psalms thus played an extremely important part in Jewish worship, and the Psalms today add to our knowledge with regards to ancient Jewish music. Psalm 150 for example would give us a description of the temple orchestra and some of the musical instruments.

Some of the Old Testament Psalms, begins with a description:

- “According to Alamoth” Psalm 46
- “According to Gittith” Psalm 8
- “According to Lilies” Psalm 45
- “According to Mahalath” Psalm 53
- “A song of Ascents” Psalm 120.

Some of these superscriptions make lengthy comments while others are merely a single word. Some of these descriptions actually are instructions as how to perform the Psalm, which tune or instruments to use, the tempo of the music, as well as breathing instructions. The interpretation of these superscriptions remains a contested issue among biblical and musical scholars. More than a third of these attributions are possible musical directions addressed to the “choirmaster” or the “leader” and sometimes would include statements like “with stringed instruments”. There even is some concern with regards to this simple attribution. There is disagreement whether the Hebrew term *lam'natze'ah* should be translated as “to the choirmaster” or “to the conductor”, or whether perhaps this might have referred to a particular song type, to be arranged for those Psalms to which the term is attached. “According to Alamoth” apparently indicates that the Psalm was to be accompanied by a flute or by a high-pitched voice. Many superscriptions carry the name of individuals. The most common name is that of David which is found in 73 psalms. We naturally understand these as a claim as to who the author was, but they could also mean “to David” or “for David”. In

spite of philological, archaeological and logical reasoning, very few of these terms can be translated with absolute certainty. Some of the technical terms might have become obsolete or lost by the time of the second Temple.

The melody/tune of music during early Israelite life obviously is different from what we know today. In ancient times the tune consisted of ideas made up of a few notes which were known as *makam*. Each of these themes consisted of four tones filling the interval of a perfect fourth. Each theme also had a range of less than a musical fifth but included a leap of a third. The theme therefore obviously was not multi-tonic. This melodic theme had to be observed very strictly but could be freely embellished and ornamented. The concept of harmony still was unknown.

Attempts to find a system of rhythm or a form of meter in the psalms are hampered by a lack of information. They are nonetheless poetry and they exhibit poetic structure, most notably parallelism. This characteristic might reflect that their composition was with the intention of being sung. The parallel structure is found in different forms:

- Synonymic: two half-verses contain essentially the same thought, but is expressed in different but complimentary words, one half-verse in response to the other.
- Antithetic: an idea or thought is reinforced by two half-verses that oppose each other with contrasting statements, one in response to the other.
- Synthetic: the second of two half verses responds to the first by completing the statement
- Climatic: a single idea is documented and expanded from verse to verse with a cumulative unfolding effect.

This system of pairs of half verses resemble other near Eastern poetry and is found in Akkadian, Ugaritic and Egyptian literature. Some psalms have three or more divisions but the verses are normally in groups of equal length.

Ample Biblical references with regards to singing with instrumental accompaniment exist to believe that this was an integral part of ancient Israelite/Palestine cultus. The book of Psalms especially provides information with regards to the use of music and instruments in the life of individuals as well as the community of ancient Israel. The Psalm however is primarily a

song which is supposed to be sung by either a choir, by a soloist, or by the Cantor. It usually is sung with musical accompaniment. Singing however is not limited to the Psalms. In Exodus 15 we read about a song of praise of Moses and the Israelites. There is the moving song of Hannah of which we read in 1 Samuel 2 : 1 – 10. Hezekiah sings a song of praise in Isaiah 58 : 1 – 10. Songs of lamentation are also found in the Psalms, as when David mourns the death of Saul. It is further noteworthy to remember that a large body of Psalms/songs were not included into the biblical book of Psalms. Of these we read in the Septuagint and the Qumran scrolls. 1 Kings 4: 32 attribute 1005 Psalms to Solomon, but only Psalm 72 and 127 is included in the book of Psalms in the Bible.

We know that the book of Psalms in the Bible is a combination of literary forms. There are several forms of expression, as prayers, as songs of praise, and as a historical recital. They give expression to the soul of the nation, the religion, their hopes, their remembrances, and can be used as inspiration for practically any facet of daily life. The Psalms can, according to Hermann Gunkel, primarily be divided into five different types:

1. Hymns. These are songs to praise God. They often would open with a call to praise, then described the motivation and conclude with a second call to praise.
2. Communal laments. This is to lament some communal disaster.
 - a. They are addressed to God,
 - b. followed by a description of the disaster,
 - c. pointing out the party responsible for the suffering, and
 - d. admission of guilt or protestation of innocence,
 - e. a plea for God to intervene,
 - f. expressing faith in God's receipt of the prayer,
 - g. anticipation of God's divine response and
 - h. a Song of Thanksgiving.
3. Royal Psalms. They deal with royal matters like Coronation, Royal marriages and battles.
4. Individual laments. Plead the fate of a single or particular individual and are by far the most common type of Psalm.
5. Individual Thanksgiving Psalms. In these the Psalmist thanks God for deliverance from personal or communal disaster.

The book of Psalms however is not just a bundle of poems or songs but adds to our knowledge of the musical culture of ancient Israel, the musical instruments that existed at that time, as well as the users thereof.

3.25 DAVID'S BAND

It is worth while taking one last look at 2 Samuel 6: 5

⁵ And David and all the house of Israel played before the LORD on all manner of instruments made of fir wood, even on harps, and on psalteries, and on timbrels, and on cornets, and on cymbals. (KJV)

This single text raises several questions. The first obvious question is what is meant by “all manner of instruments made of fir wood”, *b²chol 'atsēy v²rōshīm*. It appears that the translation of *b²rosh*, *בְּרֹשׁ*, rather would indicate a cypress tree. All the instruments mentioned above could not have been made from wood though. We have a similar text in one Chronicles 13: 8 where the Hebrew

b²chol 'ōz ū²shīrīm, is translated as “with all their might and with singing” (KJV).

The Vulgate corresponds much with the Hebrew text in Samuel indicating

in omnibus lignis fabrefactis, made of all words

and using in Chronicles

omni virtute, with all strength.

The Septuagint has a totally different text

παίζοντες ἐν ὀργάνοις Κυρίου ἐν ὀρχήῃ καὶ ἐν ὠδαῖς, (*paizontes enōpion Kyriou en organois hērmosmenoīs en ischui, kai en ōdais*), read as

were playing before the Lord on well-tuned instruments with strength, and with songs.

This is one of those indications that the translators of the LXX often worked from a different baseline text. The similar text in Chronicles is much closer to the Hebrew and refers to what is translated as “with all strength”.

The list of instruments in 2 Samuel 6 : 5, all in plural, are

Hebrew	Greek LXX	Latin	English
kinnōrot, nevālīm, tuppīm, m ^ᵛ na’an ^ᵛ īm tselts ^ᵛ īm,	ōdais, kinyrais, nablais, tympanois, aulois (songs), kymbalois,	citharis, lyris, tympanis, sistris, cymbalis,	harps, psalteries, timbrels, cornets, cymbals.

The top line of instruments - kinnōr, kynura, cithara, harp - represents a normal accepted sequence. Similarly, there is a normal sequence of translation with tōf, tympanon, tympanum, timbrel. The bottom line of instruments referring to cymbals is obviously correct. Within the second line a problem arises, because we are unsure why *lyra* was used instead of the more obvious psalterium. The most problematic line within this table is that of m^ᵛna’an^ᵛīm, *aulos*, *sistrum*, and *cornet*. We have previously noted that *shōfār* had been translated with *cornets*, but in this instance it is used for m^ᵛna’an^ᵛīm. This is the only instance in the Bible where this word is used, it is similarly found nowhere else. Because the root meaning of this word is tremble, vibrate or something to shake, Bayer (1992) makes the point in favour of rattles of pottery.

3.26 CONCLUSION

It is not the aim of this chapter to give a detailed account of every iconographic or archaeological artifact depicting music or musical instruments. Neither did I attempt an in-

depth analysis of musical terms, the names of the musical instruments and their origins. In fact, much more can be said than what is found above. Nevertheless, it is important to understand how instruments developed, which instruments were available, how they were described, what they were used for, and how the instruments fit into the system typologically. These can be summarized using the same sequence as in the above text:

Name	Type	Current typology
Kinnōr	Chordophone	lyre
Nēvel	Chordophone	harp; possibly a lyre of lower register
?Lute	Chordophone	Lute
Chalil	Aerophone	reed-pipe
Ugav	Aerophone	flute
Mašrôqîṭā	Aerophone	pan-pipes
Tseltselim	Idiophone	cymbals
M ^e tsiltayim	Idiophone	cymbals
Tōf	Membranophone	frame drum
Shalishīm	Unclear type	sistrum
Shofar	Signalling aerophone	horn
yōvāl	Aerophone	horn
Qeren	Aerophone	horn
Chatsotsrot	Aerophone	trumpet
Mətsillōt	Idiophone	small bells
Alamot	Aerophone	unsure double reed, flute, harp, bagpipe?, nēvel
gittit	Unclear type	possible string instrument
Mahol	Unclear type	likely “dance”, possible flute
Nəginōt	Unclear type	string instrument

Sheminit	Unclear type	string instrument
Sumponia	Unclear type	double reed, or lute, or bagpipe?
P ^e santerin	Chrodophone	dulcimer, or zither, or harp
Sabb ^e ka	Chordophone	angle harp
Qaytros	Chordophone	kithara

4. CHAPTER 4 MUSIC AND TONALITY

4.1 INTRODUCTION

Multiple explanations and conditions are often put forward when discussing the definition of the term “musical theory”. The best understanding of this that I could find, binding several factors together, is by Bathja Bayer in the article “The Mesopotamian Theory of Music and the Ugarit Notation - A re-examination” published in 2008. Because I cannot do better myself, I would like to quote this definition verbatim:

“I would say that in all cases there must be a highly systemic concept in which (a) abstracted pitch values are the nuclear entities; (b) further entities, and relationships between them, are postulated at and between several levels, the cardinal relationship being pitch: pitch, scale: pitch and scale: scale; and (c) in at least one domain of musical performance, the performance constructs (“the music”) our being related to (a) and (b), and thus also to each other with respect to this system. The definition thus excludes the two other systems that constrain performance - the technological and the ideological. These two can be seen, each in its own way, as a “science of doing”. As theory of music, as defined here, is no doubt a “doing of science”. “

We have no evidence of musical theory still in existence from Ancient Palestine. We can however deduct that Babylonian musical theory lies not only at the base of what we now know, but that the same theory must have been assimilated by the Israelites during the exile. They also were close neighbours and similarities, if not just a single system, would exist. There is no logical reason for a separate or unique system originating from AIP, and there is no evidence of any such unique system in existence. What we know about musical instruments and theory mostly comes from our knowledge of Babylonian music. Babylonian influence on life in AIP was significant on all levels.

Our knowledge first originated with knowledge of the musical instruments. This field of study is by no means new – read for example *“The Music of the Most Ancient Nations, particularly of the Assyrians, Egyptians and Hebrews with special reference to recent discoveries in Western Asia and in Egypt”* written by Carl Engel as long back as in 1870. It must have at the time been a monumental and “ground-breaking” work. Thus our knowledge started with

small steps – finding evidence of instruments mentioned in texts, depicted on monuments, followed by the groups of harps and lyres excavated at Ur. There is a large collection of artefacts now in evidence, but the existence of music theory was not envisaged – it had not been discovered! Tablets of Sumerian and Akkadian origin were found at Ur, Sippar, Nippur and Assur. The Hurrian Hymns were found at Ugarit. These findings places the largest portion of our current knowledge within the Sumero-Akkadian cultural borders (Dumbrill, 2005). The earliest language of the Ancient Near East were written in cuneiform script. These early most common languages can be divided into a Non-Semitic groups and a Semitic group:

Non-Semitic: Sumerian,

Hurrian,

Hittite,

Luwian,

Palaic

Semitic: West- Semitic: Akkadian which is now practically fully understood
includes

Babylonian,

Ugaritic and

Assyrian

South Arabian

West Semitic: Amorite

Aramaic

Canaanite

Hebrew

North Arabian – all which did not use the
cuneiform type of script.

Our knowledge and understanding of the underlying musical theory and mechanisms took a giant step forward when Ann Kilmer published a Babylonian tablet from the Museum of the University of Pennsylvania in 1960, where it had laid for 75 years. This tablet came from the ancient town of Nippur. Only a short while later, in 1963, came the interpretation thereof by Marcelle Duchesne-Guillemin. This not only revealed a theory of scales, but also opened up new possibilities. This was quickly followed by the publication of a fragment from a tablet from the British Museum, proving the existence of seven modes and the manner in which to pass from the one mode to another. Next, in 1970, followed the first attempted interpretations of a 14th century BCE Hurrian tablet. Several attempts at this had been made, some now more convincing than other, also allowing for greater understanding with new/more recent discoveries and new/increased knowledge.

When Oliver Robert Gurney published “Babylonian Music again” in 1994 (Iraq 56, 1994, doi: 10.2307/4200387 p. 101), he upset all thinking by re-interpreting a single verb and demonstrating that scales were descending instead of ascending. The ascending scale of

c-d-e-f-g-a-b-c

is reached by the alternation of ascending fifths and descending fourths while the reciprocal descending scale

c-b-a-g-f-e-d-c

is reached by the alternation of descending fifths and ascending fourths.

We currently have a good knowledge and understanding of Western music and theory, but we must guard against applying this to ancient Near Eastern and Babylonian music at all cost. Dumbrill warns against this in an article published in 2017 in NEMO-online Vol 4 no 6 in which he clearly states:

“This article is the consequence of my determined endeavour at academically fostering the proof of the evidence against unproven presumptive inference, and more significantly to assert, scientifically, that heptatonism – which is not universal is by no means engraved onto mankind’s unconscious. It is a structure, among others, which eventually hatched in the Near-East, as part and consequence of another or other systems, but not as a new, independent and exclusive concept”

and furthermore :

“The theory of music is a science developed by, and made up for the amusement of the musicologist and is of little concern to the musician. However, Mesopotamian musicology is unique because its earliest reporters –the scribes –laid the fundamentals of theory from their meticulous observation of the lyre, probably, and of its strings, and comments from the musician’s mouth. “

I have included some of Dumbrill’s opinions in the relevant discussions as this is one of the most recent available publication on the matter.

4.2 INTRODUCTION TO TUNING AND PYTHAGOREAN MATHEMATICS

Dating mostly appears to be fairly inaccurate. Not all periods are important or relevant in the timeline of the development of music. For relative reference the time zones can be roughly divided:

Sumerian period	3500 – 2500 BCE
Old-Akkadian Period	2500 – 1960 BCE
Old-Babylonian Period This predominantly represents the first dynasty of Babylon	1950 – 1530 BCE
Middle-Babylonian Period	1530 – 1000 BCE
Neo-Babylonian Period	1000 – 625 BCE

We know that cuneiform script became extinct in the first few centuries CE and by implication we lost the interpretation thereof together with all the knowledge locked therein. We are fortunate to have deciphered this again (much later) in the 19th century and this opened the

possibilities of investigating and understanding early Mesopotamian culture, music and in fact much of the Mesopotamian world. In the hiatus between the loss and revival of cuneiform script we unfortunately did not have much more to refer to than early Greek and Latin cultures. And so, when for e.g. we refer to the Pythagorean system of tuning, we tend to forget that this actually goes back to the Middle Bronze Age, long before Pythagoras. In spite of very little surviving with reference to music and music theory, some pieces of the puzzle have been slowly put together.

Richard J Dumbrill (1998: 16) in “The Archaeomusicology of the Ancient Near East” points out that the Sumerian and Akkadian Periods would have witnessed a transition from musical illiteracy to musical literacy. Chronologically these therefore represent important times and obviously, the Sumerian and Akkadian civilizations become areas of important study. The pentatonic scale of five notes must have been present in the Sumerian period, it developed into the nine notes of the enneatonic scale and the seven notes of the heptatonic scale during the Akkadian Period. This seems to represent the birth place of the earliest music in the Ancient Near East.

It is perhaps easiest and most convenient to start with the heptatonic scale which we now know so well. The easiest octave on the piano ranges from a C to the next C above. This forms a special unit, in such that a special and specific relation exists between these two notes an octave apart. They can be described either with regards to the length of the string or with regards to frequency. These two entities – length of the string and frequency – are reciprocal.

If the strings are of the same mass and are strung at the same tension, then the bottom note of the octave would come from a string that is twice the length of the top note. This is a ratio of 2:1.

Frequency is given as vibrations per second and if the lower note is given the pitch number of 1, then the higher note would have a pitch number of 2. The higher note would have to vibrate at a greater rate in order to produce a higher pitch. The ratio for frequency thus is 1:2.

This system of tuning which is based on the ratios of intervals is now known as Pythagorean tuning. Pythagorean tuning is based on a stack of perfect fifths. The fifth ratio is 3:2 which is the simplest after 1:1 or 2:1 and 3:2 is an indication of the ratio of frequency of the one string to the frequency of the other.

Starting with a beginning note of D, the twelve notes of the chromatic scale is found by tuning 6 notes up at ratios of a perfect fifth and then 6 notes down, again continually using the ratios of perfect fifths.

The theory here is that the most pleasing sounds are a result of frequencies with simple ratios. The simplest ratios are for e.g. 1:1, 2:1, 5:4 and 3:2. Let us consider another example:

- The A above middle C (in current time) is tuned to a frequency of 440 Hz.
- The E above that would make the perfect fifth
- The perfect fifth is thus tuned to 660 Hz
- The ratio of 660Hz : 440Hz is 3:2, i.e. the fifth.

As illustrated above, an octave of 12 chromatic notes can be found by tuning perfect fifths for 6 notes upwards and 6 notes downwards.

- Middle C (on the modern piano) is tuned at 384Hz
- G is a perfect fifth above at $170 \frac{2}{3}$ Hz, while
- F is a perfect fifth below at 320 Hz, and
- A \flat (A flat) is a major third below C (two tones plus a semi-tone) at $204 \frac{4}{5}$ Hz.
- Start from G and calculate/tune D, B and E \flat
- Start from F and calculate/tune B \flat , A and D \flat .

The result is a full complement of the chromatic scale except for G \flat .

The problem with this system is that it is not consistent. If one sticks to the simple major scales of C, F and G, then this calculation and system of tuning works well. If tuning the scale starting with E is attempted, then the above calculations will let us down:

- Calculating the major third for the scale of E is G \sharp .
- The frequency for E = 320Hz
- G \sharp is the major third above and is calculated at 400Hz.
- We assume that G \sharp and A \flat is the same note, but within the Pythagorean system it is NOT.
- Using the calculations used for tuning the scale of C, above, we find that the frequency for A \flat is $409 \frac{3}{5}$ Hz.

- Thus a ratio exists within the system between A^b and G^\sharp of $409 \frac{3}{5}$ Hz : 400 Hz, that is 126 : 125.
- In simplistic terms this discrepancy in tuning is called the Pythagorean comma, while the “out of tune” interval is known as the wolf interval.

This becomes a problem if the composer would like to move between different scales and the understanding is that, when using the Pythagorean system of tuning, a piece of music written in the key of C would sound pleasant, but that a piece of music, played on the same instrument in the key of E would sound horrible. It follows logically that a system of tuning was needed that sounded good in all keys, rather than just one or two. And so the well-tempered or even-tempered scale was developed in which every half step/semi-tone is of exactly the same size.

- An octave consists of 12 half-tones/semi-tones
- The ratio for an octave is 2:1
- Each octave must be broken into 12 exact steps
- Each step/semi-tone must therefor have a ratio of $2^{(1/12)}$

Within the heptatonic scale, finding the major fifth and then the fourth not only falls easy on the modern ear, but can be defined within the octave range of 2:1. The fifth is given as 3:2 and the 4th as 4:3 where $3:2 \times 4:3 = 12:6 = 2:1$.

The octave with the major fourth and fifth can be found on our modern piano/heptatonic scale as C-F-G-C. Generating other fourths and fifths from these will eventually generate C-D-E-F-G-A-B-C = the diatonic scale; but it will also produce other scales of contiguous degrees, starting on any of the other notes, for e.g. G-A-B-C-D-E-F-G. This can be expressed as a series of ratios:

- 1:1 unison
- 9:8 the second
- 5:4 the major third
- 4:3 the fourth

- 3:2 the fifth
- 5:3 the major sixth
- 15:8 the minor seventh
- 2:1 the octave

We can see from this that diatonic scale is formed by a series of tones and semi-tones. The tones and semi-tones are arranged differently depending on the starting note, but the heptatonic scale will always consist of 5 tones and 2 semi-tones.

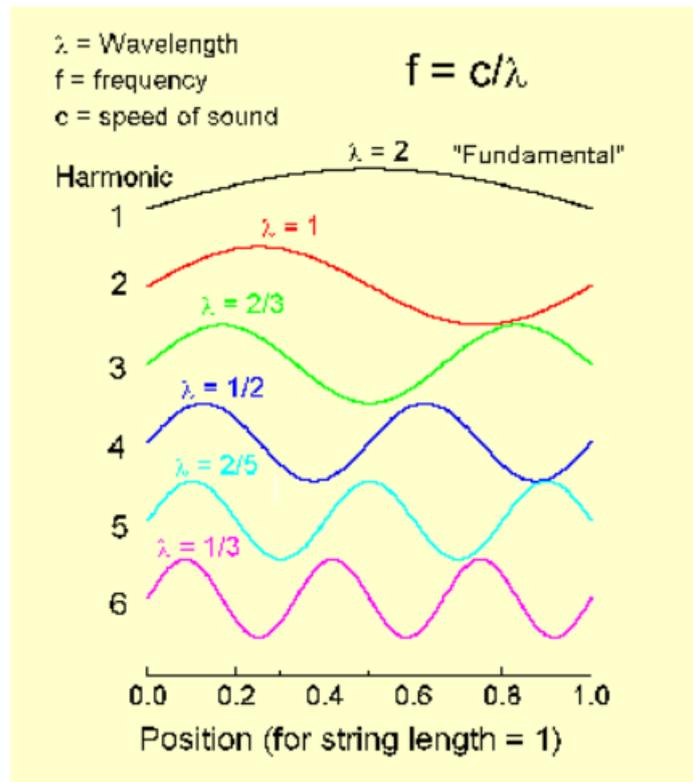
The major scale of C can now be explained as follows:

NOTES:	C	-	D	-	E	-	F	-	G	-	A	-	B	-	C
RATIO	1:1		9:8		81:64		4:3		3:2		27:16		243:128		2:1
STEPS			9:8		9:8		256:243		9:8		9:8		9:8		256:243

We can see from this that the steps of 9:8 represents a single tone while the 256:243 represents a semi-tone.

Frequency is commonly measured in the physical unit of Hertz (Hz). Because of the 1:2 relationship of frequency we can accept that if the C at the bottom of the octave measures 131Hz, then the c' above would be 262Hz.

If one imagines a string of fixed length that is fixed at the ends (like a piano string) then the frequency can be demonstrated as oscillations. And because the string is fixed at the ends, where it thus cannot vibrate, only a sine wave would be possible.



<https://pages.mtu.edu/~suits/overtone.html>

Fig 4.1 Illustration of possible sine waves and base frequency

Musicologists have adopted the system of “cents” where the octave is divided into 1200 small units or “cents”. This system was developed by the Baron Riche de Prony, a Frenchman who lived 1755 – 1839. He was a member of the French academy of Science and as an honour his name is inscribed on the Eiffel Tower (one of only 72 names).



https://en.wikipedia.org/wiki/List_of_the_72_names_on_the_Eiffel_Tower

Fig 4.2 Names engraved on the Eiffel Tower.

Alexander John Ellis was an English mathematician that later claimed the system as his own. He created hundreds of charts on which he would indicate the pitch at which a specific instrument was tuned, and why. He lived from 1814 to 1890 and his monument can be found in the Kensal Green Cemetery.



https://upload.wikimedia.org/wikipedia/commons/9/91/Alexander_John_Ellis%2C_Kensal_Green_Cemetery_01.JPG

Fig 4.3 Monument to Ellis

Nevertheless, this system of 1200 cents allows for more reliable measurement of the notes in musicology. For the scale of C major this would be

0	–	200	–	400	–	500	–	700	–	900	–	1100	–	1200
C		D		E		F		G		A		B		C

and this clearly illustrates the ratios of tones with semi-tones at E-F and B-C. This represents the standard of equal temperament. All the fifths in Pythagorean tuning will thus be 701.96 cents wide as this will produce the exact ratio of 3:2. The exception to this is the fifth at the wolf interval (dissonant interval of seven semi-tones). This we have seen must be flatter and is only 678.39 cents wide.

In order to make the pitch more “palatable” to the human ear and to exclude the wolf interval which sounds out of tune, so-called equal temperament was developed. We know that this is achieved by dividing the octave into twelve equal units and now is known as twelve-tone equal temperament (12-TET). Modern tuning thus starts at A at 440HZ (A440) and each semi-tone is 1/12 the width of an octave. And while we use equal temperament and naturally refer to 12-TET, it must be remembered that other equal temperaments exist. Arabic music uses a 24-TET. It would thus be more correct to refer to 12-TET as EDO, equal division of the octave, i.e. 12-EDO. This distinguishes it from other systems like the Bohlen-Pierce scale which divides a tritave consisting of an octave plus a 5th into 13 equal parts.

In 2016 Haye Hinrichsen from the University of Hamburg, Germany, wrote an interesting article “Revising the musical equal temperament” in which it is suggested that equal temperament should be replaced by harmonized stretched temperament. This article demonstrates that the ratios of the 12 semi-tones should be slightly larger than $2^{1/12}$. This makes for some very interesting reading but probably falls outside the scope of this study.

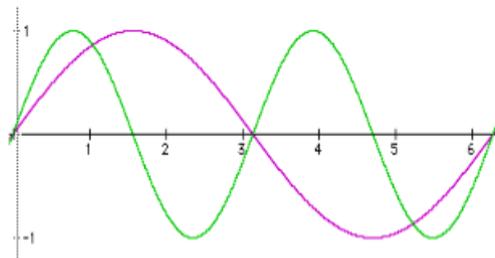
Much of music in early times would have been unaccompanied or minimal accompaniment was provided with simple instruments, sometimes just a tympanic instrument, like a drum or rattle. While groups of instruments must play using the same pitch, the most wonderful instrument of the voice does not have this technical limitation. For this reason the voice, and singing tends to lean towards just intonation. In just or pure intonation the ratios of tuning is made up of small whole numbers. This system was later codified by Ptolemy but must have been used in ancient cultures. With regards to pitch the *a Capella* voice is extremely flexible, probably more so than any other instrument. There never is the need to retune, however varied the pitch.

NOTES	EQUAL TEMPERAMENT cents	JUST INTONATION
c	0	0
c#	100	114
d	200	204
d#	300	294
e	400	408

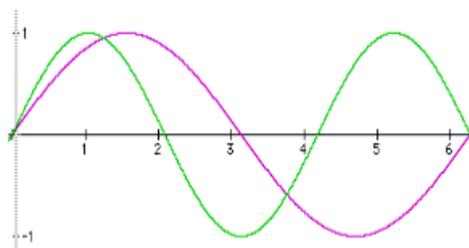
f	500	498
f#	600	612
g	700	702
g#	800	816
a	900	906
a#	1000	996
b	1100	1110
c	1200	1200

Fig 4.4 Relation of Equal temperament to Just intonation.

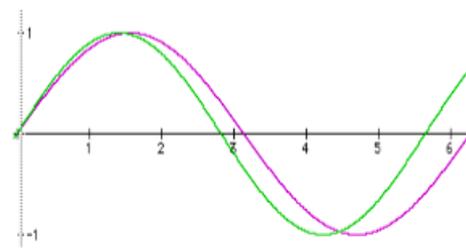
There obviously is a physical reason why Just Intonation sounds better to the human ear. The easiest/simplest explanation of this that I could find is by Christine Denton in her article “The History of Musical temperament and Pitch Before 1750”, already published in 1996. She explains that the illustration of a soundwave below is that of an octave.



The lower notes takes longer to travel but the waves have similar high and low points. For this reason an octave sounds consonant to our ears.



perfect 5th

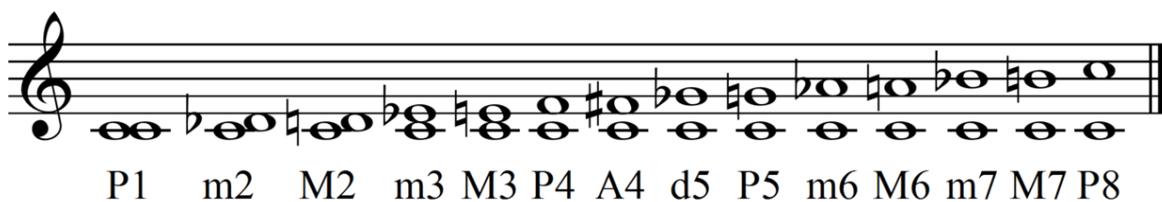


minor 2nd

With equal temperament the sound waves do not line up completely and resultantly we hear dissonance, or beating.

In musical theory, the difference between two pitches is called an interval. In modern Western music this therefore refers to the differences between the notes of a diatonic scale. The smallest difference in the diatonic scale is a semitone. On the chromatic scale the smallest unit is a semitone. The whole tone is an interval consisting of two semitones. A tritone is the term that indicates three tones or six semitones. Smaller units like microtones and commas also exist with in other systems. When we describe an interval, we refer to two separate properties of that specific interval. The first property is quality and the second property is number.

In simplistic terms, when we now indicate the number of an interval, it is an indication of the interval as we see it on the musical bar, including both lines and spaces. The interval from C – G is a fifth and would obviously include all five of the letter names from C to G, and obviously also five notes.



[https://en.wikipedia.org/wiki/Interval_\(music\)](https://en.wikipedia.org/wiki/Interval_(music))

Fig 4.5 The intervals from C.

The quality of an interval is described as either a perfect, major, minor, augmented, or diminished. Within the diatonic scale, all the octaves as well as most fourths and fifths are regarded as perfect. A perfect fourth encompasses five semitones and a perfect fifth encompasses seven semitones. If we look at this carefully, however, we will find that only six of the fifths consist of seven semitones. The other one consists of six semitones. Also look at the thirds. Some of the thirds span 3 semitones while others span 4 semitones. Different terms are used to describe these subtle differences. It can be called diminished if it is narrowed by a semitone, or it can be called augmented if it is widened by one semitone. Conversely, the so-called diminished interval is called minor, while the larger interval is called major. And so, when we thus notice that no kind of third therefore is perfect, the larger span is called a major third and the smaller span is called a minor third.

In the diatonic scale we find:

- Unison notes and octaves are perfect
- fourths are perfect or augmented
- fifths are perfect or diminished
- seconds, thirds, sixths and seventh are either major or minor.

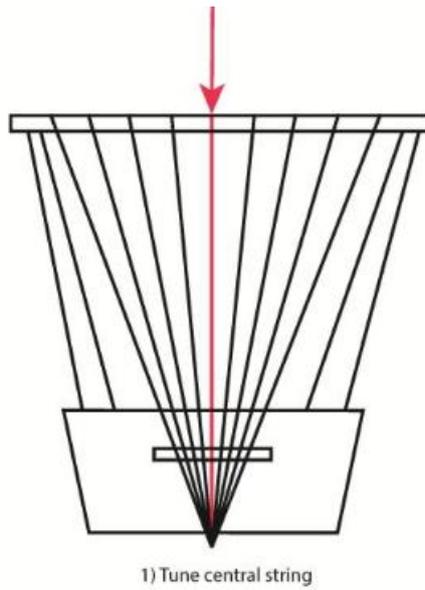
In Ancient Greece there were three known or standard tunings of the lyre. These were

- Diatonic – made up of a tonal center note followed by a tone, tone and semi-tone, i.e. A G F E
- Chromatic – where the second string was lowered by a semi-tone, making the two lower intervals a semi-tone, i.e. A G \flat F E and
- Enharmonic – there are two quarter tones at the bottom, i.e. A G $\flat\flat$ F(lowered a quarter) E

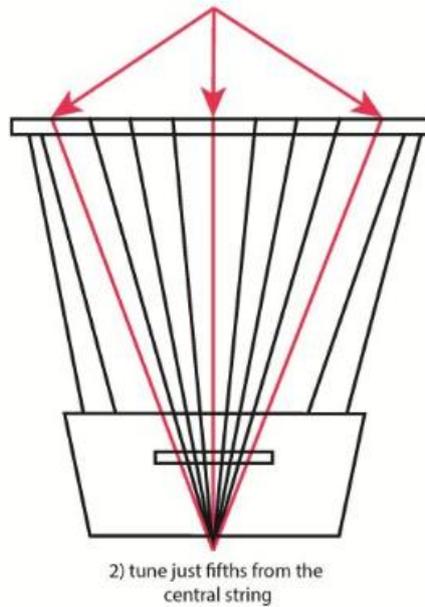
Within Greek music in the 5th century CE, both chromatic and enharmonic systems were very popular, but it appears that the diatonic system preceded both and that it remained in use much longer.

These tunings would produce a sequence of four notes called the tetrachord. There thus exists a relation between the lyre, how the four notes of the tetrachord were tuned and the mode of music it could produce. Richard Dumbrill is an icon of Archaeomusicology. In his article, “The Truth about Babylonian Music” published in *Nemo-online* vol 4 nr 6, he explains how the lyre was tuned and how this forms the basis of several other estimations and assumptions. This becomes easier to comprehend keeping the above Pythagorean tuning process in mind.

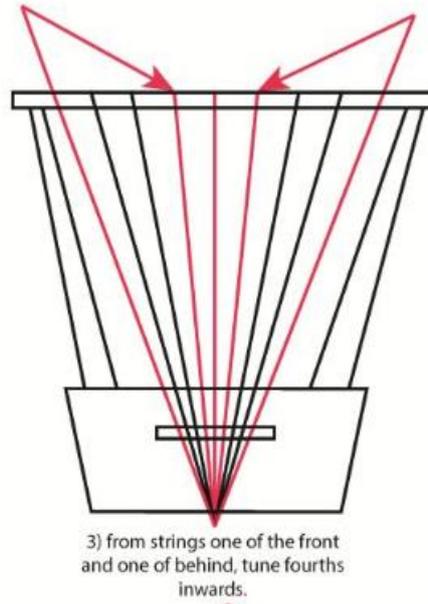
The central string is the first to be tuned. As expected, the thickness and quality of the string (of gut) would influence the pitch, because it determines the degree to which the string can be stretched.



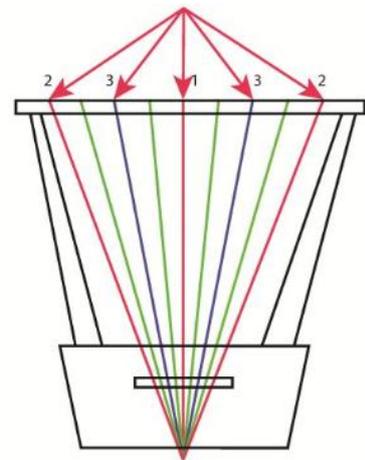
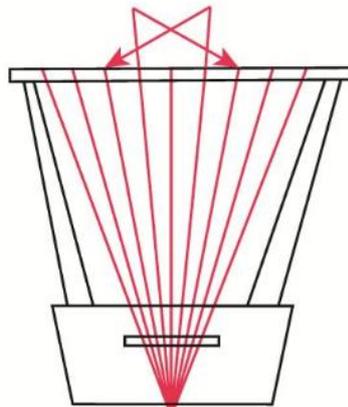
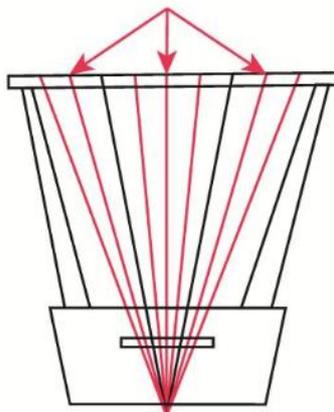
Once the central string produces stable pitch – because it does not stretch anymore – the very first and last strings, the outermost string, are tuned at a fifth from the center string.



This was to be followed with



And finally



4.3 MUSICAL MODES

Music does not consist of a single concept or type. In order to understand the development of music and tone, it becomes important to know the beast that we are dealing with. A multitude of questions arise, all to be answered in order to understand the origins thereof.

The very first question is with regards to the types of music and the mode of music. We can now identify several types of music, the most pertinent probably would be modal music and tonal music. Both these have:

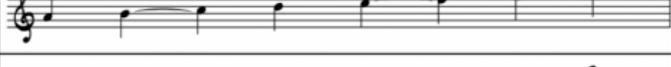
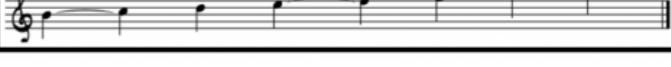
- A defined home pitch. This is the tonal center. The melody and the harmony are based on this.
- Only a single tonal center at any specific time. The tonal center can change during the piece of music, but still only a single tonal center remains at that stage.
- Both use a seven note diatonic scale as base.

The terms of “diatonic” and “chromatic” are used to describe different scales and their intervals, chords and notes that flow from these scales. In very simple terms, diatonic refers to music that derives from the white notes of the modern piano, C-D-E-F-G-A-B. The diatonic scale leads directly to our modern Western heptatonic scale. As the name suggests the scale consist of seven notes in every octave and it includes the major and minor scales. Further divisions can be made into Western, Roman, Spanish, Hungarian and Greek systems. Chromatic then refers to the twelve notes of the chromatic scale and this would include all of the semi-tones, i.e. all the white and black notes on the piano.

Tonal music refers to the harmonics now well established which uses the major and minor keys. The tonal center is the first note of the scale and the harmonics are built around this. One of the very specific characteristics of tonal music is the progression from the triad/chord based on the 5th note to the tonic triad/chord at the end of a work. This relation of a chord to the tonal center is one of the base principles of functional harmonics.

Modal music deviates from the above in the sense that it does not necessarily make use of a major or minor scale, and neither does it use functional harmonics within its tonality. The term modal is now more generally used for any non-tonal music that has a tonal center and uses a diatonic pitch collection.

The modes of music are the different scales/tonalities that can be played, each starting on the next/different white note of the modern piano.

mode name	mode no.	treble clef notation with parent scale C	scale pattern
Ionian	1st		WT WT HT WT WT WT HT
Dorian	2nd		WT HT WT WT WT HT WT
Phrygian	3rd		HT WT WT WT HT WT WT
Lydian	4th		WT WT WT HT WT WT HT
Mixolydian	5th		WT WT HT WT WT HT WT
Aeolian	6th		WT HT WT WT HT WT WT
Locrian	7th		HT WT WT HT WT WT WT

<https://www.uberchord.com/blog/music-theory-music-modes/>

Fig 4.6 Different modes

The result of this is that each mode sounds completely differently, and the chord progressions differ and sound differently to the human ear.

Other types of music would include:

- Bi-tonal or poly-tonal music which uses multiple tonal centers at the same time
- Micro-tonal music uses pitches that are between the standard twelve notes
- Serial or dodecaphonic music which purposefully avoids a tonal center
- Whole-tone music which uses a scale of six notes all at a whole step
- Music with no pitch, for e.g. a work purely for percussion
- Other music making use of other pitches than the twelve common pitches

The first written language in the Ancient Near East was Sumerian. In generalised terms this was followed by Akkadian, Hurrian, Hittite and Ugaritic. These were written in a cuneiform script. It was written on fresh clay using a stylus and consisted of wedge shaped figures in a vertical horizontal and oblique orientation.

The script used in Sumerian used graphic symbols that represented a concrete idea or concept. From this ideographic concept other synonyms developed. The Akkadian language is very important for several reasons. Firstly, the language is virtually fully understood, and secondly, there is a very large quantity of remaining Akkadian texts. There is a large complement of remaining cuneiform texts in collections all over the world. Some of these tablets are written using Sumerian on the left and Akkadian on the right. Within this huge treasure of surviving tablets exists seven written in Akkadian which relate to musical theory. We know this because they contain terms like the Sumerian “SA” and Akkadian “*pitnu*” which means “the string of a musical instrument”. They also contain numbers denoting musical notes. It is important to view the “music” found on these tablets within context and not to assume them to be similar to our modern systems, but just less developed or more imperfect.

