Chapter 5

Ancient Hebrew Phonology

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5.1. Hebrew and the Semitic languages

Hebrew is a Semitic language, attested since ca. 1100 B.C.E. as the language of the Israelites (the Bible also uses the ethnonym Hebrews, and later the term Jews becomes more common). Ancient Hebrew died out as a spoken language in the third century C.E., though it was retained in an unbroken chain for liturgical and literary purposes unto the modern era. In the late 19th and early 20th centuries, Hebrew was revived as a spoken language. It is used today as the national language of Israel. Not surprisingly, during its history of more than three millennia, the language has undergone various changes, especially in the realm of phonology. This chapter is devoted to ancient Hebrew, defined here as the period of ca. 1100 B.C.E. to ca. 250 C.E., with a particular emphasis on historical matters. Occasionally, later developments in the medieval period also will be noted. For the phonology of Modern Hebrew, see Chapter 17.

Semitists continue to debate the classification of the individual Semitic languages, but all agree that Hebrew falls within the Northwest Semitic group. The languages of this group are Amorite, Ugaritic, Canaanite, and Aramaic. According to many scholars (myself included), Ugaritic is to be subsumed under Canaanite, but the former is attested in the second millennium B.C.E. and the latter almost exclusively in the first millennium B.C.E., so for the nonce I distinguish them. An additional Northwest Semitic language may be Eblaite, though a majority of scholars holds that it is more closely linked to Akkadian (East Semitic).

In essence Hebrew is but a dialect of Canaanite. The other dialects of this language are Phoenician, Ammonite, Moabite, Edomite, and Deir 'Alla (referring to the epigraphic remains found at Tell Deir 'Alla a few miles east of

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the Jordan River, though other opinions hold that Deir 'Alla is a dialect of Aramaic or an independent branch of Northwest Semitic altogether). These dialects of Canaanite, attested mainly in the first millennium b.c.e., were all mutually intelligible, and probably were differentiated no more than, say, the geographical varieties of Modern German or Modern English.

Phoenician, Ammonite, Moabite, Edomite, and Deir 'Alla are known primarily through inscriptions found in archaeological excavations in the Levant (Phoenician is an exception in two regards: [a] epigraphic remains have been found throughout the Mediterranean region, and [b] occasional classical writers, especially Plautus, preserve material). The total amount of known material would fill only a slender volume. The corpus of ancient Hebrew, by contrast, is quite large. The sources are the Hebrew Bible (Old Testament), the book of Ben Sira (one of the Apocrypha), the Dead Sea Scrolls found at Qumran, the Mishnah and other works authored by the rabbis of late antiquity, and various inscriptions (some of considerable length, but hundreds are very short, often consisting of only personal names).

Much of the following discussion concerning Hebrew phonology also may hold for the other Canaanite dialects, but our knowledge of these dialects is limited. On the other hand, we know that some of the other varieties of Canaanite were differentiated specifically in the realm of phonology (see the above comparison with German and English dialects, and see below for an occasional point of contrast).

5.2. Variation within Ancient Hebrew

Until now I have spoken of Hebrew as if it were a unified dialect within Canaanite, but this is an oversimplification. In fact, ancient Hebrew may be distinguished in various ways.

A) Based on differences visible in the Bible, diachronically we can distinguish Archaic Biblical Hebrew (ca. 1100–1000 B.C.E.), Standard Biblical Hebrew (ca. 1000–550 B.C.E.), and Late Biblical Hebrew (ca. 550–200 B.C.E.). The Hebrew of the Dead Sea Scrolls, known also as Qumran Hebrew (after Qumran, the site of discovery of these documents), is a continuation of Late Biblical Hebrew, and is attested ca. 200 B.C.E. – ca. 70 C.E.

B) Ancient Hebrew had various regional varieties. This finding also is based on various differences visible in the Hebrew Bible, and is confirmed in some instances by the epigraphic remains. Here we may distinguish Judahite

Hebrew, i.e., the regional dialect used specifically in Judah and its capital of Jerusalem, versus Israelian Hebrew, i.e., the dialect bundle of all other areas of traditional Israelite territory (areas such as Samaria, Galilee, and Transjordan). The vast majority, about 80%, of the Bible is written in Judahite Hebrew, and the remaining sections are written in Israelian Hebrew. I refer to Israelian Hebrew as a dialect bundle, because almost certainly there were minor differences between, for example, Transjordanian Israelian Hebrew and Galilean or Samarian Israelian Hebrew. The Transjordanian variety no doubt shared many features with Ammonite, Moabite, and Deir 'Alla; while the Galilean variety no doubt shared many features with Phoenician (and with Aramaic too). However, the available data generally do not allow us to isolate such minor differences, and for the most part it suffices to speak of Israelian Hebrew as a unified group of local varieties which, as a whole, contrasts with Judahite Hebrew.

