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History of the Ancient and Modern Hebrew Language

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Excursus 1

Phonemic Structure of Hebrew[1]

(part 2)

d. Vowel Phonemes

N.b. a convenient way to learn to hear and articulate vowel length is to listen carefully to: (a) recordings of a couple of spoken Arabic dialects; or, (b) recordings of Akkadian poetry.

d.1 Diachronic Development of the Biblical Hebrew Vowel System

Box 15 - Distinctive Features of Hebrew Vowels

"A distinctive feature ... is a phonetic property that distinguishes groups of sounds in a given language. And by applying these features to Hebrew, it should be possible to divide the Hebrew vowels into phonetic groups, or classes of sounds.

In ... (Hebrew) three features distinguish the vowels one from another. Two of these features reflect the position of the tongue. On a vertical axis, the degree to which the tongue is raised above or lowered below its neutral position characterizes vowel height.... When the tongue is raised, the vowel is high, when lowered it is low; the intermediate zone produces mid vowels.... On a horizontal axis, the presence of absence of lingual backward movement is also distinctive.... In retracted position, the vowel is back; without retraction, the phone is nonback....

The lips are responsible for the third distinctive vocalic feature. A sound produced by articulating the upper and lower lips (lip rounding) is labial. Without articulation, the sound is non-labial.... Thus, the articulation of lips, tongue height, and tongue retraction/non-retraction converge to differentiate Hebrew vowels one from another....

Quoted from Garr 1991 §2.0.

See -

- IPA Chart With Audio
- Height and Backness of the vowel Systems of Proto-Hebrew, Secunda Hebrew, Tiberian, Babylonian, and Palestinian Hebrew and Samaritan Hebrew

Table 15

Proto-Semitic to Tiberian Hebrew

Vowel Phonemes[2] with Probable and Possible Allophones

PS[3] */PS/ (c. 3000 BCE)		*PH (c. 1200 BCE)		EBHP */EBHP/* *[EBHP] (c. 850-550 BCE)		PTH */PTH/* *[PTH] (c. 400 CE)			TH /TH/* *[TH] (c. 850 CE)			
Short Vowel	***Long Vowel***	***Short Vowel***	***Long Vowel***	***Short Vowel***	***Long Vowel***	***Ultra-short Vowel***	***Short Vowel***	***Long Vowel***	***/TH/****	****Ultra-short Vowel***	****[TH]* Short Vowel**	****[TH]* Long Vowel**
/i/ [i̱] [ɪ̱] [e̱]	ī /iː/	/i/ [i̱] [ɪ] [e̱]	ī, î /iː/	/i/ [i̱] [ɪ̱]	ī̱, î̱ /iː/ [iː]	/ə̱/[4] [ĭ], [ă], [ĕ], [ŏ], [ŭ]	/i/ [i̱] [ɪ̱]	ī, î /iː/	/i/ *ḥîreq*	/ə/ [ĕ] [ɛ̆] [ĕ] [ĭ] [ŏ] [ŏ] [ŭ]	[i]	[iː]
			ē /eː/[5]	[e̱/ɛ̱]	ē̱ ê eː /eː/ [eː][ɛː]		/e/ [e̱] [ɛ]	ē, ê /eː/ [e̱ː][ɛː]	/e̱/ *Ṣērê*		[ɛ]	[eː]
/a/ [ɛ̱], [a̱] [e̱] [ɔ̱]? [o̱ ̱]?	ā /aː/ [aː], [eː]	/a/ [ɛ], [a] [e] [ɔ]? [o̱]?		/a/ [ɛ̱] [a̱] [e̱] [ɔ̱]? [o̱ ̱]?					/ɛ/[6] *Sĕgōl*			[ɛː]
			ā̱ /aː/? [aː] [eː]		â̱, ā̱?, aː /aː/ [aː], [eː]		/a/ [a] [e] [ɔ]? [o̱]?	/aː/ [aː] [eː]	/a/ *Pataḥ*		[e]	[eː]
									å, ɔ /ɔ̱/[7] *Qāmeṣ*		[ɔ]	[ɔː]
/u/ [o̱]? [o̱] [ʊ̱] [u̱]	ū̱ /uː/	/u/ [o̱]? [o] [ʊ] [u]	ō̱ /oː/	/u/ [o̱] [o] [ʊ̱] [u̱]	ō̱, ô̱, oː /oː/[8] [oː]		/o/ [o̱] [o]	ō, ô /oː/	/o̱/ *Ḥōleṃ*			[oː]
			ū̱ û̱ /uː/		ū̱, û̱ /uː/		/u/ [ʊ] [u]	ū, û /uː/	/u̱/ *Qibbuṣ-Šûreq*		[u]	[uː]
									Šwa and Ḥatef Vowels			

Note - probable allophones are unmarked; possible allophones are marked with "?"

Box 16 - Semitic Vowels and their Actualization

"Common Semitic or Proto-Semitic has three short vowels (§ 10.5): low/open back velar *a*, high/close front palatal *i*, and high/close back velar *u* with strongly rounded lips. It also possesses the three corresponding long vowels *ā, ī, ū*. Although additional vocalic phonemes have arisen in various Semitic languages, there are no sufficient grounds to suppose that other vowels belong to the original core of the Semitic phonemic system.... **However, the realization of the Semitic vowels *a, i, u* in actual speech can produce other vocalic sounds, mainly in the case of short vowels** (cf. §10.11). **There is a widespread tendency in Semitic to pronounce high and low vowels, especially when they are unstressed, as mid vowels [e], [ə], [o]....** Thus short [i] and [u] tend to become [ə], as in Ethiopic (§21.30), and the same can happen with [a].... Besides, **[i] can easily become [e] by lowering the tongue, [u] becomes then [o].** The lack of appropriate vocalic signs, especially for [ə] and [o], does often not allow determining the presence of these vowels in an accurate way, and "e" will then stand for [ə] and "u" for [o] (§21.3). On the other side, **a stressed short vowel tends to become long, and its articulation may at the same time be lowered (e.g. *i* > *ī* > *ē*) or raised (e.g. a > ā > ō)**[9]. **Some of these new vowels may acquire a phonemic status in a determined language."**

Quoted from Lipinski 1997 §21.1.

"The short vowels (in Colloquial Arabic) are found in an unsystermatizable multiplicity of qualities; many if not all of them were probably already present in Classical Arabic and only hidden by the orthography, which is limited to three sort vowels *a i u*. This limitation is legitimate to the extent that, as in fact seems also to be the case in the modern dialects, all that matters for the meaning of the word is whether the vowel belongs to the *a-, i-* or *u*-GROUP, while the gradation within the groups depends on accent, syllable structure, neighboring consonants. and also the vowels of adjacent syllables. [Note - Bergsträsser here applies the phonemic principle in the analysis of the minute phonetic detail recorded in his sources.] **The *a*-group stretches from *e* to *o*, thus bordering the *i*- and *u*- groups on the two sides, and has borderline cases in common, which must especially kept in mind in the *e* direction**. Even the opposition *i : u*, which for us is established by the contrary natures of the two vowels and in fact appears to be thoroughly realized in Classical Arabic, holds for the dialects only with qualifications: **in part they have a full-fledged scale of transitions from *i* to *u*, within which the exact placement of the vowel is influenced by accent, syllable structure, and phonetic environment**; **but in part they make the DISTINCTION BETWEEN *i* and *u* dependant on such features. Colloquial Arabic thus reflects the proto-Semitic situation in this regard rather accurately**, - Beyond fluctuations within the same quality group, switches from one group to another are common. The direction is usually from the *a*-group to the i/u-group "

Quoted from Bergstärsser 1928/83 p. 188-189.

"In numerous Lebanese dialects both vowel quality and quantity are affected by pause, ***i, u*, and *a* becoming**

Box 16 - Semitic Vowels and their Actualization

ē, ō* and *ā (or *á*); thus, e.g., in Bišmizzin, contextual *byínzil*, "he goes down", *byúktub* "he writes", *byíftaḥ* "he opens" appear in pause as *byínzēl*, *byúktōb*, *byíftāḥ*."

Quoted from Morag 1989 (p. 102)

In reconstructing the early Semitic and subsequent Hebrew vowel systems it is essential to keep in mind:

1. THE DISTINCTION AT EVERY STAGE BETWEEN THE PROBABLE PHONEMIC STRUCTURE OF THE VOWEL SYSTEM AND THE BUNDLE OF PHONES LIKELY TO HAVE MADE UP EACH PHONEME. IT IS PROBABLE THAT THE FULL NATURAL SCALE OF THE PRINCIPAL VOWEL QUALITIES[10] - *I, E, A, O, U* - WOULD HAVE BEEN HEARD IN THE SPEECH OF SEMITIC SPEAKERS THROUGHOUT THE CENTURIES though the specific qualities of these vowels is mostly unrecoverable and would, in any case, have varied with time, dialect etc.

2. that Proto-Semitic is thought to have had a similar vowel and stress system to that of Classical Arabic. The written vowel tradition of Classical Arabic recognizes 3 phonemic qualities of vowel each of which has 2 phonemic lengths- i/ī, a/ā, u/ū[11], However, early Greek transcriptions[12] of Arabic names show that Arabic of the period possessed the following vowels *i, e, ə, a, o, u.*

3. that ancient Semitic languages, and most modern Arabic dialects, phonemically distinguished between short and long vowels. The long vowels were usually quite distinct but the short vowels easily interchanged. To give an example from Egyptian Arabic[13], a language that parallels Ancient Hebrew in numerous ways, there are three short vowels *i, a, u* and 5 long vowels *ī, ē, ā, ō, ū* [14]. However, **the actualization of /a/ includes [a] and [ɔ]; that of /i/ includes [i] and [e]; that of /u/ includes [u] and [o]**. The allophone pronounced depends on such factors as: the nature of the surrounding consonants; whether the syllable is long or short, closed or open; stress; dialect; speed of speaking and even the sex of the speaker[15]. In Palestinian Arabic /u/ is pronounced [o] and /i/ [e] before the (non-geminated) final consonant of words[16]. Thus /ʾuktub/ is pronounced [ʔuktob] and /kātib/ is pronounced [kāteb]. It is interesting to note the similarity of result, regarding the final vowel, to the

qal imperfect יקטל (TH יִקְטֹ֫ל; EBHP /yiq'**tul**/ [yɪq'**tʊl**] or [yɪq'**to̞l**]), and *SC* כבד (TH כָּבֵד; EBHP /ka'**bid**/ [kɐ'**bɪd**] or [kɐ'**bɛd**]) and the qal active participle קטל (TH קֹטֵל; EBHP (constr.) [qo:'**tɪl**] or [qo:'**tɛl**]).

Unlike the living Arabic dialects, we can never recapture the rich reality of the sound of EBHP. A possible indication of the missing dimensions is given by Rice and Sa'id in their book *Eastern Arabic* (p. 5) -

> In addition to word stress, Arabic also has another system of prominence that works independently of stress. We call this *vowel prominence*. Like stress, it too is automatic. A long vowel has more sonority (amplitude, loudness) than a short vowel ....
>
> A short vowel immediately followed by a double consonant is more tense than a short vowel elsewhere.... This tenseness is preserved even when the double consonant is not followed immediately by a vowel...
>
> As a result of these three features of word stress, sonority, and tenseness, the acoustic impression of Arabic is quite different from that of English.