There are 29 more tablets containing written music, unfortunately in the Hurrian language which is more obscure. Hurrian does not belong to the Semitic group of languages but probably originates from the North East Caucasus, mostly spoken in some Russian republics. The Hurrians migrated to Syria at approximately the beginning of the second millennium BCE. Although they adopted the Babylonian cuneiform type of script the words and lyrics found on the tablets accompanying the music are still unknown.

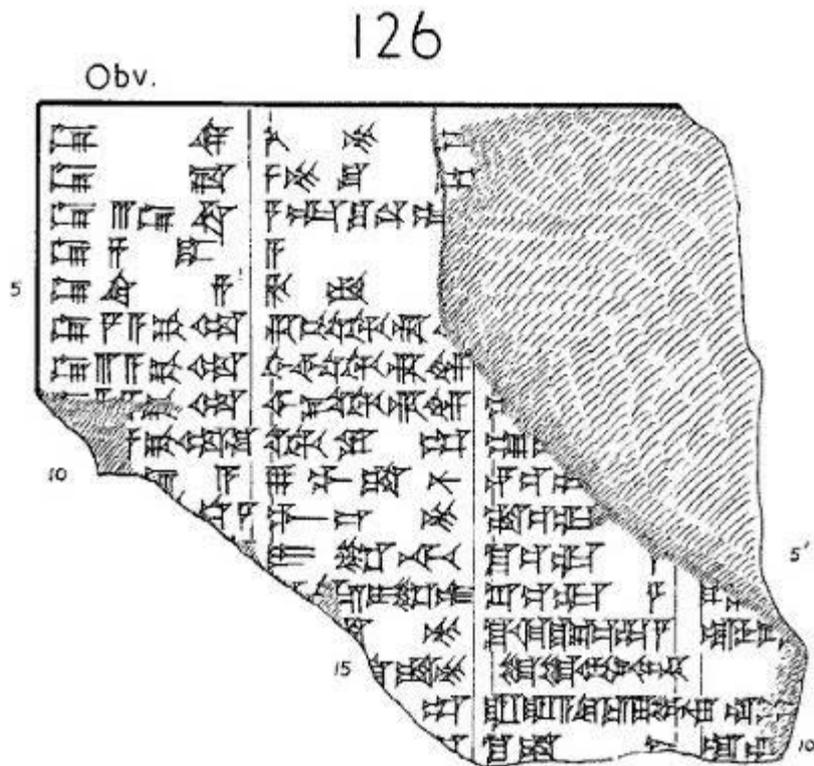
4.4 CUNEIFORM TABLETS

Only a handful of tablets deal primarily with music. These appear to be Akkadian in character. They can be distinguished from the plethora of other tablets on the basis of their musical contents. Some contain terms that are recognisably musical, for e.g. the Sumerian word “SA” and the Akkadian term “*pitnu*” both meaning “string of a musical instrument”. The texts of these tablets also contain numbers, not only alone-standing numbers, but numbers in pairs indicating an interval. It is these numbers that are so important in our understanding of the text. Therefore, understanding the numbers is totally essential to our understanding of the theory and tuning systems. One of the easiest (and thus the best) basic explanations of the numbers I could find is by Dumbrill (2005, pp 24) and if one only understands this, it improves our grasp of the greater system, i.e. how the basis of the numbering theory was formed. Dumbrill confirms that:

- If two numbers were given in a single line, then these two numbers would define an interval within that specific denomination.
- The numbers could be used to indicate the tritone in each scale
- So, if a scale was written as 1-2-3-4-5-6-7-8, and the tritone (consisting of three whole tones) as indicated by the available intervals is placed at 1-4, then
- On our modern piano this would represent the scale of white notes beginning at F = f-g-a-b-c-d-e-f, confirming that the tritone is at f-b.

There are some highlights to be found within our knowledge of early Mesopotamian musical theory. Not everybody got it correct on the first effort, but every step was necessary in our understanding of the underlying theory. Anne Kilmer published her first article on the CBS 10996 tablet as far back as 1960, and continuously kept updating her work and knowledge, conveying her efforts to the rest of the world in several publications. In the following years came publications by Duschesne-Guilleman (1963) who also based her initial work on CBS 10996 and U.3011. Kilmer corrected our views on KAR 158 from its first publication in 1919, and the text from U.7/80 in 1968 by Gurney. There exists a good working framework with regards to the four known tablets originating from Mesopotamia itself. Even with the addition of several other tablets we still base much of our knowledge on a very small quantity of evidence. It is because of this, that some doubt will always remain.

4.4.1 UET VII 126/NABNITU XXXII



https://sites.google.com/site/432octaves/ /rsrc/1453148007739/Sumerian-Cyclical-Tuning-System--432/UET_VII_126_lg.jpg

Fig 4.7 UET VII 126

This is a Sumerian cuneiform tablet and is also known as the “String naming text”. It forms a part of the tablets excavated at Ur by Sir Leonard Wooley in the late 1920’s. It comes from a room south of the main courtyard. The name used here comes from Prof. Gurney of Oxford University, from when he published “The Ur Excavation Texts” donating the fact that it is the 126th text of his seventh volume.

The tablet was inscribed in about 626 – 539 BCE but it in fact is a late Babylonian copy of the 32nd tablet of the great Babylonian lexical series *nabnitu*. A duplicate fragment comes from excavations at Nippur, dated 1800 – 1500 BCE. The tablet is obviously bilingual. Sumerian is on the left and Akkadian on the right. This text is extremely important because it provides the name of nine discrete strings of a musical instrument. We now presume this instrument to be a lyre.

The first nine lines are clearly visible on the tablet and the Akkadian writing on the right, which is a translation, confirms what we read in Sumerian on the left. The very first line starts with the Sumerian logogram which means string and that is followed by the second logogram which means front. It is now accepted that we can follow the interpreted translation of the first line to translate the first 10 lines:

<i>Line</i>	<i>Sumerian</i>	<i>Akkadian</i>	<i>Translation</i>
1	sa.di	<i>qad-mu-u(m)</i>	front string
2	sa.us ⁴	<i>ša-mu-ša-um</i>	next string
3	sa.3.sa.sig	<i>ša-al-šu qa-a/t-nu</i>	third, thin string
4	sa.4.tur	<i>a-ba-um-šú</i>	fourth, small/Ea-created-string
5	sa.di.*5	<i>ha-am-šú</i>	fifth string
6	sa.4.a.ga.gul	<i>ri-bi úh-ri-im</i>	fourth behind string
7	sa.3.a.ga.gul	<i>šal-ši úh-ri-im</i>	third behind string
8	sa.2.a.ga.gul	<i>šì-ni úh-ri-im</i>	second behind string
9	[sa.1].a.ga.gul	<i>úh-ru-um</i>	behind string
10	[9].sa.a 9	<i>pì-it-nu</i>	nine strings

Fig 4.8 Lines 1 – 10 : Sumerian, Akkadian and translation from pg 29 : The Archaeomusicology of the Ancient Near East by RJ Dumbrill.

From this we deduct that it either indicated a musical instrument with nine strings or that it indicated a musical system which was based on nine notes, thus an enneadic set or scale of nine pitches. As indicated in both Sumerian and Akkadian this is now known as an enneachord. On reviewing the description of the strings there appears to be a symmetry. This is similar to the symmetry found in Greek systems which was based on heptatonism

1 – 2 – 3 – 4 – 5 – 4 – 3 – 2 – 1

and this would have made it easier for the player to identify the strings. If this scale is tuned to a tonic “a” then it becomes completely symmetrical, but it must be understood that this is not a heptatonic scale with 2 strings added. It consists of 2 conjunct, but palindromic pentads. The premise that the strings should be numbered from 1 to 9 and that strings 8 and 9 are octaves above strings 1 and 2 is incorrect. This is made up of two pentads and neither would be able to accommodate octaves. It appears rather that the interval between strings 1 and 2 of the front is of the same value as the interval of string 2 and 1 of the back. The same would be true for the opposing string intervals at 3-4 vs 4-3 and also 1-5 vs 5-1.

1 2 3 4 5 4' 3' 2' 1

a c d f g a' c' d' f'

in the opinion of Dumbrill should rather read

1 2 3 4 5 4' 3' 2' 1'

a g f e d/d c b a g

and the symmetry of the first option can be illustrated as

the minor third $a - c = 1 - 2 = 2' - 1'$

single tone $c - d = 2 - 3 = 3' - 2'$

perfect fourth $a - d = 1 - 3 = 3' - 1'$

minor sixth $a - f = 1 - 4 = 4' - 1'$

last tone $f - g = 4 - 5 = 5 - 4'$

The 10th line interestingly refers to “nine strings”, strengthening the accepted premise of an instrument with 9 strings. There is no basis or logical reasoning that would support the segregation of the name of the string from the pitch of the string and so, the word “pitch” and the word “string” can be used reciprocally. It is Dumbrill (2017: 94) which feels that this naming of the strings corresponding to the pitch must have been inherited from a Babylonian precursor. For me personally, this makes total sense.

It is of note to find the omission in the Babylonian translation indicating the importance of the 1st and 5th string which would be indicative of a pentatonic grouping. In Sumerian the first string is called *sa.di* while the fifth is simply called *sa.di.5*. When the meaning of *di* is taken as “prime” or “first”, then the addition of *di*, according to Dumbrill (2017: 94) indicates the boundaries of the system.

Special mention should be made of the status of the fourth string. In the text it is indicated that the fourth string was created *id est* and thus corrected by the God Ea. In simple terms this correction changes the naturally placed tritone (an interval of three adjacent whole

tones) to a just fourth which is in consonance. No less attention should be paid to the quantification of the third string when using the proposed method of tuning the lyre of Dumbrill. This qualification value comes to 64.8 and is the only number which is not a whole number. This dissonance is of the value of 19 cents, the difference between 631 and 612 cents. During the Western Renaissance all the quantification numbers were multiplied by 10, but that is not necessarily true for Babylonian music. This apparent anomaly now clearly explains the qualification of “third thin string”. As mentioned above, this irregularity is corrected by the fourth string god Ea/ENKI, the god of music.

We can in simplistic form illustrate the scale presented on this tablet in descending form on the white notes of the modern piano as

a - g - f - e - d - c - b - a

but it only is an approximation as it is derived from a different method originating from the modern heptatonic and diatonic scale. The method of tuning a lyre using Just Intonation as proposed by Dumbrill is described and illustrated previously. This further clarifies / illuminates the difference with Equal Temperament that we would use in modern tuning:

	Ratio	Just Intonation	Equal Temperament
Fourths	4 : 3	498.044 cents	500 cents
Fifths	3 : 2	701.955 cents	700 cents

Most modern scholars now agree that the numbering found on this text represents an alternative procedure of tuning to the one described in CBS 10996.

Dumbrill points towards iconographic evidence to support the symmetry described above. The first comes from an 18th Dynasty plaque from a temple to the honour of Aten in Karnak. It depicts two blind/blindfolded instrumentalists playing on a single instrument. They both appear to be plucking the strings with the left hand, while dampening other strings with the right hand.

This relief begs for careful consideration. One should not jump to conclusions, of which several are possible. The lyre has 9 strings and we easily accept that it was tuned in a

symmetrical manner. The fact that it shows two players with four hands on the strings, does not mean that they were necessarily playing all four strings at the same time, thus creating harmony. It would be more realistic to accept that the artist only depicted the general stance of the musicians. On the other hand, it surely would be possible to chord two different strings together/at the same time, even if just by accident. Harmony would not have been invented at this time, only showing up in the second millennium CE. At the time of the reign of Aten, music would have been monodic, relying on intervals to create music, i.e. a horizontal manner of musical composition (in opposition to harmony which is a vertical manner of composition).



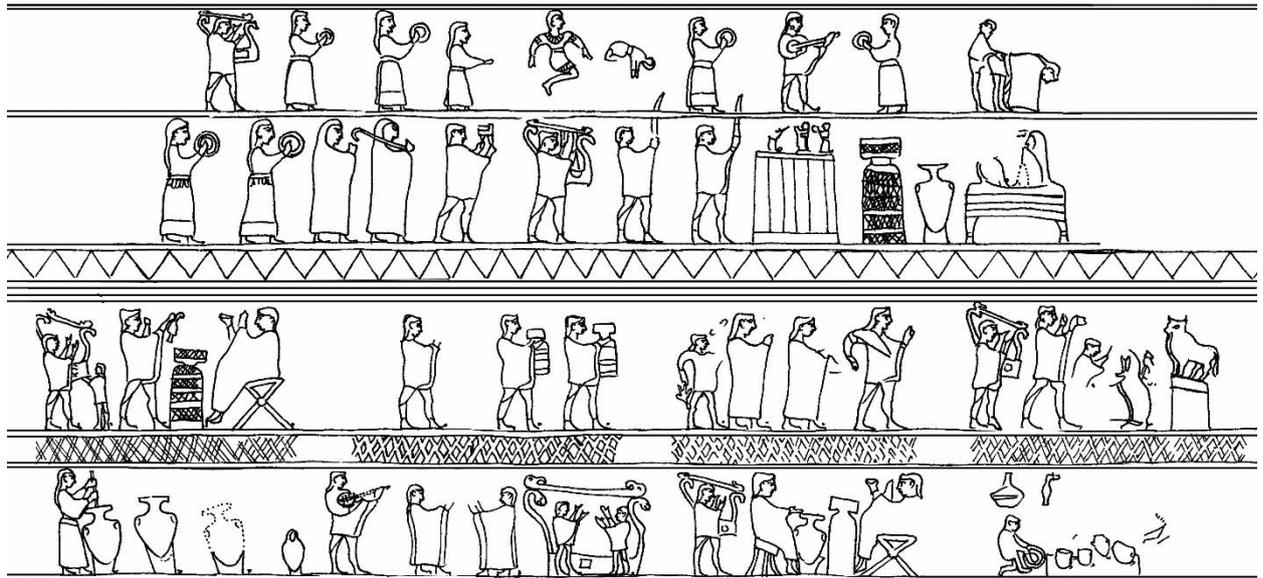
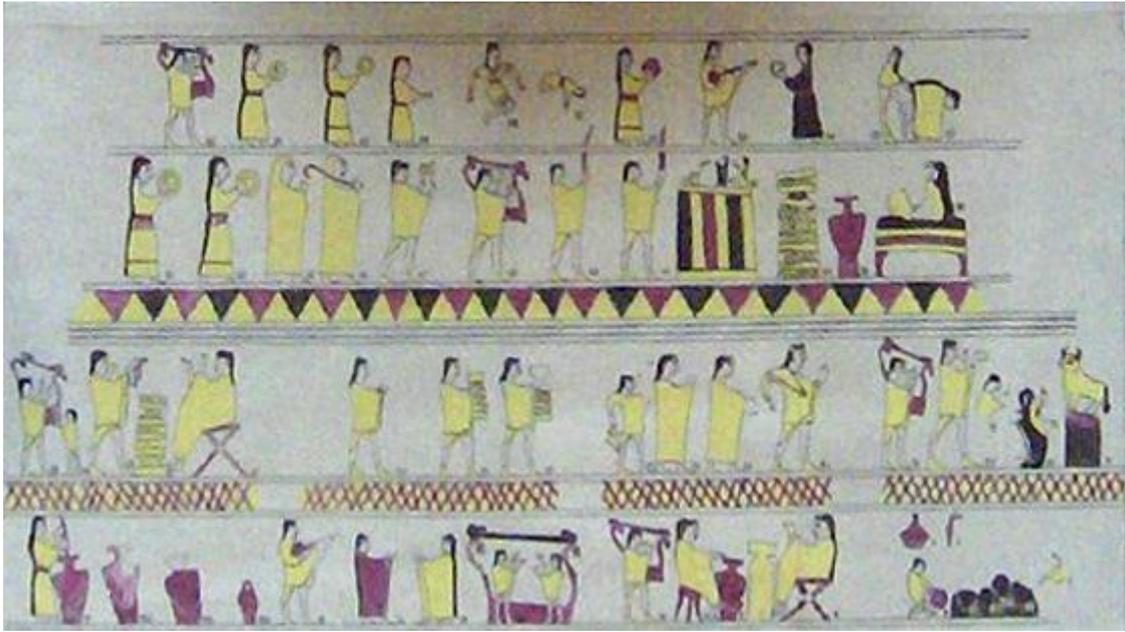
<https://www.google.com/search?q=Musicians+playing+a+giant+lyre+block+from+temple+Aten+at+Karnak&client=firefox-b&dcr=0&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjahbKQn4XYAhUGL8AKHe JCO8Q AUICigB&biw=799&bih=730#imgrc=BHY OCDstvqsWM:>

Fig 4.9 Two musicians playing a giant harp:- form the temple to Aten at Karnak

Comparing the size of the instrument to the height of the musicians standing erect next to the lyre, we estimate the length of the strings to be about 6 feet. It would not have been practical to play virtuoso music but would more likely provide a baseline to the music.

Dumbrill argues that the musicians might be playing the same notes in symmetrical unison. On careful inspection their hands appear to be in a symmetrical position on the strings

The second example is from a Hittite Inandik vase. In the most bottom line one sees two characters in front of an instrument which appears to be a giant lyre. Several of the figures found on this vase are actively playing the instrument they carry, but the two figures in front of the giant instrument are not depicted as playing the lyre. The size of the instrument would have necessitated two, rather than one player.



<http://www.judithstarkston.com/articles/what-hittite-and-mycenaean-women-%E2%80%9Cid%E2%80%9D/>

Fig 4.10 Inandik vase demonstrating Hittite musicians and dancers at a wedding, dated about 1650 – 1550 BCE, currently in the museum of Ankara.

The third example mentioned by Dumbrill is found on the inlay of the lyre from Ur, which we have met in the previous chapter.



Fig 4.11 Animal musicians on the inlay from the Royal Harp from Ur

We know from previous knowledge that the donkey appears to be playing a lyre, with a standing bear holding the frame. Dumbrill admits that the bear is not seen playing the instrument, but argues that this would not necessarily have excluded him from doing so. I respectfully differ from this inference. In my mind the bear has taken the stance of someone holding onto something/holding something stable. He is slightly removed from the instrument, his feet are planted apart and he appears to be holding on to the top and side of the frame tightly in a manner to stabilise the instrument, rather than standing close and holding the instrument under his left arm, as the usual manner for musicians would be. He simply just appears to be too far removed from the strings in order to participate in the making of the music.

4.4.2 N 4782

This small fragment of a tablet in essence is complementary to UET VII 126. It was found at the University Museum collection in Philadelphia in 1977 by Aaron Shaffer. Shaffer dates this fragment to the Old Babylonian period, possibly 1800 BCE, while Finkel thinks it should be dated as Middle Babylonian.

This fragment allows extrapolation of UET VII 126 down to line 25. It reveals a series of seven terms which either are scales or intervals with a specific variation for each. It is interesting to

note that the order of the scales do not correspond with the order of the scales in the first chapter of UET VII 74, but that it does correspond with the order of scales in the second chapter. It also is different from the order of intervals in CBS 10996. One of the easiest explanations lies in practicality. Chapter 1 of UET VII 74 deals with theory, while chapter 2 deals with practicality and it would make it much easier for the musician to find and determine the positions of the intervals on his instrument. This also would influence the relevant tuning method, based on intervals, rather than on scales.

4.4.3 CBS 10996

This tablet was found at the site of Nippur. It is now agreed that the tablet is neo-Babylonian, probably from the early part of the first millennium BCE. Some of the terminology found on this tablet is also known from the much older tablet UET VII 74, which dates from about 1800 BCE, and thus this tablet might have been a copy of the older text. In fact, this tablet actually is a list of key numbers used for mathematical purposes, but also contains the names of pairs of string numbers. There are two reasons why we know these to represent numbers of strings:

1. They are all preceded by the logogram SA, meaning “string”
2. The names correspond to the names found on Nabnitū XXXII



<https://sites.google.com/site/432octaves/cuneiform-tablets>

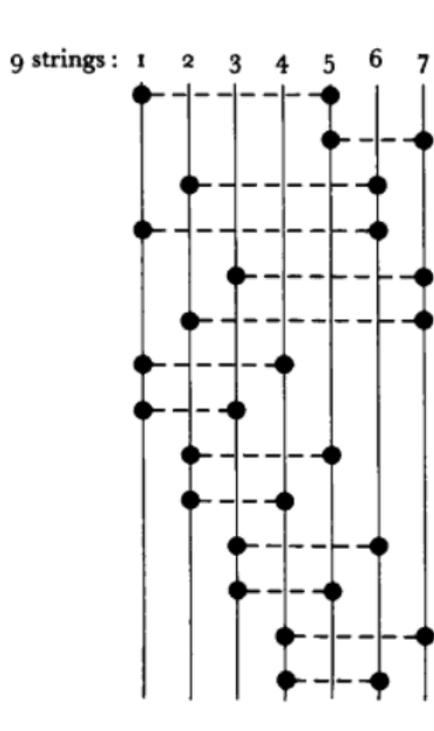
Fig 4.12 The Sumerian tablet CBS 10996

This tablet makes an interesting addition to UET VII 126 (previously) as it indicates the relative positions of 14 intervals, possibly in relation to the strings named in UET VII 126. It is quite damaged, but Madame Duchesne-Guillemin was able to figure it out and published her results as *Decouverte d'une gamme babylonienne* in *Recue de Musicology*, Vol 39 (Juillet 1963: 3 – 17). The interpretation of this fragment represents a pivotal point in our knowledge of Babylonian music theory as it laid the basis of our understanding and opened up the door to other interpretations and discoveries. The first authoritative interpretations also indicated that music theory and the (apparently) heptatonic scale existed with the Babylonians, many centuries before the Greeks came into play.

The tablet is quite damaged but contained two versions of the same text. The first was an abridged version of the second and thus it was possible to reconstruct the text in greater totality. She explained that the numbers at the beginning of each sentence represented a musical interval and was followed by the term which would indicate the names for such intervals. There are seven primary intervals of fourths and fifths and seven more secondary intervals of thirds and sixths.

Fig. 1. Interval names according to Text 1 (CBS 10996)

1	1-5	<i>nīš gabri</i>	“rise of the duplicate”
a	7-5	<i>šēru</i>	“(main theme of a) song”
2	2-6	<i>išartu</i>	“normal”
b	1-6	<i>šalšatu</i>	“third”
3	3-7	<i>embūbu</i>	“reed pipe”
c	2-7	<i>rebūtu</i>	“fourth”
4	4-1	<i>nīd qabli</i>	“fall/place of the middle”
d	1-3	<i>isqu</i>	“throw stick/lot”
5	5-2	<i>qablitu</i>	“middle”
e	2-4	<i>titur qablitu</i>	“bridge of the middle”
6	6-3	<i>kitmu</i>	“closed”
f	3-5	<i>titur išartu</i>	“bridge of the normal”
7	7-4	<i>pītu</i>	“open”
g	4-6	<i>serdū</i>	“(name of a) lament”



http://www.jstor.org/stable/4200216?seq=1#page_scan_tab_contents

Fig 4.13 Names of strings and intervals

The highest number on this tablet is 7, which again indicated that it was written for a seven stringed/heptachordal instrument. The text is important for several reasons:

- In lines 11 – 16 appears to be a method of tuning applicable to the enneachord. It consists of descending fifths, ascending fourths and complimentary thirds.
- If we thus accept that this makes up a system of 13 degrees, then the tablet names 7 positions for the interval of the descending fifth and the ascending third.
- It must be remembered that heptachordal instruments only employed 7 strings. The span was thus restricted. This was provided for in the text as it makes use of inversion, i.e. certain intervals are thus inverted.

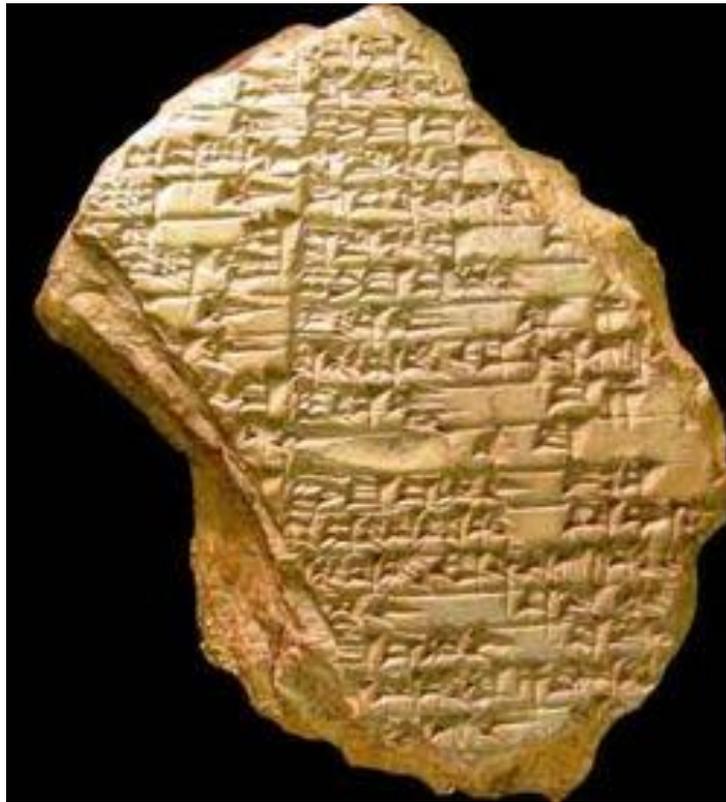
Original opinion thought that this was an ascending system but it was later proven to be descending. Dumbrill (2017: 100) points out the “arrhythmic” order of the intervals and ascribes it to the adaptation of a larger system to accommodate an instrument with 7 strings.

Thus 14 pairs of string sets are found in the text, representative of the 14 string pairs on a 7 string instrument, and it gives instructions as to how these should be tuned. This is based on the Mesopotamian heptatonic diatonic scale system. The first seven pairs of strings are found by the tuning of perfect fifths and perfect fourths, all sounding consonant. There are seven more string pairs of which the tuning would make them sound more closely to just tuning. This therefore is a slight modification of what we understood was in the original Pythagorean tuning system.

4.4.4 **KAR 158 / VAT 10101:**

This tablet is from Assur and dates to the second half of the 14th century BCE. The author might have been a temple official or even someone connected to the royal court, but we are not even sure whether this person was a musician or not. There is a widely acceptable version of the text published in 1996 by H Limet, extensively quoted by Dumbrill (2005: 77-84), with Brigitte Groneberg also giving a very enlightening, and more complete description in her article published in 2003. We can make out 55 lines which are organized in four columns on the obverse and four columns on the reverse. The text forms a catalogue and contains groups of songs and poems. We know very little about the musical form found in the text but we do know that Sumerian hymns are classified according to their tradition, in this instance *tigi* and *adab* hymns (Dumbrill 2005: 83). It also contains other religious songs and lastly a group of love songs. It is sad to realize that this tablet demonstrates just how many old Akkadian hymns have now been lost to us.

4.4.5 U.7/80 or UET VII 74



<https://sites.google.com/site/432octaves/cuneiform-tablets>

Fig 4.14 The "Tuning Text"

This tablet also was discovered in the 1920's by Sir Leonard Woolley at Ur. It dates from about 1800 BCE and was found by the curator of the British Museum, E Sollberger. It was only published some 40 years after its excavation, in 1968, by Professor Gurney. We sometimes refer to this text as the "tuning text" as it provides us with more decisive understanding of the Babylonian musical system, as well as to some of the terminology. It is a very important tablet but we would not have understood this if we did not have the knowledge of several other tablets and fragments. This tablet becomes clearer if read in conjunction with knowledge gained from Nabnitu XXXII and CBS 10996. It was believed to, in essence, describe the tuning of the *sammû* instrument. It uses instructions for tightening and loosening the strings. This would either sharpen or flatten one of the components of any unclear interval. If the system is followed completely, it leads back to the original mode, now just transposed up or down a semi-tone. The tuning system it describes uses the intervals from the odd-numbered lines of CBS 10996 (see above). The strings were thus tuned by ear in fourths and

fifths. UET VII 74 now makes provision for the tuning of seven complete related tuning systems. It furthermore confirms the knowledge of a heptatonic scale. Each had a designated name/term, based on the first interval tuned. These seven named tuning systems also appear in other documents:

išartum, kitmum, embūbum, pītum, nīd qablim, nīš tuḥri, qablītum, išartum 2.

This system of tuning is very similar to the Pythagorean system used in Ancient Greece, but obviously would predate it by some time. Additionally, these systems allow for an impure interval. This corresponds to the tritone. The instructions given here allows for this impure interval to be retuned using a perfect fourth or fifth.

Gurney applied the current knowledge of the time and assumed the scale to be ascending. It only is fair to mention that at that time no one had even hypothesised about a descending scale. In 1982 R Vitale published *La musique sumero-accadienne, gamme et notation musicale*, UGARIT-FORSCHUNGEN 9, 1982, 241 – 265. He was the first to see things differently but it took another Assyriologist, JH Krispijn, to support his theory and propose the correction of the translation made by Gurney. He proposed that the verb used in line 12 be interpreted as *nasahum*, Sumerian *gīd-i*, meaning “to tighten”. This prompted Gurney to propose a new transliteration, published in 1994.

This “new” interpretation confirms the fact that the text appears to be divided into 2 separate cycles, each containing 7 quatrains. The division is at line 12. Dumbrill (2005) painstakingly explains the text, the meaning thereof and concludes by pointing to the fact that some instruments would thus have been tuned in a pentatonic form. This would fit in with the arrangement of short and long strings tuned in ascending fifths and descending fourths as explained in the previous chapter (Introduction to the lyre).

Firstly, this means that Mesopotamian music included a set of seven different heptatonic, diatonic scales. This also means that what we now know as the Pythagorean system of fifths was known at the time. Kümmel (Or 39, 1970, 261) was the first to show that the term used to describe the first primary interval on each scale was also used to name that specific scale.

The fragment provides a further important fact, namely the name of the instrument. In Sumerian it is called *giš-ZĀMĪ*. This term is found in several texts but there is no description

or explanation. Philological examination of this term is indicative of a wooden stringed instrument. The instrument is now accepted to be a lyre-kithara and not a harp (Duchesne-Guillemin, *La theorie babylonienne des metaboles musicales*, *Revue de Musicologie* 55, 1969, 3 – 11)

Dumbrill (2017: 104) makes a strong argument against the accepted heptatonic construction proposed for this tablet fragment, in spite of the similarities with CBS 1766 which he admittedly describes as “without any doubt is a heptatonic construction”. He then argues that it had been wrongly interpreted because of the existence of two conjunct pentadic intervals, and proposes the correct positioning/placement of the so-called “unclear interval”. There thus exists no evidence for heptatonism on this tablet and clarification with regards to the term “octave” is in order. The octave as an interval measures 1200 cents and in a heptatonic set contains 5 tones and 2 semi-tones. In U.7/80 the term is used as an interval that is shared by two conjunct pentads. This simply means that the “octave” should be regarded as a concept within which a certain number of intervals can be fitted.

4.4.6 **MS 2340**

This appears to be the earliest record of music and musical instruments. It contains lists of several items, amongst these a list of 9 types of musical strings and 23 types of musical instruments.



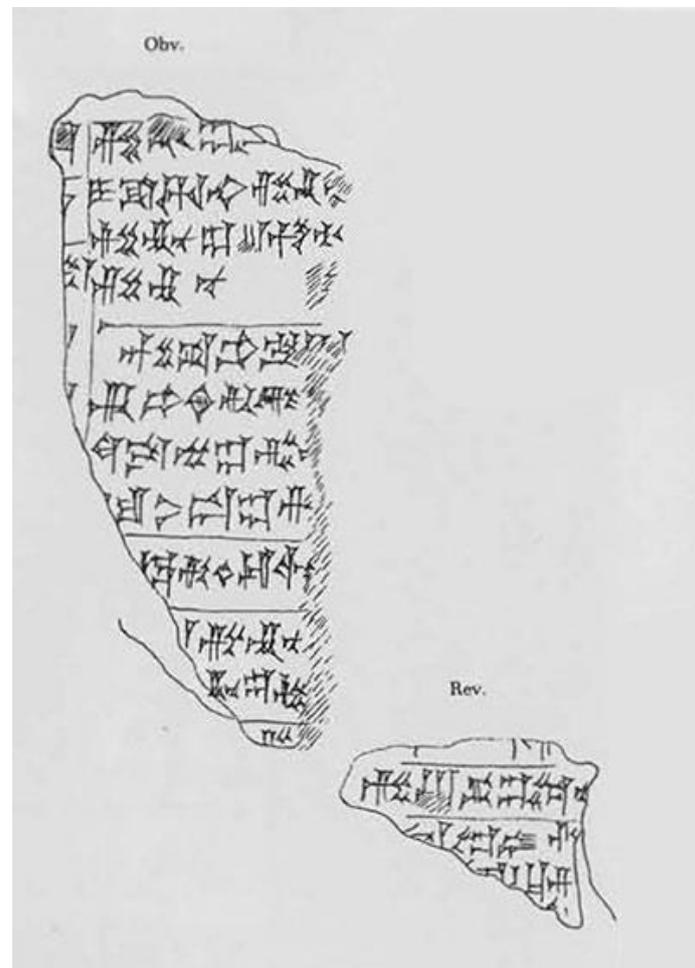
MS 2340 Lexical list of harp strings, 23 types of musical instruments, Sumer, 26th c. BC.
The earliest record of music and instruments in history

<http://www.schoyencollection.com/music-notation/sumerian-music/earliest-music-record-ms-2340>

Fig 4.15 MS 2340

This tablet is Sumerian in character. It dates from the 26th century BCE. It contains lists including domestic animals, jewellery, weapons, straps, different types of sheep, knives, etc. It further includes a list of 9 types of musical strings and 23 musical instruments. Some of the instruments mentioned are still unknown, but it does include string instruments. One of the instruments is a Semitic word *ki-na-ru*. This already appears very familiar and corresponds with the later *kinnaru* that we know from the Mari letters and Ras Shamra texts. Obviously this refers to the later known biblical Hebrew term of *kinnōr*.

4.4.7 N 3354



<https://www.penn.museum/sites/expedition/the-musical-instruments-from-ur-and-ancient-mesopotamian-music/>

Fig 4.16 Fragment 3354 of cuneiform tablet from Nippur

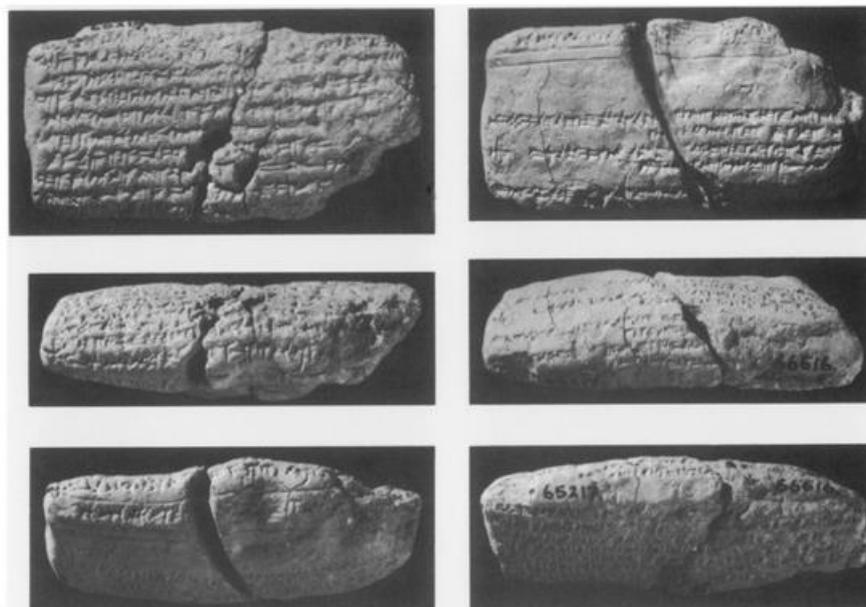
This is a small fragment from a tablet also from the famous Nippur collection and dates from the Old Babylonian period. Nippur was the religious center of Mesopotamia for many years. Enlil was the supreme god of the Sumerian pantheon and it was believed that Nippur is where Enlil created mankind.

Nippur is about 160 km south of Bagdad and although it never was the capital city, it housed important temples. For this reason Nippur was often spared in the wars between various parts of Mesopotamia. It thus hid archaeological records and evidence ranging more than 6000

years. It remained to be a religious city, flourished under Alexander the Great. When it was abandoned in 800 CE it was predominantly a Muslim city, but also housed small communities of Jews and Christians, and even was the seat of a Christian Bishop. The University of Pennsylvania started excavations here in 1888 and remained on site until 1900. During this period they not only found a large treasure of artefacts, but also more than 3000 cuneiform tablets. In 1948 Richard C Haines started excavations of the religious quarter, and in 1972 McGuire Gibson started excavating the complete mound.

The fragment is small, obviously incomplete and very difficult to interpret. Some confusion exists regarding problematic references in lines 2 and 9, but there are similarities to the Hurrian tablets and we thus interpret this as a fragment from a tablet containing music notation/instruction on modes.

4.4.8 BM 65217 and 66616



http://www.historyofmusictheory.com/?page_id=182

Fig 4.17 BM 65217 and 66616

The “BM” in the description refers to the Basel Mission which is a Christian missionary society dating as far back as 1815, now the Mission 21. The Basel Mission archives hosts tens of thousands of digitised images and material.

These tablets probably are from Sippar, but are very difficult to interpret, and would have been impossible to interpret if we not had prior knowledge of several other tablets, especially CBS 10996 and UET VII 126. Anne D Kilmer in 1984 wrote an enlightening article “A Music Tablet from Sippar (?): BM 65217 + 66616” (*Iraq*, Vol 46, no 2, 69 – 80; available online at <http://www.jstor.org/stable/4200216>). The tablet is typically divided into two portions by a double line. It is written in Sumerian and Akkadian. The obverse lists 5 or perhaps 6 *ikribu*. *Ikribu* are benedictions/ blessings/ adorations/greetings with accompanied hand gestures. Each *ikribu* is introduced by a unique number and the name of a string. This confirms the notion that *ikribu* were accompanied by music. The question arises why each string was named within the context of the *ikribu*? Kilmer (1984: 74) suggests 4 possibilities:

1. The name of the string would instruct the performer as to the note to start on.
2. The name of the string could indicate an interval (?).
3. The name of the string would indicate the “key”
4. The name of the string indicates the scale in which the *ikribu* should be performed.

4.4.9 MS 5105 (Unknown text: Dumbrill)

The ownership of this tablet is unknown but we think this to be Old Babylonian because of epigraphy (the study and interpretation of ancient inscriptions) and shape.



<https://za.pinterest.com/pin/349803096027939081/>

Fig 4.18 MS 5105

This probably represents an old school text, written in haste and poor hand by a scholar with elementary knowledge of the script. The presence of this text indicates the presence of a music syllabus in the educational institutes of the time, already 4000 years ago! It represents the oldest known music notation, written on clay in two double columns, each with seven lines. The header might be read as “Intonation of the Incantation” but this hypothesis fails the test of philology. The text is numbered 1 – 14 suggesting two heptatonic music scales. It is now generally accepted that the scale is descending rather than ascending. The number 1 would thus correspond to the highest note and the number 14 to the lowest note. The only heptatonic scale that would fit a descending scale as described here (whether the columns are read separate or consecutively) would be the scale of “e”. Few instruments would be able to produce two consecutive heptachords. The harp is one possibility but there is no

iconographic evidence of any harp fitted with 14 strings. The other possibility is the lute, which if fitted with 4 strings and frets would be able to produce the 14 notes of this text. Again, no iconographic evidence of a lute with frets exist, and lutes are not preserved from the Old Babylonian period. Nevertheless, his text supports the presence of frets, and it also infers that their values were purposely calculated. The lyre would not be able to produce the 14 consecutive notes.

There are two distinct type of lute found in the old Babylonian period. The first has a long and thin neck while the second has a shorter but wider neck. We assume that the lute with the wide neck would be able to accommodate more strings. It is possible that the long neck lute would accommodate two strings, while the wide neck lute would accommodate four strings. The frets closest to the neck would produce the lowest notes. It also appears that the ancient lutes were strung in the same fashion as they are today. We now believe that the early scales would be descending in nature, but the organization of the strings with the lowest string to the left appears to be more naturally ascending. The generally accepted question to answer then is whether string number one represents the lowest string or the highest string?

Tuning for a descending system would also be different from the tuning of an ascending system. With a descending method, it is possible to illustrate that the semitones are placed unevenly. This would not be practical. However, with an ascending method of tuning the tritones would be evenly placed and the fitting would be similar on all four strings. This is obviously more practical and therefore more likely.