C) Ancient Hebrew also was characterized by diglossia. The Bible, Ben Sira, and the Dead Sea Scrolls are written in the literary standard. But everyday speech differed considerably, as can be determined by occasional departures from the classical norm in these texts, especially when these phenomena parallel colloquial developments known from other spoken varieties of Semitic (e.g., colloquial Arabic). In late antiquity, the colloquial dialect was utilized to record texts such as the Mishnah and related works, so that the term Mishnaic Hebrew is used. The data at our disposal which allow us to posit diglossia in ancient Hebrew are mainly in the realm of morphology. Differences in phonology are more difficult to demonstrate.

In presenting the phonology of ancient Hebrew, in the main we refer to Standard Judahite literary Hebrew, i.e., the literary variety utilized in Judah ca. 1000–586 B.C.E. But where the data permit us to witness distinct usages in other varieties of ancient Hebrew, these will be noted.

5.3. Orthography

The Israelites utilized the 22-letter alphabet typically called the Canaanite alphabet (invented by the Phoenicians, according to the standard view). This alphabet represents only consonants, not vowels. Moreover, ancient Hebrew possessed more than 22 consonantal phonemes, so that some of the graphemes (letters) served double duty.

In the earliest Hebrew orthography, vowels were not indicated at all. According to the standard theory, in time, scribal practice led to the adoption

of three letters, <h>, <w>, and <y>, to indicate final vowels. Eventually, this system was expanded to indicate medial vowels as well, though this practice was not carried out consistently. When <h>, <w>, and <y> are utilized in this fashion, they are called *matres lectionis* or vowel letters (see further § 5.6.4, where another, non-standard view of the vowel letters is presented also).

These problems of both consonants and vowels, but especially the vowels, created a certain ambiguity in the reading of ancient Hebrew. The extent to which such ambiguities caused readers problems cannot be determined, but probably in general usage no undue hardship arose. However, because the biblical books achieved a level of sanctity in Judaism, no amount of ambiguity could be tolerated in the reading of sacred literature. An official reading tradition existed, in which the reader of the Bible (for example, in the synagogue for liturgical purposes) read the text in its traditional manner.

In time, a system of vowel markings and other diacritic marks was developed to record the official reading tradition. The people responsible for this notation system are called the Masoretes (tradents) who were active ca. 850 C.E. My reconstruction of the history here is actually a bit too simplistic; in reality there was more than one official reading tradition (the Jews of Israel had one main tradition, the Jews of Babylonia another, etc.), and the Masoretic activity actually led to different notation systems too. The normative Masoretic system in use among Jews for the past millennium has been the Tiberian one, named for the city of Tiberias (on the Sea of Galilee) where it developed. Our discussion of the phonology will be based on this system.

The question remains as to how accurately the reading tradition of the biblical text and the Masoretic transcription thereof reflects ancient Hebrew. That is to say, the Masoretic Text (that is, the traditional text of the Bible) dates to ca. 850 C.E. and reflects the manner in which Biblical Hebrew was pronounced at that time. But how traditional, i.e., how ancient, was the reading tradition of the readers for the centuries before ca. 850 C.E.? In other words, does the Masoretic Text reflect Hebrew as it was pronounced five hundred years earlier, one thousand years earlier, even fifteen hundred years earlier? In some cases, we can answer this question, but no definitive conclusion can be reached.

Nevertheless, we will base ourselves on the assumption that the readers of the first millennium C.E. were extremely conservative in their biblical reading tradition, and that the Masoretic Text more or less accurately reflects the pronunciation (or at least one pronunciation) of ancient Hebrew in the first millennium B.C.E., i.e., the time of the composition of the biblical books. I

say "more or less" because, among other points, (a) in some instances we know that the Masoretes no longer recognized consonantal phonemes which were distinguished in ancient Hebrew but which merged only later on, and (b) the system of vowels according to the Masoretic notation has an exceedingly large number of allophones, some or many of which may have developed only after the ancient Hebrew period.

The picture presented in the above outline is further complicated by the fact that there exists an important non-Masoretic reading tradition. The Samaritans, who developed as an offshoot of Judaism ca. 400 B.C.E., also possess the first five books of the Hebrew Bible (the Torah or Pentateuch) as canonical. They have an independent reading tradition for their Scripture, but in this essay we refrain from entering into these differences.