Table 16 - Long Vowels in EBHP by Origin				
	Irreducible Long Vowels			
Long Vowel	Primitive Long Vowel	Vowel Lengthened Through Contraction		Vowel Lengthened Through Stress
		Homogeneous Diphthong Contraction	Heterogeneous Diphthong Contraction	
[i:]	*ī*	***íwy*>*ú:y*>*íyy*>*î*** [í:] e.g e.g. */'**kiw**yu/ > */'**kûy**/ > */'**kiyy**/ > */'**kiy**/ > /'**kî**/ (TH כִּי) 'burning' ***íy* > *î*** [í:] e.g e.g. */'**yíy**bašu/ > */'**yî**bašu/ > /yî'**baš**/ (TH יִיבַשׁ) 'it will be dry'. Word-final **iy > *î*** e.g */'**kal**yu/ > */'**kaly**/ (/EBHP?/) > */'**kali**y/ (/EBHP?/) > */'**kal**î/ (/EBHP?/) (TH כְּלִי *[kə'li:] (contextual) or כֶּ֫לִי *['**kɛ:**li] (pausal) [17] 'tool' */'**yih**yay/ > */'**yihy**/ (/EBHP?/) > */'**yi**hiy/ (/EBHP?/) > */'**yih**î/ (/EBHP?/) > (TH /y'hi/) "may he be" ***úy* > *î*** e.g. /way'**yúy**śam/ >		

Table 16 - Long Vowels in EBHP by Origin				
	Irreducible Long Vowels			
		Vowel Lengthened Through Contraction		
		/way'**yî**śim/ (TH וַיָּשֶׂם) 'he put'.		
[eː]	TH מֵת - see next column.	**Word-final *áyu > ê*** [**éː**] e.g. */šamō'**na**yu/ (PH) → (/EBHP/⁺) */šạmō'**nê**/ > (TH) /šmō'**nê**/ **Word-final *íyu > ê*** [**éː**] e.g. */bā'**ni**yu/ → */bō'**nê**/ ('building' *qal* a.p. ms.) מת (TH מֵת) **'dead'** (adj.) - the origin of the long *eː* is unclear i.e. it might have been */'**mêt**/ or */'**mēt**/. In either case we should see מֵת the 3ms. *SC* as having a stress lengthened, and hence reducible, vowel i.e. */'**meːt**/. In transcriptions of EBHP I will use */'**mêt**/ ****qiʾl > * qêl > qʾêl***	**Unstressed diphthong contracts *ay > ê*** [eː] e.g. */bayt/ > /bêt/ (TH בַּיִת) 'house of-'	*/ka'**bi**du/ > */ka'**beːd**/ (TH כָּבֵד) 'heavy' (adj.)
[aː]	TH קָם - see next column.	Word-final ***áya >*** [**áː**] e.g. /ba'**na**ya/ (PH) > /ba'**nay**/ > /ba'**nâ**/ (/EBHP/⁺) קם (TH קָם) 'standing' (*qal* ms. ap.) as an example of the large class of *//-w* and *//-y* roots. The origin of the long *aː* is unclear i.e. it might have been */'**qâm**/ or */'**qām**/. In either case we should see קָם the 3ms. *SC* as having a stress lengthened, and hence reducible, vowel i.e. */'**qaːm**/. In transcriptions of EBHP I will use */'**qâm**/ for the participle and */'**qaːm**/ for the 3ms. *SC.*		*/'**ya**du/ > */'**yaːd**/ (TH יָד) 'hand'
[oː]	***ō (ō < ā)*** *e.g.* /'**qā**ṭilu/ (PNWS) → /qō'**ṭeːl**/ (/EBHP/⁺)	בוש (TH בּוֹשׁ) **'ashamed'** (adj.) - the origin of the long *oː* is unclear. */'**bôš**/ ***á'*** not immediately followed by a vowel	**Unstressed diphthong contracts *aw > ô*** [oː] e.g. */mawt/ > /môt/ (TH מוֹת) 'death of-'	*/ga'**du**lu/ > */ga'**doːl**/ (TH גָּדוֹל) 'big' (adj.)

Table 16 - Long Vowels in EBHP by Origin				
	Irreducible Long Vowels			
		Vowel Lengthened Through Contraction		
		shifts to ***â*** [**á:**] e.g /'**ra**'šu/ > /'**râ**šu/ → /'**rôš**/ (/EBHP/+) 'head'.		
[u:]	***ū***	***úw > û*** e.g. /'**h**<u>**ú**</u>**w**šabtima/ → /hûšab'**tim**/ e.g (TH הוֹשַׁבְתֶּם) 'you were made to dwell' ***íw > û*** e.g. /'**yíw**kalu/ > /'**yû**kalu/ → /yû'**kal**/ (TH יְכוֹל) 'he will be able'.		

4. that while there two phonological vowel lengths there often (always?) are at least 4 phonetic vowel lengths i.e.

- **short vowels are longer when stressed particularly in closed syllables. In addition word final short vowels, as often in Arabic[18], were probably shortened long vowels in quality rather than lengthened short vowels.** Thus for /i/, the short vowel within the word was likely pronounced as the laxer vowel [ɪ] while the short vowel at end of word as the tenser vowel [i]. Cf. to the parallel long vowel pronounced [i:].
- **long vowels e.g. /i:/ are longer when stressed [i:ˑ].**

In the history of Hebrew prior to the middle ages it seems to me that the appearance of new long phonemic vowels may have stimulated a reanalysis of the short vowels to parallel the long vowels[19].

Table 17 - Shifts in Proto-Semitic Vowels as Hebrew Developed

PS */PS/ (c. 3000 BCE)	*PH (c. 1200 BCE)	EBHP */EBHP/[20] *[EBHP][21] (c. 850-550 BCE)	PTH */PTH/* (c. 400 CE)	TH /TH/* *[TH] (c. 850 CE)	IH /IH/ [IH] (present)
/a/	/a/ - /ša'**la:**mu/ "peace"	/a/ - /ša'**lōm**/ [ʃɐ'**lo:m**]	/**a:**/ - /ša:'**lōm**/	/**å**/ - שָׁלוֹם /šå'**lom**/ [ʃɔ:'**lo:m**]	/a/ - /ša'**lom**/ [ʃɐ'**lom**]
	/a/ - /qa'**tal**at/ "she killed"	/**a:**/ - /qa'**tą̄**lâ/ [qɐ'**tɐ̨ɐ̨lɐ̨**˙]	/**a:**/ - /qa'**tal**a:/ **>** /qa:'**tal**a:/ **>** /qa:tə'**la:**/	/**å**/ - קָטְלָה /qåṭə'**lå**/ [qɔ:ṭə'**lɔ:**]	/a/ - /qaṭ'**la**/ [kɐt'**lɐ**]
	/a/ - /'**da**baru/	/a/ - /da'**ba:r**/ [dɐ'**ba:ɾ**]	/**a:**/ - /da:'**ba:r**/	/**å**/ - דָּבָר /då'**bår**/ [dɔ:'**vɔ:ɾ**]	/a/ - /da'**bar**/ [dɐ'**vɐɣ̞ɣ̞**]
	/a/ - /'**qa**talat/ "she killed"	/**a**/ - /qa'**tą̄**lâ/ [qɐ'**tɐ̨ɐ̨lɐ̨**˙]	/**ə**/ - /qa'**tal**â/ **>** /qa:'**tal**â/ **>** /qa:tə'**la:**/	/**ə**/ - קָטְלָה /qåṭə'**lå**/ [qɔ:ṭə'**lɔ:**]	/Ø/ - /qaṭ'**la**/ [kɐt'**lɐ**]
	/**a**/ - /'**kat**tataba/ *piel SC 3ms.*	/i/ - /kiṯ'**tib**/ [kɪt'**tɪb**]	/i/ - /kiṯ'**tẹb**/	/i/ - כִּתֵּב /kiṯ'**tẹb**/ [kiṯ'**tẹ:v**]	/i/ - /kiṯ'**teb**/ [kɪ'**tɛv**]
	/a/ - /'**kat**taba/ *piel perf. 3ms.*	/**i**/ - /kiṯ'**tib**/ [kɪt'**tɪb**]	/**e**/ - כִּתֵּב /kiṯ'**teb**/	/**ẹ**/ - כִּתֵּב /kiṯ'**tẹb**/ [kiṯ'**tẹ:v**]	/e/ - /kiṯ'**teb**/ [kɪ'**tɛv**]
	particle attached to the direct object	/a/ -/ˌʾat/ [ˌʔet]? [ˌʔɛt]?	/e/ - /ˌʾat/ > /ˌʾet/	/**ẹ**/ - אֵת /ˌʾẹt/ [ˌʔẹ:θ]	/ʾet/ [ɛt] or [t]
		/a/ - /ˌʾat/ [ˌʔet]? [ˌʔɛt]?	/e/ - /ʾat/ > /ʾet/	/ɛ/ - אֶת־ /ʾɛt/ [ˌʔɛθ]	
/a:/	/**a:**/ - /ša'**la:**mu/ "peace"	/**o:**/ - /ša'**lo:m**/ [ʃɐ'**lo:m**]	/**o:**/ - /ša:'**lōm**/	/**o:**/ שָׁלוֹם /šå'**lom**/ [ʃɔ:'**lo:m**]	a - /ša'**lom**/ [ʃɐ'**lom**]
	/**a:**/ - /'**ṭā**bu/ "good"	/**ō**/ - /'**ṭōb**/ ['**tob**]	/**ō**/ - /'**ṭōb**/	/**o**/ - /'**ṭob**/ טוֹב ['**ṭo:v**]	/o/ - /'**ṭob**/ ['**tov**]
/i/	/i/ - /ṣi'**rā**ru/ "bag"	/i/ - /ṣi'**rōr**/ [ṣɪ'**ro:ɾ**]	/ə/? /Ø/?- /ṣə'**rōr**/	/ə/ - צְרוֹר /ṣə'**ror**/ [ṣə'**ro:ɾ**]	/Ø/ - /ṣ∅'**ror**/ [ts'**ɸɐɸɐ**ɣ̞]
	/**i**/ - /'**sip**rahu/ "his book"	/i/ - /sip'**ra**hu/ **>** /sip'**rô**/ [sɪp'**ro:**]	/i/ - /siṗ'**rô**/	/i/ - סִפְרוֹ /siṗ'**ro**/ [sif'**ɸɐ̨ɐ̨**þ	/i/ - /siṗ'**ro**/ [sif'**ɸɐ̨ɐ̨**þ