From this tablet Dumbrill (2005: 109) makes 6 conclusions:

1. this tablet was devised for a lute rather than a harp or lyre
2. the lute must have been fitted with four strings
3. the strings were tuned in ascending fifths
4. the system was ascending $c - b'$
5. the system was naturally restricted to 14 degrees
6. the generative tritone on the tablet is singularised by $14-1/1-2/2-3/4-3$

Several significant differences between the lute and the harp now comes to mind:

- The harp from the old Babylonian period was tuned using a descending system, while an ascending system makes more sense in the case of the lute.
- Therefore, notation of the harp was given in terms of the musical intervals while the notation of the lute was given in ascending numbers.
- This text further confirms that frets were in use for the lute and that their values were purposefully calculated.

4.4.10 YBC 11381

This text has only recently been published, “A New Addition To The Musical Corpus”, in 2010 by E Payne, published in *Opening the Tablet Box*, 291 – 300, available as an electronic download at www.brillonline.com.

This publication lists nine strings, similar to what is found from Nabnitu XXXII and in U.7/80 with a single significant difference. The strings in Nabnitu XXXII are ordered in a palindrome, but here they are listed continuously:

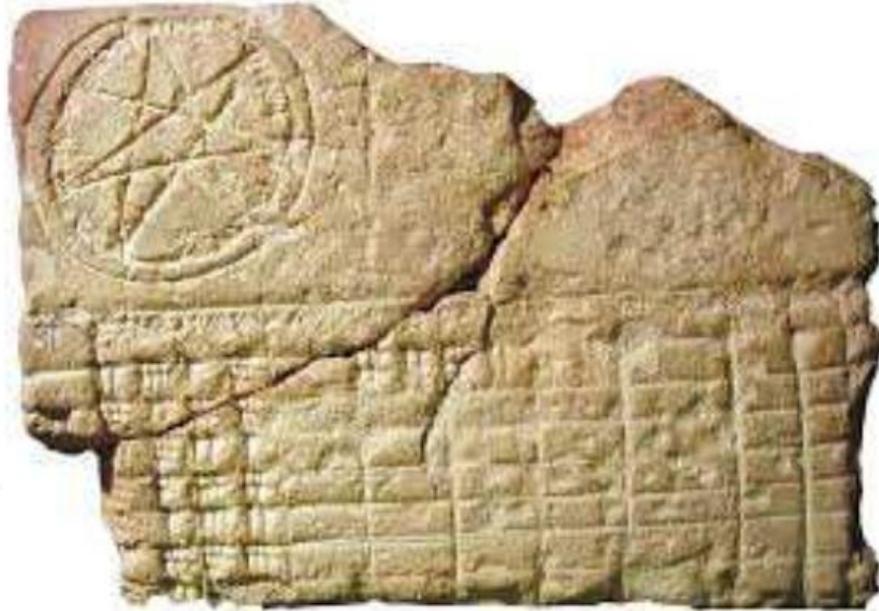
1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

On YBC 11381 every line starts with the Sumerian sign for string, *sa*, followed by its number. This means that the numbers now not only list the strings, but are used to name the nine enneatonic/bi-pentadic sets which could be produced using the system that is described in U.7/80. This series apparently starts with *kitmum* and they proceed in fifths. Following this, it would mean that the eighth set is not a repetition of the first and the ninth is not a repetition of the second. The system clearly is not octavial.

It further is an indication that the nine sets were known during the Late Babylonian Period by their numbers and not just by their names. We find this similarity on CBS 1766 where the names of the sets are also replaced by numbers.

4.4.11 CBS 1766

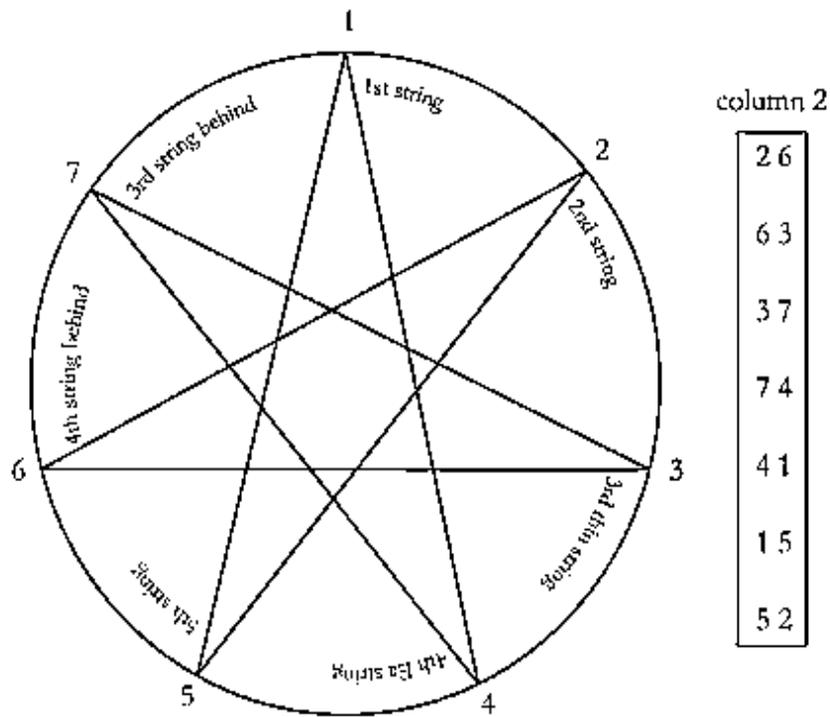
This is a cuneiform tablet dating from about 1500 BCE and was published by Horowitz in 2006. It thus is from the late Neo-Babylonian period.



<http://musicircle.net/wp-content/uploads/2016/12/Paper-for-Conference.pdf>

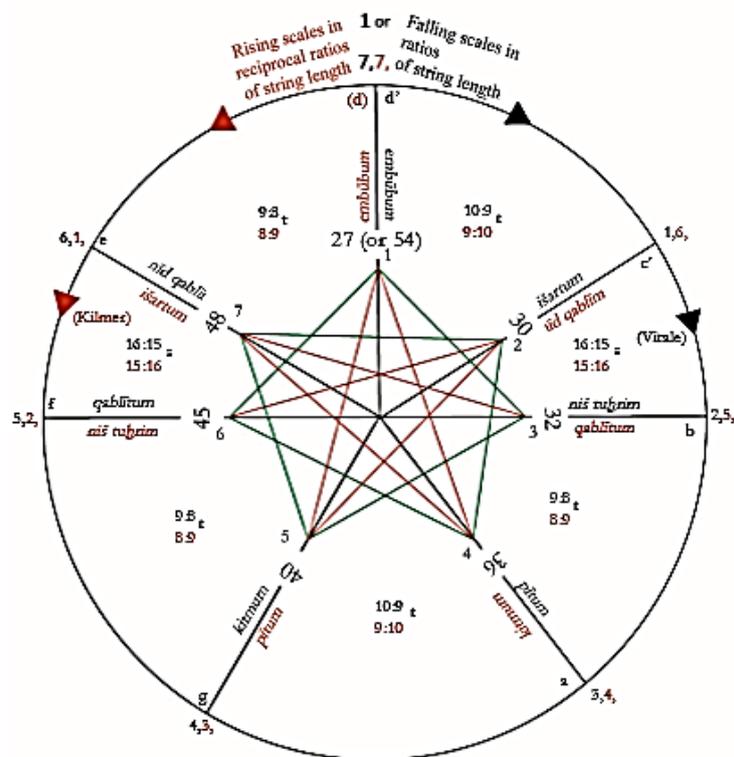
Fig 4.19 CBS 1766

It shows two concentric circles with a seven pointed star with in it. There are both lexical and musical annotations. Below the heptagram there are 11 columns which are spread over the whole width of the tablet. There also is a header along the entire length of the columns which up to date has not been interpreted. The heptagram as well as the contents of column 2 (it contains seven numbers), is the first evidence of a heptatonic construction. The column can be read either vertically or horizontally. The other columns have not been interpreted.



<http://nemo-online.org/wp-content/uploads/2017/08/INTERNET-6-02.-Article-NEMO-no.-4-6-2->

[Richard-Dumbrill-Truth-170822S.pdf](#)

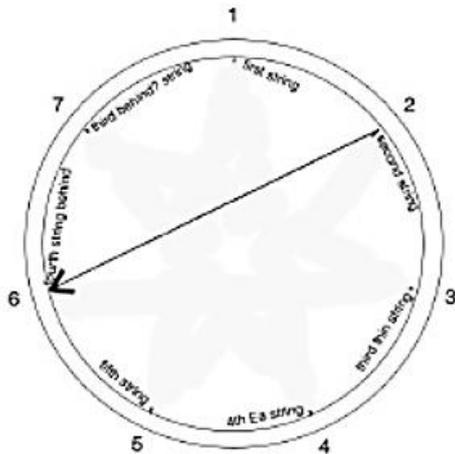


https://www.researchgate.net/publication/265026056_NEW_LIGHT_ON_THE_BABYLONIAN_TONAL_SYSTEM

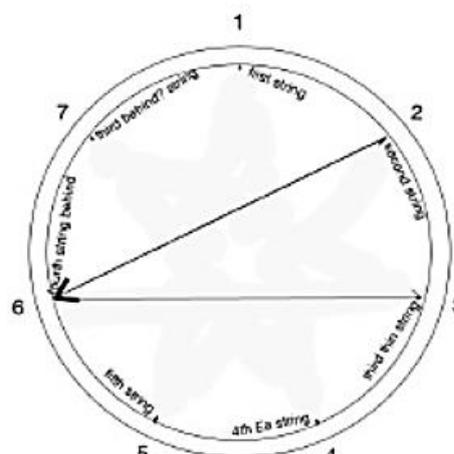
Fig 4.20 CBS 1766 heptagram

The heptagram illustrates the names of seven strings, in exactly the same order as found on Nabnitu XXXII. At the names of the strings we also find numbers from 1 to 7. It is constructed of an alternation of descending fifths and descending fourths, and as such is different from what we had previously seen. There is no longer a need for thirds.

Descending fifth 2-6 (B-E)



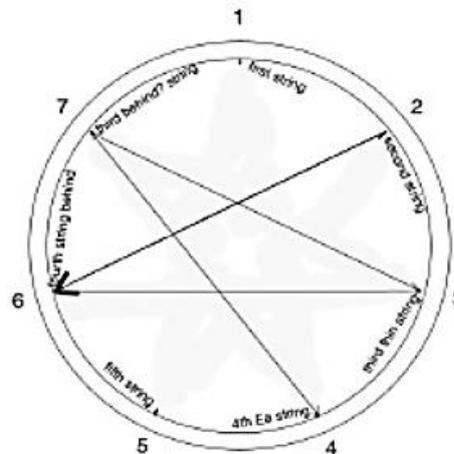
Ascending fourth 6-3 (E-A)



Descending fifth 3-7 (A-D)



Ascending fourth 7-4 (D-G)



Descending fifth 4-1 (G-C)



Ascending fourth 1-5 (C-F)



Ascending fourth 5-2 (F-B)



[https://www.academia.edu/243925/Is the Heptagram in CBS 1766 a Dial](https://www.academia.edu/243925/Is_the_Heptagram_in_CBS_1766_a_Dial)

Fig 4.21 Heptagram in CBS 1766

If we interpret correctly that the numbered points of the star indicate the strings of an instrument, then the lines 2-6, 3-7, 4-1 and 1-5 would indicate a sequence of cords representing the tuning of a heptachord of the *isartum*. And so similarly, the other columns on the tablet would represent all the other heptachords.

There is some doubt whether this was invented by the Babylonians and adopted by the Greeks, or vice versa, invented by the Greeks and adopted by the Babylonians during the period of Orientalising. It must be said, that ancient Greek theory had always been linear rather than cyclical, and there is no real evidence that this is of Greek origin.

4.4.12 The Hurrian Hymns/songs

This is a collection of 29 tablets unearthed at Ras Sharma, the ancient Amorite-Canaanite city of Ugarit. They date from approximately 1400 BCE. They were excavated from the Royal Palace at Ugarit and consist of a group of fragments with one tablet which is very close to complete.



https://upload.wikimedia.org/wikipedia/commons/a/ae/Ugarit_Corbel.jpg

Fig 4.22 Entrance to the royal palace at Ugarit

That single best preserved tablet contains lyrics for a hymn, but the tablets in all probability, would all have been of a similar rectangular shape and they would all probably fit within the length of the hand. The h.6 tablet can now be seen in the Museum of Damascus.



http://individual.utoronto.ca/seadogdriftwood/Hurrian/Website_article_on_Hurrian_Hymn_No._6.html

Fig 4.23 Obverse of H6

We read of the Hurrians migrating to the North East of Syria during the second millennium BCE. There is evidence that the Hurrians initially overthrew the Assyrians and the country of Hurri dominated the northern portions of Mesopotamia. Their later unified state of Mittani fell in the middle 14th century BCE to the Hittites, but they occupied the ancient city of Ugarit

for 800 years. It thus makes sense that they would come into contact with Babylonian cuneiform script and like any other language (even modern languages) would assimilate not only the type of script to be used alongside their own alphabetical type script, but also several terms in the musical world. Of course they would have Hurrianised the terms, just as we today Anglicise Afrikaans terms or *vice versa*.

This tablet that contains hymn number six is reconstructed from three different fragments (RS13.10 and 15.49 and 17.387) but provides a nearly complete image. The tablet is divided into three portions, with the writing running parallel to the longest side. The tablets were written in the Hurrian language, but the musical terms appear to be written in a “Hurrianised” Babylonian, which makes them understandable, changing for e.g. the Babylonian term *kablitūm* into the Hurrian *qablīte* (Dumbrill, 2005: 117).

- The first part of the tablet is the text or verse. It ends with a double line. It consists of only 4 lines. The manner in which the text is written is undoubtedly Mesopotamian: each line starts on the obverse side and then it continues around the right edge of the tablet to the reverse side; also, the last few syllables of the line on the reverse side is again repeated at the beginning of the next line on the obverse side.
- The second part is below the double line. This consists of Akkadian musical terms with a number and sometimes a qualificative. There are six lines.
- The third part is at the bottom of the tablet. It states that it is “... A song in the scale of “x” “and is followed by naming the deities to whom the hymn is devoted. It also gives the name of a scribe and the name of one of the four known Hurrian composers: *Tapšḫiun, Puḫiyanna, Urḫiya, and Ammiya*. This segment is underneath a single line. There is no composer named for the complete hymn number six but the names of the composers are found on five of the other pieces. These are all Hurrian names.

Thus there are six motifs or sequences of notes and they are arranged into blocks (Biblical Archaeology Review 1980: 17) The motifs are in repeating sequences

[1,2,3] [4,5,6] [4,5,6] [6] [1,2,3]

It also appears that the music is repetitive, using the same note, and consecutive notes are very seldom more than a single tone apart. The song is composed using only 4 notes. It furthermore appears that H6 was written as a song without any accompaniment or

instrumental accompaniment. There is no clear evidence of instrumental accompaniment written on the tablet. It must be remembered that absolute tuning was unknown at this stage. Instrumental accompaniment would literally be impossible in the absence of a standard pitch.

The text of hymn number six is difficult, because our knowledge of the Hurrian language is imperfect and secondly because of the poor condition of the tablet with missing flakes. The language furthermore appears to be a local Ugarit dialect and some of the words appear to have been altered because of the accompanying music. The Hurrian language appears to be an isolated language and is unrelated to the Semitic languages of the neighbouring states. The tablet containing hymn number six represents a Hurrian hymn and it concerns offerings to the goddess Nikkal, who was the wife of the moon god.

Several scholars have all researched this subject, most notably D Wulstan, *The Earliest Musical Notation*, *Music and Letters* 52 (1971: 365 – 382); M Duchesne-Guillemin, *A Musical Score from Ugarit: The Discovery of Mesopotamian Music*, *Sources from the Ancient Near East*, 2 (1982: 5 – 24); MI West, *The Babylonian Musical Notation and the Hurrian Melodic Texts*, *Music and Letters* 75/4 (1993: 161 – 179); and Dumbrill (2005: 113-174). There are six discernible lines and each line includes six terms. Each of the terms is also followed by a number (with the exception of four terms). This is obviously unlike any modern musical notation. The colophon (colophon = a publisher's emblem or imprint, or a statement at the end of the book which gives information about its authorship) indicates that this piece is written in the mode of *nidqibli*. This is the descending enneatonic scale of E, thus

E – D – C – B – A – G – F – E – D

We now accept that the musical notation would match the syllabic arrangement in the text, for otherwise it would have served no purpose. We also have to keep in mind that the Hurrian language was not designed to be written with Babylonian syllables. This would explain the extension of some syllables to fit the notes. This would have been especially true had the music been written first. It is thus concluded that the text was made to accommodate the music, rather than the other way around. It would also allow for melismatic interpretation and manipulation. This furthermore reinforces the ideas of West (1993: 161-179) in which he proposed that the second member of each interval as indicated would form the melodic line and that the other notes of the interval would be ornamental. It strengthens the view of

Dumbrill (2005: 113-174) that the intervals listed are understood to include all the notes in that specific interval. It makes no difference whether the interval is indicated as descending or ascending, and that the last note of the interval forms the melodic line with the other notes of the interval deemed as anacrusic (anacrusic = one or more unstressed notes before the first bar line of a piece or passage).

There are several smaller fragments, some which can be deciphered because of knowledge gained from the mostly complete text of hymn number six, with other fragments simply just too small to make any sense from. The hymns nevertheless are written within a span of 13 notes and it thus follows that in the second half of the second millennium BCE the ideal span with regards to the Hurrian civilization would have been 13 degrees. The instructions contained within the text of H6 is for a voice accompanied by a stringed instrument with nine strings, possibly a type of harp, but more likely the lyre.

4.5 OXYRHYNCHUS HYMN

The earliest known manuscript of a Christian hymn is the Oxyrhynchus hymn. It “only” is dated to about the 3rd century CE, therefore relative young in the greater scheme of things. Oxyrhynchus was a city in Egypt. The fortunate feature about this interesting city, the third-largest ancient city in Egypt, is the presence of the town garbage dumps. These remained untouched for many years, probably because treasure hunters did not think them viable; also, because the city was not built on the Nile and therefore did not have annual floods. It remained a prominent city with many churches and ministries during the Roman and Byzantine time periods and then showed a slow but gradual decline. The town was abandoned because the canal on which it was dependent fell into disrepair, but the rubbish the inhabitants dumped in the desert just outside the town limits were just gradually covered with sand, preserving its rich heritage for many years. This hymn (P.Oxy. XV 1786) forms part of a large collection of papyri found when excavating the rubbish dumps, now kept in the Sackler Library, Oxford University. It is written in Greek and contains musical notation.

The music is diatonic in mode and written in Greek vocal notation. This is well understood today. Nevertheless, it originates from a period much later than the first Temple, exile and

second Temple, the period during which early local musical theory, instruments and performance developed.

4.6 MUSIC AT THE TEMPLE:

Several places of worship existed in Ancient Israel and Judah. We read of the temple at Shiloh:

¹ Now there was a certain man of Ramathaim Zophim, of the mountains of Ephraim, and his name was Elkanah the son of Jeroham, the son of Elihu, the son of Tohu, the son of Zuph, an Ephraimite.

² And he had two wives: the name of one was Hannah, and the name of the other Peninnah. Peninnah had children, but Hannah had no children.

³ This man went up from his city yearly to worship and sacrifice to the LORD of hosts **in Shiloh**. Also the two sons of Eli, Hophni and Phinehas, the priests of the LORD, were there.

⁴ And whenever the time came for Elkanah to make an offering, he would give portions to Peninnah his wife and to all her sons and daughters.

⁵ But to Hannah he would give a double portion, for he loved Hannah, although the LORD had closed her womb.

⁶ And her rival also provoked her severely, to make her miserable, because the LORD had closed her womb.

⁷ So it was, year by year, when she went up to the house of the LORD, that she provoked her; therefore she wept and did not eat.

⁸ Then Elkanah her husband said to her, "Hannah, why do you weep? Why do you not eat? And why is your heart grieved? Am I not better to you than ten sons?"

⁹ So Hannah arose after they had finished eating and drinking **in Shiloh. Now Eli the priest was sitting on the seat by the doorpost of the tabernacle of the LORD.**

1 Sam 1 : 1- 9 NKJV

the shrines and cultic venues at Bethel and Dan

²⁶ And Jeroboam said in his heart, "Now the kingdom may return to the house of David:

²⁷ If these people go up to offer sacrifices in the house of the LORD at Jerusalem, then the heart of this people will turn back to their lord, Rehoboam king of Judah, and they will kill me and go back to Rehoboam king of Judah."

²⁸ Therefore the king asked advice, made two calves of gold, and said to the people, "It is too much for you to go up to Jerusalem. Here are your gods, O Israel, which brought you up from the land of Egypt!"

²⁹ **And he set up one in Bethel, and the other he put in Dan.**

³⁰ Now this thing became a sin, for the people went *to worship* before the one as far as Dan.

³¹ He made shrines on the high places, and made priests from every class of people, who were not of the sons of Levi.

³² Jeroboam ordained a feast on the fifteenth day of the eighth month, like the feast that *was* in Judah, and offered sacrifices on the altar. So he did at Bethel, sacrificing to the calves that he had made. And at Bethel he installed the priests of the high places which he had made.

1 Kings 12 : 26 – 32 NKJV

the hill of God at Gilgal

⁵ After that you shall come to the hill of God where the Philistine garrison *is*. And it will happen, when you have come there to the city, that you will meet a group of prophets coming down from the high place with a stringed instrument, a tambourine, a flute, and a harp before them; and they will be prophesying.

⁶ Then the Spirit of the LORD will come upon you, and you will prophesy with them and be turned into another man.

⁷ And let it be, when these signs come to you, that you do as the occasion demands; for God *is* with you.

⁸ You shall go down before me to Gilgal; and surely I will come down to you to offer burnt offerings *and* make sacrifices of peace offerings. Seven days you shall wait, till I come to you and show you what you should do."

1 Samuel 10 : 5 – 8 NKJV

and the Tabernacle of the Lord at Gibeon

³⁹ and Zadok the priest and his brethren the priests, before the tabernacle of the LORD at the high place that was at Gibeon,

⁴⁰ to offer burnt offerings to the LORD on the altar of burnt offering regularly morning and evening, and to do according to all that is written in the Law of the LORD which He commanded Israel;

1 Chron 16 : 39 – 40 NKJV

The Bible furthermore tells us that King Solomon built a temple in Jerusalem. 1 Kings 6 – 8 and 2 Chronicles 3 – 7 tell us about this and from this we deduct that the temple was finished in about 950 BCE. Sacrifice was the method of worship in the Jerusalem temple. Human sacrifice was forbidden but sacrifice of animals, like cows and birds, as well as agricultural products were accepted. The ceremony around sacrifice was regulated by traditional prescriptions. The God of Israel was incorporeal and thus invisible, but was symbolised by the Ark of the Covenant. And so it came that once the temple had been finished, the Ark which previously had been carried around and kept in the Tabernacle, was moved to Jerusalem and placed in the temple as an indication that God was now in residence. The Tabernacle in essence was a tent which was built just to house the Ark. The responsibility of the Tabernacle and the Ark rested on the shoulders of the Levites. Respective families were allocated specific tasks. The first four books of the Torah contain instructions about the Tabernacle and its appurtenances, some of which are very detailed. There are for e.g. specific measurements of the different components of the Tabernacle and about how sacrifices should be prepared and offered.

“Did you offer Me sacrifices and offerings
In the wilderness forty years, O house of Israel?”

Amos 5 : 25 NKJV

and

²¹ Thus says the LORD of hosts, the God of Israel: “Add your burnt offerings to your sacrifices and eat meat. ²² For I did not speak to your fathers, or command them in the day that I brought them out of the land of Egypt, concerning burnt offerings or sacrifices. ²³ But this is what I commanded them, saying, ‘Obey My voice, and I will be your God, and you shall be My people. And walk in all the ways that I have commanded you, that it may be well with you.’

Jeremiah 7 : 21 – 23

Both deny that sacrifices were practised by the nomadic Israelites prior to settling in Canaan. This strengthens our views that the books of the Torah originated during the period of the existence of the First Temple. References to music in the books of the Torah and Deuteronomist History is the earliest relevant material and thus must also have originated

from this period. The book of Chronicles contains several references about music at the first Temple. The problem with the book of Chronicles is twofold. The first is that Chronicles was written in about 350 BCE which clearly is in the postexilic period. This means that the book of Chronicles was created some 250 years later than the end of the first Temple period. This seriously places the credibility of Chronicles as far as its references to at least musical practices at the first Temple in jeopardy. Secondly, there is a large amount of material in Chronicles which is additional and supplementary to any other material written in the pre-exilic and exilic times. It therefore is more likely that this additional material is retrograde projected from the time when Chronicles was written. This retrojection would explain why Chronicles contains so much detail about musical activity and musical organization at the temple if it is compared with exilic and pre-exilic texts. This merely means that the references in Chronicles with regards to music at the first Temple cannot be considered authoritative, but does not mean that Chronicles is historically totally unreliable.

The earlier Biblical books that contain references to music at the temple should therefore originate from before the exile, or even possibly the early exile. These references are found in 1 Kings 10, the first book of Isaiah, Amos, and some references from the book of Psalms. Because these books originated from periods close to the first Temple, one can assume that the authors would use knowledge and experiences gained directly from the experiences of music of the temple. Unfortunately, the Hebrew Bible provides very little information about music at the first Temple, even when reading the texts mentioned above. The earliest is the book of Amos which was written near the beginning of the eighth century BCE. It mentions sacrificial rituals associated with song and the music of plucked-string instruments. When in the Bible we read about worship, string instruments are often mentioned in conjunction with vocal song or shouting. In a modern sense, one immediately accepts that the instruments would accompany the voices, and that the vocal element should be superior to the instrumental element. This assumption apparently is not supported by Ancient Near East studies and it appears that within cultic music the instrumental and vocal elements would be of equal importance.

Several musical references and terms are found, but with reference to the above argument the word *wēzimrat* is of interest. It is built on the root *ZMR* which has two possible meanings:

1. Pick, pluck, pinch out, or prune
2. music, sound, make music, play.

When the root word *ZMR* is used, it is the context which meaning would be most appropriate. The root word should therefore be read within its literary and its narrative context. Word pairs is a definite feature of ancient Hebrew poetry and finding *ZMR* paired with a musical word built on the root of *ŠYR* places it within a musical context. Not only that, *ZMR* in the Psalms are associated with other musical terminology, for example in Psalm 144, where it is paired with the term *nēvel*. Smith (2011: Kindle version location 686) goes even further and explains that instances of a standalone *ZMR* word should be interpreted as to imply music which is both vocal and instrumental.

ZMR might thus in musical terms indicate the picking or plucking or strumming of string instruments. One must remember that these instruments were less sophisticated than modern instruments. They probably sounded in the modern alto and tenor registers and the root of the word might even reflect onomatopoeia from the buzzing sound made by large groups of plucked-string instruments. In this sense, where onomatopoeia is inferred, the instruments obviously would provide a supporting element to the vocal element. The presence of the root word *ZMR* in the Bible, when it is used in a musical meaning, is only found in context with cultic worship, and mostly refers to plucked-string instruments. The LXX translates the musical *ZMR* word with the verb *psallo* (originally meaning to play a stringed instrument with the fingers) or the noun *psalmos* (music produced by playing a stringed instrument with the fingers). Later on, during the period of Hellenization, the meaning changed to “to sing to a plucked-string instrument” and “a song sung to a plucked-string instrument”. This is easy to understand as the Greek way of viewing cultic music of the temple would be as accompanied with song or other vocal elements. The plucked string instruments therefore did not occur as a standalone.

In comparison to the other pre-exilic and exilic texts, the Psalms have an abundance of musical references. We believe that about 38 Psalms were composed during the period of the first Temple and that another 30 Psalms were created during the exile. Very pertinent references are found in the body of the text of six of the first Temple period Psalms:

Psalm 7
Psalm 61
Psalm 66
Psalm 68
Psalm 81
Psalm 87

and in four of the Psalms originating from the exilic period

Psalm 43
Psalm 96
Psalm 98
Psalm 137

These musical references describe instrumental and vocal music found in both a sacrificial and non-sacrificial context. We find sacrificial references for example in Psalm 43 where there is an implied association of plucked strings and voice:

Send me your light and your faithful care,
let them lead me;
let them bring me to your holy mountain,
to the place where you dwell.
⁴Then I will go to the altar of God,
to God, my joy and my delight.
I will praise you with the lyre,
O God, my God.

Psalm 43 : 3 – 4 NIV

and in verse 2, 4 and 13 of Psalm 66 we find

¹Shout for joy to God, all the earth!
² Sing the glory of his name;
make his praise glorious.
³Say to God, "How awesome are your deeds!
So great is your power

that your enemies cringe before you.

⁴All the earth bows down to you;
they sing praise to you,
they sing the praises of your name.”^[a]

⁵Come and see what God has done,
his awesome deeds for mankind!

⁶He turned the sea into dry land,
they passed through the waters on foot—
come, let us rejoice in him.

⁷He rules forever by his power,
his eyes watch the nations—
let not the rebellious rise up against him.

⁸Praise our God, all peoples,
let the sound of his praise be heard;

⁹he has preserved our lives
and kept our feet from slipping.

¹⁰For you, God, tested us;
you refined us like silver.

¹¹You brought us into prison
and laid burdens on our backs.

¹²You let people ride over our heads;
we went through fire and water,
but you brought us to a place of abundance.

¹³I will come to your temple with burnt offerings
and fulfill my vows to you—

Psalm 66 : 1 – 13 NIV

The text found in Psalm 68 is of non-sacrificial context:

²⁴They have seen Your procession, O God,
The procession of my God, my King, into the sanctuary.

²⁵The singers went before, the players on instruments (*nōgěnim*) followed after;

Among *them were* the maidens playing timbrels.

Psalm 68 : 24 – 25 NKJV

The word *nōgěñīm* is from the same root word of *nagan* which is associated with the word *kinnōr* in pre-exilic literature in three instances.

We can reasonably assume that the musicians at sacrificial rites were men. There are references to priests and to the Levites, and these all were men. There are no references to women. We know from other studies that the society of this period was male orientated, and so was the cult. By implication this means that the musicians therefore probably also were men. They are referred to in the masculine plural of singers and players, and while in Hebrew masculine plurals are either used for male groups or for mixed groups, the society of the time was predominantly male orientated. Very little is said about First Temple musicians in pre-exilic and exilic sources. It is interesting to note that the duties and functions of the Levites are described in substance. We read about their duties with regards to the transportation of the Ark and the tabernacle and we read about the duties with regards to religious observances and sacrifices, but there is no reference that the Levites were responsible for the music at the first Temple.

This is completely opposite to non-sacrificial references which were not exclusively male. In fact, instances like Psalm 68: 26 name the participants as “maidens” and “young girls” who played hand drums.

There are two instances in which musical instruments were associated with the prophets and their prophecies. The first is the text where Saul is told that he will meet with a group of prophets:

⁵After that you shall come to the hill of God where the Philistine garrison *is*. And it will happen, when you have come there to the city, that you will meet a group of prophets coming down from the high place with a stringed instrument, a tambourine, a flute, and a harp before them; and they will be prophesying.

1 Sam 10 : 5 NKJV

The second instance is when the prophet Elisha was consulted by the kings of Israel, Judah and Edom. In this text Elisha requires the help/presence of a musician:

¹⁵ "...but now bring me a musician."

Then it happened, when the musician played, that the hand of the LORD came upon him.

2 Kings 3 : 15 NKJV

Not only did prophets communicate messages from God, but they were also consulted by the kings and other persons of high standing. They must have possessed significant religious and political power and influence. From the two verses above we can infer that music was a normal addition and concomitant to prophetic functions and utterances. I am uncertain whether it merely represented a manner of conveying the message, whether the music possibly was intended to add weight to the prophecy or message, or whether the music was used to induce a state of ecstasy or a trance during which a prophecy was made. The prophet Ezekiel nevertheless was warned about the presence and effect of music during his prophecies:

³² Indeed you are to them as a very lovely song of one who has a pleasant voice and can play well on an instrument; for they hear your words, but they do not do them. ³³ And when this comes to pass—surely it will come—then they will know that a prophet has been among them."

Ezek 33 : 32 – 33 NKJV

This confirms that a prophecy could be presented as a song - this would have been easier and more applicable if the prophesy furthermore was presented as a poem. Smith (2011: Kindle version loc 912) points out the fact that, with regards to cultic music, several interesting similarities can be found between the prophets and the Second Temple Levite musicians:

Prophets	Levite musicians
Organised in disciple-master groups as "sons" of their "fathers"	Organised in family groups as "sons" of their forefathers

Based in or near cultic centers	In villages and towns near Jerusalem
Closely associated with the First Temple priests	Closely associated with Second Temple priests
Instruments used were the <i>kinnōr</i> and <i>nēvel</i>	Also played by Levite musicians
Term <i>hōzēh</i> “seer” used for pre-exilic prophets in 2 Sam 24: 11, 2 Kings 17: 13, Isa 29: 10 and 30: 10	Same term used for Levite singers Heman (1 Chron 25: 5), Asaph (2 Chron 29: 30), and Jeduthun (2 Chron 35: 15)
Functioned to prophesy	1 Chron 25: 1-6 describes the musical service of Levitical families and uses the term <i>nābā</i> “to be inspired, to prophesy, to speak or sing as a prophet”

String and wind instruments were in use at the First Temple. The wind instruments that we read about are the metal trumpet, the shofar and the pipes, most likely the double reed pipe. The string instruments are of the plucked-string variety and are represented by the *kinnōr* and the *nēvel*. The *kinnōr* referred to in this instance most likely had seven strings. This is in common with the Babylonian lyre which was present all over in the Levant from the 18th to about the fourth century BCE. The pre-exilic Psalm 144: 9 as well as the postexilic Psalm 33: 2 both referred to “on a 10 stringed harp” which might indicate that the early *nēvel* had 10 strings. More about this in previous chapters.

We know that music was intrinsic to cultic worship. It was not intended as an addition, accompaniment. Precisely how this happened is still unsure and the current known sources give no precise description or explanation. We don’t know what the style of music was and we don’t know the aesthetic qualities thereof. We cannot use our current knowledge and

understanding of musical traditions to judge/evaluate/understand the performance of any ancient Israelite or Jewish music.

The Ark disappeared from the temple in the 6th century and the representation of God then became the Holy of Holies. The King of Babylon, Nebuchadnezzar II destroyed the Temple in 587/6 BCE and it was not rebuilt during the period of Babylonian captivity from 587/6 – 539 BCE. The Israelites returned to Judah in 539 BCE and we read in Ezra 3 – 6 how the Temple was rebuilt. It took them about 20 years to rebuild the Temple. It was finished in 516/515 BCE. The Second Temple stood in place for almost 500 years. And then in 23/22 BCE Herod the Great, known amongst other things for his constructions and building projects, decided to remodel and upgrade. Herod's Temple included larger courts around the Temple and improved facilities for the priests, worshippers and visitors. It was finished in 62 CE, but was destroyed by Roman soldiers a mere 8 years later in 70 CE.

Sources with regards to music at the second Temple are in principle literary.

- The earliest books are Psalms, Ezra, Nehemiah, and Chronicles (added here as previously discussed). This provides information up to about 300 BCE.
- The last two centuries of the second Temple we can read about in the LXX and the apocryphal books of the Old Testament.
- The period of and after Herod's Temple is described in the Mishnah, in works by Josephus and some of the apocryphal books of the New Testament.

In 1 Chronicles 13: 6 – 16: 7 we read the story about the removal of the Ark to Jerusalem. This is similar to the narrative in 2 Samuel 6: 1-19, but is more extensive. When comparing 1 Chronicles 13: 8 with 2 Samuel 6: 5 there are some differences in terminology and the instruments described, once again indicative of the author of the Chronicles retrojecting from what was known at the time. One important change took place when King David made the members of the Levites responsible for the execution of the cultic music, with the exception of the priests who would remain responsible for the blowing of the metal trumpets. The Ark of the Covenant now had a permanent home in the temple in Jerusalem. There was no more need to carry the tabernacle and the ark from place to place and it makes sense that the Levites would be redeployed in new positions.

¹⁶Then David spoke to the leaders of the Levites to appoint their brethren *to be* the singers accompanied by instruments of music, stringed instruments, harps, and cymbals, by raising the voice with resounding joy. ¹⁷So the Levites appointed Heman the son of Joel; and of his brethren, Asaph the son of Berechiah; and of their brethren, the sons of Merari, Ethan the son of Kushaiah; ¹⁸and with them their brethren of the second *rank*: Zechariah, Ben,^[a] Jaaziel, Shemiramoth, Jehiel, Unni, Eliab, Benaiah, Maaseiah, Mattithiah, Elipheleh, Mikneiah, Obed-Edom, and Jeiel, the gatekeepers; ¹⁹the singers, Heman, Asaph, and Ethan, *were* to sound the cymbals of bronze; ²⁰Zechariah, Aziel, Shemiramoth, Jehiel, Unni, Eliab, Maaseiah, and Benaiah, with strings according to Alamoah; ²¹Mattithiah, Elipheleh, Mikneiah, Obed-Edom, Jeiel, and Azariah, to direct with harps on the Sheminith; ²²Chenaniah, leader of the Levites, was instructor *in charge of* the music, because he *was* skillful;

1 Chron 15 : 16 -22 NKJV

The instruments played by the Levites provided in 1 Chronicles 15: 19-21 namely the cymbals, harps, lyres, are as expected during the second Temple period. Of significance is the term – *kělē-šîr* in 1 Chronicles 15: 16 which literally means “instruments of song” is an indication that the use of instruments were associated with song. In several instances the cymbals were left out when describing the instruments of song. This reflects back on the root word *ZMR* that we had met in exilic and pre-exilic times meaning plucked-string instruments which were associated with cultic music and song. While the word *ZMR* is only found twice in postexilic literature of the Hebrew Bible, it becomes important to understand that *kělē-šîr* has a deeper intended meaning. The base of the first word is *kěîl* which is indicative of a general instrument or implement, possibly a tool or utensil or a vessel. The plural word *kělē* is idiomatically coupled with *šîr* “song” and has a more specific nuance of “instruments of music”. By implication these are instruments that can “sing”, melodic instruments. The instruments would and must have been capable of playing a melody, i.e. the *nēvel* and *kinnōr*.

The Mishnah provides an interesting insight in the instruments used by the cult:

- Mishnah Tamid 7: 3 - at least two priests with metal trumpets at the daily burnt offerings
- Mishnah Arak 2: 5 - their number could be increased indefinitely on special occasions

- Mishnah Arak 2: 5 - only one cymbal, singular
- Mishnah Arak 2: 3 - never fewer than two and never more than six harps
- Mishnah Arak 2: 5 - never fewer than nine lyres which could be increased indefinitely
- Mishnah Arak 2: 3 - never fewer than two and never more than 12 pipes, which were played before the altar on 12 days in the year
- Mishnah Arak 2: 6 - never fewer than 12 Levites musicians, which could be increased indefinitely
- Mishnah Arak 2: 6 - juvenile members (younger than at least 20 years) could take part only as singers, but were not reckoned in the number of serving Levites.

The Bible and the Mishnah contain evidence of music at cultic events as well as processions and prior to cultic festivities. Once again, there is no evidence that women took part in the performance of music in the Temple in Jerusalem, especially not with reference to sacrifices. And when King David instituted the temple services, there is no mention of any appointed women to fulfil any of the tasks, whether it would be musical or otherwise. And while it is true that women did not sing or play at sacrificial rites, this must be distinguished from non-sacrificial rites, where women were involved.

And thus, singing at sacrificial rites was the prerogative of the Levite musicians, and they sang predominantly from the book of Psalms. The pre-exilic Psalms are:

Psalm 7, 61, 66, 68, 81, 87 and possibly 95

The Mishnah Tamid 7: 4 lists seven postexilic Psalms which were sung, one on each day of the week. This is supported by the LXX:

Psalm 24, 48, 82, 94, 81, 93 and 92.

Psalm 92 was assigned to the seventh day and accordingly carries the superscription:

“A song. A song for the Sabbath day”.

The Mishnah furthermore mentions some of the Psalms that were used at other occasions, possibly at non-sacrificial rites at the temple, or at the home. The total number of Psalms sung by the Levites at sacrificial rites is 14. Although this is a very small number, it must be remembered that the Levite musicians sang from memory; also, they only performed in the temple on a rotating schedule which meant that each individual musician probably only

appeared in the temple maybe twice a year. Many other Psalms would have been sung at non-sacrificial gatherings, and not even exclusively by Levites.