5.4. Phonology of the consonants

At least 29 consonantal phonemes are traceable to Proto-Semitic (comparison with other families in the Afroasiatic phylum suggests the possibility of still other phonemes). The most ancient Hebrew attested retained 25 of these; one local variety of Israelian Hebrew retained one other phoneme; and the remaining three phonemes merged with other phonemes (though one cannot discount the possibility that any or all of these three may have been retained in some restricted geographical locale, lack of evidence notwithstanding). As noted above, the Hebrew (Phoenician) alphabet has only 22 signs, so the recovery of the additional three or four phonemes requires special comment (see below for the individual cases).

Below I list the consonantal phonemes of ancient Hebrew, grouped according to place and/or manner of articulation. Transliteration is based on the standard system utilized in Semitics. Where the IPA symbol differs, it is noted as well. I also note the letter of the alphabet used to render each phoneme.

5.4.1. Bilabial plosives

/p/ – פ.
/b/ – ב.

5.4.2. Interdentals

/ṯ/ (IPA [θ]). In virtually all dialects of Hebrew, this phoneme shifted to /š/, indicated by שׂ. However, in the Hebrew of Transjordan (specifically Gilead),

as well as in the neighboring Canaanite dialect of Ammonite, this phoneme was retained. The evidence for this comes from the famous passage in Judges 12:6 known as the "shibboleth incident." The story relates how the Gileadites controlled the fords of the Jordan River. When retreating Ephraimites (from Cisjordan) sought to cross, the guards at the fords asked them to pronounce the word *ṯibbōlet* [ṯibbōlet], which in Hebrew means 'stream, torrent', a fitting password for the crossing of the Jordan River. Since most Israelites did not possess this sound in their phonetic inventory, the Ephraimites would say [sibbōlet], thus revealing the fact that they were not Gileadites. (Compare the manner in which various foreign speakers of English [Germans, for example] pronounce English /ṯ/ as [s], or the manner in which Persians and other non-Arab Muslims pronounce Arabic /ṯ/ as [s].) Since standard Hebrew (and the dialect of Canaanite for which the alphabet was invented) did not possess this phoneme, there was no special grapheme for representing this sound. In the passage just mentioned, Judges 12:6, the letter שׁ = <š> is used.

For the secondary development of /ṯ/ = [θ] as the fricativized form of /t/, see § 5.5.4.

On the two remaining interdentals of Proto-Semitic, see § 5.4.13.

5.4.3. Dental plosives

/t/ – ת.

/d/ – ד.

/ṭ/ – a voiceless emphatic dental plosive, indicated by ט. On the nature of the "emphatics," see § 5.4.14.

5.4.4. Nasals

/m/ – מ.

/n/ – נ.

5.4.5. Rolled

/r/ – either a rolled dental or a rolled uvular (its exact articulation is unknown), indicated by ר.

5.4.6. Sibilants

/s/ – ס.

/z/ – ז.

/ṣ/ – a voiceless emphatic sibilant (according to most opinions it is a fricative, others hold it to be an affricate), indicated by צ. On the nature of the "emphatics," see § 5.4.14.
/š/ (IPA [ʃ]) – שׁ. Since this letter represented more than one sound relatively late in the history of Hebrew, a diacritical mark was added by the Masoretes on the right side to produce the grapheme שׂ. See further § 5.5.1.

5.4.7. Laterals

/l/ – ל.
/ś/ (IPA [ɬ]) – שׂ. Since this letter represented more than one sound relatively late in the history of Hebrew, a diacritical mark was added by the Masoretes on the left side to produce the grapheme שׁ. See further § 5.5.1.

On the one remaining lateral of Proto-Semitic, see § 5.4.13.

5.4.8. Velar plosives

/k/ – כ.
/g/ – ג.
/q/ – a voiceless emphatic velar plosive, indicated by ק. On the nature of the "emphatics," see § 5.4.14.

5.4.9. Velar fricatives

/ḫ/ (IPA [x]) – ח. This sign was also used to represent /ḥ/. We are able to postulate the existence of both phonemes in the ancient period on the basis of transcriptions of Hebrew words (mainly proper names) in the Septuagint (the ancient Greek translation of the Bible) of the Pentateuch (ca. 250 B.C.E.). When Proto-Semitic comparisons indicate that the consonant /ḫ/ is present in the Hebrew word, the Septuagint transcription uses χ (see § 5.4.10 for the practice of transcribing /ḥ/). For the eventual merger of /ḫ/ and /ḥ/, see § 5.5.2. For the secondary development of /k̲/ = [x] as the fricativized form of /k/, see § 5.5.4.
/ǵ/ (IPA [ɣ]) – ע. This sign was also used to represent /ʿ/. We are able to postulate the existence of both phonemes in the ancient period on the basis of transcriptions of Hebrew words (mainly proper names) in the Septuagint of the Pentateuch (ca. 250 B.C.E.). When Proto-Semitic comparisons indicate that the consonant /ǵ/ is present in the Hebrew word, the Septuagint transcription uses γ (see § 5.4.10 for the practice of transcribing /ʿ/). For the eventual merger of /ǵ/ and /ʿ/, see § 5.5.2. For the secondary development of /g̃/ = [ɣ] as the fricativized form of /g/, see § 5.5.4.