Table 17 - Shifts in Proto-Semitic Vowels as Hebrew Developed

PS */PS/ (c. 3000 BCE)	*PH (c. 1200 BCE)	EBHP */EBHP/[20] *[EBHP][21] (c. 850-550 BCE)	PTH */PTH/+ (c. 400 CE)	TH /TH/+ *[TH] (c. 850 CE)	IH /IH/ [IH] (present)
	/i/ - /**i**/ /qit'**til**/ *adjectives of infirmities*	/i/ - /**i**/ - /ʾil'**leːm**/ [ʔɪl'**lẹːm**] "deaf"	/i/ - /**e**/ - /ʾil'**leːm**/	i - **ẹ** - אִלֵּם /ʾil'**lẹm**/ [ʔil'**lẹːm**]	/i/ - /**e**/ - /ʾi'**lem**/ [i'**lɛm**]
		/ᶜiw'**weːr**/ [ᶜɪw'**wẹːr**] "blind"	/ᶜiw'**weːr**/	עִוֵּר /ᶜiw'**wẹr**/ [ᶜiw'**wẹːr**]	/ᶜi'**ver**/ [i'**vɛʁ̞**]
	/i/ - /ʾ**ā**siru/ *qal a.p.* "one who ties"	/**i**/ - /ʾō'**seːr**/ [ʾoː'**sẹːr**]	/**e**/ - /ʾō'**seːr**/	/**ẹ**/ - אֹסֵר /ʾo'**sẹr**/ [ʾoː'**sẹːr**]	/**e**/ - /ʾo'**ser**/ [o'**sɛʁ̞**]
	/**i**/ - /ʾ**i**lu/ "god"	/**i**/ - /ʾ**eːl**/ [ʔ**ẹːl**]	/**e**/ - /ʾ**eːl**/	/**ẹ**/ - אֵל /ʾ**ẹl**/ [ʔ**ẹːl**]	/**e**/ - /ʾ**el**/ [ʾ**ɛl**]
/**ī**/	/**iː**/ - /ʾa'**sīr**u/ "prisoner"	/**iː**/ - /ʾa'**siːr**/ [ʾɐ'**siːr**]	/**iː**/ - /ʾaː'**siːr**/	/**i**/ - אָסִיר /ʾå'**sir**/ [ʾɔː'**siːr**]	/**i**/ - /ʾa'**sir**/ [ɐ'**siʁ̞**]
	/**ī**/ - /'**mī**nu/ "kind, variety"	/**ī**/ - /'**mīn**/ ['**miːn**]	/**ī**/ - /'**mīn**/	/**i**/ - מִין /'**min**/ ['**miːn**]	/**i**/ - /'**min**/ ['**min**]
/**u**/	/**u**/ - /'**dub**bara/ "it was said"	/u/ - /dub'**bar**/ [dʊb'**bɐr**]	/u/ - /dub'**bar**/	/u/ - דֻּבַּר /dub'**bar**/ [dub'**bɐr**]	/u/ - /du'**bar**/ [dʊ'**bɐʁ̞**]
	/**u**/ - /'**ru**ḥābu/ > /ru'**ḥō**bu/ "plaza inside city gate"	/u/ - /rʊ'**ḥoːb**/ [rʊ'**ħoːb**]	/ə/? /Ø/? - /rə'**ḥō**b/	ə - רְחוֹב /rə'**ḥo**b/ [rə'**ħoːv**]	/ə/ - /rə'**ḥo**b/ [ʁ̞ə'**χov**]
	/**u**/ - /'**gud**lahu/ "his greatness"	/u/ - /gud'**la**hu/ > /gud'**lô**/ [gọd'**loː**]	/o/ - /gud'**lô**/	/ɔ/ - גֻּדְלוֹ /gọd'**lo**/ [gɔð'**loː**]	/**o**/- /god'**lo**/ [god'**lo**]
	/u/ - /'**ya**qum/ "let him stand"	/u/ - /'**ya**qum/ ['**ye**qʊm]? ['**ye**qọ ɱ]?	/**u**/ - /yaː'**qum**/	/**o**/- יָקֹם /yå'**qom**/ *[yɔː'**qoːm**]	/**o**/ - /ya'**qom**/ [yɐ'**kom**]
	/u/ - /**way'ya**qum/ "he stood"	/u/ - /**way'ya**qum/ [wɐy'**ye**qʊm]? [wɐy'**ye**qọ ɱ]?	/u/ - /way'**ya**ːqum/	/**ɔ**/ - /way'**yå**qọm/ *[way'**yɔ**ːqɔm]	/wa'**ya**qom/ [vɐ'**yɐ**kom] or /wa'**ya**qam/ [vɐyɐ'**kɐm**]

Table 17 - Shifts in Proto-Semitic Vowels as Hebrew Developed					
PS */PS/ (c. 3000 BCE)	***PH** (c. 1200 BCE)	**EBHP** */EBHP/[20] *[EBHP][21] (c. 850-550 BCE)	**PTH** */PTH/* (c. 400 CE)	**TH** /TH/* *[TH] (c. 850 CE)	**IH** /IH/ [IH] (present)
/ū/	/ū/ - /ya'qūmu/ "he will stand"	/u:/ - /ya'qūm/ [yɐ'qu:m]	/u:/ - /ya:'qūm/	/u/ - יָקוּם /yå'qum/ *[yɔ:'qu:m]	/u/ - /ya'qum/ [yɐ'kum]
	/u:/ - /'ṭūbu/ "goodness"	/u:/ - /'ṭūb/ ['ṭu:b]	/u:/ - /'ṭūb/	/u/ - טוּב /'ṭub/ ['ṭu:v]	/u/ - /'ṭub/ ['tuv]
/aw/[22]	/aw/ - /'mawtu/ "death"	/aw/ - /'mawt/ ['mɐwt]	/awe/ -- /'ma:weṭ/	/åwɛ/ - מָוֶת /'måwɛṭ/ ['mɔ:wɛθ]	/awe/ - /'mawet/ ['mɐvɛt]
	/aw/ - /mawt/ "death of"	/aw/ - /ˌmawt/ [ˌmɐwt]/[ˌmọ ẉt	/ô/ - /ˌmôt/	/o/ - מוֹת /ˌmoṭ/ [ˌmo:θ]	/o/ - /ˌmot/ [mot]
/ay/	/ay/ - /'baytu/ "house"	/ay/ - /'bayt/ ['bɐyt]	/ayi/ - /'bayiṭ/	/ayi/ - בַּיִת /'bayiṭ/ ['bɐ:yiθ]	/ayi/ - /'bayit/ ['bɐyɪt]
	/ay/ - /bayt/ "house of"	/ay/ - /ˌbayt/ [ˌbɐyt]/[ˌbɛyt]	/ệ/ - /ˌbệṭ/	/ẹ/ - בֵּית /ˌbeṭ/ [ˌbẹ:θ]	/e/ - /ˌbet/ [bɛt]

Table 18 - Vowel Length Minimal Pairs in EBHP and their Transformation in Later Hebrew				
Consonantal Phonemes	**EBHP** */EBHP/* [23] *[EBHP] (c. 850-550 BCE)	**PTH** */PTH/* (c. 400 CE)	**TH** /TH/* *[TH] (c. 850 CE)	**IH** [IH] = [BHIH] (Present)
/a/ - /ā/	גלה /ga'lâ/ [gɐ'lɐ:] "he went into exile". *Qal 3ms. SC* of √GLH)	/ga:'la:/	גָּלָה /gå'lå/ [gɔ:'lɔ:]	[gɐ'lɐ]
	גלה /gā'lâ/ [ga:'lɐ:] "she rejoices" *Qal participle fs. SC of* √GYL	/ga:'la:/	גָּלָה /gå'lå/ [gɔ:'lɔ:]	

/u/ - /ū/	תמת /'**ta**mut/ ['**te**mʊt]? ['**te**mo̯]? "may she die" *Jussive*) **תמות** /ta'**mūt**/ [tɐ'**mu:t**] "she will die" Indicative	/ta:'**mo̯t**/ /ta:'**mu:t̲**/	תְּמ֫ת /tå'**mo̯t**/ [tɔ:'**mo:θ**] *Nu. 23:10* תְּמוּת /tå'**mut̲**/ [tɔ:'**mu:θ**] *Ex. 7:18*	[tɐ'**mot**] [tɐ'**mut**]
/i/ - /ī/	מן /min/ [mɪn-] "from"	/min/	מִן־ /min/ [min-]	[min]
	מין /ˌmīn/ [ˌmi:n] "kind of, type of"	/ˌmi:n/	מִין /ˌmin/ [ˌmi:n]	[ˌmin]
	בן /'**be:n**/ ['**bẹ:n**] "son" *absolute stressed form*	/'**bẹ:n**/	בֶּן /'**bẹn**/ ['**bẹ:n**]	['**bɛn**]
	בן /bin/ [bɪn-]? [bɛn-]?[1] "son of-"	/bɛn/ constr. unstressed form)	בֶּן־ /bɛn/ [bɛn-]	[bɛn-]
	בין /**bīn**/ ['**bi:n**] "understanding" *Qal* inf. constr.	/'**bīn**/	בִּין /'**bin**/ ['**bi:n**]	['**bin**]
/ī/ - /ay/	סוסי /sū'**si:**/ [su:'**si:**] "my horse" סוסי /sū'**say**/ [su:'**sɐy**] "my horses"	/sū'**si:**/ /sū'**say**/	סוּסִי /su'**si**/ [su:'**si:**] סוּסַי /su'**say**/ [su:'**sɐy**]	[su'**si**] [su'**sɐy**]
/a:/ - /aw/	**שר** /'**šār**/ ['**ʃa:ɾ**] 'he sang' **שור** /'**šawr**/ ['**ʃɑ̯ʊ̯ɾ**] 'ox'	/'**ša:r**/ /'**šôr**/	שָׁר֫/'**šår**/ ['**ʃɔ:ɾ**] שׁוֹר /'**šor**/ ['**ʃo:ɾ**]	['**ʃɐɸ̞**] ['**ʃoɸ̞**]

[1] Choice of [bɪn-] or [bɛn-] will follow the form in the MT for the specific text.

Table 19

Vowel Phonemes Minimal Pairs */EBHP/

(c. 700-600 BCE)

a	aː	i	iː	u	uː	oː	eː	ay/aːy	aw/aːw
a	/gā'**lâ**/: /ga'**lâ**/[24]	/ˌʾil/: /ʾal/[25]	/qa'**ṣar**/: /qa'**ṣīr**/[26]	/qaʿ**tal**/: /quʿ**tal**/[27]	/ˌᶜūl/: /ᶜal/[28]	/ˌʾab/: /ˌʾōb/[29]			
	aː	/ˌbin/: /ˌbān/[30]	/sū'**sâ**/: /sū'**sī**/[31]	/ˌtār/: /ˌtur/[32]	/qa'**tal**â/: /qa'**tal**ū/[33]	/sū'**sâ**/: /sū'**sō**/[34]		/sū'**sâ**/: /sū'say/[35]	/sū'**sâ**/: /sū'**sâw**/[36]
		i	/ˌbin/: /ˌbīn/[37]			/*ka'**bōd**/: /ka'**bid**/[38]			
			iː		/'**qū**mī/: /'**qū**mū/[39]	/sū'**sī**/: /sū'**sō**/[40]	/yir'**ṣê**/: /yir'**ṣū**/[41]	/sū'**siː**/: /sū'**say**/[42]	/sū'**sī**/: /sū'**sāw**/[43]
				u	*/mu'**tī**/: /mū'**tī**/[44]	/ya'**kōl**/: /ya'**kul**/[45]			
					uː	/'**qōm**/: /'**qūm**/[46]	/ra'**ṣê**/: /ra'**ṣū**/[47]		
						oː	/ra'**ṣō**/: /ra'**ṣê**/[48]	/sū'**sô**/: /sū'**say**/[49]	/sū'**sô**/: /sū'**sâw**/[50]
							eː		
								ay/aːy	
									aw/aːw

Box 17 - Distinctive Features of TH Vowels

The .. (TH) vowel system is primarily quality-sensitive, arranged in a four-tier structure of vowel height. The upper three tiers contain pairs of vowels, internally differentiated by backness and labiality. On the lowest tier lies the nonlabial, back [ɑ].

i u

e o

ɛ ɔ

ɑ

Each vowel sign represents a unique vowel quality.

This system also accommodates vowel length. Yet since length is not intrinsic to any one vowel, this feature

Box 17 - Distinctive Features of TH Vowels

must be uncovered by grammatical investigation. Whereas vowel quality is overt in ... (TH), vowel quantity is covert (GKB §10d).

Quoted from Garr 1991 §10.