The non-cultic gatherings were not only serviced by singing of the Psalms, but evidence exists that even the Levites also performed

Then Moses and the children of Israel sang this song to the LORD, and spoke, saying:

"I will sing to the LORD,
For He has triumphed gloriously!
The horse and its rider

He has thrown into the sea!

²The LORD *is* my strength and song,
And He has become my salvation;
He *is* my God, and I will praise Him;
My father's God, and I will exalt Him.

³The LORD *is* a man of war;
The LORD *is* His name.

⁴Pharaoh's chariots and his army He has cast into the sea;
His chosen captains also are drowned in the Red Sea.

⁵The depths have covered them;
They sank to the bottom like a stone.

⁶"Your right hand, O LORD, has become glorious in power;
Your right hand, O LORD, has dashed the enemy in pieces.

⁷And in the greatness of Your excellence
You have overthrown those who rose against You;
You sent forth Your wrath;
You sent forth Your wrath;
It consumed them like stubble.

⁸And with the blast of Your nostrils
The waters were gathered together;
The floods stood upright like a heap;
The depths congealed in the heart of the sea.

⁹The enemy said, 'I will pursue,
I will overtake,
I will divide the spoil;
My desire shall be satisfied on them.
I will draw my sword,
My hand shall destroy them.'

¹⁰You blew with Your wind,
The sea covered them;
They sank like lead in the mighty waters.

¹¹"Who *is* like You, O LORD, among the gods?
Who *is* like You, glorious in holiness,
Fearful in praises, doing wonders?

¹²You stretched out Your right hand;
The earth swallowed them.

¹³You in Your mercy have led forth

The people whom You have redeemed;
You have guided *them* in Your strength
To Your holy habitation.

¹⁴ “The people will hear *and* be afraid;
Sorrow will take hold of the inhabitants of Philistia.

¹⁵ Then the chiefs of Edom will be dismayed;
The mighty men of Moab,
Trembling will take hold of them;
All the inhabitants of Canaan will melt away.

¹⁶ Fear and dread will fall on them;
By the greatness of Your arm
They will be *as* still as a stone,
Till Your people pass over, O LORD,
Till the people pass over
Whom You have purchased.

¹⁷ You will bring them in and plant them
In the mountain of Your inheritance,
In the place, O LORD, *which* You have made
For Your own dwelling,
The sanctuary, O Lord, *which* Your hands have established.

¹⁸ “The LORD shall reign forever and ever.”

Exodus 15 : 1 – 18 NKJV

Here translated as if sung by Moses and the children of Israel, but it is in the Babylonian Talmud attributed to the Levites. We also find the Song of the Well in Numbers 21. This was sung at the afternoon sacrifice on the Sabbath:

¹⁷ Then Israel sang this song:

“Spring up, O well!
All of you sing to it—

¹⁸ The well the leaders sank,
Dug by the nation’s nobles,
By the lawgiver, with their staves.

Numbers 21 : 17 – 18 NKJV

There is an existence other cultic poems found in the Hebrew Bible and other sacred texts that would have been appropriate to use at the temple. We find 8 possibilities in the pre-exilic texts:

1. Song of the Sea - Exodus 15: 1-18
2. Miriam’s song - Exodus 15: 21

3. the Song of the Well - Numbers 21: 17-18
4. the Song of Moses - Deuteronomy 32: 1-43
5. the Song of Deborah – Judges 5: 2-31
6. David’s lament over Saul and Jonathan – 2 Samuel 1: 19-27
7. David’s song of Thanksgiving – 2 Samuel 22: 2-51
8. Isaiah’s song of Thanksgiving and praise – Isaiah 12: 1-6

Additionally, for the second Temple period:

1. Ezekiel’s lament for the princes of Israel - Ezekiel 19: 2-14
2. Habakkuk’s prayer – Habakkuk 3: 2-19
3. Psalm of praise – 1 Chronicles 16: 8-36
4. From the Septuagint:
 - a. the Song of the Three Young Men
 - b. the Prayer of Azariah
 - c. the Song of the Three Jews

Levitical cultic music and song most probably was collective and responsive in character. It consisted of music of plucked-string instruments (and sometimes a cymbal was added) and choral music. Even when texts refer to a single musician, this should be regarded as to singing within a group, not disregarding the fact that this single musician might have a leading role, especially in responsive singing. The Hallel (the Hallel psalms, Psalm 113-118 – performed during certain Jewish festivals) in form is highly suggestive of responsive performances. Individualism in cultic music was not approved of and soloistic singing would be regarded as distracting focus from the Deity, the high priest or the king.

Responsive singing was not only applied to the psalms but other texts, even texts read as simple poetry. A good example of this is the Song of the Sea which we find in Exodus 15: 1-18. Rabbinic opinions regarding this is found in the Mishnah, the Tosefta, the Jerusalem Talmud and the Midrash Rabbah. These sources identify 5 methods of responsive singing and are summarised by Smith (2009: Kindle edition loc 1453):

1. The leader sang the first clause of the first unit of text. The company would repeat this and then complete the unit of text. This was repeated for each unit of text.

2. The leader sang the first unit of text, repeated by the company, and so on for each unit of text.
3. The company would sing the opening words of the first unit of text as a refrain after each unit of text was sung by the leader.
4. The leader would sing the opening of the first unit of text, and then the company would complete the unit.
5. The leader would sing the complete text, and then the company would sing it.

These opinions are useful if they are considered as methods of responsive performance of a plain text, especially in late antiquity. However, they should be regarded as unreliable as to how the Song of the Sea might have been performed at the second Temple as the first four methods are based on contemporary examples of recitation in the synagogue, while the fifth method is deducted by means of theoretical abstraction.

It also is possible that a single text could have been performed in more than one form. We find the poetic song of Deborah in Judges 5: 2 -31

Then Deborah and Barak the son of Abinoam sang on that day, saying:

²“When leaders lead in Israel,
When the people willingly offer themselves,
Bless the LORD!

³“Hear, O kings! Give ear, O princes!
I, *even* I, will sing to the LORD;
I will sing praise to the LORD God of Israel.

⁴“LORD, when You went out from Seir,
When You marched from the field of Edom,
The earth trembled and the heavens poured,
The clouds also poured water;
⁵The mountains gushed before the LORD,
This Sinai, before the LORD God of Israel.

⁶“In the days of Shamgar, son of Anath,
In the days of Jael,
The highways were deserted,
And the travelers walked along the byways.

⁷Village life ceased, it ceased in Israel,
Until I, Deborah, arose,
Arose a mother in Israel.

⁸They chose new gods;
Then *there was* war in the gates;

Not a shield or spear was seen among forty thousand in Israel.

⁹ My heart *is* with the rulers of Israel
Who offered themselves willingly with the people.
Bless the LORD!

¹⁰ “Speak, you who ride on white donkeys,
Who sit in judges’ attire,
And who walk along the road.

¹¹ Far from the noise of the archers, among the watering places,
There they shall recount the righteous acts of the LORD,
The righteous acts *for* His villagers in Israel;
Then the people of the LORD shall go down to the gates.

¹² “Awake, awake, Deborah!
Awake, awake, sing a song!
Arise, Barak, and lead your captives away,
O son of Abinoam!

¹³ “Then the survivors came down, the people against the nobles;
The LORD came down for me against the mighty.

¹⁴ From Ephraim *were* those whose roots were in Amalek.
After you, Benjamin, with your peoples,
From Machir rulers came down,
And from Zebulun those who bear the recruiter’s staff.

¹⁵ And the princes of Issachar^[a] *were* with Deborah;
As Issachar, so *was* Barak
Sent into the valley under his command;^[b]
Among the divisions of Reuben
There were great resolves of heart.

¹⁶ Why did you sit among the sheepfolds,
To hear the pipings for the flocks?
The divisions of Reuben have great searchings of heart.

¹⁷ Gilead stayed beyond the Jordan,
And why did Dan remain on ships?^[c]
Asher continued at the seashore,
And stayed by his inlets.

¹⁸ Zebulun *is* a people *who* jeopardized their lives to the point of death,
Naphtali also, on the heights of the battlefield.

¹⁹ “The kings came *and* fought,
Then the kings of Canaan fought
In Taanach, by the waters of Megiddo;
They took no spoils of silver.

²⁰ They fought from the heavens;
The stars from their courses fought against Sisera.

²¹ The torrent of Kishon swept them away,
That ancient torrent, the torrent of Kishon.
O my soul, march on in strength!

²² Then the horses’ hooves pounded,
The galloping, galloping of his steeds.

²³ ‘Curse Meroz,’ said the angel^[d] of the LORD,

'Curse its inhabitants bitterly,
Because they did not come to the help of the LORD,
To the help of the LORD against the mighty.'

²⁴ "Most blessed among women is Jael,
The wife of Heber the Kenite;
Blessed is she among women in tents.

²⁵ He asked for water, she gave milk;
She brought out cream in a lordly bowl.

²⁶ She stretched her hand to the tent peg,
Her right hand to the workmen's hammer;
She pounded Sisera, she pierced his head,
She split and struck through his temple.

²⁷ At her feet he sank, he fell, he lay still;
At her feet he sank, he fell;
Where he sank, there he fell dead.

²⁸ "The mother of Sisera looked through the window,
And cried out through the lattice,
'Why is his chariot so long in coming?
Why tarries the clatter of his chariots?'

²⁹ Her wisest ladies answered her,
Yes, she answered herself,

³⁰ 'Are they not finding and dividing the spoil:
To every man a girl or two;
For Sisera, plunder of dyed garments,
Plunder of garments embroidered and dyed,
Two pieces of dyed embroidery for the neck of the looter?'

³¹ "Thus let all Your enemies perish, O LORD!
But *let* those who love Him *be* like the sun
When it comes out in full strength."

So the land had rest for forty years.

Judges 5: 1 – 31 NKJV.

It is possible that this was performed in three different ways, possibly sung by a soloist or by a group. The first person singular is found in Judges 5: 3 and might be interpreted as instructions made by the poet in view of a narrator/singer assuming his role in performing the song. Verse 1 clearly mentions both Deborah and Barak indicating 2 singers and it is accepted that a group of singers or choir could ritually substitute for Deborah and Barak. The *Liber antiquitatum biblicarum/pseudo-Philo* has a slightly different superscription indicating Deborah and Barak and all the people together. Thus we deduct that the song of Deborah could either be sung by one singer, two or three singers, or possibly a group or choir.

Possibly strengthened by the interesting observation of Josephus in the Antiquities of the Jews, Book 7, chapter 14, section 7

7. But David, being desirous of ordaining his son king of all the people, called together their rulers to Jerusalem, with the priests and the Levites; and having first numbered the Levites, he found them to be thirty-eight thousand, from thirty years old to fifty; out of which he appointed twenty-three thousand to take care of the building of the temple, and out of the same, six thousand to be judges of the people and scribes, four thousand for porters to the house of God, and as many for singers, to sing to the instruments which David had prepared, as we have said already. He divided them also into courses: and when he had separated the priests from them, he found of these priests twenty-four courses, sixteen of the house of Eleazar, and eight of that of Ithamar; and he ordained that one course should minister to God eight days, from sabbath to sabbath. And thus were the courses distributed by lot, in the presence of David, and Zadok and Abiathar the high priests, and of all the rulers; and that course which came up first was written down as the first, and accordingly the second, and so on to the twenty-fourth; and this partition hath remained to this day. He also made twenty-four parts of the tribe of Levi; and when they cast lots, they came up in the same manner for their courses of eight days. He also honored the posterity of Moses, and made them the keepers of the treasures of God, and of the donations which the kings dedicated. He also ordained that all the tribe of Levi, as well as the priests, should serve God night and day, as Moses had enjoined them.

In contrast with Israel's neighbours the Jerusalem Temple had no resident coenobites. Coenobites, members of a monastic community, were permanent residents of a temple. They pursued spiritual duties, enhancement and improvement, but had additional duties with in the temple. Thus, if there were large groups living at the temple, this would allow for training of all sorts of manner, reading, writing, doctrine, ritual and music. The Jerusalem Temple had no such residents and from previously we know that the Levites lived in villages and towns close by but outside Jerusalem. It is agreed that some of the leaders lived in the city,

These heads of the fathers' *houses* of the Levites *were* heads throughout their generations. They dwelt at Jerusalem.

1 Chronicles 9: 34 NKJV

but it is clearly understood that all the other Levites and people lived in their own villages and towns:

So the kohanim, and the Levi'im, and some of the people, and the singers, and the gatekeepers, and the Netinim (servants of the Beis Hamikdash), dwelt in their towns, and kol Yisroel in their towns.

Ezra 2: 70 OJB

[As a result, the priests, descendants of Levi, certain people, the singers, door-keepers, and the Temple Servants were able to settle in their original cities, with the rest of the Israelis in their cities. – ISV]

The Levites therefore only stayed at the temple when they attended to their rotated duties. Otherwise they would be at their homes where they not only had to pay attention to confirming and improving their profession, but also would have normal duties tending their land and looking after livestock. There is no definite textual evidence of a Temple school and while they must have received some instruction while at the temple, this was not the primary reason for their presence at the temple. It must be remembered that the Levite musicians did not choose to become musicians, but all male children born into that specific family would become musicians. This was not gainful employment. They did not receive any payment for the duties. Yes, they were provided for while at the temple by the provision of food, drink and accommodation. But this did not mean that Levite musicians would continuously live alongside each other (in the Temple or some institution of learning) and naturally the young Levites would learn from the elders. Religious instruction of children customarily was a parental duty and this would take place in the home. It was no different for Levite children or musicians, receiving continuous informal training and teaching at home by their parents and elders, beautifully described in the Septuagint:

When I was in my prime, I lived with my husband. He died when my children had grown up. He was privileged to have lived his life enjoying good children, and to have been spared the pain of losing them. ¹⁰ While he was still with you, he used to teach you the Law and the Prophets. ¹¹ He read to you about Abel, who was killed by Cain, and about Isaac, who was offered as an entirely burned sacrifice, and about Joseph in prison. ¹² He used to tell you about Phinehas' total commitment, and to teach you about Hananiah, Azariah, and Mishael in the fire. ¹³ He used to praise Daniel in the lions' den—he called Daniel privileged. ¹⁴ He kept reminding you about the scripture

in Isaiah that says, Even if you go through fire, the flame will not burn you up. ¹⁵ He used to sing to you the songs of David the psalmist, who said, The righteous person is bothered by many trials. ¹⁶ He used to quote Solomon's proverb: There is a tree that gives life for those who do what God wants. ¹⁷ He reinforced the truth of Ezekiel, where it says, Will these dry bones live? ¹⁸ And he didn't forget to teach you the song that Moses taught, which says, ¹⁹ I kill and I bring things to life: this is your life and the length of your days."

LXX, 4 Maccabees 18: 9-19

As Levite male children grew up they were not only taught at home but were later allowed to learn at the temple, although with some added restrictions. This is akin to on-the-job training. The juveniles were allowed to stand with and sing with their elders, but they were not allowed to play an instrument. They also had to stand on the ground and not on the provided platform with the elders, and they were not counted when official numbers were calculated. They carried no responsibility, other than learning, until at the age of 20 when they became official temple musicians.

1 Chronicles 25: 6-8 is sometimes quoted to indicate a formal system of training:

All these *were* under the hands of their father for song *in* the house of the LORD, with cymbals, psalteries, and harps, for the service of the house of God, according to the king's order to Asaph, Jeduthun, and Heman. ⁷ So the number of them, with their brethren **that were instructed in the songs** of the LORD, *even* all that were cunning, was two hundred fourscore and eight. ⁸ And they cast lots, ward against *ward*, as well the small as the great, the teacher as the scholar.

(AKJV)

but the formality here simply lies in translation. The AKJV now has "that were instructed in the songs" which was originally translated as "trained singers", the new translation being more in line with the Septuagint which has "who had been taught to sing". It has unfortunately remained with "the teacher as the scholar" which ideally should mean "the skilled" and "the aspiring". The Septuagint translates this with "expert and learner".

Another misnomer might be that of the temple orchestra. Our original thought was of professionally trained and professional musicians and retrojecting this from our current knowledge, we want to place these “professional musicians” in a “professional orchestra”. However, we have established that the position of musician was not professional, but hereditary; there was no higher institute of learning, but learning was informal.

The cultic music was traditional. Certain instruments had specific functions and both the type of instrument and how they were to be used were prescribed by the tradition. It is interesting to note that there are no textual references to artistry and artistic quality of the instrumentalists. Proper conduct of worship was paramount, intrinsic to the worship of God and not for the enjoyment of the audience.

Unfortunately there is no known musical notation still in existence from the Hebrew culture during the periods of the first and the second Temples, but some documentation exists that originated from the ancient Babylonian and Hurrian civilizations. These documents may have bearing on music in ancient Israel and Judah, especially taking into consideration a long period of exile in Babylon. They include artefacts indicating the names of strings and patterns of tuning. This tuning system, in which each set of strings were tuned in a different order, seemed to represent the norm for ancient near Eastern musical culture and it was in use for a long period of time as well as over a large area.

Our best approximation to musical notation is from the fragments of the tablets from Ugarit, and still we are not exactly sure about what they represent: - the syllables in the text above and the numbers of notes do not even correspond! Although controversial, several transcriptions have been attempted, but it remains impossible to say exactly how the music was performed. Because much of what was sung was written as poetry, one would expect rhythm and meter to have an influence on how the music sounded. There is however much disagreement about the patterns of rhythm and sound used in poetry and we are still very ignorant about how the poetic words matched up with the music. Was the singing syllabic or melismatic or even a combination? Accentuation is uncertain and it appears that some altered forms of pronunciation were used when cultic texts were sung.

We know that our knowledge of ancient Jewish cultic music disappeared when Jerusalem fell and the temple was destroyed by the Romans in 70 CE. The ancient Israelites must have hoped

that the temple would be rebuilt and in view of that would have tried to keep cultic traditions alive. This would also have been to for musical traditions. However, this never happened. On the site of the Jewish Temple a temple to Jupiter was built, Jews were expelled and the city was repopulated with Gentiles. The traditional sacrificial cult dwindled as successive generations grew up with no temple, no cult and also obviously no Levitical cultic music.

The Babylonians inherited much of their musical knowledge from the Sumerians - this is proven by a cylinder seal dated 3500 – 3200 BCE depicting a seated lute player, which implies that the Sumerians already knew the usage of ratios and the divisions of strings on frets –



<http://musicircle.net/wp-content/uploads/2016/12/Paper-for-Conference.pdf>

Fig 4.24 BM WA 1996-10-2, 1

but musical theory originated in Mesopotamia and it represents as such the source of at least all the other surrounding systems. The Greek music was shaped by Babylonian music and then evolved further on its own. Babylonian music must have shaped Byzantine music, and Mediterranean music also originated from Babylonian music. This all rests on the beginning of the simple Babylonian concept of two conjunct triads which forms a pentad, while two conjunct pentads again would form an ennead. The system dominantly was therefore descending and bi-pentadic. The pentads were arranged into sets with the last pitch of an ennead forming the first pitch of the next one. It was possible to expand the Babylonian musical system to up to 17 pitches by arranging more pitches in symmetry from the central common pitch or axis.

There is much difference in the interpretations of established archaeologists, musicologists, Assyrologists and philologists - perhaps enough for one last dedicated study?

5 CHAPTER 5 THE PSALMS

5.1 INTRODUCTION

..speaking to one another in psalms and hymns and spiritual songs, singing and
making melody in your heart to the Lord,
Ephesians 5: 19

The development of music predates the development of language and the spoken voice (Koopman 1999, WWW Document, under Antiquity to 1590, at <https://www2.lawrence.edu/fast/KOOPMAJO/antiquity.html>). We are unsure of exactly how this happened but might surmise that man began imitating the natural sounds they heard all around them and then possible came the addition of gestures to accentuate the sounds. In our own Southern African setting wonderful examples exist of Bushmen imitating animal sounds keeping in mind that animals and hunting would have been important elements of their daily life – see for e.g. <https://www.bing.com/videos/search?q=bushmen+imitating+animals&&view=detail&mid=460C4D6D293933F39C62460C4D6D293933F39C62&&FORM=VRDGAR> . Early mimicking of these sounds would not only have been essential for survival, but would also become part of entertainment and religion.

Any speaker knows that it is much easier to convey your message by adding pitch and variances in pitch to your voice. This adds a delicate but accentuated meaning to the message the speaker wants to convey. In a very elementary way, this leads to a form of song – *προσῳδία* – *accentus* or so-called “singing to speech”. This become even more important when trying to convey a message to larger groups and groups in large open spaces.

Biblical scholars often referred to the concept of oral tradition and loosely think about time when Israel was illiterate. Writing had not been developed and traditions and narratives were handed down from one generation to the next generation by elders or possibly by priests (Miller 2012: 183). It appears that literature remained oral in character into the late pre-exilic period (Jaffee 2003: 332-334). Jaffee furthermore points out two more recent studies which support the idea that oral and written literature were produced simultaneously in many

societies, that they are related and are interdependent. This is also true for Mesopotamia. Oral tradition existed alongside the written word. There is an old Assyrian legend dating from the 19th century BCE which refers to Sargon saying “why should I elaborate on a tablet?” meaning that the stories were well known orally (Westenholz 2009: 26-30. Miller 2012: 185). We read in the Tosefta that singing the laws was the norm in early Judaism. The Old Testament was originally written with an absence of spaces between words, poetic lines were not indicated, there were no breaks between verses or chapters, and all this would’ve made reading the Old Testament very difficult. In the Talmud b. Meg 32a Rabbi Yohanan ben Zakkai says: “he who reads without melody and repeats without song, concerning him the Scripture says: ‘therefore I gave them statutes which were not to their advantage’ “ (Miller 2012: 185). Oral traditions not only existed in illiterate societies, but have often flourished in spite of literacy. In pre-exilic as well as post-exilic Israel a large portion of literature remained orally in spite of audiences being literate. It made sense that oral texts that were transferred from singer to singer as well as from singer to audience could and should be recorded in writing (Miller 2012 186). This would allow the text to be consulted by other writers as well as by singers of other stories (Mundal 2010, 168). We often think of the development of the literary process as linear. One step at a time. One process following the previous. At first, stories and narratives were oral in character. They were circulated among singers and storytellers. Then eventually, these narratives were written down. This would allow for these texts to be recited or even chanted in an oral manner to large groups of people. This process was called re-oralisation and continued through the Masoretic vocalization into the Mishnaic period (Miller 2012: 185). The process does not appear to be that simple and not nearly as linear as we would expect it to be. The people that we refer to in this instance knew of writing before the 12th century BCE and continued to employ oral literature until after the 5th century BCE (Rankovic 2010: 39-71. Miller 2012: 186).

Miller (2012: 183-194) points to the literature of Iceland where, similar to Israel, the original language in context is lost, and can only be reconstructed through the scenes that are created in the text itself, which is much later than the original origin of the material (Miller 2012: 186). Furthermore, discourse also remains as to whether the Icelandic sagas were primarily of written origin, or whether they were oral in essence. Icelandic sagas appear to draw on both oral poems as well as written stories, similar to that of the narrative books of the Old

Testament. The Icelandic study confirms that pure writers still depended to a certain extent on the oral traditions. Performance criticism is an emerging methodology in biblical studies. The essence of performance criticism is a critical methodology that is based upon the premise that selected portions of the Hebrew Bible are literary variations of originally oral compositions that were read or cited before live audiences (Giles 2008: 173). Performance is unfortunately inseparable from the context in which the text was written. The setting with concomitant vocal modulation and performed gestures obviously would affect the meaning of any written text (Miller 2012: 187). This is not foreign to the concept of text being elevated by music. There is in existence Mesopotamian texts with prologues indicating “I will sing” and with epilogues like “whoever recites this text”, while some texts were even composed with lyrics (Dumbrill 2005). Instruments like the harp and lyre are found abundantly in iconography from the Assyrian period. Some Hittite text are even labelled as ballads (*išhamai*) and we know of the existence of Hurrian hymns - 29 of these Hurrian songs/hymns were found at Ugarit and they contain both words and musical notation. Saddingly, for the Levant, there is much less visible information. Nevertheless, some iconographic evidence inherent to the Levant was described in the previous chapters, together with descriptions of instruments and relevant musical notation. There are many biblical references to musical performance. Theodore Burgh in *Listening to the Artefacts* (2006) analyses these references and makes references to musical personnel, the circumstances of performances and the use of a variety of instruments. These performances were mostly set in the court or the temple, and interaction between two groups of voices would have been of great importance.

The Psalms were written many years ago but their beauty remains timeless. It probably is the most familiar book of the Bible and it is one of the most frequently quoted books of the Bible. The Psalms/Book of Psalms as we know it today is found in the Old Testament of the Christian Bible. It is the first book of the *Ketuvim*, which is the third section found in the Hebrew Bible (wordIQ.com). The cognate English title of this biblical book is found in the Latin Vulgate, here called *Liber Psalmorum* or *Psalmi* – this is a translation from the Greek word ψαλμοί - *Psalmos*. (Levin, unknown). It means a song or song text written specifically to be sung accompanied by stringed instruments. In later extension, this came to mean instrumental accompaniment in general. Levin (u.d. WWW Document under Etymology) points out that the translators of the Septuagint specifically selected the word *Psalmos* to render the Hebrew equivalent of

mizmor. This specific word, *mizmor*, is exclusively found in the biblical book of Psalms (Smith 1990). It is found in the title or the heading of 57 psalms, but never within the body of the psalm itself. Later on, *mizmor* became the broad accepted equivalent of liturgical singing accompanied by instrumental musicians (Levin, unknown). In modern time the English translated word Psalm has become universally accepted, in spite of the fact that questions have been raised about the correct translation of *mizmor*, and some suggestions that the Jewish translators in Alexandria might not have known the precise meaning of the Hebrew word, or of its definition. In rabbinic and subsequent literature the Hebrew name is *sefer t'hillim*, literally meaning "Book of praises", or maybe "Book of songs of praise". Interestingly enough, the term of *sefer t'hillim*, or its contracted form *tillim* is only found in the superscription of Psalm 145 (Levin u.d. WWW Document under Etymology). There are more of these interesting terms found in the Psalms, most notably the concomitant use of the expression hallelujah, which appears nowhere else in the Bible (Levin, essay with unknown date).

The psalms are numbered sequentially and we now (since 1969) follow the Hebrew numbering. Some older texts use the Greek numbering which is found in the Septuagint which differs by one in some instances:

Hebrew	Greek
1 – 8	1 – 8
9 – 10	9
11 – 113	10 – 112
114 – 115	113
116	114 – 115
117 – 146	116 – 145
147	146 – 147
148 – 150	148 - 150

We now generally accept that Psalms 9 and 10 are a single poem of the acrostic type. In this instance the Septuagint is correct, as confirmed by Richard J Clifford in "The

Psalms,” Introductions and annotations, *The New Oxford Annotated Bible with Apocrypha* (4 ed.; New York: Oxford, 2009) 773-894. The Hebrew text, however, is correct to view Psalm 42 and 43 as a single poem. It is similar in subject, metrical structure and refrain. This also is true for Psalm 146 and 147. This is also partially due to the fact that the collection of the 150 Psalms as we know them today are an amalgam of earlier collections, for example:

- The Korahite Psalms accredited to the sons of Korah. Presumably these are the descendants of the Levites who rebelled against Moses and Aaron in the wilderness (Levin u.d.), Psalm 42, 44 - 49, 84, 85, 87 and 88.
- The Psalms of Asaph who was the appointed choirmaster in the temple service, Psalm 50, 73 - 83.
- The Hallel Psalms 113 - 118
- The Songs of ascents, Psalm 120 - 134.

They can be used for singing, praying, and meditation and have remained relevant in Christian life. The book of Psalms as we now find it in the Bible, can be divided into five sections/books, each ending with a liturgical expression of praise to God, but each section originating from a specific time period.

- Book 1: Psalm 1 – 41 forms the first section. Most of the psalms in this section appear to be written by David and some even refer to his personal experiences.
- Book 2: The 31 psalms from Psalm 42 – 72 is the second grouping. 18 psalms are attributed to David, 7 to Korah (who lived during the same period as Moses), 1 to Asaph (a musician in the time of David), 1 to Solomon, while the authors of the rest are unknown. These were written during the time of Solomon
- Book 3: Psalm 73 – 89 is 17 psalms. These psalms most likely come from the time of King Hezekiah and were written by Asaph (4), Korah (1), David (1) and Ethan (1). This book also contains 4 of the 14 liturgical psalms namely 74, 76, 78 and 80.

- Book 4: Psalm 90 – 106. Of these 17 Psalms 3 are ascribed to David, 1 to Moses and the others have no definite titles. These psalms most likely are pre-Davidic.
- Book 5: The last 44 Psalms, Psalm 107 – 150. Most of these Psalms are untitled but 14 are ascribed to David, and 1 to Solomon (wordIQ.com). This book probably comes from the time of Ezra or Nehemiah.

This division is strengthened by the reference in the Midrash that “Moses gave Israel five books of the Torah and David gave Israel five books of the Psalms” (Midrash *T’hillim*), thus corresponding to the five books of Moses, the Pentateuch.

From this division it is understood that the origin of the Psalms stretched over a period of some five centuries. They range from a possible old Canaanite Psalm 29, possibly originating from the Maccabean-Hasmonean area in the second century BCE, to the post-exilic period (Rose 1992: 1007-8). Most however superficially appear to be connected to the Temple in Jerusalem, in the Southern Kingdom of Judah. This opinion has now been rejected by several current scholars. Linguistic studies reveal the absence of any Hellenistic poetic, literary or theological inference. Several more recent studies also point to comparative analysis of other Ancient Near Eastern poetic literatures that predate ancient Israel. These factors now suggest that the Psalms must have originated well in advance of the second century BCE. By this time their importance as well as their popularity must have been established. This is much prior to the Second Temple(Levin u.d.).

We quite frequently refer to the entire contents of the Psalter as the “Psalms of David” and often still have the image of “David the Psalmist”. This in spite of the fact that large groups of the Psalms are accepted to be the work of other authors, and that even the so-called Davidic Psalms are nowhere in the Bible specifically credited to David(Levin u.d.). According to Berlin and Brettler (2004 Jewish Study Bible, free online edition, “Psalms” at <https://www.biblestudytools.com/cjb/psalms/>) Davidic authorship is not accepted as historical fact. It is true that 73 Psalms carry the name of King David in their superscriptions. It is even possibly true that King David could have had a hand in the composition of some of them. The precise meaning of the name of King David in the superscription is not entirely clear; it could be a dedication to David, or refer to an event in King David’s life, or as performed by King David, or as performed for King David, or could be from the repertoire of one of the

guilds of temple singers that King David apparently have instituted in post-exilic literature (Levin u.d.). Not even the statement at the end of Psalm 72 that announces that “the prayers of David the son of Jesse are ended” is a true confirmation of authorship. Shlomo Yitzchaki, now generally known as Rashi, was a French rabbi who wrote a comprehensive commentary on both the Talmud and Tanakh. Rashi suggests that this coliform only applies to Psalm 72 and not to the first 72 Psalms as a unit. The Baba Bathra 14b, when confirming the order of the books of the Bible states:

David wrote the Book of Psalms, including in it the work of the elders, namely, Adam, Melchizedek, Abraham, Moses, Heman, Yeduthun, Asaph, and the three sons of Korah.

It suggests that David was a possible compiler of the Psalter but that he used various sources. The Pesachim 117a attempts to confirm Davidic involvement with:

It was taught, R. Meir used to say: All the praises which are stated in the Book of psalms, David uttered all of them

and in the following paragraph:

Our Rabbis taught: As for all the songs and praises to which David gave utterance in the Book of Psalms, R. Joshua said: He spoke them in reference to himself; R. Joshua said: He spoke them with reference to the [Jewish] community; while the Sages maintain: Some of them refer to the community, while others refer to himself. [Thus:] those which are couched in the singular bear upon himself, while those which are couched in the plural allude to the community. Nizzuah and niggun²¹ [introduce psalms] relating to the future; maskil [indicates that it was spoken] through a meturgeman [interpreter]; [the superscription] To David, a psalm' intimates that the Shechinah rested upon him and then he uttered [that] song; 'a Psalm of David' intimates that he [first] uttered [that particular] psalm and then the Shechinah rested upon him.

But none of these statements actually asserts the fact of original Davidic authorship. It nevertheless appears that the compilation, selection and editing of the Psalms were done by scribes who succeeded Ezra and Nehemiah in approximately the fourth century BCE. The association of David that we traditionally hold with the Psalms is based on biblical

foundations. At a young age he already was an accomplished player of the *kinnōr*, he apparently was involved in inventing musical instruments, and he was a good singer.

The Septuagint includes an additional psalm, a Psalm 151. This “extra” psalm was written in Hebrew and is part of the discovery of the Psalms Scroll of the Dead Sea Scrolls. The Syriac churches in the Middle East use a version of the Bible called the Peshitta. It is available in print and online at for e.g.

https://archive.org/search.php?query=collection%3Aajstor_amerjsemilanglit%20AND%20volume%3A37 Syriac is the language spoken in ancient Syria. It also is known as Syriac Aramiac, but is a minority language. It still remains as the language of several churches. This Bible includes a Psalm 152 – 155. A further collection of 18 Psalms survived only in Greek and Syrian translations. They are called the Psalms of Solomon.

A distinction can also be made between different types of psalms. There is some overlap as psalms might fit into more than one specific criterion. Nevertheless, Hermann Gunkel was an Old Testament scholar, born in Germany, and he pioneered this interpretation. He grouped psalms of the same genre together (Gunkel 1930, translation by Horner, 1967):

1. Hymns: These Psalms praise the work of God. Gunkel further distinguished 3 sub-types:
 - a. Enthronement Psalms – these poems celebrate the enthronement of Yahweh as king
 - b. Zion Psalms – glorify Mount Zion as the dwelling place of God
 - c. Eschatological Psalms – focuses on future restoration or judgement.
2. Communal laments: In these Psalms the nation laments some generalized/communal disaster. According to Gunkel they mostly follow a similar pattern:
 - a. Address to God
 - b. Description of suffering
 - c. Cursing of the responsible party
 - d. Protestation of innocence/admission of guilt
 - e. Plea for divine assistance
 - f. Faith in God’s receipt of prayer
 - g. Anticipation of divine response
 - h. Thanksgiving

3. Royal Psalms: They deal with matters of the king, for e.g. his coronation, marriage or battles and conquests.
4. Individual laments: They state the case of a specific individual and mostly follows the same form as the communal laments. They are the most common Psalms.
5. Individual thanksgiving Psalms: These are the obverse of the lamental Psalms and praise God for his deliverance from a situation of personal distress.

Gunkel furthermore identified five minor groups:

1. Communal thanksgiving Psalms
2. Wisdom Psalms which reflect the wisdom literature of the Old Testament
3. Pilgrimage Psalms, sung by pilgrims on their way to Jerusalem.
4. Entrance and prophetic liturgies
5. A mixed groups that do not fit into any above category.

The Psalms are complex and multidimensional. There are for e.g. several Psalms that have an acrostic construction. Acrostic means a poem or word puzzle in which the first letter/syllable/word of each sentence/paragraph spells out the alphabet/a word/ a message. In these Psalms each line or stanza begins with the next letter of the Hebrew alphabet. They include Psalms 9, 10, 25, 34, 37, 111 and 112. The Psalms can also be viewed as prayers. We know that the book of the Psalms had/can be used as a guide for devotional prayer. This is confirmed by the reference in Psalm 72: 20, which is at the end of the second grouping of Psalms:

The prayers of David the son of Jesse are ended.

Psalm 72: 20 - NKJV

But the psalms are a treasure of poetry. The poetry used here is different from our modern view of poetry which is based on rhythm and rhyme. The psalms are on the one hand less fluent than expected, but definite patterns of symmetry exists (Amzallag 2014: 17). This only makes sense if the Psalms are accepted to be written in a musical fashion. The poetry of the Psalms predates metrical Hebrew poetry and is based on parallelism. It does not embrace meter as we know it today and has been the subject of much debate. One of the most interesting claims came from Marcus Meibomius, who in the 17th century claimed that the

Hebrew meter had been revealed to him; also that he was willing to share it with the world should six thousand people purchase his work at five pounds sterling each! There have been continuous efforts in identifying a precise system of meter in the Psalms. Several theories were based on the concept of syllabic stresses and word units. These turned out to be ineffective. Enumerations of the syllables were attempted. There is however a lack of critical information. We also rely on the Masoretic text for vocalization which may differ from the actual intended vocalization at the time of authorship and even the actual exact pronunciation of the poetry in its original form (Levin u.d.). When one keeps the parallelism intact, then these poems can be translated into any language without concern for rhyme. Parallelism was used as a technique of writing and is used to make a specific point. Parallelism is when the second line of poetry is an expansion of the first. This can happen in one of several ways:

- Synonymous parallelism is where the first line is echoed in the second with only a slight change

Why do the nations rage,
And the people plot a vain thing?

Psalm 2: 1

- Antithetical parallelism where the first line is affirmed in the second line by contrast

For the LORD knows the way of the righteous,
But the way of the ungodly shall perish.

Psalm 1: 6

- Climactic parallelism: the second line will refine, develop or complete the first. Words from the first line are repeated in the second

Give to the LORD, O families of the peoples,
Give to the LORD glory and strength.

Psalm 96: 7

- Synthetic parallelism. The second line again develops the first line, but word from the first line is not repeated in the second

Oh come, let us worship and bow down;
Let us kneel before the LORD our Maker.

Psalm 95: 7

- Emblematic parallelism allows for the first line to introduce a figure of speech which is explained in the second

As the deer pants for the water brooks,
So pants my soul for You, O God.

Psalm 42: 1

- Formal parallelism is where a formal structural relationship exists, rather than a relation of logic or a sequence of thought

Do not keep silent,
O God of my praise!

Psalm 109: 1

Importantly the Psalms also are songs. The Psalms are used as a hymn book even in the modern Christian traditions. The Psalms are important as testimony to the importance of music in worship that extends over many years. The Psalms, for example consisting of Levitical singing to instrumental accompaniment often occurred concurrent with sacrificial ceremonies in the ancient temple (Levin u.d.). The Psalms contain no information about any sacrificial procedures and they also do not refer to these, but appear to be complementary. In the Hebrew Bible the book of the Psalms is titled *Tehillim* meaning “Songs of Praise”, while the Septuagint uses *Psalmoi* which in its original form referred to the plucking of strings with the fingers. Furthermore, the musical terminology and instructions found in the Psalms are plethora. This is surely hard to miss. The most frequent opinion is that the ancient music of the Psalms had been lost, but several scholars (and some amateurs) have tried to reconstruct this. Werner (1957: Chapters 5-7, pp 460-574) suggests that fragments of psalmody are preserved in relevant ancient chants used in ancient churches and synagogues, most notably the *Tonus Peregrinus* melody of Psalm 114. The *Tonus Peregrinus* is one of the eight Gregorian

Chants and it is constructed from a combination of the 1st and 8th tones and thus is irregular. It is a general fact that the modern translations of the Bible do not include any musical notations. Perhaps it is because we had lost the knowledge of the Cantillation signs, but this does not mean that they did not exist. Cantillation signs were surely meant to record/"notate" the melody, and evidence of these are found in the oldest surviving copies of the Psalms in the Dead Sea Scrolls and apparently are even more extensively found in the Masoretic text. We attempt to use a variety of sources in reconstructing insight into the musical matters of the First Temple, in which choral singing and psalmody played an important role. We use references in later biblical books, we use some superscriptions found in the Psalms, we use other ancient sources from the same region and the same time, like the annals of Sennacherib in the 7th century BCE, and we can obviously use the Talmud and other postbiblical descriptions. The Talmud is especially helpful in reconstructing the musical formats and musical practices of the Second Temple, but although there was a forced hiatus of 70 years between the First and Second Temples, musical models of the First Temple must have been used to reconstruct that of the Second Temple. We know that there is evidence of antiphonal singing with two choirs alternating and also that there is evidence of responsorial singing where a soloist alternates with a choir. It becomes tempting and easy to compare these to the parallel structure of the poetry of the Psalms. Even in modern time, they continue as an inspiration for musical interpretations and expressions (Levin u.d.). Even in their musical form they remain as an expression of man's desire for moral, ethical and spiritual foundation. They embrace virtually every basic human emotion.