5.4.10. Pharyngeal fricatives

/ḥ/ (IPA [ħ]) – ח. This sign was also used to represent /ḫ/. We are able to postulate the existence of both phonemes in the ancient period on the basis of transcriptions of Hebrew words (mainly proper names) in the Septuagint of the Pentateuch (ca. 250 B.C.E.). When Proto-Semitic comparisons indicate that the consonant /ḥ/ is present in the Hebrew word, the Septuagint transcription shows no consonant (see § 5.4.9 for the practice of transcribing /ḫ/). For the eventual merger of /ḥ/ and /ḫ/, see § 5.5.2.

/ʿ/ (IPA [ʕ]) – ע. This sign was also used to represent /ǵ/. We are able to postulate the existence of both phonemes in the ancient period on the basis of transcriptions of Hebrew words (mainly proper names) in the Septuagint of the Pentateuch (ca. 250 B.C.E.). When Proto-Semitic comparisons indicate that the consonant /ʿ/ is present in the Hebrew word, the Septuagint transcription shows no consonant (see § 5.4.9, for the practice of transcribing /ǵ/). For the eventual merger of /ǵ/ and /ʿ/, see § 5.5.2.

5.4.11. Laryngeals

/ʾ/ (IPA [ʔ]) – א.

/h/ – ה.

5.4.12. Glides (semivowels)

/w/ – ו.

/y/ (IPA [j]) – י.

5.4.13. The remaining Proto-Semitic phonemes

There are three remaining traceable Proto-Semitic phonemes: /ḏ/ (IPA [ð]), /ẓ/ or /ṯ/ (IPA [θ']), and /ḍ/ [IPA [ɬ']). There is no evidence for the preservation of these sounds in ancient Hebrew. Instead, in most regional dialects of ancient Hebrew, /ḏ/ shifted to /z/ (in some Israelian dialects it shifted to /d/); and both /ẓ/ and /ḍ/ shifted to /ṣ/ (in some Israelian dialects the former shifted to /ṭ/ and the latter shifted to /q/ or later to /ʿ/). At the same time, scholars recognize that any one, two, or three of these phonemes may have been preserved in some locales. But since the Hebrew alphabet does not have special signs to represent these sounds, it is difficult to ascertain if and where such phonemes may have been retained. Were it not for the story in Judges 12:6 (see § 5.4.2), we would not know that Gileadite Hebrew retained the voiceless interdental /ṯ/, so it is conceivable that elsewhere in ancient Hebrew /ḏ/, /ẓ/, and /ḍ/ existed.

5.4.14. The nature of the emphatics

The exact nature of the emphatic consonants /ṭ/, /ṣ/, and /q/ cannot be determined. The corresponding consonants in Arabic are velarized/ pharyngealized; in Ethiopic and Modern South Arabian they are glottalized. Most likely the glottalization is the original Proto-Semitic manner of articulation, so that this can be postulated for ancient Hebrew.

5.5. Historical changes in the consonantal phonology

The consonantal phonology described above is correct for Hebrew in its most anciently attested phase. But already in the biblical period there is evidence for various changes, and in the post-biblical period still more changes are evident. These historical developments will be presented here.

5.5.1. The shift of /ś/ to /s/

In the course of time the voiceless lateral fricative /ś/ shifted to a sibilant and merged with /s/. This is indicated by the numerous interchanges between שׂ and ס in the spelling of ancient Hebrew. This tendency is less acute in the pre-exilic (pre–586 B.C.E.) books of the Bible, but becomes quite common in the exilic and post-exilic (post–586 B.C.E.) books. Thus, we may conclude that the merger of /ś/ and /s/ occurred in Late Biblical Hebrew and continued in still later phases of the language. This shift may be the result of Aramaic influence.

In the centuries after the merger occurred, copyists of the Bible remained faithful to the received text. Accordingly, even though /ś/ now was pronounced the same as /s/, in the great majority of cases the biblical manuscripts continued to represent this sound with שׂ. When the Masoretes devised their system of marking all phonetic distinctions in the received text, diacritic marks were invented to distinguish the two sounds represented by שׂ. With the dot placed over the upper left hand corner, the grapheme שׂ represented the former lateral fricative /ś/, though now pronounced [s]. With the dot placed over the upper right hand corner, the grapheme שׁ represented /š/.