See -

- IPA Chart With Audio
- Height and Backness of the vowel Systems of Proto-Hebrew, Secunda Hebrew, Tiberian, Babylonian, and Palestinian Hebrew and Samaritan Hebrew

Table 20

Vowel System Tiberian Hebrew (TH)[51]

1. Full Vowels

(See *Were there Long and short vowels in TH and, if so, were they Phonemic?*)

Tiberian Vowel Sign	Traditional Name	/TH/+ (vowel chart)	*[TH][52]	
			Short Vowel	*Stressed and Open[53] Unstressed Syllables*
בָ	*Qāmeṣ gādôl*[54]	å (IPA [ɔ])		å: (IPA [ɔ:])
כָּל־	*Qāmeṣ ḥāṭûp̄/ qāmeṣ qāṭān*	ǫ (IPA [ɔ])	ǫ (IPA [ɔ])	
בַ	*Pataḥ*	a (IPA [a])	a (IPA [ɐ])	a:/ā/â (IPA [ɐ:])
בֶ	*Sĕgōl*	ɛ (IPA [ɛ])	ɛ (IPA [ɛ])	
בֶי, בֶה, בֶא	*Sĕgōl mālê*			ɛ:/ɛ̂/ɛ̄ (IPA [ɛ:])
בֵ	*Ṣērê*	ę (IPA [e])		ę:/ē/ê (IPA [e:])
בֵי, בֵה, בֵא	*Ṣērê* mālê			
בִ	*Ḥîreq*	i (IPA [i])	i (IPA [i])	
בִי	*Ḥîreq mālê*			i:/ī /î (IPA [i:]).
בֹ	*Ḥōlem*	o (IPA [o])		o:/ō/ô (IPA [o:])
בוֹ	*Ḥōlem* mālê			
בֻ	*Qibbuṣ*	u (IPA [u])	u (IPA [u])	
בוּ	*Šûreq*			u:/ū/û (IPA [u:])

2. *Šwa* and *Ḥaṭeṗ* or *Ḥaṭaf* Vowels

(See *What are the Šwa and Ḥatef Vowels and How were they Pronounced?*)

Tiberian Vowel Sign	Traditional Name	/TH/+	*[TH]
בְּ	*Mobile* or *Vocal Šwa*	ə	ə
בְּ	*Silent* or *Quiescent Šwa*	∅	∅
בֲ	*Ḥaṭeṗ-pataḥ*	ă	ă
בֱ	*Ḥaṭeṗ-sĕgōl*	ĕĕ	ĕĕ
בֳ	*Ḥaṭeṗ-qāmeṣ*	ŏŏ	ŏŏ

Table 21 - Tiberian Vowels of the Same Quality often Have Diverse Origins

*/PH/ (c. 1200 BCE)	EBHP */EBHP/+ *[EBHP] (c. 850-550 BCE)	PTH */PTH/+ (c. 400 CE)	TH /TH/+ *[TH] (c. 850 CE)	BH_{IH} [BH_{IH}] = [IH] (present)
/baytu/ > /bayt/	/ˌbayt/ 'house of' [ˌbayt]/[ˌbɛyt] [EBH_{ISR}] [ˌbêt]	/ˌbêṯ/	בַּיִת /ˌbeṯ/ [ˌbeːṯ]	[ˌbɛt]
/ʾilu/	/ʾeːl/ [ʾʔeːl] "god"	/ʾeːl/	אֵל /ʾel/ [ʾʔeːl]	[ʾɛl]
/qitʾtilu/	/qitʾteːl/ *(adjectives of infirmities)* e.g.			
/ʾilʾlimu/	/ʾilʾleːm/ [ʔɪlʾleːm] "deaf"	/ʾilʾleːm/	אִלֵּם /ʾilʾlem/ [ʔilʾleːm]	[iʾlɛm]
/ʿiwʾwiru/	/ʿiwʾweːr/ [ʿɪwʾweːr] "blind"	/ʿiwʾweːr/	עִוֵּר /ʿiwʾwer/ [ʿiwʾweːr]	[iʾvɛʁ]
	/ˌʾat/ [ˌʔet]? [ˌʔɛt]? *(marker of direct)* object	/ʾeṯ/	אֵת /ʾeṯ/ [ʾeːθ]	[ɛt]
/mawt/	/ˌmawt/ [ˌmɛwt]?	/ˌmôṯ/	מוֹת /ˌmoṯ/ [ˌmoːθ]	[ˌmot]

Table 21 - Tiberian Vowels of the Same Quality often Have Diverse Origins				
***/PH/** (c. 1200 BCE)	**EBHP** */EBHP/+ *[EBHP] (c. 850-550 BCE)	**PTH** */PTH/+ (c. 400 CE)	**TH** /TH/+ *[TH] (c. 850 CE)	**BH$_{IH}$** [BH$_{IH}$] = [IH] (present)
	[ˌmọ ˌw]? "death of"			
/ga'**dā**lu/[55]	/ga'**dōl**/ [gɐ'**do:l**] *(qal inf. abs..)* 'becoming great'	/ga:'**dōl**/	גָּדוֹל[56] /gå'**dol**/ [gɔ:'**ðo:l**]	[ga'**dol**]
/'**ga**dulu/	/ga'**do:l**/ [gɐ'**do:l**] *(adj.)* "great"	/ga:'**do:l**/	גָּדוֹל /gå'**dol**/ [gɔ:'**ðo:l**]	[ga'**dol**]

Box 18

Vowel System Modern Israeli Hebrew (IH)[57]

"The five vowels are close to cardinal vowels in pronunciation: *i, e, a, o, u*. There is no phonetic contrast between long and short (or tense verses lax) vowels in Modern Hebrew.... There are three diphthongs, *uy*, *oy*, *ay* created by a nonfront vowel followed by a front offglide, only in word-final position, e.g. *kanuy* 'bought', *goy* 'gentile', *elay* 'to me'.

Quoted from *Modern Hebrew* by Ruth A. Berman in Hetzron 1997.

Though it would more accurate to transcribe /IH/ /a/ as [e] etc. the exact pronunciation of [IH] is not germane to our topic and would add needless complications. Thus I will generally use the following, admittedly imprecise, [IH] transcriptions of vowels - [i, ɛ, a, o, u].

We can assume that IH vowels are longer than the short vowels of Ancient Hebrew but much shorter than Ancient Hebrew's long vowels.

d.2 Conventional Scholarly Transcription of the TH Vowel System (THcsT)

As Joüon-Muraoka 1991[58] correctly observes there are a "... bewilderingly large number of transliteration methods...." However, generally the transcription systems used in biblical scholarship follow -

(t)he accepted rules of Hebrew grammar, including the current Sephardic pronunciation ... (as) laid down in medieval Spain by grammarians such as Judah ben David Hayyuj and Jonah ibn Janah. By then the Tiberian notation was universally used, though it was not always reflected in pronunciation. The Spanish grammarians accepted the rules laid down by the Tiberian Masoretes, with the following variations.

1. The traditional Sephardic pronunciation of the vowels (inherited, as it seems, from the old Palestinian system) was perpetuated. **Their failure to fit the Tiberian notation was rationalized by the theory that the distinctions between Tiberian symbols represented differences of length rather than quality: thus *patach* was short *a*, *qamatz* was long *a*, *segol* was short *e* and *tzere* was long *e*.**
2. The theory of long and short vowels was also used to adapt Hebrew to the rules of Arabic poetic metre. For example, in Arabic (and Persian) poetry, when a long vowel occurs in a closed syllable an extra (short) syllable is treated as present for metrical purposes, though not represented in pronunciation. Similarly in Sephardic Hebrew a *sheva* following a syllable with a long vowel is invariably treated as vocal. (In Tiberian Hebrew this is only true when the long vowel is marked with *meteg*.).[59]

A widely used standard in this tradition is The Society of Biblical Literature (SBL) *Academic Translation Style* (THSBL)[60]. Under this system the following transliterations are prescribed -

Table 22 - THSBL Transcription of TH Vowel System

Tiberian Vowel Sign	Name	SBL Academic Translation Style[61]		
		Half-Vowel	*Short Vowel*	*Long Vowel*
***i* vowels**				
בִ	short *ḥîreq*		i	
בִ	long *ḥîreq*			ī
בִי	*ḥîreq yôd*			Î[62] (ִי = Îy)
***e* vowels**				
בְ בֱ בֲ	*ḥatep sĕgōl/vocal šĕwāʾ*	ĕ		
בֶ	*sĕgōl*		e	
בֶי	*sĕgōl yôd*			ê (ֶי = êy)
בֵ	*ṣērê*			ē
בֵי	*ṣērê yôd*			ê (ֵי = êy)

Table 22 - TH_{SBL} Transcription of TH Vowel System				
Tiberian Vowel Sign	Name	SBL Academic Translation Style[61]		
		Half-Vowel	*Short Vowel*	*Long Vowel*
***a* vowels**				
בָּ	*ḥatep pataḥ*	ă		
בַ	*pataḥ*		a	
בַח, בַע	*furtive pataḥ*		a	
בָ	*qāmeṣ gādôl*			ā
בָה	final *qāmeṣ hê*			â
בָיו	3d ms. suffix			āyw
***o* vowels**				
בָּ	*ḥatep qāmeṣ*	ŏ ŏ		
כָּל־	*qāmeṣ ḥāṭûp/ qāmeṣ qāṭān*		o	
בֹ	*ḥōlem*			ō
בוֹ	full *ḥōlem*			ô
***u* vowels**				
בֻ	short *qibbuṣ*		u	
בֻ	long *qibbuṣ*			ū
בוּ	*šûreq*			û

There are plusses and minuses inherent in the use of the SPL, or similar TH_{CST}, system. The following examples are based on illustrations using the SPL notation for TH_{CST} -

Advantages:

1. It is claimed to be "...fully reversible: that is, **the system allows the reader to reproduce the Hebrew characters exactly** (consonants and vowels). However this is only true if the scholar is fully conversant with the detailed grammatical rules and eccentricities of TH. For example:

   - whereas *dāgēš forte* is indicated by doubling the consonant, a euphonic *dāgēš*[63] is not doubled in the SBL system;

- both *sĕgōl yôd* and *ṣērê yôd* are transliterated as *êy*.

2. It highlights the fact that **vowel length was phonologically distinct, and audibly important** in Ancient Hebrew **as it is in most forms of Arabic.** This is even more important if scholars actually pronounce, and hear in their mind, long vowels pronounced with at least twice the duration of short vowels (i.e. do not use modern Hebrew pronunciations which ignore historic vowel length). However, t**he distribution of long and short vowels produced mostly reflect the reconstructed reality of /PTH/+ which was systemically different from the /EBHP/ system of over a millennium earlier and the /TH/+ system of half a millennium later.**

3. It provides a, more or less**, common code for scholars**.

Disadvantages:

1. As a proxy for *EBH:*

- **The long vowels of *TH*$_{CST}$ include many vowels lengthened after the extinction of Hebrew as a spoken language**. Put another way, many vowels which are long in TH$_{CST}$ were short in EBH and LBH e.g. 'word' /EBH/ **d*a'**ba:r**/; TH דָּבָר; *TH*$_{CST}$ *dābār;*
- **Many short vowels in EBH and LBH have been reduced to ultra short vowels in *TH*$_{CST}$** e.g. 'word of' /EBH/ **d*ăbar/**;** *TH* דָּבָר**;** *TH*$_{CST}$ *dĕbar;*
- **It most closely resembles my Proto-Tiberian Hebrew but does not represent what the Masoretes encoded in their graphemes** (my /TH/+) **and what the Masoretes almost certainly pronounced** (my /TH/).

  > "The Masoretic pointing distinguishes seven vowel qualities*: a, ɔ, o, u, ɛ, e, i,* as well as *šĕwāʾ (ə)*. Vowel length is not indicated explicitly. The assumption that vocalic length is part of the phonology although it is not distinguished graphically allows us to explain, for example, the conditions under which certain vowels (presumably short) reduce or elide when other vowels (presumably long) do not[64]. Students of Hebrew are misled by typical systems of transliteration such as those of the Society of Biblical Literature and various individuals[65], which employ phonological symbols such as the macron (which is meant to indicate vowel length) to represent graphemic distinctions (such as vowel quality). It would appear from such transcriptions that Masoretic *qāmeṣ*, transliterated *ā,* is simply a long *pataḥ,* and that *ṣērê*, transliterated *ē,* is a long *sĕgōl.* The usual corollary is that both *pataḥ* and *sĕgōl* are always short and that both *qāmeṣ gādôl* and *ṣērê* are always long.
  >
  > From a pholological point of view the system of only five vowels (excluding *šĕwāʾ*), in which *ṣērê* is a long *sĕgōl,* etc., makes little sense. Why would the Masoretes employ a single symbol to render both *qāmeṣ qāṭān* - the realization of closed /o/- and a long *ā* ? It is much morel likely that the same symbol represents both short and long *qāmeṣ*, *ɔ* and *ɔ:*[66]. Moreover, it stands to reason phonologically that *pataḥ* can be, and is, long in the initial open syllable of forms like *la:do:nɔ:y* 'to my lord'. Concerning *ṣērê*, there is no reason that it should always be long..... (I)t is

surely unreasonable to analyze the open accented *sĕgōl* at the end of the unbound (absolute) form *yɔ:'fɛ:* 'fair' as short but the *ṣērê* with only a secondary accent in the construct counterpart *yə'fe* as long! The graphemic system should, it would seem, be interpreted in such a way that the phonology makes sense."[67]

Some examples of the misleading readings inherent in the SBL system are:

- ***Non-Tiberian vowels*** - TH דָּבָר /TH/+ /då'**bå**r/ [TH] *[dɔ:'**vɔ:**r] is transliterated under the SBL system as *dābār.*

- ***begadkepat*** **spirantization - this is only indicated when it is important to the discussion.** See the preceding example.