The superscriptions or headings found at the beginning of each Psalm makes for some interesting reading. It remains to be a contested issue among scholars, both biblical and musical (Levin u.d.). Some superscriptions appear to contain obscure instructions, the meaning of which we do not understand anymore. Even information with regards to musical performance or an assigned occasion appear to be fraught with difficulty.

One of the most simple (?) superscriptions is that of *lam'natze'ah*. There is contention whether this refers to "to the choirmaster" or perhaps "to the conductor", or perhaps this referred to a particularly specific song type. The superscriptions easiest to understand appear to refer to a specific musical instrument. The term naming the instrument as well as the instrument itself is very often known. The term *higgayon sela* which is found in Psalm 9: 17

by some is believed to be a call for a so-called “murmuring sound” on the *kinnōr* - a technique we can clearly grasp with our modern knowledge. Alternatively, it is suggested that this term is a direction for a more solemn or meditative instrumental interlude (Levin u.d.), similar to the meaning in Psalm 92: 4, where it is often translated as “solemn sound”.

Some of these superscriptions are more puzzling. They appear to contain a cryptic instruction or metaphor to a melody or tune to which the Psalm should be sung. In Psalm 22 we find *ayelet hashahar* literally meaning “the hind of the dawn”, or in Psalm 56 *al yonat elem r’hokim* which means “according to the silent dove of those who are distant”. Similar practices of including pre-existing musical formats and instructions in a superscription also existed elsewhere in the ancient world. Consensus on this issue remains elusive.

Poetry, on the basis of music and singing, can be divided into two large groups. The first is declamatory poetry, which may be accompanied by musical instruments. Initial cantillation of the text may eventually evolve towards singing. However, the music is not expected to modify the contents or the sequence of the poem. It may allow for parallelism, repetition and syllabic repetition. Maurizio Bettini (2013) explains that it is because the musical dimension is not expected to modify the contents or the sequence of the poem that it is often ignored, in spite of being closely inter-related.

The second large group of poetry was specifically designed for choral performance, especially true in antiquity. This we can define as Psalm poetry. It is found in the Ancient Near East with reference to hymns, liturgy and the cult. We have continuously met the musical and choral performances of the Psalms in the Ancient Near East, as confirmed by several scholars, for example Peet van Dyk, “Music in old Testament time” *OTE* 4 (1991: 375); Charles G Cumming, *The Assyrian and Hebrew hymns of praise* (New York: AMS Press, 1966: 11-15); Alfred Sendry, *Music in Ancient Israel* (London: Vision Press, 1966: 37-46). We read in the Bible of groups of 12 singers affected to the musical service at the temple:

⁹ Now the first lot for Asaph came out for Joseph; the second for Gedaliah, him with his brethren and sons, twelve; ¹⁰ the third for Zaccur, his sons and his brethren, twelve; ¹¹ the fourth for Jizri, ^[b] his sons and his brethren, twelve; ¹² the fifth for Nethaniah, his sons and his brethren, twelve; ¹³ the sixth for Bukkiah, his sons and his brethren, twelve; ¹⁴ the seventh

for Jesharelah,^[1] his sons and his brethren, twelve; ¹⁵ the eighth for Jeshaiiah, his sons and his brethren, twelve; ¹⁶ the ninth for Mattaniah, his sons and his brethren, twelve; ¹⁷ the tenth for Shimei, his sons and his brethren, twelve; ¹⁸ the eleventh for Azarel,^[1] his sons and his brethren, twelve; ¹⁹ the twelfth for Hashabiah, his sons and his brethren, twelve; ²⁰ the thirteenth for Shubael,^[1] his sons and his brethren, twelve; ²¹ the fourteenth for Mattithiah, his sons and his brethren, twelve; ²² the fifteenth for Jeremoth,^[1] his sons and his brethren, twelve; ²³ the sixteenth for Hananiah, his sons and his brethren, twelve; ²⁴ the seventeenth for Joshbekashah, his sons and his brethren, twelve; ²⁵ the eighteenth for Hanani, his sons and his brethren, twelve; ²⁶ the nineteenth for Mallothi, his sons and his brethren, twelve; ²⁷ the twentieth for Eliathah, his sons and his brethren, twelve; ²⁸ the twenty-first for Hothir, his sons and his brethren, twelve; ²⁹ the twenty-second for Giddalti, his sons and his brethren, twelve; ³⁰ the twenty-third for Mahazioth, his sons and his brethren, twelve; ³¹ the twenty-fourth for Romanti-Ezer, his sons and his brethren, twelve.

1 Chronicles 25: 9-31 – NKJV

This interesting grouping of 12 Levites forming a choir is confirmed:

Those who contributed to the sanctuary music by playing the instruments rather than by oral singing are not included among the 12 Levites

Mishnah Arak 2: 6

We can thus deduct, as confirmed in the book of Chronicles, that music and singing was an essential component of the cult. It is even explicitly mentioned in the body of some of the Psalms, notably Psalm 35 verse 18, Psalm 68 verse 27, Psalm 109 verse 30.

It is important to make one further significant distinction between the two groups of declamatory poetry and Psalm poetry. In the instance of declamatory poetry the music would have no influence on the meaning of the text. This means that when this was presented as a song it should be sung by a single voice and it should be sung and worded exactly as it is read in the text. Choral music or choral singing in contrast allows for not only substantial transformation of the text, but it also could vary in tempo and other intonations. This is illustrated by Mirelman and Sallaberger in their 2010 article “The Performance of a Sumerian Wedding Song” (pp. 184 – 187) in which they illustrate how the linear text could and was distorted, also distorting the meaning. Thus, in contrast to declamatory poetry, modification

of the text of Psalm poetry may and indeed has taken place during the performance. The intended message of the poem however, is not lost if these modifications are merely an alteration of the linear text. It is a theoretical possibility that the text would become musically shaped; therefore the text that emerges from a performance displays a higher literary cohesion than the initial text. In this instance of musically shaped poetry, music and musical performance becomes an essential component of the poem or the psalm. It is a well-known fact that linear investigations of the text of the Psalms is problematic, but that the Psalms were intended for use during cultic ceremonies in a musical form/addition (Smith, 1990, Kindle edition loc 1320; Rendsburg 1984: 95). We thus deduct that the musical performances of the cult was an essential component of the ceremony and that the musical component should thus automatically also become part of any literary investigation or analysis. This becomes even more relevant if the text concerned, in this case the Psalms, and although designed for musical and choral performance, remains obscure and ambiguous.

Yuri Lotman (1976: xi) explains that the ordered quality of any text in linguistic terms can be characterized in terms of paradigmatics and syntagmatics. It is a confirmation of the concepts of the Linguistic unit coined by Saussure (best simplified and shortly explained at <https://www.biblestudytools.com/cib/psalms/>). If syntagmatic, then the words acquire a specific relationship on a linear basis. This is important in normal speech and literature. The words are specifically chained together. Lyric poetry appears to belong to the paradigmatic group, even if narrative. It is defined by several online sources as an expressive model in which distant words, sounds and expressions are bonded together rather by memory, not supported by linearity.

Reading the biblical Psalms is fraught with difficulty. They often appear to form alone standing autonomous segments and there is often no chronological development with no discernible continuous storyline. There is not a single employed written or linguistic style and often non-congruent and abrupt transitions are made. One of the reasons is the grammatical parallelism found in the Psalms, although it is one of the most essential characteristics of biblical poetry as found in the Psalms. Several scholars have demonstrated how this recurrence of parallelism disrupts the continuous line of the narrative (Weber, 2012: 157-188). Furthermore, the scarcity of verbs and actions is a contributing factor. A further contributing factor is that of gradual erosion. This probably is most explicit in a comparison of Psalm 18

and 2 Samuel 22 which are versions of the same song but with many small differences (Clines, 2001: 212-214).

Parallelism is an inherent component of the Psalms, but other repeating patterns can be detected, more specific to the biblical psalm-poetry and based on the entirety of the poem. This can be done on the basis of sound, semantics and syntactic affinities (Smith and Domeris, 2008: 107-115). These patterned paradigmatic dimensions are another peculiarity unique to the Psalms poems and include:

- Forward symmetry : A – B – C – A' – B' – C'
- Fixed interval symmetry : A – B – A' – B' – C – D – C' – D' –
- Chiastic symmetry : A – B – C – C' – B' – A'
- Concentric symmetry : A – B – C – D – C' – B' – A'

Concentric symmetry is now identified in as many as 56 of the 150 Psalms. It is slightly different to the other patterns because the center line carries the main message of the poem/song. This central line often contains the name of God, as well as other words of central significance. The recognised patterned symmetries are an interesting internal characteristic of the Psalms, but are not essential in creating a paradigmatic work of beauty. Symmetry exists and is sought in the verse, as well as the strophe, as well as the song/poem in its entirety. This is very similar to music where smaller patterns of symmetry are found within larger units of symmetry, and where often the whole composition forms a unit of symmetry. Symmetry in music is a well-known fact, especially parallel successions of the same motif and a mirror type of symmetry, once again organized around a single focal central point (Kempf, 1996: 155). This is very similar to the symmetries found in Psalm poetry. The first and last lines of concentric symmetry encloses the unit, forms a so-called *inclusio*. The same mechanism is often employed in musical composition. Recurrence is a further phenomenon found in the poetry of the Psalms. It is important to note that recurrence is not similar or synonym to iteration. And so we also find that in music a similar occurrence of variations are often found.

Some scholars have looked at the Psalms from a form- criticism perspective. Form criticism is defined (Encyclopaedia Britannica) as “a method of biblical criticism that seeks to classify units of Scripture into literary patterns and that attempts to trace each type to its period of oral

transmission". Form criticism seeks to determine a unit's original form and the historical context of the literary tradition". It is thus easy to understand why exponents of the form criticism approach attempts to resolve the inherent problem of low syntagmatic matter value of especially the Psalm poetry. This is in direct opposition to a rhetorical approach which would lend itself to investigating a more paradigmatic approach. Rhetorical criticism investigates the things that people use to communicate, words, phrases, poems, gestures, images and forms. It is understandable that the form criticism perspective would point at the low syntagmatic value of the Psalm poetry, viewing them as either damaged or freely composed, but that this is in direct opposition of what is perceived as a structured and organized patterned paradigmatic system. Some examples are worth mentioning:

- Psalm 87 is sometimes considered as chaotic and awkward, but displays a concentric symmetric pattern (Amzallag, 2014: 32-33)
- The well-known and well-loved Psalm 23 is sometimes seen as a free, impressionistic text (Ahroni, 1982: 21), and by others as a highly structured composition (Tappy, 1995: 278-280).
- Psalm 95 appears to consist of a combination of a poem of hymnic nature with a wisdom song. Some scholars however feel that a system of forward symmetry exists between the two entities.

Amzallag (2014: 27) cleverly constructs and substantiates the fact that many of the basic components of the musical language of modern Western music originates from an antiphonal mode of performance. He furthermore points out that the absence of written music does not negate a so-called correspondence between the global patterns of symmetry found in both the Psalm poetry and music. This correspondence is merely their antiphonal mode of performance. Antiphony is a widespread phenomenon, is widely encountered in examples of traditional music from Africa, from Europe and from Arabia. It must be regarded as one of the most fundamental forms of music and musical performance, was and is present in large portions of the African, European and Asian continents over a long period of time. There is absolutely no reason why the Ancient Near East would have been excluded from this widespread musical movement. We furthermore have positive evidence that antiphony was the mode of choice of performance in liturgy in the Ancient Near East (Amzallag 2014: 29-30). Amzallag here makes a strong argument in favour of complex antiphony. In the simplest terms

antiphony can be described as the first half of the verse which is sung by the opening singer or voice, while the second half is sung as an echo by responsive singers or voices. This very simple model however, is inadequate in explaining the complex nature of symmetry found in the text in toto. The text of the Psalm poetry, in spite of being of reduced syntax value, appears to consist of two distinct scores, i.e. the score of two individual voices intertwined. We find a similar mode of antiphony in traditional music from Arabia and central Europe. In these the second voice is complementary to the claims of the first voice, or alternatively it could carry its own poem that mixes or intertwines with the poem sung by the first voice. This is defined as complex antiphony, and is exactly what we find in the Psalms. When the two voices combine the antiphonal units it generates a new and more complex composite text which is totally different from a linear reading. In realistic terms this truly represents a text that would be musically shaped.

Scholars are now able to recognize at least three modes of complex antiphony in biblical Psalm poetry:

- **Steady responsa:** this concurs with the pattern of forward symmetry and consists of two sets of parallel verses which are intertwined during a performance. The two entities are of equal length and there is a visible literary bond between the parallel lines. Psalm 121, 126 and 128 especially produces problems if the text is considered in a linear fashion. The global pattern however is of forward symmetry with a perceptible transition between the two halves. This solves the problems created during linear reading and leaves us with a text of coherent meaning, visible structure and development of a narrative. We have evidence of hymns from Mesopotamia that are written in a verse to verse forward symmetry, which have two distinct parts which are of equal length. Langdon (1919: 246 onwards) has brought to attention the curiosity that the second voice was in some instances written on the obverse of a tablet and that it included a heading indicating *gisgigal* – antiphony. KTU 1.65 is an archaic song from Ugarit. The text on the one side consists of highly structured rhetorical patterns, but on the other side is practically meaningless in a setting of linear reading. The only way the text becomes meaningful is when corresponding lines from the two sides of the tablet are paired. It then becomes a simple example of antiphonal performance in a steady responsa mode. More importantly, this finding confirms that

antiphonal singing and steady responsa were present and practiced in the Ancient Near East.

- Cross responsa: this is formed by inversion, so-called concentric symmetry. Because the two halves are identical but inversed, it forms a genuine palindrome. The first portion of the poem/score reads from the first to the last verse while the second portion results from a reading of the same text, but in the opposite direction from the last to the first verse. The central verse is therefore sung by both voices as an echo and this single sentence would be unique in structure, nature and rhythm. It would be the only verse that is sung twice, thus emphasised. This causes the definition of cross responsa. The repetitive first and last sentence completes the inclusio. Four biblical poems have been recognised (and published by Amzallag) as of concentric pattern in cross responsa form. They all display properties indicating that they were songs intended for performance in a cross responsa fashion:
 - 2 Samuel 1: 19-27. David's lament on Saul and Jonathan
 - Isaiah 14: 4-20. The Isaiah satirical lament
 - Exodus 15: 1-21. The Song of the Sea
 - Psalm 87
- Canonic responsa: a canon is performed when the second voice continuously repeats what is sung by the first voice with a constant delay. The best-known example (for myself at least) is the well-known children's canon "Vader Jacob" in Afrikaans, or its French equivalent (Frere Jacob). However, when performing a simple canon, the beginning and the end is sung only by a single voice, while in canonic responsa a constant dialogue between the two voices exists.

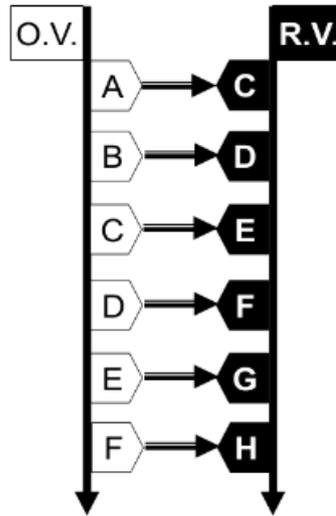


Fig 5.1 Pattern of canonic responsa from Amzallag, “Musical Mode of writing of the Psalms and their significance” at <http://www.scielo.org.za/pdf/ote/v27n1/03.pdf>

The body of the score, here defined as C – D – E – F, is sung twice. We find this mode of performance in Psalm 114 (Amzallag, Avriel 2011: 321-322).

Fleischer (1973: 5) points to so-called “stagnation” found in Near Eastern music. It is explained as the fact that Western music had developed through definite periods, each displaying a distinct style and development, but that the non-European styles of music found in the Ancient (and less ancient) Near East has remained fairly unchanged due to the adherence to the rule of not adding or subtracting from the religious experience. It is furthermore recognised that Western music is primarily concertante (as distinct from folk music) in nature, but that most other musical types had remained functional in character, adding very little room and purpose for change or development. Consequently, melodic development is not similar with non-Westernised music remaining less melodic with a lack of harmony (Fleischer 1973). Because it was initially transferred orally, with no clear manner in which to notate this, it allowed for individual interpretation and improvisation. This would allow for constant change in the composition with non-finite variations possible. This argument confirms the fact that although ancient, the music of the time should not be regarded as “simple”. There are elements of drone polyphony found in the Middle East, also amongst some Jewish groups (Jordania 2011, 19-37), and especially under the Samaritans. It is also found in surrounding areas of the Persian Gulf, Syria and Yemen. Drone refers to the technique of continuously

repeating a single note or sustaining a single note throughout a musical piece. It allows for primary tonality to be confirmed and the whole musical piece is thus built on this, whether the drone be instrumental or vocal. I could find no other reference to drone singing/music in the ancient Near East.

Melismatic singing now is common in ancient non-European types of Music. Melismatic refers to the technique of singing multiple notes to a single syllable. Melismatic and neumatic singing have again recently however been popularised in modern popular Western music – simply listen to examples of famous modern singers like Whitney Houston and Mariah Carey to once again appreciate this phenomenon. The opposite term is “syllabic” which means that each syllable of text is matched to a single note. Recognising the fact that the psalms are responsive in character, the use of melismatic music becomes problematic, especially if one of the voices consists of multiple singers or a choir. It is virtually impossible for a group of voices to maintain melismatic singing if it is freely applied. It would be possible to use under strict prescriptions for which definite notation would be necessary. However, ornamentation in the form of melismatic singing would definitely be possible for a single voice and this indeed existed exerting an influence over Christian plainchant. (Koopman 1999: “Historical Antiquity” at <https://www2.lawrence.edu/fast/KOOPMAJO/antiquity.html>).

5.2 MUSICAL NOTATIONS

The addition of musical terms and notations in the Psalms have continuously been puzzling scholars. We are unsure by both meaning and function and when it is etymologically investigated they sometimes include both meaning and function. The Greek word *Psalmoi* refers to singing accompanied by some form of stringed instrumental music. The English term “Psalter” is derived once again from the Greek *psalterion* which is a stringed instrument likened to a zither. In contrast, the Hebrew term *tehillim* is a noun rooted in the verbal idea of “praises”. It relates to several other words most notably *hallel* and the widely used *hallelujah* meaning “praise be to Yahweh”. We can therefore see that the Greek terms lean

more towards the way in which the music/Psalm was performed, while the Hebrew is more indicative of the content of the psalm.

Etymology (the study of the origin of words and the historical development of its meaning) and linguistics (the study of language and its structure) are valuable tools in evaluating ancient texts, and although they cannot supply the meanings themselves they can help to clarify meanings. Etymology especially is applied retrospectively and still relies heavily on our contemporary sense of understanding of the specific term. Musical terminology is specialized, not only when considering the term but also in considering the usage of a specific term. It is further unfortunate that many of these terms originated from ancient languages that are not congruent with the language of the term under discussion. We commonly refer back to Ugaritic when evaluating Hebrew text, but Ugaritic had died out long before the Bible was written in Hebrew.

We (I?) now commonly read and study an English translation of the Bible. The choice of which translation to read is daunting and no single translation should be taken completely at face value, especially with regards to musical terminology and other references to music. Sometimes the translation of musical terms are dealt with imprecisely, inconsistently and therefore they might be misleading. The one example that immediately springs to mind is found in Isaiah 12 verse 6. In several English translations this is given as “and sing for joy”. This meaning is neither found in the Masoretic text or in the Septuagint. The Hebrew word is *wāronnî* and the Greek term is *kai eurainesthe*, meaning “and rejoice” or “and shout for joy”. This might seem insignificant, but the use of the translated term “sing” definitely is misleading. Another common mistake (in some translations) is the reference we find in Exodus 15: 21

“while Miriam took up from them the refrain: Sing to Yahweh, for he has covered himself in glory, horse and rider he has thrown into the sea.”

New Jerusalem Bible - Bíblia Católica Online

Once again, neither the Greek of the Septuagint nor the Hebrew of the Masoretic text refers to “the refrain”, and in this instance the Hebrew nor Greek words do not even agree. The Hebrew Bible uses the term *watta’an* derived from the verb *ānā* which means “answer, repeat, respond, sing”. The Greek text in English translated as “led them... saying” in fact is *exērchen... legousa*. Other examples of inconsistencies also exist, including the names of instruments.

Regardless of the inconsistencies pointed out above, the book of Psalms contain several terms which appear to be technical in character and which furthermore confirm that music was an integral part of worship. In addition, one has to remember that the experience and value of music is aural and the writers and compilers of the Psalms absolutely did not have the means to convey this in writing, even less so for a modern reader. And it is further fact that no two musical performances are exactly similar, not in sound, not in texture, not in setting, not in performance and thus not in experience. And thus, in spite of the added “instructions” at the beginning of each Psalm, even ignoring the factor of uncertainty, it is no guarantee that what we now understand and infer, is what was at the mind of the composer or original performer. They would however not have existed if not indicative of a musical score that existed at some time, whether this was in written form, or in the mind of the composer, or in the experience of the singers/choir.

- We have previously come across the term *təhillim*, which is the Hebrew term used to name the entire book of the Psalms. The singular of this term is only found in Psalm 145, *təhillah*.
- In very similar fashion *təfillah* only occurs in Psalm 17, 90, 102, and 142, but the plural form found in Psalm 72 verse 20, *təfallot*, is now used to denote a collection of Psalms grouped together as prayers.
- Most scholars still are unsure about the term *mizmôr*. This term is used in the Psalms only 57 times. A similar term is found in Akkadian, namely *zamāru*, and this simply means “to sing”. This specific translation is confirmed by the Hurrian term *annû zammarum*, translated as “this is the *zammaru* song”.
- The term *šîr* in Hebrew have similar terms in Akkadian *šēru* and Ugaritic *šr*. It is the common term used for “song” or for “singing”. This term is not exclusive to the Psalms and can also be found in Exodus 15 verse 1, Numbers 21 verse 17 and Deuteronomy

31 verse 19. However, it still is most frequently used in the Psalms, notably Psalm 120 to 134. Each of these Psalms is titled as *šîr ha-ma alôt*, with the exception of Psalm 121 which appears to use the alternate *šîr la-ma alôt*. The root of the word appears to be *la alôt* - it is translated in the Septuagint by *ōdē tōn anabathmōn*, while the Vulgate uses *canticum graduum*. This appears to represent the group of Psalms apparently sung by pilgrims marching (up?) towards Jerusalem. It is unfortunate that there is no single unifying theme found within this group of Psalms. Nevertheless, they all carry a similar heading, and the original compilers of the book of Psalms must have had a reason to do so. Most interestingly, there is a repetition of keywords from one line to another line.

- The term *maskîl* is found in the titles of Psalm 32, 42, 44, 45, 52, 53, 54, 55, 74, 78, 88, 89 and 142. We furthermore find this term in Psalm 47: 8 as *zamməru maskîl*. The meaning of the term *maskîl* is “insight” or “wisdom”. These form part of the group of lament Psalms.
- The title *mikhtâm* is found in Psalm 6, 56, 57, 58, 59 and 60. There is some inconsistencies with explanations of this term. Radak (David Kimhi 1160-1235) describes this as an unique musical instrument. Rashi offers a variety of explanations. One includes that of a special musical arrangement, but in another explanation he connects this with the plea of protection and denotes it as “the crown”. Ibn Ezra (1089-1167) also refers to a possible crown with a head of the finest gold. These once again represent lament Psalms, all of similar content, all seeking covering or protection or deliverance. This is apparently confirmed by the term *al tašhet* which is found in Psalm 57 and 59, both referring to an event in which the life of King David was threatened by Saul.
- Only in the title of Psalm 7 do we find the term *šiggayôn*. The Hebrew root is *š-g-h*, and the Akkadian equivalent *šegû*, meaning “to howl, cry, lament”
- There are further notations that appear to refer to a specific event. It is possible that they refer to the situation in which a specific Psalm should be used. Some of these are quite easy to comprehend:
 - Psalm 30: *šîr hannukat ha-bayit* - Song for the dedication of the Temple
 - Psalm 46: *šîr yedîdôt* - a love song/song of loved ones

- Psalm 92: *šîr le-yôm ha-šabbat* - for the day of the Sabbath
- Psalm 100: *mizmor la-tôdah* - for Thanksgiving
- *la-mānatztzeah* is used 55 times and is the most frequently used performance notation in the Psalms. The Encyclopedia Judaica (p. 1319) connects this with liturgical performances. It is this term that is often translated with “to the director”, one of the musical notations that even today causes some confusion. The term appears to be connected with music, found in

¹² And the men did the work faithfully. Their overseers were Jahath and Obadiah the Levites, of the sons of Merari, and Zechariah and Meshullam, of the sons of the Kohathites, to supervise. Others of the Levites, all of whom were skillful with instruments of music, ¹³ were over the burden bearers and were overseers of all who did work in any kind of service. And some of the Levites were scribes, officers, and gatekeepers.

2 Chronicle 34: 12-13 NKJV

and

¹⁹ the singers, Heman, Asaph, and Ethan, were to sound the cymbals of bronze; ²⁰ Zechariah, Aziel, Shemiramoth, Jehiel, Unni, Eliab, Maaseiah, and Benaiah, with strings according to Alamothe; ²¹ Mattithiah, Elipheleh, Mikneiah, Obed-Edom, Jeiel, and Azariah, to direct with harps on the Sheminith; ²² Chenaniah, leader of the Levites, was instructor in charge of the music, because he was skillful;

1 Chronicles 15: 20-22 NKJV

There is reference to three cymbalists in verse 19. Their function is to direct the music (*la-hašmia*) and thus the term *la-mānatztzeah* would refer to those who were actually leading the singing. It is important to note that *la-mānatztzeah* appears in every Psalm describing either a musical instrument or tune by which to sing. This indicates that a particular Psalm/song began with an instrumental accompanist and often the instrument was specified. For example *la-mānatztzeah* appears in Psalm 4, 6, 54, 55, 61, 67 and 76 in conjunction with the term for stringed instruments *nəginôt*.

- In 39 Psalms, in a total of 71 times, we come across the term “*Selah*”. The Septuagint uses the term *diapsalma* meaning “interlude” and so we view this as a place within the song where the singing stops and an instrumental interlude takes place. Even this

fairly simple term with reasonably acceptable meaning/translation is an example of scholars (trying to confuse) confusing matters. It has even been claimed that *Selah* was an acronym for *siman lishnot ha-qol* meaning “sign for a key/voice change”. Luckily in this instance it has not come to wide acceptance.

There is unfortunately a large group of musical notations/possible musical notations/probable musical notations about which consensus does not exist. There has been no shortage of suggestions; even when they sometimes are simple to translate their function at the beginning of a specific Psalm is uncertain and debatable.

- Each phrase begins with the preposition *’al*. It is common practice to translate this as “on”. Isbell (2008: 11-26 freely available at <https://sites.google.com/site/articlesforassignedreading/home/musical-notations-in-psalms>) points to the fact that seeking the meaning of each nominal object of the preposition as either a particular kind of musical instrument or a cue word leads to speculation about the identity of a musical instrument with little basis in linguistic reality. He then points to the phrase *’al šošannim* which is found in both Psalm 45 and Psalm 69 which easily translates as “on the lilies”. Similar terms in Psalm 60 *’al šošannim ’edūt* and in Psalm 80 *el šošannim ’edūt* are translated with “on the Lily of testimony” and “to the lilies of testimony”, this in spite of the fact that the *Shoshannim* had been identified as a musical instrument used to accompany these Psalms (Best and Huttar, 1975: 226-230).
- *’al ha-gittit* is found in the superscriptions of Psalm 8, 81 and 84. This presents another problem. The Septuagint uses *gat* the equivalent of *gittit* meaning a winepress, while in contrast the Targum indicates a musical instrument from the Philistine city of Gath.
- Psalm 6 and Psalm 12 refers to *’al ha-šeminit* “on the eighth”. This has been described as a harp with eight strings. However, that most likely would refer to an octave, a mode that was not known in biblical times as yet. The definition remains unsure.
- In Psalm 53 and 88 the term *’al-mahalat* is encountered. Some scholars refer to a wind instrument of which we appear to be unsure while some translate this as “for sickness”. There is no connection with illness in Psalm 53, but Psalm 88: 10 refers to some affliction

My eye wastes away because of affliction. - NKJV

- *'al-'alamot* as it is in Psalm 46 is translated as “by the young maidens”. This unfortunately is not where it ends. The Septuagint uses *elymos* identifying a small flute or pipe or youthful, clear, high-pitched voices. A further complicating factor is the connection with *al mut la-ben* (Psalm 9: 1). Depending on how the words are divided it either means “a male soprano” or “on the death of Laben”.
- *'el ha-nəhillôt* is a variation of *'al ha-nəhillôt* and both seem to refer to a wind instrument. We read this in Psalm 5: 1
- Psalm 22: 1- *'al 'ayyelet ha-šahar* clearly means “on the hind of the morning”, now in Modern Hebrew “the Morning Star”.
- And lastly, *'al yonat 'elem rehôqim* of Psalm 56 is translated as “on the speechless dove far off”.

And so it seems that some of these terms are quite easy to translate. It is therefore granted that the phrases from this category would not render any clue or identify any specific musical instrument to be used. And so, does this mean that the above introductions are to indicate possibly a well-known tune? This is a known phenomenon, even in modern times, but has also been documented in Christian hymns. Nevertheless, music in its written form is not music until performed. Some performers try to exactly re-create the meaning of the composer. Some performers regards the written score as a starting block and add their own variations and style to the performance. The musical terms and notations found at the beginning of the Psalms should thus be regarded as suggestive, rather than strictly prescriptive; no matter how well trained or professional different singers are, the performing art of singing remains susceptible to the life experience, mind-set and level of skill of the performer. Each time a Psalm is performed or sung, it is defined and experienced anew.

5.3 TROPE AND CANTILLATION:

When reading the Masoretic text of the Hebrew Bible, one finds the presence of signs above and below the words. These appear to have more than a single function (McCorkle 2007). The first function is to indicate vowels. These are currently the best recognised and the intention is to add the missing vowels to the text. This is essential in understanding the correct meaning

of the word and of the text. According to McCorkle the original Hebrew does not contain these vowel pointings, but they have been included in many editions of the Torah. They now form an integral part of the text, the example below taken from McCorkle (2007: under “Cantillation mark” at <http://www.musicofthebible.com/teamim.htm>):

plain Hebrew script	Psalm 119:161	Psalm 68:25 (68:26 JPS)
שרים	שרים · ‡	שרים · ‡
	<i>sä-rem'</i>	<i>shä-rem'</i>
	princes	singers

Fig 5.2 Addition of vowel points from The music of the Psalms, McCorkle, 2007 at <http://www.musicofthebible.com/teamim.htm>

Secondly, there is another set of symbols which are known as the cantillation marks or *te'amim*. Because these cantillation marks to the best of our knowledge are associated with intonation, they would be important in the musical reproduction of the Psalms.

Mitchell (2012) dedicates a whole article to and describes the ground-breaking work of the French archaeomusicologist Suzanne Haïk-Vantoura whose work “The music of the Bible revealed: the deciphering of a millinery notation” was published in French in 1991 (translated into English by Dennis Weber). She however, was not the first to attempt the interpretation of these markings, and surely was not the last. She noted that the 19 cantillation marks



are found not only below the text, but also above the text. She furthermore realized that there were more signs below than above the text, indicating the importance of the pointings below the text. The combination of positioning above or below as well as together with other signs creates more possible meanings, , but in essence only eight signs are found in the prosodic books of the Bible. It is a small step, but giant leap, connecting these eight symbols to the notes of a musical scale. We know from previous knowledge that texts originating from Babylonia in the early second millennium BCE already contains a sophisticated system of musical theory and tuning of instruments. Ugaritic evidence points to the use of these Mesopotamian symbols in around 1500 BCE. While the temptation exists to merely think of

biblical chants in an ekphonic manner (which would only indicate indeterminate rises and falls in the intonation of the chant), it remains important to remember that the total systems originating from Mesopotamia must have been common and widespread knowledge within the area, including the Hebrews/Israelites. Similar to vowel signs which were only introduced long after vocalisation was in use, signs for musical notation probably was needed only long after the musical system had been in use. There are three books in the Bible, namely the Psalms, the Proverbs and Job which are printed differently. We refer to these three books as poetic in character while the other books of the Hebrew Bible are viewed as prosaic. The system that is used in the poetic books primarily uses many of the same symbols as the prosaic books, but the function often is very different. The system of accents used in the poetic books, here noted with special reference to the Psalms, appears to have been forgotten. The inherent parallelism of the Psalms could have been a contributing factor - varied cantillation from verse to verse would be more demanding.

In general, we now recognize three systems of punctuation in the Hebrew Bible.

- The Babylonian system appears to carry eight different markings which appear to indicate divisions within the verse. It also appears that biblical manuscripts originating from Babylonia in the Geonic period (named after the heads of the rabbinic academies found in Babylonia, approximately 589 CE to 1038 CE) contains no cantillation marks as we currently know them (from <http://www.pizmonim.org/taamim.php> - unknown author), but more about this later. Okonsar (2011: 23) expresses the view that there is no musical realisation associated with the Babylonian cantillation system. The Babylonian system thus is primarily concerned with indicating the breaks in a verse.
- The Palestinian system appears mainly concerned with showing the breaks within the phrases in contrast to the Babylonian system showing breaks within the verse. It is thus aimed at indicting and exhibiting the phrase. There is much inconsistency in the documents found inscribed using the Palestinian system of markings and this is a possible indication that it does not represent a true official system, but rather a more individually applied system. It appears to be closer related to the Tiberian system than the Babylonian.
- As the chants used within Palestine became more complex, the Tiberian system developed and by the 10th century CE had become quite intricate. The Tiberian

Masorettes developed a more intricate system of symbols with a notation represented by a symbol on each word. This would replace any previous or fragmented systems. This also appears to be the origins of cheironomy, as all Torah scrolls not necessarily would contain the cantillation marks and thus the melody was demonstrated by making hand signals to the reader. The Tiberian system was the generally accepted method of cantillation already by the 13th century (Okonsar 2011: 24), but that there was a movement away from cantillation marks during the period of the Reform. The system still is in use today – the bar mitzvah is the first instance where a person has to read the Torah in public, and this is preceded by much preparation studying these cantillation marks and their musical interpretation.

The cantillation markings were thus invented by the religious communities of the Jews in order to convey musical melody. Interestingly enough, the modern type of musical notation also started with the church, when monks from the Roman Catholic Church began transcribing the holy songs onto parchment. The “notes” consisting of dots and strokes were eventually named by a monk, Guido d’Arezzo, and his tonic sol-fa is still known today. This later led to the introduction of the staff lines in order to convey pitch more definitely and clearly.

Our modern system of notes written on a staff now is clear indication of not only pitch, but also of duration. When we thus write a set of these notes they clearly indicate both melody and rhythm. This is different from Tablature notation which indicates the actions a musician is to take. The best known example of this is the diagrams used to indicate guitar chords – they clearly indicate where the fingers should be placed on the strings. Symbolic notation indicate the sounds themselves. Various pitches might be assigned different alphabet letters and so a combination of notes can be depicted as a single “symbol”. The voice is a very special instrument, and the modulations of the voice can never be penned down completely or perfectly, unless the music is completely of fixed pitch. As we well know there exists a whole range of music not based on fixed pitch, allowing for ornamentation and graces to the musician’s wish/whim/requirements.

McCorkle (2007: under “Cantillation mark” at <http://www.musicofthebible.com/teamim.htm>) describes the cantillation marks of the *te’amim* as:

“..guides to the vocalization and intoning of specific texts. This very complicated system of vocalization primarily consists of a varying collection of vocal articulations, ornaments and embellishments utilized in conjunction with a traditional melodies or modes.”

Adler (1906: under “Temple Cantillation of Psalms” at <http://www.jewishencyclopedia.com/articles/3986-cantillation>) expresses the opinion that the Masoretes were no longer acquainted with the practises of the older school, here with specific reference to the superscripts of the Psalms; an opinion shared by Haïk-Vantoura, although on different basis, as we will see later.

The traditional view is that the *te’amim* was perfected by the Ben Asher family. The thinking is that the system had developed over many centuries and we furthermore know that the earliest dated manuscript which contains the Masoretic system is that of the Codex Cairensis in Tiberias in 895 CE, written by Moses Ben Asher. This theory allows for the system developing in a linear pattern through the Babylonian and Palestinian systems into the more advanced Tiberian system. This logically implies that the book by Aharon Ben Asher titled *Diqduqey ha-te ‘amin* would form the cornerstone of our understanding of the system, seeing that it was perfected by his family. Not only did he describe the *te’amim* as a series of punctuation marks which vary in importance, but he also hints on hand gestures which obviously had no relation to punctuation. Although now uncommon, some of these hand gestures still remain in use.

The *zakef* is represented by a single upright finger; the *teres* is shown by two fingers spread one against the other like a hook, joined without a separation; the *tavra* is shown by turning the hand over. - *Diqduqey*

This brings us back to the same question with which Adler struggled. Mitchell (2012: 360) raises several problems based on the work of Haïk-Vantoura.

1. The Tiberian system is regarded as highly developed and perfected, and it is therefore strange that it suddenly appears in the Masoretic text with no intermediate steps connecting it to the earlier systems. This same problem with reference to the absence of graphemic development (a grapheme is the smallest unit of a writing system of any given language), was also raised by A. Dotan in 1981(pp 88and onwards).

2. The Masoretes believe in “hiding nothing and adding nothing to what they received”, yet here they suddenly invent a whole new system of symbols and regardless of the quote above, add them to the sacred text.
3. Thirdly, the objections against the addition by none other than their own contemporaries. They specifically objected to the addition of the *te'amim* because this was forbidden, although ancient and sealed. Mitchell cites Dotan (above) (who in turn cited GE Weil in *Elie Levita* 1963), quoting Mar Notranai b Hilai - he was the head of the Sura Academy in the second half of the ninth century:

“We are forbidden deliberately to add (to the text) anything at all for fear of transgressing the Law You shall not add anything to it [Deut. 12.32]. This is why we do not vocalize the scrolls of Torah. Neither may we add the cantillation signs, even though these latter signs were revealed at Sinai.”

We know that this comment precedes the *Codex Cairensis* by several decades, which means that a text with additional cantillation marks already was known at this stage. Both Mar Notranai as well as his successor, Saadia, opposed the Kaarite Masoretes (at that stage under the leadership of Ben Asher) and therefore forbade chanting of the Scriptures.

4. The last question is with reference to the *Diqduqey* itself. This work is used as the quintessential reference with regards to cantillation signs, a work apparently explaining the invention of a notation system, both created by the Masoretes and then explained in the *Diqduqey*. This makes very little sense. The *Diqduqey* in many instances is confusing. And the opinion is now expressed that even Ben Asher did not know the exact meaning of the signs that he was not only adding to text, but also attempting to explain. This was questioned as long ago as 1902 when Graetz (III pg. 207) wrote that although the Masoretes wrote on the Hebrew accents and biblical orthography, the style was very clumsy and the verse so miserable that the observations they made were in most part incomprehensible.

We use these arguments in order to prove that the Masoretes themselves did not understand the *te'amim*. The questions are reasonable and logical. The most reasonable and logical

answer is that they did not understand the system themselves, also meaning by implication that they were not the originators of the *te'amim*. Karaite Judaism, according to the Encyclopaedia Britannica (at <https://www.britannica.com/topic/Karaism>), is a Jewish religious movement which does not accept the oral law or traditions of the Talmud or Midrash. They believe that the commandments of God were handed down to Moses in a written form which did not include any oral explanations or additions. There are arguments for and against the Masoretes being Karaites (see for e.g. the writings of Aharon ben Moshe ben Asher), but if so, then they would obviously reject the oral laws of the Talmud. The Cairo Geniza is a large collection of manuscripts found in the storeroom of the Ben Ezra synagogue in Cairo. One of the manuscripts contains Song of the Vine written by Mosheh ben Asher:

The vine of God [was] the tribes of Jacob...The branches of the vine are the prophets...The perfect ones of the vine are the Elders of Bathyra, the heirs of the prophets, the possessors of understanding. Deep waters that utter mysteries; their heart brings forth wisdom like a flowing brook. As delights they have established the *te'amim* of the [chanted] Scripture (*hitqinu ta'amey miqra*), giving sense [to it] and interpreting its word

Cairo Geniza pp. 84-85

Whether he was Karaite or not, this reference appear to claim that they had received the *te'amim* "down the vine" from the Elders of the Bathyra who importantly inherited the traditions and then had passed it down. We know that the Elders of Bathyra refer to two brothers who were heads of the Sanhedrin under Herod I (Jewish Encyclopedia –date uncertain). Ben Asher attributes them as the source of the *te'amim*. Once again, if this is true, it is quite comprehensible that a text which includes the *te'amim* would have been passed down and ultimately reached the Masoretes.