5.5.2. Merger of /ḫ/ and /ḥ/ and merger of /ǵ/ and /ʿ/

In ca. 200 B.C.E., the phoneme /ḫ/ merged with the phoneme /ḥ/, and the phoneme /ǵ/ merged with the phoneme /ʿ/. This can be determined from the following. In the Septuagint of the Pentateuch, accomplished ca. 250 B.C.E.,

these phonemes all are represented differently in the Greek transcription of proper names and occasional common nouns (see §§ 5.4.9, 5.4.10). But in the Septuagint of the other books of the Bible, which was accomplished several decades or perhaps even a century later, this consistency disappears. Accordingly, we confidently can fix this phonological development to ca. 200 B.C.E.

5.5.3. Weakening of the pharyngeals and laryngeals

In the preceding paragraph we observed that ca. 200 B.C.E. the velar fricatives /ḫ/ and /ǵ/ merged with the corresponding pharyngeals /ḥ/ and /ʿ/. As time passed, there is evidence for an overall weakening of the pronunciation of the pharyngeals and laryngeals. This can be determined from the Masoretic vocalization system which indicates (a) that the consonants /ḥ/, /ʿ/, /h/, and /ʾ/ cannot be geminated (this holds for /r/ as well); (b) that they cannot be vocalized with the vowel shwa, but instead require an auxiliary vowel; and (c) that in final position an anaptyctic vowel is required for all except /ʾ/, e.g., /rûḥ/ > [rûaḥ] 'wind'.

In time, in certain locales, this process became extreme. Post-biblical writings (e.g., the Talmud) describe situations in which all the pharyngeals and laryngeals merged. The cities which specifically are mentioned in this regard are Beth Shean, Haifa, and Tivon, all in the Lower Galilee region. Presumably this is due to Greek influence (we know, for example, that Greek influence was strong in Beth Shean). One amusing story records how a certain individual requested a particular item, but the storekeeper could not determine whether he desired *ʾimmar* 'lamb', *ḥămār* 'donkey', *ḥĕmar* 'wine', or *ʿĕmar* 'wool'. These forms are Aramaic, which was the dominant language in the Galilee ca. 300 C.E., but the story no doubt reflects the situation in Hebrew as well. On the other hand, we have the testimony of Jerome (ca. 400 C.E.) that the Jews mocked the Christians for their inability properly to pronounce the pharyngeals and laryngeals. Accordingly, we may conclude that in some communities Jews retained the original pronunciation of the pharyngeals and laryngeals, while in others they were weakly pronounced or disappeared altogether.

5.5.4. Fricativization (spirantization) of non-emphatic plosives

At some point in ancient Hebrew, the six non-emphatic plosives: /p/, /b/, /t/, /d/, /k/, /g/, developed a twofold realization. In post-vocalic position they came to be pronounced as fricatives (spirants); otherwise they retained their original plosive character. The corresponding fricative (spirantized) pronun-

ciations are, respectively: /f/, /v/, /t̲/ (IPA [θ]), /d̲/ (IPA [ð]), /k̲/ (IPA [x]), /ḡ/ (IPA [ɣ]). Almost without exception, these sounds are allophones. Only in rare instances, due to other factors, did phonemic differences arise.

Exactly when the fricativization of the non-emphatic plosives in post-vocalic position occurred cannot be determined. According to one theory, it is due to Hurrian influence, in which case it must have occurred quite early (ca. 1000 B.C.E. [?]). However, most scholars date the fricativization of the non-emphatic plosives in post-vocalic position to a later period, say, ca. 400 B.C.E., perhaps under Aramaic influence.

The reader already has noted that several of these allophones are equivalent to other phonemes in the language. For example, /k̲/ is the same as /ḫ/ (both IPA [x]), and /ḡ/ is the same as /ǵ/ (both IPA [ɣ]). Assuming, as most scholars do, that the fricativization of /k/ to /k̲/ [x] and of /g/ to /ǵ/ [ɣ] occurred ca. 400 B.C.E., and that /ḫ/ [x] and /ǵ/ [ɣ] were distinguished as late as ca. 200 B.C.E. (see § 5.5.2), then we may posit the coexistence for about two centuries of two sets of one phoneme and one allophone each, phonetically identical (or almost identical).

Similarly, the fricativization of /t/ to /t̲/ may have resulted in another such case, if we assume that at the same time at least one Hebrew dialect retained the original phoneme /t̲/ (see § 5.4.2).

Clearly these sounds were pronounced by all (?) Jews ca. 850 C.E. when the Tiberian system of the Masorah was developed. In time, however, the ability to pronounce some of these sounds was lost by various Jewish communities, especially those in Europe.