- ***quiescent 'ālep is always transliterated by '*** **-** three examples of the implications of this rule:

  לֹא **'no' is transcribed *lō'* even though it was almost certainly pronounced [lo:] - i.e. no glottal stop - throughout the history of Ancient Hebrew;**

  רֹאשׁ **is transcribed *rō'š* although the spelling is historical as the glottal stop ['] disappeared prior to the Canaanite shift i.e. in the first half of the second millennium BCE.**

  מְצָא **is transcribed *māṣā'* although this pronunciation never existed in the history of the language. The actual historical development of the word was probably -** /PH/ *'ma'**ṣa**ʾa/ > /EBH/ *'ma'**ṣa**ʾ/ > /LBH/ *'ma'**ṣâ**/ > /TH/+ /må'**ṣå**/ [TH] *[mɔ:'**ṣɔ:**]

2. The accents marking, both syntactical relations between words and stress are an integral part of the MT. However under the SPL transcription they are not marked unless it is relevant to the point under discussion. N.b. stress is phonological in TH.

3. It does not represent any scientifically reconstructed pronunciation of Ancient Hebrew while it was a spoken language;

4. It does not represent any traditional pronunciation of Hebrew which has survived to the present as these do not distinguish between long and short vowels.

5. The transliteration, aiming primarily at representing Tiberian graphemes, has **multiple signs for long vowels synchronically identical** in pronunciation (e.g. â and ā both representing [a:]). These symbols are frequently unrelated to the (diachronic) origin of the sound (*c.f.* my own notation).

It is clear to me that:

- **For the study of biblical literature we should try to recapture what I have termed EBHP. Although there are many unknowns, using a balance of probability approach, we can come much closer than TH_{CST}.**
- **TH_{CST} is not a suitable transliteration system for the study of the history of the Hebrew language as it does not distinguish the original quality of reduced short vowels and the origin of long vowels (primitive long, lengthened to contraction and assimilation, and lengthened due to stress).**
- **TH_{CST} is not a suitable transliteration system for the study of the Tiberian vocal system since it does not represent what the Masoretes encoded in their graphemes.**

e. Ancient Hebrew Orthography[68] Provides Some, But Not Much, Guidance Regarding the Placement, and Nature of Vowels

N.b. – Epigraphic Hebrew from the first Temple Period is of great importance as there can be no suspicion that later linguistic changes or writing conventions have influenced the spelling.
http://www.adath-shalom.ca/history_of_hebrew2a.htm - vow_qual
Biblical Skeleton, Changing Script and Orthography, Medieval Vowel Signs, Modern Pronunciation
http://www.houseofdavid.ca/anc_heb_12.htm - Skeleton

Note - *When was Word-final hē' Consonantal in EBHP?*

Box 19

Diphthongs

"**Diphthongs are complex sounds which change timbre during their emission as a speaker glides from the position of one vowel to that of another in the same syllable** …. **They may he experienced auricularly either as two vowels**. e.g., English house [au], fine [ai], **or as a vowel followed by a glide or semivowel** e.g., English house [aw], fine [ay]. Bange 1971 suggests that in the first linguistic and orthographic period, diphthongs were experienced only as two vowels and were not, therefore, indicated in the orthography which was purely consonantal. In the second period, they were experienced as a vowel followed by a glide, an indefinite sound uttered as the speech organs passed from the articulatory position of the first vowel to that of the second, which

was not felt to be vocalic, and was therefore indicated in the orthography. Bange refers to these indefinite sounds as semiconsonants and to their orthographic representation as "off-glides"…. In the last stage diphthongs were contracted into monophthongs, but the orthography of the preceding period was maintained, despite the fact that the off-glides no longer indicated semiconsonants. They came to be viewed as m.l. and were then extended to indicate vowels even in positions which had never had diphthongs…. The expression " contraction of diphthongs," which is convenient and will he utilized in this study, refers to the phonetic process of vocalic assimilation. In the case of the diphthong [au] or [aw], the low throat vowel [a] assimilates to the high back vowel [u] resulting in the mid- back vowel [o]: in the case of [ai] or [ay], the low front vowel [a] assimilates to the high front vowel [i], resulting in the mid front vowel [e]." Zevit 1980, p. 7

Box 20 - Origin of *Matres Lectionis* (Vowel Letters)

In Ugaritic, the pronominal suffix of 1s., *ī,* is sometimes indicated by *yod*[69] in the orthography …. The Ugaritic data are relevant to the following discussions of 1st-millennium orthography insofar as they demonstrate that an idea of m.l. was current in the Canaanite cultural milieu prior to the end of the 2nd millennium. There is not enough evidence to support a definitive statement concerning the influence of this development in Ugaritic cuneiform on the chronologically later linear alphabets. Despite this, the reduced Ugaritic alphabet, approximating the Hebrew-Phoenician phonemic inventory, mirror written from right to left like Hebrew, Phoenician, and Aramaic, may have been a mediating influence. P3

Underlying the emergence of any system of m.l. is the awareness that graphemes may be assigned more than one value, i.e., that they may be polyphonous. **Both the Ugaritic and Phoenician alphabets were originally basically phonemic, each grapheme corresponding to a single consonantal phoneme. Conservative orthographic practices which did not keep pace with certain sound changes gave rise to situations in which graphemes assumed more than one value. In both Ugaritic and Phoenician, scribes employing this insight experimented with using such graphemes as vocalic phonemes in positions where there could be no danger of mistaking them for consonants, e.g., a final vowel. Where historical circumstances did not give rise to enough suitable polyphonous graphemes, scribes could invent new ones, as in the case of the three 'alep signs in Ugaritic, *a, i, u*, or they could assign a second value to a given grapheme in certain positions within a word. The employment of *'alep* signs in Ugaritic and of he in Ugaritic and Phoenician as m.l. may be due to such an arbitrarily established scribal convention. P4**

Like their Aramean neighbors to the northeast, the Hebrews employed the principle of polyphony when they adopted a Phoenician or Phoenician-type alphabet to their language by the 12th-11th centuries. **The grapheme *šin* designated the phonemes ś and š, and in all likelihood, *ḥet* designated both ḥ and ḫ and *ᶜayin***

Box 20 - Origin of *Matres Lectionis* (Vowel Letters)

both ᶜ and ġ p5

Whether or not the Gezer calendar of the 10th century B.C.E., the oldest comprehensible Hebrew inscription, contains a m.l. remains disputed (Gibson 1971: 1-4). **Discussion centers on the status of the final *waw* in *yrḥw*, which occurs four times. Following Albright (1943: 22-24: 1944: 209-11), Cross and Freedman (EHO59 [70]: 57) argue that the waw is consonantal, representing a 3 m.s. suffix attached to a dual noun, and is to he pronounced *ēw*, that the orthography of the calendar is completely defective, and that it is representative of Hebrew scribal practices through the 10th century. Other interpretations, however, are possible. It could he taken as an archaic nominative dual construct *ō* (f.n. This was first suggested by H. L. Ginsberg (1935a: 49). The article, unavailable to me, is cited in EHO: 46, n. 9. Cf. Albright's criticisms (1943: 22) and those of Gibson (1971: 3) or *aw* (Lemaire 1975b: 17), or as an archaic nominative plural construct *ū* (Garbini 1954-56: 123-30; Gibson 1971: 3).**

Each of these suggestions is open to serious criticism which undermines any historical reconstruction of the use of in Hebrew orthography which relies on it. It is therefore discreet to assume with *EHO* that the calendar is Hebrew and that its orthography is defective without, however, opting for one or the other of the problematic solutions. Should later research establish that the *waw* is in fact a m.l.,it will be necessary to conclude that the emergence of in Hebrew--if that is indeed the language of the inscription — paralleled chronologically the same development in Aramaic. Pp. 5-6

In examining epigraphic evidence for the development of m.l. in Hebrew orthography, the following criteria are applied: 1) The graphemes *'alep, he, waw,* and *yod* are considered m.l. if they do not represent etymological consonant phonemes. 2) If, however, they do represent such phonemes, they are considered m.l. only when evidence indicates that a sound change occurred and that the grapheme conforms to a historical and not to a phonetic spelling.

The second criterion assumes that the pronunciation of Hebrew in the 9th-6th centuries B.C.E. was different than it is today, and it presumes to know how it was different. The source of this knowledge is historical reconstruction, drawing on comparative Semitic linguistics, based on the text of the Hebrew Bible and on the linguistic traditions associated with it. The function of a reconstruction is to explicate empirical evidence; in itself, it does not constitute such evidence. The reconstruction, however, proceeds from an empirical base and can never surmount the unreliability of this base. **For Hebrew the question must be: how reliable are the text and linguistic traditions of the Hebrew Bible as preserved, recorded, and transmitted by the Massoretes, i.e., the Massoretic Text (=MT)?**

Discoveries at Qumran clearly indicate that proto-Massoretic (or proto-textus-receptus) text types, with regard to contents and orthography, are well represented by the 1st century B.C.E. These existed side by side with texts which differed from them in readings and orthography (Cross 1966: 78-81, 94). Of the three

Box 20 - Origin of *Matres Lectionis* (Vowel Letters)

oldest biblical manuscripts, 4QExod^{f} (ca. 250 B.C.E.), 4QSam^{b} (ca. 225 B.C.E.), and 4Q.Jer^{a} (ca. 200 B.C.E.), two, Exod^{f} and Jer^{a}, conform orthographically to the prevailing pattern of the MT (Freedman 1962: 202, 205, 211). [71] **The MT, then, may be considered the stemmatic descendant of a text type which evolved prior to the 3rd century B.C.E. when it is first attested (Goshen-Gottstein 1967: 245-49; Zevit 1977: 327-28). It is not a rabbinic or a massoretic invention, but rather a type of text which was received by them as normative. The antiquity of the text, however, does not assure the antiquity of the linguistic traditions associated with it. Pp 8-9**

Quoted from *Matres Lectionis in Ancient Hebrew Epigraphs* (Monograph series - American Schools of Oriental Research; no. 2) by Ziony Zevit , 1980, ISBN: 0897574028 pp. 2-9

Box 21 - *Matres Lectionis* in Hebrew

The use of vowel letters in JEH, formed the basis, with some modification and widening of use, for their use in the biblical text. Four trends that influenced the institution and spread of vowel letters can be identified:

1. The practice of using a consonantal grapheme to indicate a vowel was initiated by the Aramaean scribes at the time they borrowed the Phoenician alphabet. Specifically Aramaean scribes used *waw* to indicate [u:], *yod* to indicate [i:], *he* to indicate [a:]. At first vowel letters were used mainly to indicate word-final vowels. The use of *he* to indicate [a:] always was always limited to the word-final position. Although the use of vowel letters within words was initially sparing, they were more frequently used in the case of borrowed words and foreign proper names whose sound patterns would be foreign to Aramaean ears.