There is further evidence that the *te'amim* did not originate with the Masoretes. There is evidence of a manuscript of Greek origin which dates from the middle of the third century BCE. This contains cantillation marks, some even the same as those found in the Masoretic text (Jourdan-Hemmerdinger 1973: 292-302 – translation via Google translator).

This article furthermore highlights the practice of chironomy. It appears that music in the ancient world, especially in Sumer, Egypt, Babylon, and later on in Greece, was not

communicated by notation, but by the instruction of two-handed chironomy (Haik-Vantoura). And it even appears that we find references to this in the Bible:

And these *are they* whom David set over the service of song in the house of the LORD, after that the ark had rest.

1 Chronicles 6: 31 KJV

This text is explained as literally meaning “made stand by the sides (hands) of song by Elliott (Elliott’s Commentary for English Readers at BibleHub) who points out that the same phrase recurs in 1 Chronicles 25: 2-3.

And

Therefore when the temple of the Lord was founded of stone-layers, (the) priests stood in their ornaments with trumps, and (the) deacons, the sons of Asaph, *stood singing* in cymbals, for to praise God, by the **hand**, *or ordinance*, of David, king of Israel. (And so when the stone-layers laid the foundation of the Temple of the Lord, the priests, wearing their adornments, stood blowing trumpets, and the Levites, the sons of Asaph, *stood singing* with cymbals, to praise God, in the manner ordained by David, the king of Israel.)

Ezra 3: 10 - Wycliffe Bible

Haik-Vantoura made the conclusion that the lower cantillations of the *te’amim* represented the notes of the scales and that the upper symbols indicated ornaments to be applied to the music. This she indicates, represents the chironomic gestures of the left and right hand. It has been widely accepted that the *te’amim* has a dual purpose. It indicates not only punctuality, but also cantillation. There are however several problems with the punctuality theory, most evident in the use of *silluq*, which is found at the last accented syllable of any verse. It has been explained that this is to mark the major disjunction at the end of a sentence, but there already is a colon-like Hebrew full stop at the end of every sentence. What is of further concern with regards to the punctuality theory, is that a total of 26 different markings is totally unnecessary. In a sense, the *te’amim* would be able to indicate punctuality like endings in the text, but only if realized in terms of music or song and not purely as punctuation. It furthermore makes sense that chironomic gestures would fall into disuse once musical notation developed sufficiently. Mitchell (2012: 365) remarks that two-handed chironomy

exists and still is in use today in the synagogue of Old Cairo. And so he furthermore concludes that the melodies that belong to the biblical texts from ancient times were initially written as chironomic symbols, that the Elders of Bathyra passed these notations down, which was published by the then Masoretes, including their best possible explanation thereof in the *Diqduqey*. Mitchell does concede at this point that the Palestinian and Babylonian accent systems which originated in the middle of the 1st millennium came into existence independently and that they descended by other routes.

There have been several attempts of deciphering the music of the *te'amim*. One such system is by McCorkle, whom I have already quoted on several instances. His system can be found at www.musicofthebible.com and is interesting to listen to. We know that there is a connection between the Tonus Peregrinus and Psalm 114, unfortunately not present if using the system by McCorkle. Like Haïk-Vantoura, he was neither the first nor the last to attempt this. I am however of the impression that the system applied by Haïk-Vantoura appears to be correct/most correct. It makes sense that the symbols below the lines represent the basic notes of the scale and when using her system one can identify each with the step of that specific scale. But I am also carefully prone to say that she did make some mistakes. It appears that she often perceived the Psalms as unmetered syllabic plainsong. This unfortunately makes no sense if the music was applied in instances where meter was involved, like dances and processions. Additionally, instruments like drums, sistrums and cymbals, associated with these musical practices, don't carry much musical value other than indicating pace and meter.

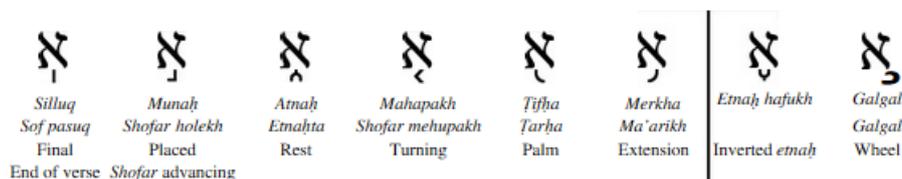
SHV (Suzanne Haik-Vantoura) was born in Paris on 13 July 1912. She studied at the Conservatoire National Superior de Paris, but her family was forced to flee from the Nazis during World War II, when they moved to the south of France. It was at this time that she started studying the cantillation marks found in the Hebrew Bible in order to decode these. She returned to her normal life after the war until retiring in 1970. In 1976 she published her ground-breaking work *La Musique de la Bible révélée* (The Music of the Bible Revealed). This was a monumental work in which she decoded the cantillation marks of the 24 books of the Hebrew Bible, turning these into music. I will endeavour to describe her work in very simple terms, steering clear from the vast quantity of information and technicality. She was Jewish by birth and therefore read the Hebrew Bible noting the series of additional markings/accent/te'amim accompanying the text. Like many people before her, she

probably was taught that these were grammatical in character, in spite of several theories as to what the real meaning was. She apparently was aware of the accentual system as an indication of chironomy. Encyclopaedia Britannica describes chironomy/cheironomy as the use of hand gestures to indicate to instrumentalists what they should play, much like a conductor. These hand signals would indicate the pitch and rhythm, and possibly any ornamentation of the melody. John Wheeler (web.archive.org 2017) writes that Egyptian chironomy was different from the chironomy of the biblical Hebrew. He bases this on different scale systems, different hand gestures and the use of fingers and either one or both hands. In Hebrew chironomy both hands were regularly required. He furthermore confirms that chironomy was well known and used within the ancient world. It nevertheless remains reasonable to assume that the Hebrew version was borrowed and adapted from the Egyptian version.

SVH furthermore realized that the cantillation marks below the text always were present, while fewer marks were seen above the text. She knew that the signs indicated prose and poetry. The signs written below the text would represent successive degrees of a scale. There appears a system consisting of graphic signs, indicating tonal values, carrying names with meanings. These three pillars form the cornerstones of their interpretation which can only be complete once we fully understand and know the three separately and in unison. In simple terms what happened is that she could identify eight sub linear signs and then made the connection that these could correspond to the 8 notes of a musical scale, specifically the diatonic scale. In using this knowledge she created a framework for interpretation of the cantillation marks found in the Masoretic text. This model she created has so far not been overturned, but the clever element of her theory is that it allows us to adjust the modality in texts where the initial musical result is unsatisfactory. Her book currently is out of print but can be found if one really searches for it. It also is available as an online download, but it is a large work, not only because of its bulky size, but also because of the theory described therein. It is difficult to understand, especially if one doesn't work with this theory day in and day out, and it takes real concentration to understand how the modal inferences were made. Several examples are illustrated in her book. She also noted that there was a vertical sign at the end of nearly every verse. She connected this vertical sign to indicate the main tonic note of the scale. That was the inspiration, now to be followed by lots of perspiration. She

apparently worked through every verse in order to find coherent melodies. She compared individual verses and from these she compiled tables of concordant/consonant sequences. And finally, she assigned theoretical/hypothetical values to each of the eight sub linear signs, now indicating each one of the eight notes of the scale. I can understand that not all of her work could be flawless, an opinion viewed by some of her critics. On the other hand not all of it can be wrong. It makes sense, allows for adaption when needed and is aurally more pleasing than any prior system. Four of Haik-Ventoura's recorded albums can be downloaded from <https://shirhashirim.org.il/files/index.html>

David C Mitchell has defended her system on more than one instance. Following the system of Haik-Vantoura, Mitchell in articles published in 2012 and 2017, carefully examines the *te'amim* and its musical value. He once again confirms that the sublinear symbols practically appear in every verse of the Bible, and that the supra-linear symbols are sometimes very scarce, concluding that the important and abundant sublinear symbols are determinative in character - it would therefore be possible to notate some of the music using only the sublinear symbols. There are eight symbols found in the poetic books of the Bible:



https://www.academia.edu/32067918/THE_JERUSALEM_TEMPLE_SONG_IN_THE_CANTILLATION_OF_PSALM_136

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Fig 5.3 Cantillation sings from "The Jerusalem Temple Song in the Cantillation of Psalm 136 by David Mitchell (2017) pg. 4

Even though the last two symbols are only used in the poetic books, they are scarcely used.

The first symbol is called *silluq* and is not only found at the end of every verse in the Psalms, but it is at the end of every verse in the Bible. We accept this to be indicative of the basic note of the scale, the tonic note.

The second symbol is named *shafar holekh* by the Sephardim, translated here with “shofar advancing”. The ancient shofar had no finger holes and so it would only be possible to reproduce the natural notes of the harmonic series, and even so, only a limited series.

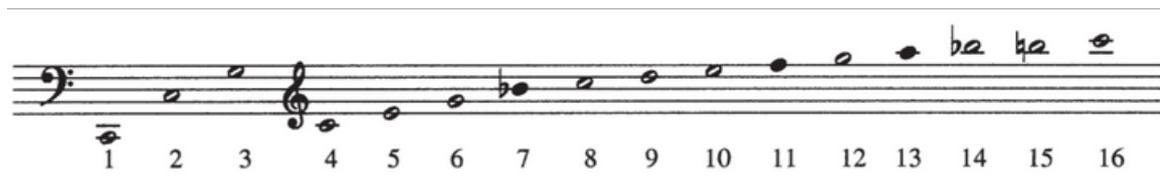


Fig 5.4 Natural harmonic series from <http://www.trumpetmaster.com/threads/high-f.77914/page-3>

Keeping in mind that the notations are meant for singing, we also need to keep the notes of the scale within an acceptable vocal range. If we thus assign the E above middle C to the *silluq*, then the “shofar advancing” would correspond to a fifth, i.e. the note B. We confirm this by referring back to the fact that the shofar very often only sounded two notes, a tonic and an upwards fifth, not only because it’s a crude type instrument, but also on the basis that the known motifs sounded by the shofar often only existed of these two notes.

Etnah, “rest” is the third symbol. It is found in most of the Bible verses and in fact signifies a point of rest or pause in the words/text. Assigning a specific note or pitch to this term is a little more difficult and even sometimes is more reliant on the ear, than definite musical theory. It is said to indicate a pause, also in the sense of a musical pause. It indicates a place to rest. And this is where our sense of musicality, the so-called musical ear, comes into play. Rising up to the sixth or seventh tone does not create a sensation of a rest. A drop down to the seventh below the tonic creates a similar irregular effect. This reasoning leaves us with the second, third and fourth notes of the scale, with possibly the third note which makes up the tonic triad or perhaps the fourth. We now can argue that this term rather refers to the fourth note, making comparisons with the *Tonus Peregrinus*, as well as Ashkenazi and Sephardi chants. If the

tonic is the E above middle C, and

the dominant fifth is B, then means that

the fourth note on our scale is A.

Shofar mehuppkh appears to be the next logical term to assign to a single note, meaning “shofar reversed”. This term appears to be placed at the beginning of an important verse or perhaps a verse indicating a climax. This note therefore probably should be designated higher than the three preceding notes. The reasoning here once again is musical and aural, and it is therefore assigned to the sixth step of the scale, the note C above middle C.

Two terms remain, namely *tifha* and *merkha*. Excluding the seventh and eighth (octave) notes of the scale because of the unnatural sound, only the second and third notes remain. We therefore test these two notes by substituting them into the first three lines of Psalm 136, following the example of Mitchell (2017). I repeatedly played these two versions out on my piano and I am in agreement that to my westernized musical ear assigning the third note as *tifha* sounds more pleasing and natural. This automatically means that *merkha* is assigned to the second note. If this is turned around, the melody appears to nudge away from the tonic. Mitchell again confirms that this phenomenon is found repeatedly in the Psalms. And thus

merkha is the second note and

tifha becomes the third note of the scale.

This now leaves us with a musical scale which with minor adjustments would fit into any concept of the major musical modes. We know that the major, minor and Dorian modes were known in Sumer, already in the third millennium BCE, and that the Persian mode was used in Egypt in the second millennium:

MAJOR scale	E F# G A B C#
MINOR scale	E F# G A B C
DORIAN scale	E F G A B C
PERSIAN scale	E F G# A B C

It is interesting to note that Mitchell (2017) reaches the same conclusion with regards to the notes assigned to the *te'amim* as Haik-Vantoura in 1978. The pattern for reasoning is different, but the end result is similar. In a prior article, Mitchell (2013) tested the Haik-Vantoura system on several of the Psalms, most notably that of Psalm 23 which is a pastoral

Psalm with very little regular metre and no obviously recurring theme. He concludes that the system stands up to scrutiny, once again confirming that the sublinear indications of the *te'amim* are indications of the steps of the diatonic scale.

6. CHAPTER 6 IN CONCLUSION

Prehistoric/primitive music is defined as music that comes from a preliterate period or culture. The prehistoric era obviously ended with the development of writing, and the following era is called that of ancient music.

There are many ideas on what music really is and what the definition of music would be. Strangely enough, it appears that most people instinctively know the difference without knowledge of an extensive formula or definition. What most definitions agree on is the presence of both melody (or some melodic line) and rhythm. It calls into question the idea that music is unique to the human race, the idea that it distinguishes us from all the other animals. Most animals can produce a variety of pitches and when these become repetitive like the “song” of a bird, it clearly also has rhythm, and is that not music? It now is accepted as factual that singing preceded instrumental music. What we are more uncertain about is whether rhythmical motion accompanied this, or rather when this physical movements originated? It is entirely possible that rhythmical and repetitive movements of the hand, or perhaps clapping of the hands started even before music.

We have to keep in mind that the human body also had undergone a long period of evolution. The pertinent question in this instance therefore is what the potential possibilities were of the human body? At what stage did the mechanism of our voice box become able to produce sounds of multiple or musical pitch? Thankfully Iain Morley explained this to us in his work *The Prehistory of Music* published in 2013. This concept is based on three discrete elements, concerned with our modern opinion/definition/understanding of music. He points to the fact that *Homo ergaster* who lived between 2 million and 1 ½ million years ago, was able to produce pitch and pitch with variation, but without much breath control. Around a million years ago *Homo neanderthalensis* and *Homo sapiens* would be able to sing just as well as we can today. From this fact, we can directly infer that vocalization and music was a possibility for at least the last million years. But singing alone is only one third of the story. Someone must be able to hear the sound. In order to perceive sound aurally and to appreciate pitch the temporal bones with the small ossicles of the middle ear and the hearing mechanism of the inner ear had to reach an advanced degree of development. This can be pinpointed fairly accurately and is concomitant to the event of upright posture and walking, thus with *Homo erectus*. The third necessary element is sufficient development of the brain, not only to

control the small intricate muscles of the voice mechanism, but also to make sense of the pulses generated in the ear canal. It appears that the puzzle came together with the arrival of *Homo sapiens*.

The multiple uses of music have remained much unchanged over time. Music in ancient times must have sounded different from what we hear today and possibly the experience might have been different. And even if we are unsure of exactly how it sounded, it must have been just as important as it is now. Music is not only aimed at entertainment or dance, but can also be regarded as a method of communicating. This would include communicating emotions and warnings and instructions etc. Music is also a cohesive factor. Music probably is the one activity in which everyone could participate. It is a manner of bonding: - a mother bonding with her child, bonding between groups of people working together, staying happy and motivated when performing repetitive tasks. It has been surmised that this bonding factor of music was the causative agent for the formation of families and societies. Admittedly, there also is security in groups, protective security against enemies and wild animals, and survival security in living together, building structures and producing crops and domesticated animals.

It is practically impossible to prove when musical instruments originated. The problem here lies in the fact that we can interpret that which we have and what we know, but there is a large gap created by what we don't have, and thus not know. And to compound this dilemma, much confusion and uncertainty exists about the earliest remains of possible instruments. We are slightly more certain with regards to the musical bow which originated from the archer's bow. This could have originated by the Mesolithic period and we base this assumption on the find of flint arrowheads originating from the Mesolithic and Neolithic periods. We are similarly uncertain of when choral music or singing in groups originated. It certainly was present in biblical times. Change in musical instruments and change in vocalization, singing and music is a constant factor. Local traditions fortunately remains relatively stable through generations. At this stage, our knowledge still remains incomplete and fragmented.

The question was initially asked whether any relation existed between the development and availability of musical instruments in AIP, whether these were in any manner associated with the development of musical theory of the time, and finally whether both these factors implied on the creation of the Psalms.

We know that vocal music must have preceded any instrumental accompaniment. It is most probable that rhythm was added first, perhaps the rhythm of walking, then clapping of the hands or beating together of pieces of wood. Single pipe instruments, ones without any finger holes would appear next, maybe other single note instruments like the horn. Later groups of these pipe-like instruments would show up, similar to the *syrinx*, perhaps. And while they may be able to produce different pitches there probably was no systematic arrangement. Similarly, beaten wooden instruments might have had a similar use. Wood can be regarded as a sonorous instrument, producing a distinct tone and pitch when beaten. It appears that this stage represented by beaten wooden instruments of distinct pitch is found in the musical development of many nations (Engel, 1870: 10, 11). The next most logical step in the evolution would probably be of a single pipe able of producing different notes by the addition of finger holes. Many developing nations were found to be in possession of these pipe instruments with no acquaintance with any stringed instruments, the only exclusion probably being the single string hunting bow. The primitive bow with its single string would have been the ancestor of the harp and then also of the lyre. Once a fingerboard was added, it would be possible to produce multiple pitches on a single string, like the lute or the modern guitar. And while this gradual evolvment can easily be imagined, one would have to grant leave for the possibility that an extraordinary influence could change the whole timeline, for example, where an undeveloped nation comes into contact with a civilization that is much more developed. It is most likely that they then would adopt the inventions of the more developed people.

Vocal music can also not be disconnected from instrumental music. It is possible to play the melody of a song on some instruments and it would also be possible to change the melody originally written for an instrument into a song, adding words and narrative. Different types of songs exist. Different groups of people produce songs with certain characteristics native to the people or the area. These unique characteristics often is not only applicable to the musician, but also to the instrument, which would, due to its construction only allow certain peculiar characteristics like pitch and intervals. More importantly is the obverse, where it is possible to know the exact musical instrument and its characteristics, to deduct from this and to determine from this the concomitant characteristics of its vocal music.

¹⁸To Enoch was born Irad; and Irad begot Mehujael, and Mehujael begot Methushael, and Methushael begot Lamech.

¹⁹Then Lamech took for himself two wives: the name of one *was* Adah, and the name of the second *was* Zillah. ²⁰And Adah bore Jabal. He was the father of those who dwell in tents and have livestock. ²¹His brother's name *was* Jubal. He was the father of all those who play the harp and flute. ²²And as for Zillah, she also bore Tubal-Cain, an instructor of every craftsman in bronze and iron. And the sister of Tubal-Cain *was* Naamah. Gen 4: 18-22, NKJV

The most important activities of the ancient humans/man is already found in Genesis 4, where farming with livestock and working with metal is placed next to that of musicians. This Biblical passage confirms the importance of music, but it is not the only ancient source where this is done. Analogous to the Biblical story of the Garden of Eden is the Sumerian myths surrounding Dilmun who lived in the land of the immortals, while the similar Islamic story tells us about Lamak (called Lamech in the Bible) who made the *'ūd*, while the harp/lyre was invented by his daughter Dalil. There is a known tradition from Syria which tells us that musical instruments were invented by the daughters of Cain, and that the first song was an elegy/requiem to Abel, written by Jubal. There is the Greek tale of the amazing/superhuman Hermes, also attributed with creating a seven stringed instrument. The Homeric Hymn to Hermes can be found *in toto* at <http://www.charlessteinpoet.com/poetry/translations/the-homeric-hymn-to-hermes/> but this short extract conveys an interesting portion of the fable:

But when the intent of mighty Zeus was accomplished,
and Maia's tenth moon was fixed in the heavens,
she bore a child of infinite devices, child of winning wiles,
a cattle-driver, leader-of-dreams, watcher-by-night, thief-at-the-gates,
a deity soon to perform remarkable deeds among the immortals.

Dawn-born, by mid-day he was playing the lyre;
by evening he'd pilfered the cows of Apollo—
all this, on the fourth of the month, the day Lady Maia bore him.

And once he'd jumped from th'immortal womb of his mother,
he didn't lie waiting around in the sacred cradle
but vaulted the threshold of the high-roofed cave and went after those cows.

In the cave-yard was a turtle, in whom he intuited a thousand pleasures to come.
(Hermes, indeed, was the first to turn a turtle to song.)
The slow-footed creature was eating high grass just outside of the dwelling,
so the messenger, quick-as-death, son of Zeus laughed and addressed it:

"It's a sign! Good fortune for me! And so soon! I do not poo poo it.
Hello, O dance beat, O friend of the feast, O lovely to look at,
happily manifesting before me without further ado.
But where did you get that gorgeous garment, ahem,
that fantastically ornamented carapace?—
and you but a turtle, living in the wastes of these mountains!
I'll take you into the house, you'll be—of use,
(no dishonor intended), but primarily (I can see it) of great profit for me.
I think you would do well to stay at home—
danger lurks out there beyond the portal.
Alive, you'll work as a charm against witchcraft;
If you die, you'll make beautiful song."

So he spoke.

And lifting the pleasant plaything with both his hands, he took it into the cave
house and scooped out its spinal marrow with a chisel of iron.

And just as when a swift thought drives right through the breast of a man
when thronging anxieties distract him,
or as when sparkling glances apin from his eyes, so was it the habit
of noble Hermes to join word and deed together in a single action.
He cut reed stalks and attached them at measured spans
through the shell of the tortoise,
and with skill stretched an ox skin across it,
and put the horns in, then their cross piece,
and set in place the seven sheep-gut strings.

Once he'd finished its fashioning,
he took up the happy contrivance and gave it a try with its plectrum, part by part.
It sounded just fantastic beneath his fingers.
And the god sang very well whatever occurred to him,
improvising like boys bandying taunts at some festival.
What did he sing?
He sang of Zeus and Maia with the beautiful shoes,
how once they made love and begot him!
He came out with the whole glorious business;
and he winked in song at his mother's chamber girls
and praised her glittering villas with their tripods distributed everywhere
and their kettles overflowing.

But even while he was ticking off these ditties other matters occupied his thought:
he'd developed a hank'ring to eat meat;
so, stashing the hollow lyre in his sacred cradle,
he was out again from his mother's sweetly odoriferous abode,
this time up to a lofty lookout pointplotting high chicanery in his heart,
such as subdolous persons pursue in black night— lusting after something.

We can imagine that the very first music must have originated by imitation. Man would've imitated that which he had heard in nature, possibly the sounds from the bird. Luckily, this is not where it ends. It is a mere beginning, for the same sound falling on a different ear could result in a completely different interpretation. The ancient human should not be regarded as lesser than the modern man when it comes to the possibility of creating expressive melodies. Antiphonal singing to which we will refer again later is a phenomenon found in many uncivilized nations and it is not inherent only to the Ancient Near East. Engel (1870:22) points out the similarities of antiphonal singing found in native New Zealanders when dragging their canoes overland, the palanquin-bearers in Hindoostan, slaves in Brazil, and the Egyptian boatman when faring on the Nile.

Instruments with keys like our modern piano or organ would be European in origin and the production of these is much more recent. Any student of music in an archaeological sense should guard against comparing the development of ancient music to that which is possible on a modern keyed instrument. But it should not be insinuated that the ancient music was boring and Levy (n.d.) makes a strong argument against the Westernised notion that ancient music simply was monophonic. It is commonly accepted that the left hand of the lyre (or harp) player is used just to dampen the sound from other strings. Levy is an accomplished lyre player himself and explains that there is literally no unwanted sustain by the smaller size strings of the lyre, especially if these were made from natural fibres or gut. He points out the fact that the left hand could be used to provide harmonic accompaniment. This is similar to the playing technique still used in Ethiopia today. Why would we think ourselves clever enough to use harmonics and cords and not allow any ancient musician the same privilege? I understand that several scholars merely state that the ancient nations had no understanding of harmony and had no knowledge to use this, but not much evidence is produced to support this claim; unfortunately, vice versa, I cannot produce any evidence that polyphony indeed existed. The first argument I can put forward is that the lyre was tuned by ear. When doing the tuning by ear the strings are tuned at specific intervals, thus playing and hearing two strings creating a specific interval together. This already forms harmony, and it would be impossible for any musician to tune his stringed instrument if he was not able to perceive the interval and understand it correctly. If this harmony was known and used during tuning, then why not during musical performance? The only other instance I can think of is where musicians played

the double reeds or double flutes. It makes little sense playing the same notes on two different instruments, and therefore they probably or most likely were played in harmony, even if the one pipe was only used as a drone.

While Levy himself is a lyre instrumentalist and composer, and his views are fresh and recently published, it is interesting to note the 1956 article by Whittington-Ingram, in which the pentatonic tuning of the Greek lyre is examined. Not only this, he explicitly questions the technique of fingering as described by Levy. Whittington-Ingram goes to the trouble of treading the path past Sachs and then Gombosi in explaining his view. He concedes that the left hand could have plucked the strings with the fingers, but that the right hand strummed the strings of the lyre with a plectrum. Fingering could be done at either end of the string, and obviously by either hand. He then points to the fact that fingering could not have been done by the right hand which was holding the plectrum. Fingering would also be difficult by the left hand. The left hand could not reach close to the bridge and could therefore not apply fingering at the point close to the bridge because the body of the instrument would be in the way. The alternative would be to place the fingering at the other end of the string, near the cross bar of the instrument. The left hand, however would not be able to reach this point, because the instrument was held in position by a band that was attached to the left wrist. So the dilemma exists that the left hand would not be able to finger for the right, and neither would the right be able to finger for the left. The fact that the sound of a string played with fingering is different from an open string also is a problem. The tone and the quality of tone would be different, probably worse than an open string. Would that not prevent or force the instrumentalist to refrain from the technique? On the one side the arguments made by Whittington-Ingram are quite compelling, but there is live evidence of Levy (for example on YouTube) employing the technique quite successfully. Reginald Pepys Whittington-Ingram was a fellow of the British Academy and an authority on ancient Greek music while Levy is an exceptional musician and composer in own right. Whittington-Ingram died in 1993, but it would have made for an interesting conversation were these two great exponents of Greek music and the ancient lyre to get together in a room and argue the pros and cons.

Music merely is a single component of the human cultural makeup, but it played and still plays a large role in everyday life with music found in every crook and cranny of our being in some form. Music developed as civilization developed, birthed from the Ancient Near East, spread

throughout the world and adapted by every culture as to its own needs. This potpourri of cultures in the Ancient Near East, formed by contact between Hebrews and amongst other the Egyptians and carried over into the Greek and Roman civilizations, formed an important basis for the development of later and more modern musical cultures.

The view is often expressed that no or little or insufficient information and evidence exists with regards to the music of the Ancient Near East. This probably is true if compared to other fields in archaeology, but what is available, already is a treasure trove filled with sources and information, discovered, explained, re-investigated and published by some brilliant minds, sometimes putting forward quite astonishing ideas.

The Ancient Near East does not only consist of Israel and Judah, but the blanket should be spread much wider when viewing cultures and development of a cultural nature. It is conceded that the ancient Jewish culture was unique, but they certainly did not live in isolation. There was constant contact with surrounding nations, some more friendly than others. This fact should not be underestimated. The ancient Jews came into contact with many other nations and ethnic groups, and this foreign influence must have been significant. The Ancient Near East at that stage was a boiling pot of cultures, religions, peoples, states, rulers, and wars. The borders of the region stretched from Mesopotamia in the north, down all the way into Egypt in the south, from the sea in the west to Asia Minor in the east. From this portion of the world, rich in culture and development, emerges one of our best possible sources with regards to musico-archaeology – the Bible. In a world where the scarcity of information is proclaimed, the Bible provides us with 146 verses referring to musical instruments. There are practically no instruments from AIP not referenced in the Bible. The difficulty lies in the fact that although the instruments and their names are mentioned, there are no comments on origin, construction, or technical characteristics. It is a fact that traditionally accepted views of an event/instrument/musical term have been present for long periods of time and have been repeated and repeatedly handed down by followers and scholars in spite of the fact that hard evidence is incongruent. It does not mean that any new views or interpretations should exclude the previous *in toto*. It thus is necessary to take into account that which we cannot see or prove scientifically, and reason about these with logic and sense. Some beliefs are deeply seated in tradition, especially if there is no backing by scientific evidence. It remains a balancing act in many instances, an equilibrium is to be found.

It is at this stage that we cannot rely only on the Bible but have to reach for any tool available to us, archaeology, linguistics, philology, histories, and musical theory, amongst others. We draw on multiple translations of the Bible, both ancient and modern, and when this remains insufficient rely on the works of scholars, both ancient and modern.

At first the attention in musical archaeology tended to be personal and singular. It did not take long for scholars to figure out that they could do more if they worked together. One of the first formal groupings was the so-called “Study Group on Music Archaeology” which was formed in 1981. They at first published their (and other) work in the *Music Archaeology Bulletin*, of which six issues were published between 1984 and 1986. This morphed into the *Archaeologia Musica* of which another six issues were published between 1987 and 1990. Time progressed and more and more scholars from different backgrounds were added to these groups in order to gain more knowledge. “The International Study Group on Music Archaeology” was formed in 1998 and have held several symposia all over the world. Read more about them at <http://www.musicarchaeology.com>. ICONEA is a more recent initiative, also focusing on musical archaeology. This is an initiative of the Institute of Musical Studies at the School of Advanced Studies of the University of London, and it is used to publish the proceedings of their meetings. I have read and quoted several of their articles which can be found at <http://www.iconea.org>.

The manner in which we reason about ancient musical theory also is important. In a sense we need to approach this from the ancient perspective. We have to try and find within the ancient musical systems that which we can translate into our own musical systems. The incorrect approach would be to force the ancient systems to fit into our modern understanding. Furthermore, it must be emphasized that some aspects just would not correspond at all.

It has been our presumption that the four Mesopotamian texts are based on the same theoretical principles and concepts, therefore being co-systemic. We base this on the idea that the four documents are all written using the same script and in the same language. This indicates that they must have originated from a single cultural environment. Bayer (2014:27) confirms that our current knowledge of the so-called Mesopotamian intellectual transition of scribal religious complex would place these in a single “coherent and continuous stream”.

Our knowledge increased in small increments, one logically following on the other. First, there was the discovery of artefacts and iconography, most probably followed by the interpretation of some of the written texts, which in turn opened up our view on the cantillation marks found in the Hebrew Bible. Similarly, translation and interpretation of the early Mesopotamian texts did not all take place at once, but we needed the interpretation of each separate text in order to allow knowledge of the next. We needed the first three texts, the Procedure text (U.7/80), the String list (U.3011), and the Song catalogue (KAR 158), before we could make any real good sense of the Key-Number table (CBS 10996). Similar to the Mesopotamian civilization, the Ugaritic civilization was quite advanced. It is known that they possessed an alphabetical type script used in all aspects of their lives. There also were scribes who were well trained in the use of the Mesopotamian cuneiform type script and Hurrian, as written in Ugarit, was written in both the Ugaritic alphabet and the Mesopotamian Akkadian cuneiform script. The texts originating from Ugarit therefor most likely is a mixture of cultures, including elements from both. We can presuppose that the texts of Ugaritic musical scores were founded on the Mesopotamian theoretical system. It is the basis that the notations were created on, but that it would have been adapted and local Ugaritic influences would have been added. This progression can be found in the most prominent of differences. The Mesopotamian texts states a mode and gives the names of strings belonging to that specific mode, indicating that an instrument would have been tuned/pre-tuned as specified. The Ugaritic system added a series of Hurrian terms, some are compounds of Mesopotamian terms, while others appear new. These terms represent/are coherent to the Mesopotamian octaves. Unfortunately, we remain uncertain of the “musical language” found in these texts, and it is possible that the Mesopotamian texts are not coherent/co-systemic with the Ugarit scores. If this is true, the monumental work by Duchesne-Guillemin is placed in doubt (Bayer 2014:72), although her framework has not been overturned to date. It is pointed out that the Mesopotamian system is completely based on instruments that are open-and-many stringed, like the harp and lyre. This is what was possible for lyres and harps, and the two factors, that of open-and-many stringed instruments and the predictive Mesopotamian system, are inextricable. Once the restriction of open-and-many stringed instruments is removed, then the Mesopotamian theory and notation fails the test. The altered musical addition in the Hurrian texts might be explained on this basis. We know that for the Hurrian people the lute was a well-loved instrument. It probably originated in the area made up of East Anatolia, the southern

Caucasus and the northern parts of Mesopotamia. This area included the Hurrians (and later the Mitanni). The long-necked lute was a more advanced string instrument than the lyre and harp, of totally different construction, and was made with a fingerboard and individual strings that could be shortened by applying local pressure. The Ugaritic scores thus might well be a transitional system, written for the lute and attempting to combine knowledge and theory systems for the lyre and lute. Noticeably, the Ugaritic notations are only to be found with Hurrian texts. There is no other or Babylonian equivalent. The problem with this reasoning is that if it (the theory system) was applicable to a lyre (thus a linear system) it would be applicable to a lute with only one string – while iconographic evidence point to a two stringed lute. And while some suggestions have been made in order to solve this dilemma, there apparently is no solution in sight. In my mind the biggest question with regards to the Duchesne-Guillemin framework lies in the terminology of the third and fourth strings, which unfortunately in turn places the whole predicted scale in doubt (that coming from someone that on the one hand is not a trained musicologist and on the other is a Duchesne-Guillemin system admirer). The system assumes that *šalšu qatnu*, which is the interval between the first and third strings, translated as a “thin” interval represents a minor third. This is an important principle as it denotes the scale if we accept it to be diatonic. The fourth string is named as “fourth string small” and would imply that the next tone also would be a semi-tone, which obviously makes no sense. As previously mentioned, other questions have also been raised, but this will suffice for now.

Understanding the text from U.7/80 (UET 7, 74), the so-called retuning text, was pivotal in our understanding of the Mesopotamian theory system, purely because it provides us with a step by step guide of how to tune the strings of either a lyre or possibly a harp. It instructs us on how the tuning was carried out in two different cycles. The first portion of the instructions are clear and (we thought) describes the loosening of the strings or lowering the pitch by a semitone. The second portion has a broken line (on the tablet) and we assume this would have given the instructions for the tightening of the strings or the raising of the pitch. This thinking was reversed because of the discordance in the names of the third and fourth strings as thin and small which indicated that the scale should be moved downward. Reinterpretation of the text has now confirmed that the first tuning section represented the instructions of tightening the strings by semitone. Our conventional thinking about the tuning procedures

and the names of the strings and intervals needed to be reconsidered. It is widely agreed that the Mesopotamian scales were heptatonic-diatonic scales, but an interval previously regarded for example 2-6, no longer meant from string 2 *up* to string 6, but rather from string 2 *down* to string 6. This also meant that all prior texts should be reread and re-evaluated.

Similar to the Bible, the Tanakh also names the musical instruments of the time, but do not render any more information. The literary sources furthermore provide us with the description of several ensembles, and the instruments used in accompaniment to sacrificial rites, and it is easy to fall into the trap of interpreting matters on what would be possible given the degree of development, manner and material of construction, etc. It remains important to not only stay true to the presented evidence, but to also not construct too much from the little evidence we have. Smith (Kindle Edition location 99) clearly states that any inconclusiveness may not necessarily indicate weakness.

The musicians from the court of King David formed an integral part of the sacrificial service and included string instruments, the *kinnôr* and *nēvel*, aerophones, the *hatsots^erah*, and idiophones, the *m^etsiltayim*. Nebuchadnezzar had an orchestra of his own containing *qaytros*, *p^esanterin*, *sabb^eka*, *qarna'* and *mashroqita'*. Many of these are analogues of the ancient Jewish instruments. Not only do we have descriptions of feasts and festivals and how instruments were used, but also of private events associated with music and instruments, some happy and some filled with sorrow.

The passage in 2 Samuel 6 narrating the transfer of the Ark of the Covenant appears to be the first instance where music is mentioned as an integral part of Jewish ritual worship. The Ark had now found a permanent resting place, first in the tabernacle and later in the Temple. The Second Temple was built by King Solomon, completed in about 516/5 BCE. It was during this period that the psalms were adapted for liturgical purposes, used during Temple worship. Music became an integral part of the service.

We are uncertain about exactly which psalms were sung at the First Temple, but we believe/think that 38 psalms were written during the time of the First Temple, and that a further 30 psalms were written during the first exilic period. The use of the psalms during the Second Temple period is more certain, thanks to the Talmud which provides us with several useful inscriptions. It appears that singing, and especially the singing of psalms was at the

pinnacle of the sacrificial rite. The Levites would start singing a psalm after the striking of a cymbal. Of this process we read in Mishnah Tamid 7:3 and it is well described by James McKinnon in his article "On the Question of Psalmody in the Ancient Synagogue", 1986. We find more evidence in the Talmud when it describes the psalms to be used on every day of the week:

First day (i.e. Sunday):Psalm 24

Second day: Psalm 48

Third day: Psalm 82

Fourth day: Psalm 94

Fifth day: Psalm 81

Sixth day: Psalm 93

Sabbath day: Psalm 92

The First Temple was in use from 950-586 BCE and music played a defined role in temple worship. The situation changed during the exile years of 586-538 BCE when there was no access to the temple and the psalms were used in the local synagogues. The gatherings in the synagogues did not focus on sacrificial rites as was the manner in the temple, and it is because there existed no sacrificial rites that the music of the Levites were deemed unnecessary. This shift remained in place up till the destruction of the Second Temple in 70 CE. There still was no element of sacrifice in the synagogues but services in the synagogue now began including some of the other formal musical elements previously found only in the temple. Psalms were read and sometimes simply intoned, but the earliest evidence we find of ritual and daily singing of the psalms is found in the *Sopherim* which originated in the 8th century CE. The psalms continued further development through the formation of Christianity (from about 30-40 CE) and is still sung in many Christian churches throughout the world, sometimes accompanied by magnificent organ music and even more "informal" instruments like guitars, drums, and flutes. Not only do the psalms form a direct bridge and connection between Judaism and Christianity, but the psalms are a bonding factor between Christians of all times and all over the world.

The Psalms become even more important if we take into consideration the view of “Exclusive psalmody”. In this view, the opinion is expressed that we have strict and exact instruction in the Bible of how to worship God, and because the psalms come directly from God, it is permissible to sing these. This view makes the psalms the only songs allowed to be sung from during worship and does not allow any room for hymns and other spiritual songs as read in Ephesians 5 and Colossians 3. This is in contrast with “Permissive Psalmody” which allows for any scripture to be sung – if it is found in the scriptures then that text can be taken for singing. “Inclusive Psalmody” goes even further and allows all scriptures to be sung, but also hymns written by “uninspired” writers. The other end of the spectrum is found in “Exclusive Hymnody” and this allows for the singing of only non-inspired hymns. Without commenting on the fundamentalist theology around this opinion, I cannot imagine not singing the psalms.