The three sounds which remained most stable were /v/, /k̲/, and /f/. Among most European Jews, however, /t̲/ was realized as [s] (compare the shibboleth incident described in § 5.4.2, though there is no direct connection between the two phenomena). In the two remaining cases, /ḡ/ and /d̲/, fricativization disappeared and /g/ and /d/ were pronounced as [g] and [d] in all environments. On the other hand, Jews in Arab lands retained most if not all of the fricativized allophones into the 20th century. The Jews of Yemen are an example of a community whose pronunciation of Hebrew included the proper realization of all six allophones.

5.5.5. Velarization of the emphatics

Above (§ 5.4.14) we discussed the nature of the emphatics, with the conclusion that originally they most likely were glottalized. Because the corresponding consonants in Arabic are velarized/pharyngealized, and because the majority of Jews in the world ca. 1000 lived in an Arabic-speaking milieu

and themselves spoke Arabic as their native language, in time the emphatic consonants in Hebrew became velarized/pharyngealized as well. This pronunciation remains to the present among the Jewish communities of North Africa and the Middle East.

Jews in Europe, on the other hand, lost the ability to pronounce the emphatic consonants altogether. Thus, in time, /ṭ/ > [t], so that it merged with /t/; /q/ > [k], so that it merged with /k/; and /ṣ/ > [ts], a phoneme common in many European languages, e.g., German.

5.6. Phonology of the vowels

The exact pronunciation of the vowels of ancient Hebrew cannot be recovered. However, we may assume that the classical pattern of Semitic (illustrated best in Classical Arabic) was operative in Hebrew in its earliest historical period. Thus we can reconstruct three basic vowels, either short or long: /a/, /i/, /u/, /â/, /î/, /û/. I utilize herein the circumflex to indicate long vowels which are "pure long"or "etymologically long"—that is, they correspond to long vowels in cognates. By contrast, the macron will be used in the transliteration scheme to indicate short vowels which have been lengthened due to stress—that is, they are "tone long" vowels (see § 5.6.2).

The Masoretic notation system, as noted above (§ 5.3), dates to ca. 850 C.E., and most accurately reflects the pronunciation of Hebrew in the early medieval period. By this time, the classic triangular vowel system had broken down, and numerous allophones had developed, based on a complex system of syllabification and accentuation. Again, exactly when the shift from the basic three vowels, short or long, to the system to be described below occurred, is unknown. But it is apposite to quote the view of Jerome (ca. 400 C.E.): "It is of no consequence whether [the word Shalem] is pronounced Salem or Salim, because Hebrew very rarely uses vowel letters in the course of words, and according to the discretion of readers and the different regions the same word is pronounced with different sounds and accents." In other words, there was much local variation in the realization of the vowels. One may wish to compare the situation in colloquial Arabic, where slight changes in vowels are noticeable in its various dialects (for example, the definite article can be [al], [el], [il], [əl], or [l]).

Below we present the vowel system according to the Tiberian Masoretic system. We begin with the long vowels, which are far simpler in their historical development, then move to the short vowels, and conclude with a treatment of the diphthongs.

5.6.1. Long vowels

Typically, the Proto-Semitic long vowels retain their basic pronunciation in all environments. Thus, /î/ is always [î], and /û/ is always [û]. The only area of fluctuation is with /â/. When Semitic cognates indicate /â/, the Hebrew reflex typically will be /ô/, though sometimes the /â/ is retained. Thus, for example, Arabic *lâ* = Hebrew *lô'* 'no'; Arabic *salâm* = Hebrew *šālôm* 'peace'; etc., but Arabic *ṭabbâḫ* = Hebrew *ṭabbâḥ* 'cook'; etc.

5.6.2. Short vowels

The above discussion (§ 5.6) about the numerous vowel allophones refers most importantly to the short vowels. The Tiberian Masoretic notation system reflects different realizations of the three original vowels /a/, /i/, and /u/, depending on the kind of syllable in which the vowel occurs and depending on the accent.

If the short vowel occurs in an accented syllable, or in an unaccented open syllable immediately preceding the accent, the following developments occur (I include the name of the Hebrew vowel, its Tiberian symbol in parentheses, and the traditional transliteration in italics):

/a/ > [ɔ] *qameṣ* (ָ) *ā*
/i/ > [e] *ṣere* (ֵ) *ē*
/u/ > [o] *ḥolem* (ֹ) *ō*

If the short vowel occurs in an unaccented closed syllable, typically the original pronunciation is not affected, but with two of the vowels there is the possibility of an allophone. Thus:

/a/ > [a] *pataḥ* (ַ) *a*
/i/ > [i] *ḥiriq* (ִ) *i*
or
/i/ > [ɛ] *segol* (ֶ) e
/u/ > [u] *šureq* (וּ) *u*
or
/u/ > [ɔ] *qameṣ* (ָ) *o*

Different environments usually will determine whether /i/ > [ɛ] as opposed to [i], and whether /u/ > [ɔ] as opposed to [u]. For example, if the vowel is followed by a geminated consonant, one can expect /i/ > [i], e.g., *libbî* 'my heart', and /u/ > [u], e.g., *kullām* 'all of them'; by contrast witness /i/ > [ɛ] in *leb-yām* 'heart of the sea', and /u/ > [ɔ] in *kol-'îš* 'every man'.