Aramaean practice in the use of vowel letters spread to became the norm in the writing of Hebrew and Moabite. In JEH the use of final vowel letters and occasionally, e.g. <ʾrwr>, internal vowel letters is clear.

2. Historical spelling made only a secondary, and later, contribution to the development of vowel letters. Examples:

- *he* may have come to indicate -[o:] due to the shift in the 3ms. pronominal suffix *-[ahu] > *-[au] > -[o:][72];
- *waw* may have come to indicate -[o:] due to the heterogeneous diphthong contraction *-[aw] > -[o:] in words

Box 21 - *Matres Lectionis* in Hebrew

such as **šawr* > *šo:r* and **hawlid* > *ho:lid*

- a clear example of historical spelling is the *aleph* in <rʾš> 'head' which was written in the Siloam inscription at a time when it certainly did not represent a consonantal glottal stop.

It is at times difficult to decide whether an historical spelling is indicated. Thus the spelling <byt> in construct in the Arad inscriptions can be explained in any of 3 ways:

a) the original diphthong was maintained i.e. /bayt/;

b) it was a historical spelling i.e. the shift /bayt/ > /be:t/ had already taken place;

c) it was not so much an historical spelling as a tendency to retain the spelling of a word in its declination.

3. At a later date, the use of vowel letters may have spread through the process of analogy. Thus the diphthong contraction [aw] > [o:] led to the use of *waw* to indicate [o:] even in cases where its origin was [a:] > [o:] as in the fp. noun suffix -[o:t] and the active participle of the *qal*. However, we should note that this type of analogy is much more restricted in the case of [e:]. Generally [e:] is represented by *yod* only where it results from the diphthong contraction [aw] > [o:] and only rarely when it originates from an earlier [i:]. From this it is clear that the contraction of the diphthong [ay] > [e:] took place later than the contraction of the diphthong [aw] > [o:]. This sequence led to *waw* being used to indicate [o:] long before *yod* came into use to indicate [e:]. In fact the use of *yod* to indicate [e:] might have commenced only after the Babylonian Exile[73].

In addition, the letters *waw* and *yod,* which originally indicated only long vowels, later were used in addition, at times, to indicate short vowels.

4. Over the centuries, vowel letters were consistently and increasingly used to eliminate ambiguity in writing as is evidenced in LBH, QH and MH**.** though an opposite "aesthetic" trend is seen regarding the biblical text, which prevented the reiteration of a letter in the same word thus words such as טובות and ישמרוהו are generally written with a single *waw*.

Summarized from Sarfatti 1994 pp. 19-21.

N.b. The common noun יום/ ים = “day” is commonly spelled ימ in epigraphic Hebrew representing a pronunciation *yom* or *yōm.* See Joüon-Muraoka 1991 § 98 note 2.

See also *Table - Matres Lectionis in JEH*

Box 22[74] - *Matres Lectionis* in the Biblical Text

Quoted from Ziony Zevit's review (*Journal of the American Oriental Society* 111.3 1991pp. 647-50) **of Barr 1989**.

Hebrew words in the Bible, particularly those with a long *o* or *i* in a medial position, are often spelled more than one way. Sometimes long *o* is indicated by a *waw*, and sometimes long *i* is indicated by a *yod*. Sometimes, however, neither of these vowel letters is used to indicate the vowel. Were the spelling differences isolatable by specific words, or morphemes, or by etymological considerations, explanations for the diverse spellings would be forthcoming; but such is simply not the case. In fact, many words are spelled variously with or without vowel letters in close proximity to each other in the same text for no apparent reason….

…Barr draws a number of conclusions. 1) Spelling varies in the Bible because scribes like it to vary. They had no systematic approach to spelling. They could vary spellings arbitrarily or for some graphic, stylistic pleasure (p. 194). 2) Varied spellings do not preserve dialect differences, cf. Ju 1:11, 19, 27, 30, 31 *ywšby, yšby*, (dwellers) (p. 194). 3) The overall picture appears to indicate a lack of conscious awareness in the use of vowel letters. The few patterns revealing pre-masoretic Hebrew may be accidental vestiges not blurred by scribal activity (pp. 195-96). 4) The consistent spelling of certain personal names such as those of Moses, Aaron, and of certain nouns such as *khn* (priest) may be indicative of certain scribal conventions (p. 197). 5) Given these conclusions, nothing may be learned from patterns of spelling about their pronunciation (p. 197). 6) The spelling of a book depends not on when it was written but on when and how often it was revised and what spelling conventions were applied by the responsible scribes (pp. 199-201, 207). No Biblical book written in the pre-exilic period retains the spellings characteristic of the time of original composition (p. 207).

These conclusions differ somewhat from those of F. I. Anderson and A. D. Forbes, *Spelling in the Hebrew Bible* (Rome: Biblical Institute Press, 1986), that appeared after Barr had completed his work but before its publication. Barr, therefore, could only refer to this book sporadically in his notes.

Working with a computer-generated data base, Anderson and Forbes concluded that

> **the spelling rules and procedures which prevail in the masoretic texts combine the conservation of old rules with the adoption of two new ones, along with a certain drift towards phonetic spelling of long vowels with matres lectionis. Uniformity was never achieved (p. 326).**

The old rules to which they refer are the tendency towards defective writing characteristic of the Iron Age as evidenced in Hebrew inscriptions with a spare use of vowel letters to indicate originally long, word-final, vowels or those derived from diphthongs. In the pre-exilic period, vowel letters were also used to indicate other long vowels (pp. 32, 55-60), but in the post-exilic period, the system was extended to indicate originally short vowels lengthened under stress (pp. 32, 55-62). The two new ones, introduced in the post-exilic period are the use of *waw* instead of *he* to indicate a final long *o* and the use of *yod* to indicate masculine plural noun stems (pp. 318-19, and cf. Z. Zevit, Matres Lectionis in Ancient Hebrew Epigraphs [Cambridge, Mass.: ASOR, 1980], 33).

For Anderson and Forbes, the mentality of the scribe and the traditions of his craft made for a conservative

Box 22[74] - *Matres Lectionis* in the Biblical Text

tradition of copying. The two new rules were almost universally applied to Biblical texts, the extension of vowel letters to indicate originally short vowels less so. Variation in this extension exists in the Bible and can be measured in different parts of the text. They conclude, cautiously and with qualifications, that the earlier a text was canonized, its form fixed, scribal practice tended not to increase the use of post-exilic vowel letters. Such a text is more defective. The later its fixing, the more prevalent post-exilic types of vowel letters, the more plene the text (pp. 312-18). They maintain that a relative scaling of texts from most defective to most plene provides a guide for determining not the time a text was written but the time that its very spelling became fixed, and hence the relative time of its canonization. Orthographic differences thus correlate with chronology and are not, in the final analysis, so anarchic as Barr's study would indicate

f. Reading Traditions of Biblical Hebrew

Table 23 - EBHP, TH and the Phonetic Realizations of BH in Key Modern Pronunciations[75]

MT Graphemes	*/EBHP/+ (c. 850-550 BCE)	BH_{SAM}[76] (present)	TH /TH/+ *[TH] (c. 850 CE)	BH_{IH} (present)	BH_{AH}[77] (present)	BH_{MIZ} (present)	BH_{SEP} (present)	BH_{YEM}[78] (present)
	Readings or recitations of CBH documents in late First Temple Jerusalem	Samaritan Pentateuch	Masoretic Text					
Consonants								
א	/ʾ/	ʔ, Ø	/ʾ/ [ʔ, Ø] Ø when word or syllable final.	[Ø]	[Ø]	[ʔ, Ø]	[Ø]	[ʔ]
בּ	/b/	b	/b/ [b]	[b]	[b]	[b]	[b]	[b]
ב			/b/ [v]	[v]	[v]		[v]	[v]
גּ	/g/	g	/g/ [g][79]	[g]	[g]	[g]	[g]	[g]
ג			/g/ [ɣ]			[ɣ]		[ɣ]
דּ	/d/	d	/d/ [d][80]	[d]	[d]	[d]	[d]	[d]
ד			/d/ [ð]					[ð]

Table 23 - EBHP, TH and the Phonetic Realizations of BH in Key Modern Pronunciations[75]

MT Graphemes	*/EBHP/+ (c. 850-550 BCE)	BH_{SAM}[76] (present)	TH /TH/+ *[TH] (c. 850 CE)	BH_{IH} (present)	BH_{AH}[77] (present)	BH_{MIZ} (present)	BH_{SEP} (present)	BH_{YEM}[78] (present)
ה[81]	/h/	ʔ, Ø	/h/ [h]	Rarely [h], frequently [ʔ], [Ø]	[h]	[h] / [h], [Ø]	[h], [Ø]	[h]
ה		Ø	/h/ [h][82]	[Ø]	[Ø]	[Ø]		
ו [83]	/w/	b	/w/ [w]	[v]	[v]	[w], [v]	[v]	[w]
ז	/z/	z	/z/ [z]	[z]	[z]	[z]	[z]	[z]
ח	/ħ/, /ḫ/[84]	ʔ, Ø	/ḥ/ [ħ]	[x]	[x]	[ħ]	[x]	[ħ]
ט	/ṭ/	ṭ, t	/ṭ/ [tˤ]	[t]	[t]	[tˤ]	[t]	[t], [ḍ]
י [85]	/y/	y	[j] = [y] *(I will use [y] in transcriptions)*	[y][86]	[y]	[y]	[y]	[y]
כ	/k/	k	/k/ [k][87]	[k]	[k]	[k]	[k]	[k]
כ			/k/ [x]	[x]	[x]	[x]	[x]	[x]
ל	/l/	l	/l/ [l]	[l]	[l]	[l]	[l]	[l]
מ	/m/	m	/m/ [m]	[m]	[m]	[m]	[m]	[m]
נ	/n/	n	/n/ [n]	[n]	[n]	[n]	[n]	[n]
ס	/s/	s	/s/ [s]	[s]	[s], [ʃ]	[s]	[s]	[s]
ע	/ʿ/ or /ġ/	ʔ, Ø, ʕ	/ʿ/ [ʕ] or /ġ/ [ɣ][88]	[Ø]	[Ø]	[ʕ]	[Ø]	[ʕ]
פ	/p/	b, f	/p/ [p][89]	[p]	[p]	[p], [f]	[p]	[p]
פ			/p/ [f]	[f]	[f]	[f]	[f]	[f]
צ	/s/	ṣ, s	/s/ [sˤ]	[ʦ]	[ʦ]	[ṣ]	[ʦ]	[ṣ]
ק	/q/[90]	q, ʔ	/q/ [kˤ]	[k]	[k]	/q/, [ʔ]	[k]	[g], [ɣ]
ר	/r/	r	/r/ [r]	[ɣ][91]	[r], [ɣ]	[r]	[r]	[r]
שׂ	/ś/[92]	[ʃ]	/ś/ [ɬ]	[s]	[s]	[s]	[s]	[s]
שׁ	/š/		/š/ [ʃ]	[ʃ]	[ʃ]	[ʃ]	[ʃ]	[ʃ]
ת	/t/	t	/t/ [t]	[t]	[t]	[t]	[t]	[t]
ת			/t/ [θ]		[s]	[t], [θ]		[θ]
Gemination								
Dagesh	CC	CC	CC	C	C	CC	C	CC

Table 23 - EBHP, TH and the Phonetic Realizations of BH in Key Modern Pronunciations[75]