The ancient texts/Bible do not spell out the origin and chronological evolution of music and musical instruments, but it appears that a vague timeline can be traced out. It is for this reason that we investigated the origins of the Bible books and placed these within well-constructed periods. We start out in the Bible as early as possible, in the Patriarchal period. It is the time of Abraham, Isaac and Jacob, extending from the Creation to Moses receiving the law on Mt. Sinai. The *shofar* already was regarded as sacred, while the *kinnôr*, *ugav* and *tōf* was known and referenced in the early books of the Bible (Gen. 31: 27, Exod. 19: 13) According to Kolyada (2014:7) the *hatsots^erah* was required by God to assemble the community (Numbers 10: 2-7). The united kingdom existed in the 11th and 10th centuries BCE and during this time instrumental music and musicians played an increasingly important role. Instrumentalists were found at functions of the state, social interactions and especially religious events. Musical education became more formal. Young talented men were educated in the use of musical instruments and singing in order to heighten the religious experience. Musicians gained even more importance under King David as he appointed the Levites to form a formal part of the ministry. They were men devoted to music and its function in the Temple. This system of training was highly effective. The Levites were the keepers of the tradition and it was passed down from generation to generation orally. The role of the temple musician was an important one as we read of at first some 4000 chosen Levite musicians, followed by the addition of a further 288 more. These were to provide music at all the instances of public worship and to accommodate this, a system of rotation was put in place. It was a highly

organised system consisting of 24 groups of 12 persons. After the division of the Unified Kingdom the role of these musicians, responsible for both instrumental music and singing, changed. Temple services discontinued, not only during the Babylonian exile in 604-537 BCE, but also during periods of paganism under the Israelite kings Jeroboam and Ahab and the Judean kings Manasseh and Amon, when religious activity in the Temple in Jerusalem was actively discouraged. A slow decline in temple music during this period is visible. Some musicians obviously returned to the Promised Land after the exile, but the number of instruments allowed at temple services were reduced. The Temple was destroyed in 70 CE. The Talmud in m. 'Arak. II:5 clearly states that by that time only one pair of cymbals remained, until eventually, only the *shofar* remained in use, all other instruments having been forbidden.

This furthermore was a period when all depictions of living creatures were forbidden, hence, other than a handful or so of remaining depictions, there literally being no iconographic/visual evidence of musical instruments from the time. Luckily, the neighbouring people had no such restrictions and contact with the Egyptians, Phoenicians, Assyrians, Babylonians and Hittite people would not only allow for the spread and development of culture, but would also provide for the depiction of instruments on plaques, walls, statues and reliefs. The Jewish people spent a long period of time in Egypt and must have borrowed, developed and adapted instruments acceptable to their own traditions. They learnt of lyres and harps, double reed pipes and sistra (Kolyada 2014: 15) and adapted these to their own needs and technical abilities. The lyre was an instrument that the Egyptians received from the Phoenicians who we currently regard as the inventors thereof. The lute was also known in Egypt, but for some inexplicable reason, it did not become popular with the Jewish people. The lute was a beautiful instrument and a favourite amongst the Egyptian people and in Egyptian tradition often was "associated with the pleasures of love" (Kolyada 2014). Perhaps for this reason the Jews regarded it as impure and the absence from Jewish culture would then be based on local ethics and religion.

The development of instruments during this time can be illustrated by the presence of the boat-shaped lyre/harp from Ur, previously depicted. It has two arms and a crossbar, very much like a lyre, but the strings were stretched diagonally and were of different lengths like a harp. It clearly represents a hybrid type of instrument which confirms the presence of development. Other, sometimes even more subtle signs of development can be

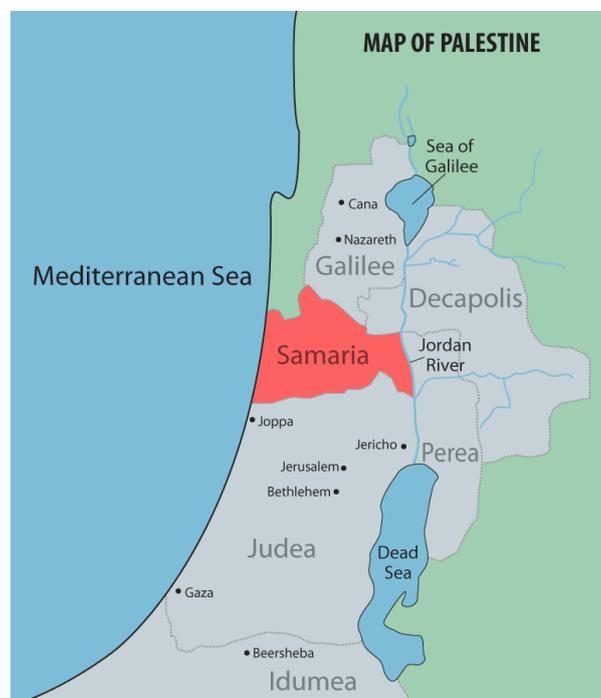
demonstrated. A variety of instruments were to be found and experimentation would have taken place at all levels. Lyres would range in size from the small and portable to the large and impressive. Lyres have been described as either rectangular, triangular or trapezoid, while the variations of harp as angular, arched, closed and boat-shaped can be illustrated. Strings on all sorts of instruments varied greatly in number and could be either symmetrical or asymmetrical. There even were different types of strings, from the small intestine of sheep, from the large intestine of sheep, from the intestine of other animals, and some woven. All these changes and varieties were due to development in aesthetics, but more so to improve the quality of the sound and to improve the technical abilities of the instrument. "New" instruments were thus created.

The instruments learned, adopted and adapted from the Egyptians formed part of a new "musical movement" for the Jewish people. Monotheism developed after the return from the Babylonian exile and instrumental music and singing took on a whole new meaning and appearance. It did not just fall from the sky, but represents an accumulation of knowledge, development and experience over a period extending over many years, already starting in the pre-patriarchal period. Music in its instrumental and vocal forms now not only formed part of everyday life, but a whole new branch of music, that of religious music was established and confirmed.

Some of the confusion with regards to terminology encountered in earlier studies have been resolved more to our satisfaction by more modern scholars. Not only has there been a discovery of more archaeological depictions and data, but contributions have been made by scholars from different fields and from different schools of thought. Much has now been written about the available artefacts and some written sources on tablets have been deciphered. A whole new world of knowledge opened up when Sumerian, Akkadian, Assyrian and Hittite tablets were translated and interpreted. Admittedly, the process was slow, over many years, and it took a collaborated effort from Assyrologists, Sumerologists, musicologists and others to obtain this, but we can now demonstrate that ancient Jewish music was influenced by the Assyrians and the Babylonians, who on their turn were influenced by the musical art of the even earlier Sumerian civilization. Some instruments remained grossly unchanged, partly because of religious prescriptions and partly because of the fact that they had nowhere to grow. The best example of this is the *shofar* which has remained largely

unchanged into modern times due to precise religious prescriptions and the fact that not much can be changed to its construction. Admittedly, it could be scraped or even straightened, but even these small changes are of no real significance with regards to development. Other instruments show obvious time related advancement, probably best illustrated with the string instruments. We know that what existed in the beginning was the bow, primarily used for hunting. This developed into a simple musical instrument from which the harp evolved. It also now is an accepted fact that the lyre was birthed from the harp, and as previously mentioned, experimentation with regards to size, amount of strings, material of construction of both the instrument and the strings, additions of sound boxes and bow bridges, orientation and shape of the arms as well as length of the strings all represent elements that were tried and tested at some stage and either discarded along the way or assimilated in order to cause improvement and advancement. The addition of tuning pegs must have played a pivotal role in the development of multi string instruments and would allow for easy tuning, easy re-tuning and easy replacement of broken strings.

Mention should be made of the uniqueness of Samaritan music, a uniqueness that stems from its origin in ancient Israelite music.



http://ap.lanexdev.com/user_images/Discovery/image/magazine/2014/04/Palestine-Map-Samaria.png

Fig 6.1 Map of Palestine with Samaria.

We know that Samaritan music is totally unique with no similar music found anywhere else in the world. We also know that it must have originated within the sphere of ancient Israelite music but that this link no longer exists and is no longer demonstrable. It is true that the Samaritans lived in Israel alongside many different peoples and that they also lived under many different rulers, but there is no similarity between Samaritan music and any other Asian music or Eastern music or even Christian music. There is no visible foreign influence.

The Samaritans lived alongside the peoples of Israel but no similarities are evident. Samaritan music is purely *a cappella*, there is no musical accompaniment and remains so today, not even including the shofar. The absence of instrumental accompaniment is easily solved, and it is because of the prohibition of musical instruments found in the Bible.

Do not rejoice, O Israel, with joy like *other* peoples,
For you have played the harlot against your God.
You have made love *for* hire on every threshing floor.

Hosea 9: 1 (NKJV)

Braun (2009: 21) states that the Samaritan people populated the area known as Samaria from at least the seventh century BCE, and we are not sure at which exact time the prohibition against musical instruments came into effect. There exists unique Samaritan artefacts depicting musical instruments. There are for example terra-cotta oil lamps from about the 4th century BCE, *aulos* fragments from the 3rd to 1st century BCE, and several terra-cotta figurines. And so it appears that the Samaritans during this time indeed did make use of musical instruments and Braun confirms that these are different in style, features and meaning from any other local musical instruments.

Interestingly enough, their music is passed down from one generation to the next through formal study. Both Samaritan boys and girls study at their local community center after the regular school day. Here they learn ancient Hebrew and Aramaic reading, liturgy and poetry. It is thus clear that the musical tradition would have remained preserved, containing thousands of different songs and melodies. These they sing at their prayer services and on the Sabbath and during festivals. As we understand some of these songs and melodies have come directly from ancient Israelite songs but there is evidence that some were written by

Samaritan composers in the years between 500 – 1500 CE (Israelite Samaritan information Institute, n.d.). So-called “left and right singing” is when the people present in the synagogue is divided into two groups, one on the right and one on the left. The two groups take part in singing which is alternative in character. The group on the right will sing all the even numbered stanzas while the group on the left will sing all the uneven-numbered stanzas. Is this not antiphonal by definition? There is a further a very interesting characteristic, that of “Trills”. This is the embellishment of the text with the addition of many syllables not found in the written text. Singers are able to extend the singing of two words for over two minutes by adding syllables and trills. An interesting example is found in the article by the Israelite Samaritan information Institute:

Exodus 15: 5 reads:

the depths have covered them: they sank to the bottom like stone

which is translated as

Yaradu bammasot kamoo aaben

this single word “kamoo” can be sung as

kaawaanuwwa’awwa’aaawwanuwwa’aamu’ooau’ao’unwoo’ao

It furthermore is noted that the same text could be adapted according to the occasion. A different melody would be applied whether the occasion is secular, or on the Sabbath, or during a festival, or during pilgrimage.

Within this study we have found the lyre to be an important instrument, having being birthed from the ancient harp. In following the timeline of the harp, the earliest depictions of a triangular harp is from Megiddo dated 3300-3000 BCE. These depictions of a female musician were discussed earlier. There initially was some confusion with what exactly this instrument was, but it definitely represents a triangular frame harp. There is a resonator at the base with one straight arm and one curved arm and the yoke, which is an essential part of the lyre, is absent. We know from previous knowledge that the harp continuously was in use in the neighbouring countries where it underwent transformation into an ethnic type instrument. But it was totally absent in AIP until the eighth century CE. Braun (2009: 19) explains that Canaanite urbanization initially caused “an impressive acoustic revolution” but that the city

states went into demise at the end of the Bronze Age followed by an influx of so-called Sea Peoples. The dominant instrument in Mesopotamia and Egypt was the lyre and so it became that the lyre in the latter part of the third millennium BCE became more widely popular. On a similar tone, larger size cymbals dating to the 14th to 12th century BCE were commonly found during excavations, while the smaller size cymbals were found dating to the Hellenistic Roman time. In between these periods (and findings) a vacuum again exists. There are no archaeological samples from the Iron Age or from the Babylonian and Persian periods. This was not an unimportant instrument and was associated with cultic rituals, the Levites and the musicians appointed by King David. The answer to this most likely lies with the written sources referring to the cymbals at the first Temple, not supported by archaeological evidence. And thus we now accept that at a much later stage the cymbals were incorporated into the biblical text, hopefully to reflect the Golden Age described of the first Temple.

This unfortunately is not the only instance where written sources from the Babylonian-Persian period show a discrepancy with the relevant archaeological evidence. This is especially true with reference to the Bible. We read about the development of the Jewish culture and music in especially the books of Nehemiah and Ezra, about Temple musicians and priests and music from large groups of instruments. These descriptions are often mirrored in the Mishnah and the Talmud and are confirmed by Josephus Flavius. In contrast, this represents a period of about four centuries with literally no supporting archaeological evidence. There are finds from before and after, but the Babylonian and Persian periods literally are bare. I have come across the question whether **absence of evidence** indeed actually means **evidence of absence**, but Braun describes this as a case of glorification of the story of the Second Temple; and it is stated that we cannot rely on the descriptions, neither consider them as historical reality when referring to the books of Ezra, Nehemiah and Chronicles in the absence of supporting archaeological evidence.

It is primarily the Bible, read in conjunction with other ancient texts that assisted us in understanding the chronology, and the organology of iconographic representations unearthed by archaeologists. Archaeology also provided us with a small quantity of tablets which, when deciphered, rendered us with new and surprising knowledge applicable to what we have already known about the instruments. This was no small step, but a giant and absolutely necessary leap in current knowledge and the way forward. There is no other

knowledge with regards to musical theory from AIP other than the tablets discussed in chapter 5. Nevertheless, this could not have been the starting point. Much development, although undocumented, must have taken place, an acceptable presupposition. The musical systems that we found on the Nippur tablets already is well-developed and sophisticated. It admittedly is based on mathematical deductions and demonstrable intervals, but in my mind I have a serious question whether the musical ear not preceded the additional mathematics. It makes more sense to tune an instrument to what is pleasurable to the musical ear, and then to retrospectively add the science or the mathematics, rather than the other way around. Much like today, I assume, that the common people from AIP would find a way to tune an instrument and create music and singing by what is aurally pleasurable, rather than follow the instructions of mathematicians with regards to prescriptive tunings. I furthermore contend that the use of music, whether instrumental or vocal or both, would be much more widespread than the exact knowledge of mathematics in order to explain these. Even today, mathematics has not penetrated into every household and not reached every person, while I seriously doubt, whether one would find any corner of the world where music is not played or sung. When we look at the way the lyre was tuned, as previously described, this can be done aurally. The addition of musical theory would be necessitated in order to preserve music for posterity, in order to spread the relevant music and musical themes from one musician to another, from one group to another and from one area to another.

I have been on a long journey of discovery, following a trail through names and nomenclature in ancient and modern texts, applied these to the available archaeological evidence. This automatically led to the discovery of ancient tablets, inscribed with musical theory principles, now fairly well understood. The theory thereof has mostly been explained and similar principles have been demonstrated for the cantillation marks found added to the text of the ancient Hebrew Bible.

This eventually brings us back to the question asked: whether any relation existed between (1) the development and availability of musical instruments in AIP, (2) whether these were in any manner associated with the development of musical theory of the time, and finally (3) whether both these factors implied on the creation of the Psalms.

In my mind very little doubt exists that the above is true in all instances, admitting that not all can be proven scientifically but that some can be inferred/concluded with some confidence.

The examination of the textual evidence read in conjunction with the available archaeological evidence from the time and area quite clearly demonstrates which musical instruments were available, the instances they were used at. It points to the lyre as the primary proponent of the musical culture of the time, especially with regards to melodic music. We have shown other instruments to be present and used but with regards to melodic instruments, we have shown the harp to have been absent from the area for a critical and significant period of time. The other main contender, the lute, is more developed and must have become available later, while we have also noted the fact that it was popular in Egypt, but never so in the more central areas of AIP. And so, many of our knowledge becomes a *fait accompli* when we accept that the lyre was the instrument of choice of the time, and especially when considering how it was constructed and thus what technically was possible. The complete acceptance of the hypothesis depends on the presence of this open-many-stringed instrument. What we have learnt from the ancient tuning tablets (and other) merely confirms the construction of the lyre and the manner of its music. The instructions with regards to tuning found on ancient texts are congruent with our understanding of construction and thus cements the technical possibilities of the instrument. There thus exists a direct demonstrable connection between the instrument and the theory of the time. Furthermore (in my opinion) this surely is an instance where the egg came before the chicken in the sense that the presence, availability and technical possibility of the instrument would have led to the creation/addition of theory, rather than *vice versa*. The theory is applicable to the instrument, while the obverse that the instrument is applicable to the theory also holds true. Both these facts furthermore confirm the presence of a diatonic-heptatonic scale of the time. The theory of Duchesne-Guillemin remains the only viable framework on which we can base the knowledge of the musical theory of the time and it still holds strong. Additionally, the work done on the musical elements of the cantillation marks of the Hebrew Bible also fits comfortably into the Duchesne-Guillemin framework. Similarly, the work initiated by Haik-Vantoura remains the most viable that we have today and makes the most sense, not only theoretically, but also musically. In a sense, the work on the musical theory tablets are confirmed by the work done on the cantillation markings, and vice versa, BUT again reinforced and confirmed keeping in mind the musical and technical possibilities of the lyre/open-many-stringed instruments of the time.

I would like to conclude that there is a demonstrable line extending from pre-patriarchal time to the creation and abilities of open-many-stringed instruments, to the theory denoting and symbolising this and the manner in which the Psalms would have been sung and composed. It confirms that the musical creation of the Psalms, with the addition of cantillation marks are directly congruent to the availability of the musical theory of the time, which is inextricable from the instruments of the time, primarily the lyre and the voice.

The hypothesis originally stated thus is true and correct in the sense that a combination of literary, archaeological and musical sources can be used within a literary and historical approach to demonstrate the availability of musical instruments in AIP, the manner in which tonality was recorded and its influence on the development of the Psalms.

BIBLIOGRAPHY:

12-edo, 12-tone equal-temperament, 12-tET [WWW Document], n.d. URL <http://www.tonalsoft.com/enc/number/12edo.aspx> (accessed 12.3.17).

A BRIEF HISTORY OF CHRISTIAN WORSHIP MUSIC n.d. http://www.songspeace.com/ncmcmusic/voice/history_of_Music.htm (accessed 3.4.18).

Aaron ben Moses ben Asher - Wikipedia [WWW Document], n.d. https://en.wikipedia.org/wiki/Aaron_ben_Moses_ben_Asher (accessed 3.1.18).

Abraham Kathleen, n.d. The Reconstruction of Jewish Communities in the Persian Empire: The Āl-Yahūdu Clay Tablets. Academia.edu [WWW Document]. URL https://www.academia.edu/1383485/The_Reconstruction_of_Jewish_Communities_in_the_Persian_Empire_The_%C4%80l-Yah%C5%ABdu_Clay_Tablets (accessed 3.16.18).

Access to Encyclopedia Judaica [WWW Document], n.d. URL <http://www.bjeindy.org/resources/library/access-to-encyclopedia-judaica/> (accessed 2.26.18).

Adler, Cyrus 1893. The Shofar – its use and origin. Proceedings of the National Museum, vol XVI. URL file:///D:/USNMP-16_936_1893.pdf

Adler, C & Cohen, F.L. Cantillation. Jewish Encyclopaedia. URL www.jewishencyclopedia.com/articles/3986-cantillation

Albright, William F 1934. Albright's Archaeology of Palestine and the Bible. The Jewish Quarterly Review vol24 no 3. URL <http://www.jstor.org/stable/1451892>

Allen, John S 1997. Equal Temperaments as Mathematical Series. [WWW Document] URL <http://www.bikexpert.com/tunings/tunings0.htm>

Alt, A, 1966. Essays on Old Testament History and Religion. Basil Blackwell; First Edition edition.

Amzallag, N., 2014. The Cosmopolitan Character of the Korahite Musical Congregation: Evidence from Psalm 87. *Vetus Testamentum* 64, 361–381.
<https://doi.org/10.1163/15685330-12341164>

2014. The musical mode of writing of the psalms and its significance. *Old Testament Essays* 27, vol 1 pp 17–40.

2011. The Canonic Responsa Reading of Psalm 114 and its Theological Significance. *OTE* 24/2 (2011): 303-323

Amzallag, N., Yona, S., 2014. The Unusual Mode of Editing of KTU 1.65. *Ugarit-Forschungen*, Joseph Tropper, ed. Ugarit-Verlag. Munster. URL
[https://www.academia.edu/11972856/The Unusual Mode of Editing of KTU 1.65](https://www.academia.edu/11972856/The_Unusual_Mode_of_Editing_of_KTU_1.65)

Ancestral Instruments - Small Shawms [WWW Document], n.d. URL
<http://www.ancestral.co.uk/shawms.htm> (accessed 10.15.17).

Anchor Yale Bible Dictionary, H-J | Yale University Press [WWW Document], n.d. URL
<https://yalebooks.yale.edu/book/9780300140033/anchor-yale-bible-dictionary-h-j> (accessed 2.19.18).

Ancient Music: Bible Archaeology
<http://www.bible-archaeology.info/music.htm>

Ancient musical instruments : Bible Archaeology at
http://www.bible-archaeology.info/musical_instruments.htm

Ancient Musical Instruments: Israel Philatelic Federation
<http://israelphilately.org.il/en/catalog/articles/730/Ancient%20Musical%20Instruments>

Anderson, Lawrence E n.d. The Voice: The First Instrument. [WWW Document] URL
<https://www.printfriendly.com/p/g/m4Bxvp#>

Arabic Music Overview [WWW Document], n.d. URL
http://www.traditionalarabicmusic.com/arabic_music_overview.html (accessed

3.4.18).

Arnold B.T & Hess R.S (ed) 2014 'Ancient Israel's History: An Introduction to Issues and Sources - Google Books'. Accessed 30 December 2016.

https://books.google.co.za/books?id=aTpBBAAAQBAJ&pg=PT617&lpg=PT617&dq=Barstad+2008,+p.+109&source=bl&ots=Z6ASj9rzi2&sig=b4ti0DiNjm9SvkHd6HjSZ9Yhql&hl=en&sa=X&redir_esc=y#v=onepage&q=Barstad%202008%2C%20p.%20109&f=false.

Arthur, D., n.d. THE MATH & GEOMETRY OF MUSIC Linking Sight and Sound.

Avigad, N. 1978. The King's daughter and the lyre. Israel Exploration Journal, vol 28, nr 3, pp 146-151

Babylonian Talmud Bava Batra 14b-15a: The Order of Scripture, 2008. . Center for Online Judaic Studies.

Bakon, Shimon 1978. Music in the Bible. Dor le Dor. World Jewish Bible Society, Louis Katzoff ed. Jerusalem. URL

http://jbnqnew.jewishbible.org/assets/Uploads/6/jbnq_6_4_final.pdf

BARBERA, C. André 1977 : Arithmetic and Geometric Divisions of the Tetrachord||, Journal of Music Theory 21 2 |1977-10-1| [doi: 10.2307/843492.

url: <http://www.jstor.org/stable/843492>] p. 294–323.

Barnett, R.D., 1969. New Facts about Musical Instruments from Ur. Iraq 31, 96–103.

<https://doi.org/10.2307/4199874>

Basics of Acoustics – The equal temperament [WWW Document], n.d. URL

<http://www2.siba.fi/akustiikka/index.php?id=51&la=en> (accessed 12.3.17).

BATHYRA - JewishEncyclopedia.com [WWW Document], n.d. URL

<http://www.jewishencyclopedia.com/articles/2663-bathyra> (accessed 3.1.18).

Bayer, Bathja 1963. The Material Relics of Music in Ancient Palestine and its environs: an Archaeological Inventory, 8, no 29

-1968. The Biblical Nebel. YUVAL 1, pp 89-131.

-1982. Ancient Musical Instruments: The Finds That Could Not Be, BAR 8:01, Jan-Feb 1982 at

http://cojs.org/ancient_musical_instruments- the finds that could not be- bathja bayer- bar 8-01- jan-feb 1982/

-2014. The Mesopotamian Theory of Music and the Ugarit Notation – a re-examination. Music in Antiquity. The Near East and Mediterranean. YUVAL VIII pp 15-91

Berlin, Adele; Brettler Marc Zvi, 2004. Psalms in The Jewish Study Bible. Oxford University Press. ISBN 9780195297515

Best, Harald M & Huttar, David K, 1993. Music in Israelite Worship. The Complete Library of Christian Worship vol 1, pp 226-230. The Biblical Foundations of Christian Worship, Webber, Robert E (ed). Nashville, TN. Star Song Publishing Group.

Bettini, M., 2013. Authority as 'Resultant Voice': Towards a Stylistic and Musical Anthropology of Effective Speech in Archaic Rome. Greek and Roman Musical Studies 1, 175–194. <https://doi.org/10.1163/22129758-12341242>

Beyhom, Amine 2017. A Hypothesis for the Elaboration of the Heptatonic Scales. NEMO-online vol4 no 6 – May 2017.

Bhayro, Siam 2008. Ancient Nera Eastern and Early Jewish Lyre Traditions. Proceedings of the International Conference of Near eastern Arceomusicology. Iconea, 2008, pg 77 – 82.

Bible Hub: Search, Read, Study the Bible in Many Languages [WWW Document], n.d. URL <http://biblehub.com/> (accessed 3.2.18).

BibleGateway.com: A searchable online Bible in over 150 versions and 50 languages. [WWW Document], n.d. URL <https://www.biblegateway.com/> (accessed 3.2.18).

Biblia.com [WWW Document], n.d. URL

<https://biblia.com/api/plugins/embeddedpreview?resourceName=LLS:JNSL1992&layout=minimal&historybuttons=false&navigationbox=false&sharebutton=false>
(accessed 2.21.18).

Biblical Archaeology Review, 1980. World's oldest musical notation deciphered on cuneiform tablets. BAR 6, 14-25.

Biddulph, K., 2013. Why prehistory? Why not Stone Age, Bronze Age, Iron Age? Schools Prehistory and Archaeology.

Biggs, R.D., Roth, M.T. (Eds.), 2007. Studies presented to Robert D. Biggs: June 4, 2004, From the workshop of the Chicago Assyrian dictionary. Oriental Institute of the University of Chicago, Chicago, Ill.

Blades, James. Percussion instruments and their history, 4th edition. Free-Ebooks.net
http://www.musicofthebible.com/extra_trumpets.htm

Bloch, J., 1921. The Printed Texts of the Peshitta Old Testament. The American Journal of Semitic Languages and Literatures.

Boethuis, Anicius Manlius Severinus, c.520. Fundamentals of Music. Thesaurus Musicarum Latinarum, URL <http://www.chmtl.indiana.edu/tml/start.html>

Bonfante, G., 1946. Who Were the Philistines. American Journal of Archaeology vol 50, no 2, pp 251–262. <https://doi.org/10.2307/499052>

Bow harp [WWW Document], 2017. . Museum of Fine Arts, Boston. URL
<http://www.mfa.org/collections/object/bow-harp-4755> (accessed 10.15.17).

Boyer, Ernst L, 1990. Scholarship Reconsidered: Priorities of the Professoriate. Carnegie Foundation for the Advancement of Teaching.
<https://depts.washington.edu/gs630/Spring/Boyer.pdf>

Boyer's model of scholarship.

<http://www.twu.ca/graduate/master-of-arts-in-leadership/leadership-learning-resources/boyer-s-model-of-scholarship.pdf>

Bratcher, Dennis 2013. 'The Persian Period and Return from Exile (538-323): OT History'. Accessed 30 December 2016. <http://www.crivoice.org/othpersia.html>.

Braun, Joachim, 2002. Music in ancient Israel/Palestine: Archaeological, Written and Comparative Sources. Grand Rapids, Michigan: William B Eerdmans, 2002.

-2009. Ancient Israel/Palestine and the New Historiography of Music: Some unanswered questions. ARANE 2009, vol I.

Brettler, Marc Zvi 2005. How to Read the Bible. Translating the Culture of the Bible. The Jewish Publication Society, Philadelphia.

Brink, Emily Ruth, and Bertus Frederick Polman. Psalter Hymnal Handbook. Grand Rapids, Mich: CRC Publications, 1998.

Brown, Barnaby 2016. Pentatonic scales and lyre tunings. Alt Pibroch Club – Learning Living Pibroch. [WWW Document] URL www.altpibroch.com/learning/pentatonic-scales-and-lyre-tunings.

Burgh, T. W nd. Music and Musical Instruments in the Hebrew Bible and Ancient Israel/Palestine. The Bible and Interpretation.

<http://www.bibleinterp.com/articles/Music.shtml>

-n.d. Music in the Bible. Teaching the Bible. URL https://www.sbl-site.org/assets/pdfs/TBV3i3_BurghMusic.pdf

But Did King David Invent Musical Instruments? [WWW Document], 2015. . The BAS Library. URL <https://www.baslibrary.org/bible-review/1/2/10> (accessed 4.2.18).

Cairo Genizah [WWW Document], n.d. URL

<https://cudl.lib.cam.ac.uk/collections/genizah/1> (accessed 3.1.18).

CANTILLATION - JewishEncyclopedia.com [WWW Document], n.d. URL

<http://www.jewishencyclopedia.com/articles/3986-cantillation> (accessed

2.28.18).

CBO - Music of the Bible [WWW Document], n.d. URL

<http://christadelphianbooks.org/music-of-the-bible.html> (accessed 2.27.18).

Chalmers, John 2005. Lyra/Lyre. Tonalsoft Encyclopedia of Microtonal Music Theory. [WWW Document] URL <http://www.tonalsoft.com/enc/l/lyra.aspx>

Chase, G.H., 1902. The Shield Devices of the Greeks. Harvard Studies in Classical Philology 13, 61–127. <https://doi.org/10.2307/310343>

Cheng Jack 2012. The Horizontal Forearm Harp: Assyria's National Instrument. Academia.edu. URL

https://www.academia.edu/11204157/The_Horizontal_Forearm_Harp_Assyrias_National_Instrument (accessed 4.2.18).

Choi, Kyujin 2015. The Importance of Psalms and Accompaniment from Ancient Times through the Protestant Reformation with special emphasis on Psalmody in the Dutch Reformed Tradition. University of Washington. URL

file:///C:/Users/Wynand/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/Choi_washington_0250E_15358.pdf

Christian Ideas - Bad News About Christianity [WWW Document], n.d. URL

http://www.badnewsaboutchristianity.com/bd0_ideas.htm (accessed 3.19.18).

Clifford Richard J 2009 in "The Psalms," Introductions and annotations, *The New Oxford Annotated Bible with Apocrypha* (4 ed.; New York: Oxford, 2009) 773-894.

Clines, D.J.A., 2001. What Remains of the Hebrew Bible? The Accuracy of the Text of the Hebrew Bible in the Light of the Qumran Samuel (4QSAMA). Studies on the Text and Versions of the Hebrew Bible in Honour of Robert Gordon 211–220. URL

https://www.academia.edu/2253702/What_Remains_of_the_Hebrew_Bible_The_Accuracy_of_the_Text_of_the_Hebrew_Bible_in_the_Light_of_the_Qumran_Samuel_4QSama

Coffman, Elesha 2001. When did churches start using instrumental music? Christianity Today/Christian History Magazine 2001. URL

<https://www.christianitytoday.com/history/2008/august/when-did-churches->

start-using-instrumental-music.html

Colburn, Jerome n.d. A New Interpretation of the Nippur Music-Instruction Fragments [https://www.academia.edu/624623/A New Interpretation of the Nippur Music-Instruction Fragments?auto=download](https://www.academia.edu/624623/A_New_Interpretation_of_the_Nippur_Music-Instruction_Fragments?auto=download) (accessed 12.20.17).

Collins Nina L 2000. "Who Wanted a Translation of the Pentateuch into Greek?" in *Journal of Semitic Studies, Supplement 11: Jewish Ways of Reading the Bible*, ed. George J. Brooke (Oxford: Oxford University Press on behalf of the University of Manchester, 2000): 20– 57, citing the Letter of Aristeas, c. 150 B.C.

Conical v Cylindrical Bore - What's the difference? [WWW Document], n.d. . Normans Musical Instruments. URL <http://normans.zendesk.com/hc/en-us/articles/213847123-Conical-v-Cylindrical-Bore-What-s-the-difference-> (accessed 10.15.17).

Conomos, Dimitri 2012. *Early Christian and Byzantine Music: History and Performance*. URL <http://www.asbm.goarch.org/articles/early-christian-and-byzantine-music-history-and-performance/>

Coxon, Taylor, 2013. Pluck, Pluck, Pluck the Past –The Lyre Then and Now. Music of non-Western Cultures, MUHL 154, Course Blog. URL <http://worldmusic.umwblogs.org/2013/10/15/pluck-pluck-pluck-the-past-the-lyre-then-and-now/>

Crickmore, L 2008. New Light on the Babylonian Tonal System. *Proceedings of the International Conference of Near eastern Arceomusicology*. Iconeia, 2008, pg 11 – 22.

-2009. The Tonal Systems of Mesopotamia and Ancient Greece: Some Similarities and Differences. *Arcaeomusicological Review of the Ancient Near East*. Iconeia, pg 1 – 6.

-2009. Harmonic Mythology. Nine interdisciplinary research notes. *Arcaeomusicological Review of the Ancient Near East*. Iconeia, pg 51 – 66.

Crocker, Richard L 1963: —Pythagorean Mathematics and Music||, *The Journal of Aesthetics and Art Criticism* 22 2 |1963-12-1| [doi: 10.2307/427754. url: <http://www.jstor.org/stable/427754>] p. 189–198.

Editors of Encyclopaedia Britannica, 2018. Ctesibius of Alexandria. [WWW Document]
URL <https://www.britannica.com/biography/Ctesibius-of-Alexandria>

Cuneiform Tablets - 432octaves [WWW Document], n.d. URL
<https://sites.google.com/site/432octaves/cuneiform-tablets> (accessed
12.10.17).

Curt Sachs, 1940. The History of Musical Instruments - Curt Sachs.

Cyrus the Great and the Conquest of Babylon - Fun with Cy [WWW Document], n.d. URL
<http://www.funwithcy.com/cyrus-the-great-and-the-conquest-of-babylon/>
(accessed 9.30.17).

D. Miller II, R., 2012. Orality and Performance in Ancient Israel. *Revue des sciences
religieuses* 183–194. <https://doi.org/10.4000/rsr.1467>

Danby, H., 1933. The Mishnah. Oxford University Press.

Dating the melodies used in Psalms, cantillation, etc. [WWW Document], n.d. URL
<http://archive.chazzanut.com/jewish-music-old/msg05365.html> (accessed
2.28.18).

De Institutione Musica, Book 1 [WWW Document], n.d. URL
<http://cmed.faculty.ku.edu/private/boethius.html> (accessed 1.1.18).

Dead Sea Scrolls [WWW Document], n.d. . Bible Study. URL
<http://mybiblicalstudy.weebly.com/dead-sea-scrolls.html> (accessed 3.14.18).

Dead Sea Scrolls Archives, n.d. . Biblical Archaeology Society.

Delcamp, H 2013. An Investigation of Ancient Hebrew Music During the Time of the Old
Testament Especially the Role of Music in the Lives of Israel's First Two Kings, Saul
and David at
https://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=0ahUKEwiwwf6f_pvQAhVillQKHRFpAj8QFggoMAI&url=http%3A%2F%2Fdigitalcommons.liberty.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D136

[5%26context%3Dhonors&usg=AFQjCNGhank0 uE6VfZpMriHX4MXXQYa0A&bvm=bv.138169073,d.d2s](http://www.compound.org/writing/tuningpre1750.pdf)

Denton, Christine 1996. The History of Musical Temperament and Pitch Before 1750. [WWW Document] URL <http://www.the-compound.org/writing/tuningpre1750.pdf>

Dever, W.G., 1995. Ceramics, Ethnicity and the Question of Israel's Origins. Biblical Archaeologist vol 58, nr 4.

Dospel, Marek 2018. How were the Biblical Psalms Originally Performed? Bible History Daily. [WWW Document] URL <https://www.biblicalarchaeology.org/daily/ancient-cultures/daily-life-and-practice/ancient-music-biblical-psalms/>

Dotan, A., 1981. The Relative Chronology of Hebrew Vocalization and Accentuation. Proceedings of the American Academy for Jewish Research 48, 87–99. <https://doi.org/10.2307/3622434>

Drums and the Bible nd. <http://psalmdrummers.org/about/drums-the-bible/>

Duchesne-Guillermin 1984. The Discovery of Mesopotamian Music.pdf. Sources from the Ancient Near East vol 2 fascicle 2. URL <http://www.urkesh.org/attach/duchesne-guillermin%201984%20the%20discovery%20of%20mesopotamian%20music.pdf>

Dumbrill, R, 2005. The Archaeomusicology of the Ancient Near East. Victoria BC, Canada. Trafford Publishing.

-2008. Evidence and Inference in texts of theory in the Ancient Near East. Proceedings of the International Conference of Near eastern Arceomusicology. Icone, 2008, pg 105 - 116.

-2017. The Truth About Babylonian Music. NEMO-online vol4 no 6 –August (November) 2017. <http://nemo-online.org/wp-content/uploads/2017/08/INTERNET-6-02.-Article-NEMO-no.-4-6-2-Richard-Dumbrill-Truth-170822S.pdf>

-n.d. Is the Heptagram in CBS 1766 a Dial?

Early Christian and Byzantine Music: History and Performance, 2012. . Archdiocesan School of Byzantine Music.

Ellicott's Commentary for English Readers. Chronicles 6. n.d.

http://biblehub.com/commentaries/ellicott/1_chronicles/6.htm (accessed 3.1.18).

Engel, C., Maskell, W. 1875, South Kensington Museum, 1875. Musical instruments. [London] : Chapman and Hall.

Engel, Carl n.d. The Music of the most ancient nations, particularly of the Assyrians ... -

Carl Engel - Google Books [WWW Document]. URL

https://books.google.co.za/books?id=8I5eAAAacAAJ&printsec=frontcover&dq=The+Music+of+the+Most+Ancient+Nations+-+Particularly+of+the+Assyrians,+Egyptians+and+Hebrews;+With+Special+Reference+to+Recent+Discoveries+in+Western+Asia+and+in+Egypt+online&hl=en&sa=X&ved=0ahUKEwjU_vuJx_DZAhXIJsAKHaF-BfQQ6AEILTAB#v=onepage&q&f=false (accessed 3.16.18).

ePSD Quick Start. URL <http://psd.museum.upenn.edu/epsd/nepsd-frame.html>

Equal Temperament [WWW Document], n.d. URL <http://hyperphysics.phy-astr.gsu.edu/hbase/Music/et.html> (accessed 12.3.17).

Equal temperament | music [WWW Document], n.d. . Encyclopedia Britannica. URL <https://www.britannica.com/art/equal-temperament> (accessed 12.3.17).

Estrella, Espie 2017. Classification of Musical Instruments: the Sachs-Hornbostel System. [WWW Document] URL <https://www.thoughtco.com/classification-of-musical-instruments-2456710> (accessed 13.6.18)

Exploring Psalms | Grace Communion International [WWW Document], n.d. URL <https://www.gci.org/bible/poetry/psalms> (accessed 4.2.18).

Farmer, H.G., 1929. A History Of Arabian Music. Luzac And Company. folkloreinoldte00frazgoog.pdf, n.d.

Faull, George L n.d. Music in the Old Testament. A Brief History of Music to David.
[WWW Document] URL <http://www.summit1.org/gun10/gun01.htm>

Finkelstein, I 2012. Tell el-Far'ah and the Early Days of the Northern Kingdom. *RB*. 2012 -
T. 119-3 (pp. 331-346).
[https://www.academia.edu/4062301/Tell_el-Farah Tirzah and the Early Days of the Northern Kingdom](https://www.academia.edu/4062301/Tell_el-Farah_Tirzah_and_the_Early_Days_of_the_Northern_Kingdom)

Finkelstein, I & Silberman, N 2001. The Bible Unearthed. Archaeology's New Vision of
Ancient Israel and the origin of its sacred texts. New York: The Free Press.

First, Mitchell 2012. Can Archaeology Help Date the Psalms? BAS Library. Biblical
Archaeology Review 38: July/August 2012.

Fleischer, Tsippi 1973. A Survey of Researches Made on Arabic Music in the Middle East.
URL <http://www.tsippi-fleischer.com/32arabic.pdf>

Forest, Heather 1997. The Voice as an Instrument. Story Arts [WWW Document] URL
<http://www.storyarts.org/articles/voice.html>

Foxvog, D.A., n.d. Elementary Sumerian Glossary 76.

Franklin, J.C., 2005. "Hearing Greek Microtones", in Hagel, S./Harrauer, Ch. (eds.),
Ancient Greek Music in Performance. Wiener Studien Beiheft 29 (Vienna, 2005),
9–50.