If the short vowel occurs in an open syllable more than one syllable before the accent, then the vowel is reduced to shwa [ə] (noted by ְ). If, however, the consonant involved is a pharyngeal or a laryngeal, then an auxiliary

vowel is necessary (often called "compound vowel," due to its orthographic representation in the Masoretic system) (see § 5.5.3). The auxiliary vowel is halfway between a true shwa and the corresponding short vowel. Thus, using the traditional transliteration of Hebrew grammarians, /a/ > *ă* (ֲ), /i/ > *ĕ* (ֱ), and /u/ > *ŏ* (ֳ).

We illustrate this whole process with one example. The word for 'word' in Hebrew is [dɔvɔ́r], with original short vowel /a/ in both syllables. The first [ɔ] occurs because it appears in an unaccented open syllable immediately preceding the accent; the second [ɔ] occurs because it appears in an accented syllable. In the expression 'the word of Esther' [dəvar-'ɛstér], the two words together have only the one accent, at the end of the expression. The first /a/ vowel now appears in an unaccented open syllable more than one syllable before the accent, and thus is reduced to shwa. The second /a/ vowel now appears in an unaccented closed syllable and thus is realized as [a].

Note that one Hebrew vowel sign, the *qameṣ* (ָ), is transliterated as *a* when it derives from an /a/ vowel, but is transliterated as *o* when it derives from an /u/ vowel. This reflects the realization of this vowel according to the Jews of most Arab lands and according to standard Israeli pronunciation today. However, the Masoretic notation clearly demonstrates a single pronunciation for this vowel, which most accurately is [ɔ] and which is realized thus by the Jews of Europe and of Yemen. This demonstrates that the short vowel /a/, when it was accented and when it appeared in an open syllable immediately preceding the accent, was raised to a quality approaching the short vowel /o/. Such a process is in fact clearly indicated for Phoenician, and was no doubt true of ancient Hebrew as well, at least in the pronunciation tradition which emerged among the Tiberian Masoretes. It parallels the case of the long vowel /â/ shifting to /ô/; thus we may wish to postulate a general drift in this direction in ancient Hebrew and Phoenician.

It is important to note that the above charting of rules governing the short vowels is not to be taken as hard and fast. As in most languages, also in Hebrew, /a/ is the most stable vowel. When an /i/ vowel or an /u/ vowel is present, often the above rules will be violated. For example, * *burâš* > [bərôš] 'juniper, cypress' shows reduction of the /u/ vowel to shwa, even though the open syllable in which it occurs immediately precedes the accent. By contrast, of similar nominal pattern is * *šalâš* > [šɔlôš] 'three', with the /a/ vowel retaining its character (actually, with raising to [ɔ], as discussed in the preceding paragraph).

Similarly, auxiliary vowels can arise after consonants which are not pharyngeals or laryngeals. For example, /u/ does not reduce to *shwa* in the word

haggŏrānôt 'the threshing floors'; rather it appears as *ŏ*. This is due to the circumstance of back vowel /u/ following the velar consonant /g/. Instead of reducing fully to *shwa*, as normally would be expected in the case of an unaccented open syllable more than one syllable before the accent, /u/ retains part of its original quality (i.e., as a back vowel) following a consonant pronounced in the back of the mouth (i.e., the velar /g/).

5.6.3. Diphthongs

Two diphthongs are reconstructed for ancient Hebrew in its earliest stage: [aw] and [ay]. In some cases, for example, in final position, these diphthongs remain unchanged, e.g., *qāw* 'line', *ḥay* 'alive' (though with the former note again the raising of the vowel to *ā* = [ɔ]). Typically, however, one of two changes occurs. Either an anaptyctic vowel is inserted, thus, e.g., **mawt* > [mɔwet] 'death' (or [mɔweṯ] showing fricativization), **bayt* > [bayit] 'house' (or [bayiṯ] showing fricativization) (again note the raising of the vowel in the former example); or monophthongization occurs.