MT Graphemes	*/EBHP/+ (c. 850-550 BCE)	BH_{SAM}[76] (present)	TH /TH/+ *[TH] (c. 850 CE)	BH_{IH} (present)	BH_{AH}[77] (present)	BH_{MIZ} (present)	BH_{SEP} (present)	BH_{YEM}[78] (present)
forte								
			Vowels					
Ḥîreq	/i/, /ī/, /ǐ/, /e/	i	/i/[93] [i] [iː]	[i]	[i], [ə]	[i]	[i]	[i], [ə]
Ṣērê		ɛ	/e/ [e̞ː]	[ɛ]	[ẹy], [ay]	[ɛ]	[ɛ]	[ẹ]
Sĕgōl	/a/		/ɛ/ [ɛ], [ɛː]		[ɛ], [ẹ], [ẹy]			[a], [ɛ]
Pataḥ		a, ɔ	/a/ [e̞], [e̞ː]	[a]	[a]	[a]	[a]	
Qāmeṣ	/a/, /u/[94]		/å/ [ɔ], [ɔː]	[a] [o]	[o]	[a] [o]	[a] [o]	[ɔ]
Ḥōlem	/ō, ô/ /aw/	u, o	/o/ [oː]	[o]	[oy], [ẹy], [y]	[o]	[o]	[ö], [ẹ]
Šûreq-qibbuṣ	/ū, û/ /u/		/u/[95] [u][96], [uː][97]	[u]	[u], [i]	[u]	[u]	[u]
Mobile šwa	/i/, /a/, /u/		/ə/ [ə]	mostly [Ø] occasionally [ə], [ɛ]	[ẹ], [ə]	[ẹ~ɛ]	[ẹ~ɛ]	[ă] or other short vowel depending on context.[98]
Ḥaṭep-sĕgōl[99]	/i/, /a/		/ĕɛ̆[ɛ̈]ɛ̆]	[ɛ]	[ɛ], [ẹ], [ẹy]			[ă]
Ḥaṭep-pataḥ	/a/		/ă/ [ĕă̞]	[a]	[a]	[a]	[a]	
Ḥaṭep-qāmeṣ	/u/	ŏɔ̆	/ɔ̆ŏ̞[ɔ̈ŏ̞]	[o], [u]	[o], [u]	[o]	[o]	[ɔ̆ŏ̞]
			Word Stress					
Masoretic cantillation signs (MCS)	see description	See note[100]	follows MCS	mainly follows MCS	generally penultimate	mainly follows MCS	mainly follows MCS	See note[101]

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[1] See Joüon-Muraoka 1991 § 5-9.

[2] Blau 2010 §3.5.7.6.2.

> In Hebrew not only is *a* more stable than *i/u* (cf. §3.5.7.2.3n, p. 122); differences also obtain between the more stable *i* and the less stable *u.*

[3] From Blau 2010.

> 3.5.5.1. From a diachronic point of view, it is likely that in Proto-Semitic (as in Classical Arabic) the phonemic system of vowels consisted of three vowel pairs, three short, *a : i : u*, and three long, *ā : ī : ū*.
>
> 3.5.5.2. In the structure of the Proto-Semitic short vowels one can detect, it seems, an older binary system in which *a* was opposed to *i/u*, with *i* and *u* acting as mere variants. Traces of this ancient binary structure are reflected in Biblical Hebrew as well. In the *qal* suffix-tense (see §4.3.5.2.2.1, p. 220) of verbs denoting action, the second radical is followed by *a* (e.g., שָׁמַר 'he preserved'...), whereas in stative verbs it is vocalized with *ṣere*, *ḥolam* (< *i*, *u*, e.g., חָפֵץ 'he wanted'; יָכֹל 'he was able'). In contrast, in the *qal* prefix-tense, it is *a* that is characteristic of stative verbs (e.g., יִישַׁן 'he will sleep'; יוּכַל 'he will be able'), whereas *ṣere*, *ḥolam* (< *i*, *u*) are typical of action verbs (e.g., יִתֵּן 'he will give'; יִשְׁמֹר 'he will preserve'). This state of things, to be sure, is rather blurred, since *a* tends to prevail in the suffix-tense and *o* (< *u*) in the prefix-tense, yet its traces are clear enough to suggest an ancient binary opposition a: i/u.

[4] A case can be made that the PTH reflex of the TH *vocal šwa* /ə/ is not phonemic (cf. Gibson 1965 pp. 41-42). However, for clarity I will assume its phonemic status in PTH.

[5] Rare e.g. /'**mē**tu/ dead see Gibson 1965 p. 37 and Blau 2010 §4.3.8.7.2.3..

[6] Regarding the phonemic status of *sĕgōl* see Blau 2010 §3.5.6.2

[7] Gibson 1965 p. 37 "One other Tiberian vowel phoneme is known not to have existed before about the fifth century A.D., namely /å/ (IPA , which is in origin a merger of a previous /aː/ and certain allophones of /u/"

[8] Note Blau's explanation of the /oː/ in יָבוֹא - Blau 2010 §4.3.8.7.2.5.

[9] For TH see Garr 1991 pp. 57-66.

[10] Cf. Joüon-Muraoka 1991 §6b

[11] Al Ani 1970 (p. 75) states that in Iraqi read MSA "The relative duration of the short vowels is from 100-150 msec. With the long vowels it is from 225-350 msec. These durations do not apply for vowels when inisolation."

[12] Lipinski 1997 §21.25

[13] "There are two sounds which have not as yet been mentioned, viz. e and o.... Phonetically they occur both as long and short vowels. Phonematically, however, things are different.... The two vowels have their origin in classical ay and aw and ought to be long in every case. In the colloquial they are shortened before two consonants and in every unstressed syllable. Consequently, this shortening is conditioned by the position and is of no relevance. We, therefore, still have only

one e-phoneme and one o-phoneme. In the position where vowel quantity might be relevant, viz. in non-final open and stressed syllables, these two vowels are always long. Consequently any oppositions ē:ĕ and ō:ŏ does not exist.

"But then we have to solve the problem whether a short e is a different phoneme from a short i, and a short o a different phoneme from a short u. The numerous inconsequences in transcriptions, in which i often alternates with e and u with o, even in the same syllable in the same word, seem to indicate that there are no phonematic oppositions i:e and u:o.

The definite article il, el illustrates rather well the lack of any opposition between i and e. As a matter of fact, it is quite impossible to state such an opposition in any word at all: No word changes its cleaning when an i is replaced by an e and vice versa. Phonetically it is often hard to say whether to note i ore, especially in unstressed closed syllables....

Just the same statement is to be made as to the relation between ŭ and ŏ.... It is completely indifferent whether ŭ or ŏ is used in transcriptions. The phonetic value may depend on the surroundings, so that a velarized consonant requires the more open o, but any opposition o:u is impossible....

The conclusion must be drawn that the oppositions ī:ē and ū:ō do exist. They are, however, very little utilized. They are, indeed, so little utilized that as soon as the vowel is shortened they are nullified....

The ultimate conclusion is:

The Egyptian Arabic has only the three short vowel phonemes of the classical language, viz. a, i, u. But it has five long vowel phonemes, viz. oppositions ā, ē, ī, ō, ū. The short i has the two long correspondences ī and ē, the short u the two long correspondences ū and ō. If we had a linguistic system without any relevance of vowel quantity we would have five vowel phonemes, viz. a, e, i, o, u. In this system e and o, regarded as phonemes, would only occur as phonetically long vowels, the others both as short and long vowels. This may, indeed, be the correct way of interpreting the phonetics facts phonematically, since the relevance of vowel quantity is more than questionable." Birkeland 1952 pp. 47-49.

[14] Birkeland 1952

[15] Mitchel 1962 p. 23.

[16] See *Dabbēr ᶜarvīt* by Moshe Piamenta< Maariv, Tel Aviv, 1968 p.14.

[17] See Blau 2010 §3.5.13.

[18] *See, for example, Eastern Arabic with MP3 Files* by Frank A. Rice, Majed F. Said, Georgetown University Press (2005) p. xxxiv.

[19] The particular sounds which are phonemic in a language can change over time. At one time, [f] and [v] were allophones in English, but these later changed into separate phonemes. This is one of the main factors of historical change of languages as described in historical linguistics.

[20] See *Phones and Phonemes* - http://www.houseofdavid.ca/anc_heb_6.htm#phone_phonym.

[21] **Note, in reconstructed [EBHP] transliterations and sound files** -

1.there is no spirantization of the *bgdkpt* consonants - http://www.houseofdavid.ca/anc_heb_tequ.htm#bgdpt;

2. vowel qualities are outlined here - http://www.houseofdavid.ca/anc_heb_6.htm#ebhp_vow_qual;

3. I use the most probable form. Where no one form stands out as most probable, I select the one closest to the MT vocalization.

4. when multiple forms are possible, the form used is underlined.

[22] "When ו and י are not used as *mater lectionis*, they are pronounced. This is true in the following cases where the preceding vowel is heterogeneous …. In these combinations the ו and י probably have a consonantal value, e.g. ◌ֵי =*ay*, and not *ai*, ◌ֵו = *åw* and not *åu*.". From Joüon-Muraoka 1991 § 7d.

[23] IN EBHP and LBHP THE JUSSIVE (PC_{jus}), COHORTATIVE (PC_{coh}), IMPERFECT (PC_{imp}) AND PRETERITE (PC_{pret_sim}/PC_{pretWC}) are, in some forms, distinguished by the placement of syllabic stress when not carrying object suffixes. See -
- http://www.adath-shalom.ca/history_of_hebrew3a.htm#indic_jus AND
- http://www.adath-shalom.ca/history_of_hebrew3a.htm#Prefix_Conjugation

[24] /gā'**lâ**/ (TH גָּלָה) = "she rejoices" root *gy*/ *qal* a.p.; /ga'**lâ**/ (TH גָּלָה) = "he went into exile", 3rd MS passive *qal SC* root *glh*. Joüon-Muraoka 1991 §204b.

[25] */ˌʾil/ (TH אֵל) = "god of"; /ˌʾal/ (TH אַל) = "don't, not"

[26] */qa'**ṣar**/ (TH קָצַר) = "he harvested" 3rd ms. *qal SC*; */qa'**ṣīr**/ (TH קְצִיר) - "harvest (noun)".

[27] */qa'**tal**/ (TH קָטַל) - 3ms. *qal SC;* */qu'**tal**/ (TH קֻטַּל) - 3ms. passive *qal SC*. Joüon-Muraoka 1991 §55b.

[28] /ᶜūl/ (TH עוּל) = "suckling child of"; /'ᶜal/ (TH עַל) = "upon".

[29] /ʾab/ (TH אַב) = "father of"; /ʾōb/ (TH אוֹב) = "familiar spirit of".

[30] */ˌbin/ (TH בֵּן) = "son of"; */ˌbān/ (TH בָּן) = " understander of" - qal participle in constr..

[31] /sū'**sâ**/ (TH סוּסָה) = "female horse"; /sū'**sī**/ (TH סוּסִי) = "my (male) horse.

[32] */tār/ (TH תֹּר) *qal* ms. a.p. in construct relationship = "investigator of":*/tur/ (TH תּוֹר) - "dove of".

[33] */qa'**tal**â/ (TH קָטְלָה) - 3rd fs. *qal* perfect; */qa'**tal**ū/ (TH קָטְלוּ) - 3rd pl. *qal SC*. Joüon-Muraoka 1991 §55b.

[34] /sū'**sâ**/ (TH סוּסָה) = "female horse"; /sū'**sô** / (TH סוּסוֹ) = "his (male) horse.

[35] /sū'**sâ**/ (TH סוּסָה) = "female horse"; /sū'**say**(**y**)/ (TH סוּסַי) = "my (male) horses".

[36] /sū'**sâ**/ (TH סוּסָה) = "female horse"; /sū'**sâw**/ (TH סוּסָיו) = "his (male) horses".

[37] /ˌbin/ (TH בֵּן) = "son of"; */ˌbīn/ (TH בִּין) = "understanding of" - *qal* inf. constr. in construct relationship.

[38] /*ka'b**ōd**/ (TH כָּבוֹד) = "honor"; /ka'**bid**/ (TH כְּבֵד) - *qal* 3ms. *SC*.