-2001. The Invention of Music in the Orientalizing Period. PhD Dissertation.
University College London. URL <http://discovery.ucl.ac.uk/1317674/1/269919.pdf>

Friedlander, A. M nd. Facts and Theories relating to Hebrew Music.
<https://geoffreyshisler.com/music-of-the-synagogue/facts-and-theories-relating-to-hebrew-music/>

Friedlander, Ed n.d. The Ancient Musical Modes: What were they? [WWW Document]
URL <http://www.pathguy.com/modes.html>

- Friedmann, J.L., 2013. Music in Biblical Life: The Roles of Song in Ancient Israel. McFarland.
2009. Music in Jewish Thought: Selected Writings, 1980-1920. McFarland & Company Inc Publishers. Jefferson, North Carolina.
- Gabby, Uri 2015. Music in Ancient Mesopotamia [WWW Document] URL <http://asorblog.org/2015/10/07/music-in-ancient-mesopotamia/>
- Gilbert, G.H., 1909. The Hellenization of the Jews between 334 B. C. and 70 A. D. The American Journal of Theology 13, 520–540.
- Giles, Terry and Doan, William, 2008. Performance Criticism of the Hebrew Bible. Religion Compass, Vol 2, issue 3, pp 273-286. John Wiley & sons, Ltd.
- Gillingham, Sussan 2017. I will solve my riddle to the music of the lyre (Psalm 49:4). How “lyrical” is Hebrew Psalmody? JLT 11/1 (2017), pp 40-50. URL <http://nbn-resolving.de/urn:nbn:de:0222-003484>
- Giveon, R., 1978. The Impact of Egypt on Canaan: Iconographical and Related Studies. <https://doi.org/10.5167/uzh-138518>
- Glossary of musicological and technical terms, as used by the NEUMES Project / Neumed & Ekphonic Universal Manuscript Encoding Standard [WWW Document], n.d. URL <http://www.scribserver.com/NEUMES/help/glossary.htm#E> (accessed 2.28.18).
- Glueck, N., 1934. Albright’s Archaeology of Palestine and the Bible. The Jewish Quarterly Review 24, 233–235. <https://doi.org/10.2307/1451892>
- Goldman, david P 2014. How Time’s Arrow and the Phrygian Half-step made Jewish Music Holy. Tablet 2014. URL <http://www.tabletmag.com/jewish-arts-and-culture/music/184773/jewish-music-holy>
- Gottwald, N.K., 1979. The Tribes of Yahweh. First publication by Orbis Books, Maryknoll, New York.

Gradenwitz, Peter 1949. The Music of Israel Its rise and Growth Through 5000 Years. Universal Digital Library. WW Norton & Company, Inc.

Graetz, H., Bloch, P., [c1891-98]. History of the Jews. Philadelphia : The Jewish Publication Society of America.

Groneberg, B., 2003. Searching for Akkadian Lyrics: From Old Babylonian to the "Liederkatalog" KAR 158. Journal of Cuneiform Studies 55, 55–74.
<https://doi.org/10.2307/3515954>

Gunkel H 1930. Die Religion in Geschichte und Gegenwart. Tübingen: JCB Mohr [Paul Siebeck]. Translated by Thomas M Horner, 1967- The Psalms - A Form-Critical Introduction Abridged. Fortress Press. Philadelphia. URL
<http://www.ericlevy.com/revel/Psalms/Gunkel%20H%20-%20The%20Psalms%20-%20A%20Form-Critical%20Introduction%20Abridged.PDF>

Haïk-Vantoura, Suzanne "Music of the Bible Revealed", by Suzanne Haïk-Vantoura [WWW Document], n.d. . Christian Forums. URL
<https://www.christianforums.com/threads/music-of-the-bible-revealed-by-suzanne-ha%C3%AFk-vantoura.7959447/> (accessed 2.27.18).

Heaton, E. W 1956. Everyday life in Old Testament times
<https://archive.org/details/everydaylifeinol00inheat> (kindle download)

Heaton, E.W 1956. Ancient Musical Instruments at Everyday Life in the Old Testament, Charles Scribner's sons, New York
at <https://archive.org/details/everydaylifeinol00inheat>

Hebrew bagpipes in the temple and the harp of David
<http://www.britam.org/HebrewBagpipes.html>

Hebrew cantillation marks and their encoding (I) [WWW Document], n.d. URL
<http://www.mechon-mamre.org/c/hr/intro.htm> (accessed 2.28.18).

Hebrew Music and Musical Instruments

<http://www.musiclyric4christian.com/hebrew-music.html>

Henderson, J., n.d. Home [WWW Document]. Loeb Classical Library. URL

<https://www.loebclassics.com/> (accessed 3.2.18).

HHF Factpaper: Egypt and the Semites; The Second Intermediate Period [WWW

Document], n.d. URL http://www.hebrewhistory.info/factpapers/fp010-2_egypt.htm (accessed 2.25.18).

Hinks, Dennis. 1976. Musical Instruments of the Old Testament.

<http://www.journal33.org/other/html/oystinstr.html>

Hinrichsen, H., 2016. Revising the musical equal temperament. Revista Brasileira de

Ensino de Física 38. <https://doi.org/10.1590/S1806-11173812105>

History of Jewish Music, n.d. [WWW Document] URL

https://ipfs.io/ipfs/QmXoypizjW3WknFiJnKLwHCnL72vedxiQkDDP1mXWo6uco/wiki/History_of_religious_Jewish_music.html

History of Music and Musical Instruments [WWW Document], n.d. URL

<http://www.raqs.co.nz/me/instruments.html> (accessed 4.2.18).

History of music in the biblical period.

https://en.wikipedia.org/wiki/History_of_music_in_the_biblical_period

Holman Bible Dictionary: music, instruments, dancing.

<https://www.studylight.org/dictionaries/hbd/view.cgi?number=T4442>

Hopkin J. A., Hopkin S. D 2013. "The Psalm Sung: The Power of Music in Sacred Worship" in *Ascending the Mountain of the Lord: Temple, Praise, and Worship in the Old Testament* (2013 Sperry Symposium), ed. Jeffrey R. Chadwick, Matthew J. Grey, and David Rolph Seely (Provo, UT: Religious Studies Center, Brigham Young University; Salt Lake City: Deseret Book, 2013), 329–48

<https://rsc.byu.edu/archived/ascending-mountain-lord-temple-praise-and-worship-old-testament/psalms-sung-power-music>

Houtsma, M.T., 1993. E.J. Brill's First Encyclopaedia of Islam, 1913-1936. BRILL.

Inside BAR [WWW Document], 2015. . The BAS Library. URL <https://www.baslibrary.org/biblical-archaeology-review/10/6/6> (accessed 1.19.18).

Interesting Facts About Joseph.pmd - interestingfactsaboutjoseph.pdf, n.d.

International Standard Bible Encyclopedia introduction and main index. [WWW Document], n.d. . International Standard Bible Encyclopedia Online. URL <http://www.internationalstandardbible.com/> (accessed 2.26.18).

Isbell, Charles D, 2008. The Musical Notations of the Book of the Psalms. Studies in Jewish Civilization vol 19, pp 11-26. Leonard J Greenspoon (ed). Omaha Creighton University Press.

Israelite Samaritan Information Institute. Ancient tradition Thriving in the 21st Century. AB Institute of Samaritan Studies [WWW Document] URL <https://www.israelite-samaritans.com/religion/prophets/>

Jaffee, Martin S 2003. Torah in the Mouth. Writing and Oral Traditions in Palestinian Judaism, 200 BCE-400CE. Journal for the Study of Judaism 34 (2003) 332-334. URL https://www.academia.edu/3780606/Martin_S._Jaffee_Torah_in_the_Mouth._Writing_and_Oral_Tradition_in_Palestinian_Judaism_200_BCE-400_CE_in_Journal_for_the_Study_of_Judaism_34_2003_332-334

Jarus, Owen 2016. Ancient Israel: A Brief History. URL <https://www.livescience.com/55774-ancient-israel.html> (accessed 3.16.18).egions of the world in "Why do people sing?" Music in Human Evolution pp 19-37. Logos.

Jewish Music in the Biblical Period, 2015. Yardenit: Jordan River Baptismal Site. [WWW Document] URL <https://www.yardenit.com/culture-of-israel/jewish-music-in-the-biblical-period/>

Jordania, Joseph 2011. Polyphonic Regions of the world in "Why do people sing? Music in Human Evolution" pp 19-37

Jourdan-Hemmerdinger, D., 1973. Un nouveau papyrus musical d'Euripide (présentation provisoire). *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 117, 292–302. <https://doi.org/10.3406/crai.1973.12889> (Google translation)

Kania, Andrew, "The Philosophy of Music", *The Stanford Encyclopedia of Philosophy* (Fall 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2017/entries/music/> .

Kappraff, Jay 2006. The Lost Harmonic Law of the Bible. New Jersey Institute of Technology, Newark, New Jersey. URL <http://archive.bridgesmathart.org/2006/bridges2006-481.pdf>

Kempf, D., 1996. What Is Symmetry in Music? *International Review of the Aesthetics and Sociology of Music* 27, 155–165. <https://doi.org/10.2307/3108344>

Killebrew, Ann E 2005. *Biblical Peoples and Ethnicity: An Archaeological Study of Egyptians, Canaanites, Philistines and Early Israel 1300 – 1100 BCE*. SBL Archaeology and Bible Studies 9; Atlanta: Society of Biblical Literature.

-2006. "I will Speak the Riddles of Ancient Times" *Archaeological and Historical Studies in honor of Amihai Mazar on the Occasion of his Sixtieth Birthday*, vol 2. Ed A.M. Maier and P. Miroshed; Winona Lake: Eisenbrauns, pp 555 – 572.

Kilmer, A., Tinney, S., 1996. Old Babylonian Music Instruction Texts. *Journal of Cuneiform Studies* 48, 49–56. <https://doi.org/10.2307/1359769>

Kilmer, A.D., 1971. The Discovery of an Ancient Mesopotamian Theory of Music. *Proceedings of the American Philosophical Society* 115, 131–149.

-1984. A Music Tablet from Sippar(?): BM 65217 + 66616. *Iraq* 46, 69–80. <https://doi.org/10.2307/4200216>

-1998. The Musical Instruments from Ur and Ancient Mesopotamian Music. *Expedition* vol 4 No 2. at <http://www.penn.museum/sites/expedition/the-musical-instruments-from-ur-and-ancient-mesopotamian-music/>

-n.d. World's Oldest Musical Notation Deciphered on Cuneiform Tablet. [WWW Document] URL <https://phoenicia.org/kilmer.htm>

Kolyada, Y., 2014. A Compendium of Musical Instruments and Instrumental Terminology in the Bible. Routledge.

Koopman, John 1995. A Brief History of Singing. URL <http://www2.lawrence.edu/fast/KOOPMAJO/brief.html>

Kurfürst, Pavel 1992. The Ancient Greek Kithara. Sbornik Praci Filozoficke Fakulty Brnenske Univerzity Studia Minora Facultatis Philosophicae Universitatis Brunensis H 25, 1992.

Langdon, Stephen 1919. Sumerian Liturgies and Psalms. Published by the University Museum, Philadelphia. URL <http://www.etana.org/sites/default/files/coretexts/14911.pdf>

Lawergren, B., 1998. Distinctions among Canaanite, Philistine, and Israelite Lyres, and Their Global Lyrical Contexts. Bulletin of the American Schools of Oriental Research 41–68. <https://doi.org/10.2307/1357602>

Lawergren, B., Gurney O.R. 1987. Sound holes and Geometrical Figures. Clues to the terminology of Ancient Mesopotamian Harps vol 49 (1987) pp 37-52 URL http://www.jstor.org/stable/4200263?read-now=1#page_scan_tab_contents

Lebaka, M.E.K 2014. Music, singing and dancing in relation to the use of the harp and the Ramshorn or shofar in the Bible: what do we know about this? HTS Teologiese Studies/Theological Studies 70(3), Art. #2664. <http://dx.doi.org/10.4102/hts.v70i3.2664>
<http://www.hts.org.za/index.php/HTS/article/view/2664/4928>

Leonard, A jr. Archaeological Sources for the History of Palestine: the Late Bronze Age. [Biblical Archaeologist, March 1989.](#)

Leonard, Richard C nd. Music in Israelite Worship. Laudemont Ministries. <http://www.laudemont.org/a-mawitb.htm>

Le Roux, M 2012. Teaching and Interpreting the Old Testament in Africa: written word, archaeology and oral word. OTE 25/3, 559 – 582

Levin, Neil W nd. “The Book of Psalms and Its Musical Interpretations.” *Milken Archive of Jewish Music*. Accessed March 21, 2017.
<http://www.milkenarchive.org/articles/view/the-book-of-psalms-and-its-musical-interpretations/>.

Levy, Michael 2016. Composer for Lyre | Ancient Music - Revived! | Ancient Musical String Technology [WWW Document]. URL
<http://web.archive.org/web/20160318112056/http://ancientlyre.com/ancient-musical-string-technology/> (accessed 3.21.18).

-2013. Composer for the Lyre. Ancient Tuning Methods. [WWW Document] URL
<http://www.ancientlyre.com/blogs/ancient-tuning-methods/>

-2013. Composer for the Lyre. How did the Ancient Greeks Tune a 7-string Lyre? [WWW Document] URL
[ancientlyre.com/blogs/how-did-the-ancient-greeks-tune-a-7-string-lyre/](http://www.ancientlyre.com/blogs/how-did-the-ancient-greeks-tune-a-7-string-lyre/)

-2016. Composer for Lyre | Ancient Music - Revived! | The Original 3000 Year Old Music of the Bible Revealed [WWW Document]. URL
<http://web.archive.org/web/20160330233714/http://ancientlyre.com:80/the-original-3000-year-old-music-of-the-bible-revealed> (accessed 3.21.18).

-n.d. - Composer for Lyre | Ancient Music - Recreated! | The Original 3000 Year Old Music of the Bible - Revealed? [WWW Document], URL
<http://www.ancientlyre.com/the-original-3000-year-old-music-of-the-bible-revealed/> (accessed 2.27.18) .

-n.d. A Brief History of the Lyre. [WWW Document] URL
<http://www.ancientlyre.com/files/A-BRIEF-HISTORY-OF-THE-LYRE-REVISED.pdf>

-n.d. The “Urban Myth” of the Monotony of Monophony in the Ancient World? [WWW Document]. URL
<http://ancientlyre.com/the-urban-myth-of-the-monotony-of-monophony-in-the-ancient-world/>

Liddell Henry G, & Scott Robert, 1995. A Greek-English Lexicon, φοῦνιξ [WWW Document], n.d. URL
<http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.04.0057:entr>

[y=foi=nic](#) (accessed 4.1.17).

Listening To The Artifacts Music Culture In Ancient Palestine [WWW Document], n.d.

URL

http://bookpdf.services/mail_budgetboattowing_com/listening%20to%20the%20artifacts%20music%20culture%20in%20ancient%20palestine.pdf (accessed 2.26.18).

Liubov, Ben-Nun 2013. Music Therapy in the Bible. Medical Research in Biblical times from the Viewpoint of Contemporary Perspective. Ben-Gurion University of the Negev. URL

https://www.researchgate.net/profile/Liubov_Ben-Noun_nun/publication/281777008_MUSIC_THERAPY_IN_THE_BIBLE/links/55f8086108ae07629dcf0eff/MUSIC-THERAPY-IN-THE-BIBLE.pdf

Lotman, Juri, n.d. Analysis Of The Poetic Text. URL

https://archive.org/stream/LotmanJuriAnalysisOfThePoeticText/Lotman,%20Juri%20-%20Analysis%20of%20the%20Poetic%20Text_djvu.txt (accessed 2.21.18).

Lyre of Ur <http://www.lyre-of-ur.com/history.htm>

Man

ners and Customs: Musical instruments.

Musical instruments in the ancient world http://www.bible-history.com/links.php?cat=39&sub=481&cat_name=Manners+%26+Customs&subcat_name=Musical+Instruments

Math Forum - Ask Dr. Math [WWW Document], n.d. URL

<http://mathforum.org/library/drmath/view/52470.html> (accessed 12.3.17).

Matthews, V.H 1992. Music in ancient Israel

at <https://www.gci.org/bible/poetry/music>

McCorkle, Dennis F 2012. The Instruments of the Bible, ver 2.2. DF McCorkle Music and eBook Publications, Hartford, Connecticut, USA.

2007. Music Notation of the Psalms.

<http://www.musicofthebible.com/teamim.htm>

McGowan, Joel 2015. Psalms of Music: Worship in Ancient Israel through Song. Honors Thesis, Baylor University. URL <https://baylor-ir.tdl.org/baylor-ir/bitstream/handle/2104/9390/THESIS.pdf?sequence=1>

McGrath, J.F., 2017. Oxyrhynchus Hymn. Religion Prof: The Blog of James F. McGrath.

McTague, Carl n.d. The Lyre of Ur. URL <https://www.mctague.org/carl/music/computer/pieces/lyre/> (accessed 4.2.18).

Mendelhall, G.E., 1962. The Hebrew Conques of Palestine. Biblical Archaeologist vol 25.

Meshel, Z 1978. Kuntillet 'Ajrud, Penn Museum, vol 20, Issue 4, July 1978. <http://www.penn.museum/sites/expedition/kuntillet-ajrud/>

Mesopotamian Music [WWW Document], n.d. URL http://www.usd448.com/herronshappenings/ancciv15/6H39mesomusic/Mesopotamian_Music.html (accessed 3.4.18).

Miller, Robert D 2012. Orality and Performance in Ancient Israel. Revue des sciences religieuses vol 86/2 (2012) pp 183-194. URL <http://journals.openedition.org/rsr/1467>

Mirelman, S. (Ed.), 2011. The historiography of music in global perspective, Gorgias précis portfolios. Gorgias Press, Piscataway, NJ.

2012. Tuning Procedures in Ancient Iraq. Second International Conference on Analytical Approaches to World Music, 11-13 May 2012. University of British Columbia.

Mirelman, Sam & Sallaberger, Walther 2010. The Performance of a Sumerian Wedding Song (CT 58, 12) Zeitschrift fur Assyrologie Bd 100, S. pp 177-196. URL http://www.assyriologie.uni-muenchen.de/personen/professoren/sallaberger/publ_sallaberger/mirelman_wasa_2010.pdf

Mitchell, D.C., 2012. Resinging the Temple Psalmody. JSTOR vol 36 nr 3 pp 355-378.

-2013. How can we sing the Lords song?: Deciphering the Masoretic

Cantillation" from S. Gillingham (ed.), *Jewish and Christian Approaches to the Psalm* (OUP, 2013).

-2015. *The Songs of Ascents. Psalms 120-134 in the Worship of Jerusalem's Temples*. Campbell Publications, Newton Mearns, Scotland.

-n.d. THE JERUSALEM TEMPLE SONG IN THE CANTILLATION OF PSALM 136.

Mitchell, T. C 1992. "The Music of the Old Testament Reconsidered," *Palestine Exploration Quarterly* 124 (1992): 124-143.

Mitchell, T.C., Joyce, R., n.d. *The Musical Instruments in Nebuchadnezzar's Orchestra*. . pp. 8.

Mitchell, T.N., 2013. *The Talmud on Reading in the Synagogue. The Textual Mechanic*. URL <http://thetextualmechanic.blogspot.co.za/2013/07/the-talmud-on-reading.html>

Monger, Matthew P 2012. *Accents, Punctuation or Cantillation Marks? A Study of the Linguistic Basis of the te-amim*. URL <https://www.duo.uio.no/bitstream/handle/10852/34234/Monger-Master.pdf?sequence=2>

Montagu, J. 2002. *Musical Instruments of the Bible*. Lanham & London. Scarecrow Press, 2002.

2017. *How Music and Instruments Began: A Brief Overview of the Origin and Entire Development of Music, from Its Earliest Stages*, *Frontiers in Sociology* (2017). DOI: 10.3389/fsoc.2017.00008 URL <http://www.jeremymontagu.co.uk/How%20Music%20and%20Instruments%20Began.pdf>

Monzo, Joe n.d. *A New Reconstruction of the Hurrian Hymn*. <http://www.tonalsoft.com/monzo/babylonian/hurrian/monz-h6.aspx> (accessed 12.27.17).

Moore, George F n.d. "Symphonia not a Bagpipe". *Journal of Biblical Literature*. Harvard.

Muczniak, Sonja 2011. Musicians and Musical Instruments in Roman and Early Byzantine Mosaics of the Land of Israel: Sources, Precursors and Significance. *Gerion*, 2011, vol 29, nr 1, 265 – 286.
http://dx.doi.org/10.5209/rev_GERI.2011.v29.n1.39057

Mundal, E., 2010. How Did the Arrival of Writing Influence Old Norse Oral Culture?, in: *Along the Oral-Written Continuum, Utrecht Studies in Medieval Literacy*. Brepols Publishers, pp. 163–181. <https://doi.org/10.1484/M.USML-EB.3.4282>

Music in Ancient Israel | Grace Communion International [WWW Document], n.d. URL <https://www.gci.org/bible/poetry/music> (accessed 4.2.18).

Music in Ancient Mesopotamia, 2015. . The ASOR Blog.

MUSIC IN THE OLD TESTAMENT [WWW Document], n.d. URL <http://www.summit1.org/gun10/gun01.htm> (accessed 4.2.18).

Nafisah, Anggia 2010. History of Music. Music is a Caffeine in a cup of melody. [WWW Document] URL <http://musiccaffeine.blogspot.co.za/2013/05/historyof-music-part-1-prehistoric.html>

Old, T., Story, T., Introduction, A., Benjamin, D.C., n.d. OTS 2004: Dedication.

Olson T 2017. “Reasons Why Singing Matters | Singing in the Bible’. *Unlocking the Bible*. <http://unlockingthebible.org/why-singing-matters/>.

Olszewski, M. T 2009. The Orpheus funerary mosaic from Jerusalem in the archaeological Museum at Istanbul. 11th International Colloquium on Ancient Mosaics, 16-20 October 2009, Bursa, Turkey.
https://www.academia.edu/1752827/The_Orpheus_Funerary_Mosaic_from_Jerusalem_in_the_Archaeological_Museum_at_Istanbul

Okonsar, Mehmet 2011. Dead Sea Scrolls The Music of the Bible. An Overview of the work of Suzanne Haik-Ventura. Hebrew Bible Cantillation. ITU-State Conservatory, Istanbul. URL <http://www.okonsar.com/Documents/DeadSeaScrolls.pdf>

Ovadia A., Mochnik S and C. Gomez Silva 1991: A New Look at the Mosaic Floor from Sheikh Zuweid in the Ismailiya Museum. *Qadmoniot: A Journal for the Antiquities of Eretz-Israel and Bible Lands*, vol 1991 no 3/4 pp 122-126 Published by: [Israel Exploration Society](http://www.jstor.org/stable/23680039) <http://www.jstor.org/stable/23680039>

Overtone Series [WWW Document], n.d. URL <https://pages.mtu.edu/~suits/overtone.html> (accessed 12.3.17).

Oxford Living Dictionaries. 2016. Oxford University Press. <http://www.oxforddictionaries.com/definition/english/musicography>

Oxyrhynchus Online n.d. [WWW Document] URL <http://163.1.169.40/cgi-bin/library?e=d-000-00---0POxy--00-0-0--0prompt-10---4----ded--0-1l--1-en-50---20-about-1786--00031-001-1-0utfZz-8-00&a=d&cl=CL2>

Page, C., 1977. Biblical instruments in medieval manuscript illustration. *Early Music* 5, 299–309. <https://doi.org/10.1093/earlyj/5.3.299>

Partridge A. C 1973. *English Biblical Translation, The Language Library*, ed. Eric Partridge and Simeon Potter (London: André Deutsch, 1973), 106.

Payne, E., 2010. A New Addition To The Musical Corpus 291–300. <https://doi.org/10.1163/ej.9789004186521.i-492.85>

Peshitta Aramaic/English Interlinear New Testament [WWW Document], n.d. URL <http://www.peshitta.org/> (accessed 3.28.18).

Peter Gradenwitz, 1949. *The Music Of Israel Its Rise And Growth Through 5000 Years*. W.W. Norton & Company, Inc.

Phoenicia, Phoenician music interpreted from cuneiform tablets that contain the Hymn to the Moon Goddess Nikhal [WWW Document], n.d. URL <http://phoenicia.org/music.html> (accessed 4.2.17).

Phoenician Encyclopedia: A Bequest Unearthed, Phoenicia and the Phoenicians, Punic, Canaanites -- Encyclopedia Phoenicia [WWW Document], n.d. URL <http://phoenicia.org/> (accessed 4.2.17).

Phoenician Music and Hymn to the Moon Goddess Nikhal Interpreted from Cuneiform Tablets, n.d. [WWW Document] URL <https://phoenicia.org/music.html>

Pizmonim.org - Ta'amim [WWW Document], n.d. URL <http://www.pizmonim.org/taamim.php> (accessed 2.28.18).

Pretorius, WJC 2016. CELEBRATING LIFE IN ANCIENT ISRAEL WITH SPESIFIC REFERENCE TO MUSIC AND MUSICAL INSTRUMENTS. HRHBA85: Assignment nr 2, 2016.

Prutow, Denny 2016. Habakkuk's song and the Supposed Error of Exclusive Psalmody. [WWW Document]. URL <http://dennyprutow.com/habakkuks-song-and-the-supposed-error-of-exclusive-psalmody/>

-2014. A Response to: The Israelites were not Exclusive Psalmists (Nor are we). [WWW Document] URL <http://dennyprutow.com/a-response-to-the-israelites-were-not-exclusive-psalmists-nor-are-we-2/>

Pythagorean Tuning - Basic concepts [WWW Document], n.d. URL <http://www.medieval.org/emfaq/harmony/pyth2.html> (accessed 12.3.17).

Pythagorean Tuning and Medieval Polyphony - Table of Contents [WWW Document], n.d. URL <http://www.medieval.org/emfaq/harmony/pyth.html> (accessed 12.3.17).

Rankovic, S., 2010. The Oral-Written Continuum as a Space, in: Along the Oral-Written Continuum, Utrecht Studies in Medieval Literacy. Brepols Publishers, pp. 39–71. <https://doi.org/10.1484/M.USML-EB.3.4277>

Ranković, S., 2010. The Oral-Written Continuum as a Space. Types of Texts, Relations and their Implications pp 39–71. Utrecht Studies in Medieval Literacy. Brepols Publishers.

Rendsburg, Gary, A 2014. The Psalms as Hymns in the Temple of Jerusalem. Jesus and Temple, textual and Archaeological Explorations. Fortress Press. Minneapolis.

Rich, Tracey 2016. Trop (Cantillation): Chanting Hebrew Scripture. Judaism 101. [WWW

Document] URL <http://www.jewfaq.org/trop.htm>

Richter, Helmut 1999. Hebrew Cantillation Marks and their Encoding. URL <http://www.mechon-mamre.org/c/hr/intro.htm>

Rose, M 1992 NAMES OF God in the Old Testament. In DN Freeman (ed) The Yale Anchor Bible Dictionary Vol 4 pp 1007-8. New York. Double Day.

Rose, Sara de u.d. Is CBS 1766 a Tone Circle? [WWW Document] Article for conference. URL <http://musicircle.net/wp-content/uploads/2016/12/Paper-for-Conference.pdf>

Rowan, Diana 2013. The Lyre through the Ages. The American Harp Journal, vol 24 no 1 Summer 2013.

Rubin, Norman A 2009. Musical Instruments in Biblical Israel. <http://www.bibarch.com/music/music-ancient-instruments.htm> (accessed 09/11/2016)

Sachs, C., 2006. The History of Musical Instruments. Dover Publications, Mineola, New York.

Sahuren

<https://en.wikipedia.org/wiki/Sharuhen>

Saint Jerome's "Instruments of Hieronymus" and other Music Manuscripts [WWW Document], 800. URL <https://www.wdl.org/en/item/14684/> (accessed 10.15.17).

Scales: Just vs Equal Temperament [WWW Document], n.d. URL <https://pages.mtu.edu/~suits/scales.html> (accessed 12.3.17).

Schauensee, M. de, 2002. Two Lyres from Ur. UPenn Museum of Archaeology.

Scholarly Articles by Rabbi Charles David Isbell, Ph. D. [WWW Document], n.d. URL http://www.charlesdavidisbell.com/arti_schol.html (accessed 2.26.18).

- Schulter, Margo 1998. Pythagorean Tuning. URL <http://www.medieval.org/emfaq/harmony/pyth2.html>
- Schwartz, Neil & Katie 1998. Jewish Music. Re: Dating the melodies used in Psalms, cantillation, etc. URL <http://archive.chazzanut.com/jewish-music-old/msg05365.html>
- Sendrey, A., Norton, M., 1964. David's harp : the story of music in biblical times. New York : New American Library.
- Shanks Hershel 1995. Jerusalem: An Archaeological Biography (New York: Random House, 1995), specifically 86– 7.
- Shaykh Muhammad Sarwar, Brandon Toropov. 2003. The Complete Idiot's Guide to the Koran. Beach Brook Productions. Kindle Edition.
- Sieberhagen, Mana 2011. 'Interdisciplinere Argeologiese Navorsing van Musiekinstrumente in Antieke Israel/Palestina Gedurende Die Ystertydperk', *Master's Thesis*.
- Smith, J.A., 1990. WHICH PSALMS WERE SUNG IN THE TEMPLE? Music and Letters vol 71, no 2, pp 167–186. <https://academic.oup.com/ml/article/71/2/167/1063114>
- 2011. Music in Ancient Judaism and Early Christianity, Ashgate Publishing Company, Burlington..
- Smith, Kevin G & Domeris, Bill u.d. A Brief History of Psalms Studies. [WWW Document] URL http://otgateway.com/articles/SmithDomeris_HistoryOfPsalmsStudies.pdf
- Smith, Rob 2012. Music, Singing and Emotions: Exploring the Connections. Themelios 37.3 (2012) 465-79. URL <http://tgc-documents.s3.amazonaws.com/themelios/37-3/Themelios37.3.pdf#page=29>
- Smith, S 2010. A portion of life solidified: understanding ancient Egypt through the integration of archaeology and history. Journal of Egyptian history 3/1, 159-189

Stainer, John 2005. *The Music of the Bible*, Cassell, Petter, Galpin & Co. London. 2005.

Stutler, R 2010. 'Several Ways to Sing the Psalms'. Accessed 2 March 2017.

http://www.stutler.cc/russ/sing_psalms.html.

Sumerian Shakespeare

<http://sumerianshakespeare.com/117701/117901.html>

Symmetry in Music, n.d. [WWW Document] URL

<http://www.lpthel.jussieu.fr/~talon/MUSIC8.PDF>

Ta'amim u.d. [WWW Document] URL <http://www.pizmonim.org/taamim.php>

Tablet Box, Near Eastern Studies in Honor of Benjamin R. Foster, Culture and History of the Ancient Near East, Brill | Leiden, Boston, 2010 | [url:

<http://booksandjournals.brillonline.com/>] p. 291-300

Talley, Sue n.d. A Brief History of Christian Worship Music. Delivered at the seminar "Music: The Celebration" A Maranatha Music Institute, Anaheim, California.

Tanach - Why do the Sifrei Eme"s (i.e. Job, Proverbs, Psalms) have cantillation marks? - Mi Yodeya [WWW Document], n.d. URL

<https://judaism.stackexchange.com/questions/1129/why-do-the-sifrei-emes-i-e-job-proverbs-psalms-have-cantillation-marks> (accessed 2.28.18).

TAPPY, R., 1995. Psalm 23: Symbolism and Structure. *The Catholic Biblical Quarterly* 57, 255–280.

Tenney, Merrill C n.d. *Pictorial Encyclopedia of the Bible*. Verlag Zondervan. Grand

Rapids. URL https://mitteilsam.files.wordpress.com/2010/08/merrill_tenney-nt-mss.pdf

Teugels, L.M., Martin S. Jaffee 2003. Torah in the Mouth. Writing and Oral Tradition in Palestinian Judaism, 200 BCE-400 CE, in *Journal for the Study of Judaism* 34 (2003) 332-334.

The 6 Symmetries of Music [WWW Document], n.d. URL <http://thinkinghard.com/lists/SymmetriesOfMusic.html> (accessed 2.21.18).

The Arch of Titus in Rome. Bible History Online. <http://www.bible-history.com/archaeology/rome/1-arch-of-titus-bb.html>

The Arch of Titus <https://www.khanacademy.org/humanities/ancient-art-civilizations/roman/early-empire/a/the-arch-of-titus>

The Book of Psalms and its Musical Interpretations [WWW Document], n.d. . Milken Archive of Jewish Music. URL <http://www.milkenarchive.org/articles/view/the-book-of-psalms-and-its-musical-interpretations/> (accessed 3.21.17).

The Cairo Genizah [WWW Document], n.d. URL <http://www.jewishvirtuallibrary.org/the-cairo-genizah> (accessed 3.1.18).

The Key to Biblical Poetry | Grace Communion International [WWW Document], n.d. URL <https://www.gci.org/bible/poetry/key> (accessed 4.2.18).

The measurement of Aristoxenus's Divisions of the Tetrachord [WWW Document], n.d. URL <http://www.tonalsoft.com/monzo/aristoxenus/aristoxenus.aspx> (accessed 7.5.17).

The Melodic Cymbals of the Levite Singers: Music of the Bible. http://www.musicofthebible.com/extra_cymbals.htm

The Nippur Expedition | The Oriental Institute of the University of Chicago [WWW Document], n.d. URL <https://oi.uchicago.edu/research/projects/nippur-expedition> (accessed 12.26.17).

The Philistines [WWW Document], n.d. URL <http://www.jewishvirtuallibrary.org/the-philistines> (accessed 4.1.17).

The Shofar <https://www.music.iastate.edu/antiqua/shofar.htm>

The Sounds of Music in Ancient Israel: Watchtower Online Library at
<http://wol.jw.org/en/wol/d/r1/lp-e/102011090>

The Story of Music is the Story of humans, 2017. [WWW Document] URL
<https://phys.org/news/2017-06-story-music-humans.html>

The Stringed Instrument database, n.d. [WWW Document] at
<https://stringedinstrumentdatabase.aornis.com/index.htm> assessed 05/04/2018.

The Sumerians - 432octaves [WWW Document], n.d. URL
<https://sites.google.com/site/432octaves/the-sumerian-gods> (accessed 12.10.17).

The Tanakh [Full Text] [WWW Document], n.d. URL
<http://www.jewishvirtuallibrary.org/the-tanakh-full-text> (accessed 3.14.18).

The Zondervan Pictorial Encyclopedia of the Bible, 5 volume set [WWW Document], n.d. URL
http://blogbook.co/downloads/the_zondervan_pictorial_encyclopedia_of_the_bible_5_volume_set.pdf (accessed 2.26.18).

Trehub, S.E., Becker, J., Morley, I., 2015. Cross-cultural perspectives on music and musicality. Philosophical Transactions of the Royal Society B: Biological Sciences 370, 20140096–20140096. <https://doi.org/10.1098/rstb.2014.0096>

Throntveit, Mark nd. 'Enter the Bible - Periods: Judah during Persian Rule'. Accessed 30 December 2016. <https://www.enterthebible.org/periods.aspx?rid=908>.

Tunings -Equal temperaments as mathematical series [WWW Document], n.d. URL
<http://www.bikexpert.com/tunings/tunings0.htm> (accessed 12.3.17).

Tyndale.com: Bible Finder [WWW Document], n.d. URL <https://www.tyndale.com/find-a-bible/feature-search> (accessed 10.10.17).

Understanding the Superscriptions and Authorship of the Psalms n.d. [WWW Document]
URL

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiS3saSq7XaAhXlAsAKHRMbD_sQFggoMAA&url=https%3A%2F%2Fdesperatelandscapes.files.wordpress.com%2F2011%2F03%2Funderstanding-the-superscriptions.doc&usg=AOvVaw2cDdnEYj2iJQJihptfD5N5

User, S., n.d. What did Jesus sing? [WWW Document]. URL

<https://www.catholiceducation.org/en/culture/music/what-did-jesus-sing.html>
(accessed 3.4.18).

Vaughn R.L 2013. Exclusive psalmody versus exclusive hymnody (and the points in between). Ministry and Music – Seeking the Old Paths. URL

<http://baptistsearch.blogspot.co.za/2013/08/exclusive-psalmody-versus-exclusive.html>

Walton, J., 2012. Bush-Sotho musical instruments.

Wayback Machine [WWW Document], 2016. URL

<http://web.archive.org/web/20160306155324/http://egypt-tehuti.org/books/musical-instruments-inside-look.pdf> (accessed 3.21.18).

Webber, Robert E (ed), n.d. A Brief History of Music in Worship. The Complete Library of Christian Worship. URL <https://www.worshiplibrary.com/library/music-and-the-arts-in-christian-worship/music-in-worship/a-brief-history-of-music-in-worship/>

Weber, Beat 2012. Toward a Theory of the Poetry of the Hebrew Bible: The Poetry of the Psalms as a Test Case, Bulletin for Biblical Research 22 (2012) 157–188

https://www.academia.edu/5915732/Toward_a_Theory_of_the_Poetry_of_the_Hebrew_Bible_The_Poetry_of_the_Psalms_as_a_Test_Case_Bulletin_for_Biblical_Research_22_2012_157_188 (accessed 2.21.18).

Werner, Eric. 1957 The Sacred Bridge. NEW York Columbia University press. 419, 466.

West, M.L., 1992. Ancient Greek Music. Oxford: Clarendon Press.

Westenholz, J.G., 2009. Historical Events and the Process of Their Transformation in

Akkadian Heroic Traditions, in: Literature, D.K., Director, K.A.R. (Eds.), Epic and History. Wiley-Blackwell, pp. 26–50.
<https://doi.org/10.1002/9781444315639.ch3>

Westenholz, J.G., Maurey, Y., Seroussi, E., 2014. Music in Antiquity: The Near East and the Mediterranean. Walter de Gruyter.

What Is Trope? | Reclaiming Judaism [WWW Document], n.d. URL
<http://www.reclaimingjudaism.org/teachings/what-trope> (accessed 2.28.18).

What's the difference between "modal music" and "tonal music"? - Music: Practice & Theory Stack Exchange [WWW Document], n.d. URL
<https://music.stackexchange.com/questions/6401/whats-the-difference-between-modal-music-and-tonal-music> (accessed 10.22.17).

White, Ellen G 1972. Music. Its role, qualities and influence as set forth in the writings of Ellen G. White. A Compiltion of materials assembled for the study of the 1972 Task Force on the Philosophy of Music. Ellen G. White estate. Silver Springs Maryland. URL <http://www.whiteestate.org/issues/music.html>

Whitescarver, Adam 2015. 'Prayer, Theology, Worship, and Song: An Insight on the Power of Psalms'. *Chattanooga House of Prayer*. Accessed 2 March 2017.
<http://www.chatthop.org/blog/2015/6/25/prayer-theology-worship-and-song-an-insight-on-the-power-of-psalms>.

Whitlock, Robin 2015. "5,000-year-old musical scene found on pottery in Israel may reflect sacred marriage ritual" at
<http://www.ancient-origins.net/news-history-archaeology/5000-year-old-musical-scene-found-pottery-israel-020416>

Who invented the bow and arrow? History of archery – Quatr.us Study Guides [WWW Document], n.d. URL <https://quatr.us/africa/invented-bow-arrow.htm> (accessed 2.25.18).

Who were the Philistines? New Archaeological Discovery [WWW Document], 2016a. . ONE FOR ISRAEL Ministry. URL <https://www.oneforisrael.org/bible-based-teaching-from-israel/philistines-archaeological-discovery/> (accessed 4.1.17).

Why Do Torah and Haftarah Have Different Trope? [WWW Document], n.d. URL https://www.chabad.org/library/article_cdo/aid/3923198/jewish/Why-Do-Torah-and-Haftarah-Have-Different-Trope.htm (accessed 2.28.18).

Wiener, Noah 2018. Can Abecedaries Be Used to Date the Book of Psalms? Bible History Daily. [WWW Document] URL <https://www.biblicalarchaeology.org/daily/biblical-artifacts/inscriptions/can-abecedaries-be-used-to-date-the-book-of-psalms/>

Wiersbe, W.W., 2004. Bible Exposition Commentary: Old Testament Wisdom and Poetry. David C Cook.

Winnington-Ingram, R.P 1956. The Pentatonic Tuning of the Greek Lyre: A Theory Examined. The Classical Quarterly vol 6 no 3/4 (Jul-Oct 1956) pp 169-186. URL http://www.jstor.org/stable/636909?read-now=1&loggedin=true&seq=1#page_scan_tab_contents

Woolley, C. L 1934. Ur Excavations, vol II, The Royal Cemetery, A report on the Predynastic and Sargonid graves excavated between 1926 and 1931. Contributed by the University of Massachusetts Amherst Libraries at http://www.flutopedia.comwww.flutopedia.com/refs/Woolley_1934_UrExcavations_Vol02_excerpt_FP.pdf