[39] /'**qū**mī/ (TH קוּמִי) - *qal* fs. imperative root *qwm*; /'**qū**mū/ (TH קוּמוּ) - *qal* mp. imperative root *qwm.*

[40] /sū'**sī**/ (TH סוּסִי) = "my (male) horse"; /sū'**sô**/ (TH סוּסוֹ) = "his (male) horse".

[41] /yir'**ṣê**/ (TH יִרְצֶה) - *qal* 3rd ms. *PC* indicative of root ***rṣh*** ; /yir'**ṣ**ū/ (TH יִרְצוּ) - 3rd mp. of the same.

[42] /sū'**sī**/ (TH סוּסִי) = "my (male) horse"; /sū'**say**(**y**)/ (TH סוּסַי) = "my (male) horses".

[43] /sū'**sī**/ (TH סוּסִי) = "my (male) horse"; /sū'**sâw**/ (TH סוּסָיו) = "his (male) horses".

[44] */mu'**tī**/ = "my man"; /mū'**tī** / (TH מוּת) - inf. cstr. *qal* "my death".

[45] */ya'**kul**/ (TH יְכֻל) = "he was able"; */ya'**kōl**/ (TH יְכוֹל) - inf. abs. qal "to be able".

[46] /'**qōm**/ (TH קוֹם) - qal inf. abs root *qwm*; /'**qūm**/ (TH קוּם) - qal inf. constr. root *qwm*

[47] /ra'**ṣê**/ (TH רְצֵה) - qal MS imperative of root *rṣh* ; /ra'**ṣū**/ (TH רְצוּ) - MP imperative of the same.

[48] /ra'**ṣō**/:/ / (TH רְצֹה) - qal inf. abs. of root *rṣh* ; /ra'**ṣê**/ (TH רְצֵה) - qal MS imperative of the same.

[49] /sū'**sô**/ (TH סוּסוֹ) = "his (male) horse"; /sū'**say**(**y**)/ (TH סוּסַי) = "my (male) horses".

[50] /sū'**sô**/ (TH סוּסוֹ) = "his (male) horse"; /sū'**sâw**/ (TH סוּסָיו) = "my (male) horses".

[51] Blau 2010 §3.5; Blau 1976/93 p.12.

[52] Quoted from Khan 1997a pp. 85-86.

> We must distinguish the Tiberian vocalization system from the original Tiberian Hebrew pronunciation, which It was designed to represent. This was the pronunciation of Hebrew which was used in the traditional reading of the Bible in the region of Tiberias during the seventh-ninth centuries A.D. Whereas the Tiberian vocalization tradition has survived in written form, the Tiberian pronunciation of Hebrew, which was orally transmitted, is extinct. None of the pronunciation traditions of the Hebrew Bible that are in use among Jewish communities today derive from the Tiberian pronunciation.
>
> The original Tiberian pronunciation that lies behind the vocalization signs can be reconstructed from several sources. These include:
>
> 1. Masoretic and grammatical texts. Of primary importance are the texts from Palestine, especially the work *Hidāyat al-qāri.* 'Guide for the reader'. Thed grammarians from medieval Spain sometimes describe the articulation of a sound in greater detail than the Eastern sources. Their descriptions have to be treated with caution, however, since they could in some cases reflect a local type of pronunciation that differed from the Tiberian.
>
> 2. Transcription of the Tiberian pronunciation tradition into Arabic script which are found in medieval manuscript written by Karaites (a medieval sect of Judaism).
>
> 3. The use of Hebrew letters and Tiberian vocalization signs to represent other languages. Of particular importance are medieval texts that represent Arabic in this way.

[53] Unaccented syllables in TH either are closed having a short vowel or open with a long vowel. The only two exceptions are /båt'**tîm**/ [bå:t'**tîm**], 'houses' and /ʾån'**nå**/ [ʾå:n'**nå:**], 'please'.)

[54] Blau 1972 p.190 points out that in the Tiberian *qameṣ gadol* developed from the pre-Tiberian ā which was simply the long vowel corresponding to the short vowel signified by the *pataḥ*.

[55] Note the pattern Tiberian רֹגֶז (/'**ro**g̲ɛz/ < EBH */'**rugz**/ < */'**rug**zu/ = "trembling, fear") vs. רֹגֵז (/ro'**g̲ẹz**/ < EBH */rō'**giz**/ < */'**rāg**izu/ (qal m. .s act. part.= "one who trembles")

[56] E.g. 2 Samuel 5:10.

[57] Cf. Phonetic Diagram of modern Arabic and Hebrew vowels

[58] p. 35 n. 7.

[59] Quoted from http://en.wikipedia.org/wiki/Sephardic_Hebrew_dialect.

[60] From *The SBL Handbook of Style For Ancient Near Eastern, Biblical, and Early Christian Studies* by Patrick H. Alexander, Hendrickson Publishers, 1999 sect. 5.1.1.

[61] I have made explicit the division of vowels by length which is implied in **TH**$_{SBL}$.

[62] "The consonants *hê*, *wāw*, and *yôd*, used to indicate long vowels (vowel letters, *matres lectionis*), are transliterated as a circumflex over the vowel (i.e., *â, ê, î, ô, û*).... Regarding a final *hê,* note the fem. sg. poss. ending (*malkāh* "her king") and the feminine ending -*â* (*malkâ* "queen"). הָ (*hẹ* with a *mappîq*) should be written as -*āh." Ibid 5.1.1.4(1).*

[63] See GKC §20.

[64] For a historical analysis of short vowel elision in ancient Hebrew, cf. Cantineau 1932

[65] I single out here W. Weinberg, who has devoted entire publications to the topic of transliterating Hebrew, esp. "Transliteration and Transcription of Hebrew," *HUCA* 40-41 (1969-70) 1-32 with tables. Even what he calls the "narrow [i.e. scholarly, philological] transliteration" fails to distinguish the seven Masoretic vowels and mixes phonetic with graphemic phenomena.

[66] For the remainder of this quote I am using the IPA length symbol **:** in place of the macron.

[67] "An Introduction to a Generative Phonology of Biblical Hebrew" by Edward L. Greenstein in Bodine 1992 pp. 36-37.

[68] According to the Encarta Dictionary, orthography is defined as:

1. study of correct spelling: the study of established correct spelling
2. study of how letters are arranged: the study of letters of an alphabet and how they occur sequentially in words
3. relationship between sounds and letters: the way letters and diacritic symbols represent the sounds of a language in spelling

[69] For the pairing of vowel letters with specific vowels see Hoffman (p. 25).

[70] *Early Hebrew Orthography: A Study of the Epigraphic Evidence* (American Oriental Series) by Frank M., Jr. Cross, David Noel Freeman, American Oriental Society (1952) ISBN: 0940490366

[71] “Anticipating conclusions in the final chapter, this sentence should be qualified to read as follows: conform orthographically to *what is commonly believed to be* the prevailing pattern of the MT."

[72] Cross and Freedman 1952.

[73] Andersen 1986 p. 138.

[74] I could also mention Saul Levin's view that the vowel letters represent consonantal off-glides i.e. וֹ = [oʷ] etc. The following quote is taken from Levin 1988 (p. 292) - **the highlights in bold are my own**.

> The analysis of English vowels [jʸ] and [eʸ] with and off-glide [ʸ], and [uʷ] and [oʷ] with and off-glide [ʷ], finally made linguists aware of an alternative to vowel-length. **Physically the difference in sound between lengthening and off-glide may be quite small**, especially between [iː] and [iʸ] or between [uː] and [uʷ]. In English both lengthening and an off-glide are often discernable in the very same syllable at the same time. but when we turn to the ancient Hebrew texts and examine the evidence, the only conclusion that makes sense is that the scribes could and did record off-glides. Vowels, whether lengthened or not, escaped their means of notation, a consonantal alphabet, just as accents and other supra-segmental features did.

[75] In preparing this chart I have drawn on Morag 1970.

[76] For details on the Samaritan traditions of Hebrew see Ben-Hayyim 2000.

[77] From Kutscher 1982 §37 -

> H. Yalon has shown that the so-called Sephardic pronunciation was that of medieval Jewery in Western and Central Europe, as we can see from the fact that prayer books that were vocalized in Germany ... continually mix up the *qameṣ* and *pataḥ* just as Sephardic Jews do.

[78] For details on the Yemenite traditions of Hebrew see Morag 1963.

[79] /g/ Two allophones in complementary distribution גּ = [g] and ג = g, ġ [ʁ] or nearly identical [ɣ].

[80] /d/ 2 allophones in complementary distribution דּ = [d] and ד = d [ð].

[81] [h] when not vowel letter in word-final position; when word-final vowel letter [Ø].

[82] Consonantal [h] at end of word..

[83] Excluding its use as a vowel letter (Šûreq; ḥōlem mālê).

[84] A polyphonic letter in BH representing /ḥ/ [ħ] or /ḫ/ [x] depending on its PS origin.

[85] Excluding its use as a vowel letter (sĕgōl mālê; ṣērê mālê; ḥîreq mālê).

[86] From http://en.wikipedia.org/wiki/Hebrew_phonology#Dropped_consonants

> In normal speech, /ʔ/ is dropped when occurring between vowels, and /j/ is dropped when occurring between vowels where the first is a front vowel (/e/ or /i/) or the second is /i/. /h/ between vowels may also be dropped, especially in fast speech. Hence, /ma ha-ʃaˈʔa/ "what's the time?" becomes [mahaʃaˈa] or [maaʃaˈa].

Thus /y/ is no longer pronounced if at beginning of word followed by [i] e.g. ישמור pronounced [iʃˈ**mor**]

[87] 2 allophones in complementary distribution כּ = k [k] or [kʰ] and כ = k [x].

[88] a polyphonic letter in BH representing /ʿ/ [ʕ] or /ġ/ [ɣ] depending on its PS origin. ([ɣ]is very close to [ʁ]).

[89] /p/ 2 allophones in complementary distribution פּ = p [p] and פ = p [f].

[90] Probable pronunciation [kˀ].

[91] /r/ [ʁ̞] (this is very close to [χ̞]).

[92] Probable pronunciation [ɬ̪].

[93] See http://www.adath-shalom.ca/history_of_hebrew2a.htm#vowel_systemTH

[94] EBHP [u]corresponds to BHSEP *qameṣ qatan*.

[95] Unaccented syllables in TH either are closed having a short vowel or open with a long vowel. The only two exceptions are /båtˈtîm/ [båːtˈtîm], 'houses' and /ʾånˈnå/ [ʾåːnˈnåː], 'please'.)

[96] Unstressed closed syllables.

[97] Stressed and open unstressed syllables.

[98] basic realization = ă; when preceding y = ĭ; when preceding ʔ, h, ħ, or ʕ = ultrashort vowel identical in quality to the vowel of the following consonant.

[99] The phonemic status of the *ḥaṭep̲* vowels are moot.

[100] From Morag 1970 col. 1143.

> Samaritan Hebrew has as a rule, penultimate primary stress (with concomitant secondary stress on the second syllable preceding the one which has the primary stress; secondary stress may fall on the syllable directly preceding the syllable which has the primary stress - this is the case when the former syllable has a long vowel). It may be, however, proven that the ... stress patterns of Samaritan Hebrew are ... (of recent development), and that the stress patterns that Samaritan Hebrew formerly possessed were identical with those of Tiberian Hebrew (Z. Ben-Hayyim, Sefer Ḥanokh Yalon (1963), 149-160)..

[101] From Morag 1970 col. 1143.

> The Yemenite community generally maintains in reading the Bible the Tiberian rules of stress distribution in words which have disjunctive accents; words which have conjunctive accents, on the other hand, quite frequently have stress patterns differing from those of the Tiberian tradition.... (W)ords which in the Tiberian tradition have an ultimate stress ... have in the Yemenite pronunciation the stress on the penultimate syllable... and occasionally on the antepenultimate, when they come with a disjunctive accent.