Monophthongization in Hebrew almost always means [aw] > [o] (traditionally transliterated as *ô*), and [ay] > [e] (traditionally transliterated as *ê*), e.g., **yawm* > [yom] 'day', **bayḍa* > [beṣɔ] 'egg'. However, in a small number of instances, these two diphthongs monophthongize to [ɔ] (traditionally transliterated as *ā*). Examples of this latter process may be localized to two geographical regions in Israel: the northern part of the country (Galilee) and a small pocket in southern Judah (northern Negev).

5.6.4. Vowel letters

While a treatment of the vowel letters more properly belongs to a discussion of orthography rather than of phonology, a brief mention of them is appropriate. First, however, a basic overview of the problem is necessary. The oldest Hebrew inscriptions do not indicate the vowels; instead the 22-letter alphabet represents only the consonants. From the 8th century B.C.E. onward, according to the standard view, the practice arose to utilize certain letters, namely, <h>, <w>, and <y>, to indicate vowels (first only final vowels were indicated, later the practice was extended to mark medial vowels as well). When used in this manner, these letters (as already has been mentioned, see § 5.3) are known as *matres lectionis* or "vowel letters." By the 1st century B.C.E., this practice had increased so greatly, that in some of the Dead Sea Scrolls from this period virtually all vowels are marked by the aforementioned letters.

The Masoretic text presents a middle ground. Even though our earliest Masoretic manuscripts are from the early Middle Ages, they must go back to much older prototypes, because generally they are much more conservative in their use of the vowel letters than are the Dead Sea Scrolls of a millennium earlier. Two examples will suffice: in the Bible [lo'] 'no, not' is spelled regularly <l'> and more rarely <lw'>; in the Dead Sea Scrolls there are about 400 cases of <lw'> and about 100 cases of <l'>. Similarly, in the Bible [kol] ~ [kɔl] is spelled regularly <kl> and in only one case <kwl>; in the Dead Sea Scrolls there are about 700 cases of <kwl> and only about three dozen cases of <kl>.

Most scholars have concluded that the use of the vowel letters in the Masoretic text is arbitrary, i.e., they have no phonetic significance. According to this theory, whether a given word is spelled with vowel letter or without indicates nothing about the pronunciation of the word. However, close analysis often reveals a remarkable degree of consistency in spelling variation, and this consistency, it has been argued, indicates that the vowel letters indeed do tell us something about the actual pronunciation of the Hebrew word. According to this view, the vowel letters <w> and <y> indicate an off-glide. For example, <qwl> 'voice' would have been pronounced [qoʷl], with the allophonic off-glide, but <hql> 'the voice' would have been pronounced [haqqol]. The majority view has so dominated the field of Hebrew linguistics that little regard has been paid to the minority view. Further research on this issue remains a desideratum, but an open mind should be kept once the idea of allophonic off-glides is countenanced.

5.7. Historical changes concerning the vowels

5.7.1. /i/ > /a/ in an originally closed accented syllable

This law is known as Philippi's Law. An original /i/ vowel shifts to /a/ in an originally closed accented syllable (that is, a syllable that was closed even in its proto-form [as opposed to a closed syllable brought about by some other historical development]). Thus, for example, Proto-Semitic **gint* > **gitt* (via assimilation, see § 5.8.2) > **git* (with surrendering of word-final gemination) > [gat] 'winepress, olivepress'. In Akkadian transcriptions of the city in Canaan by this name, dating to as late as ca. 720 B.C.E., the form is still *Gint* (or *Gimt* [with partial dissimilation]). In the Septuagint of ca. 200 B.C.E., the rendering reflects [gɛt], and in the Masoretic text the pronunciation is [gat]. Accordingly, we are able to trace the historical development of this shift,

though the Septuagint rendering is too equivocal ([gɛt] apparently halfway between earlier [git] and later [gat]) to allow us to pinpoint the century in which Philippi's Law occurred.

5.7.2. /a/ > /i/ in an originally closed unaccented syllable

This law does not have an official name, but it may be called the corollary to Philippi's Law. An original /a/ vowel shifts to /i/ in an originally closed unaccented syllable (again, that is, a syllable that was closed even in its protoform [as opposed to a closed syllable due to some other historical development]). Thus, for example, **magdal* > [migdal] 'tower' (also a toponym 'Migdal'); **šamšôn* > [šimšôn] 'Samson'; etc. In the Septuagint and the New Testament (1st century C.E.), the Greek renderings of proper names reflect the original /a/ vowel (witness our English Samson, Mary Magdalene, etc.). Jerome (ca. 400 C.E.) still has *Magdal* in his Latin translation of the Bible. The Masoretic text reflects the shift to /i/ at some point within the following four and a half centuries. Thus, we may date this shift to sometime between 400 C.E. and 850 C.E.

5.8. Varia

5.8.1. Metathesis

The most consistent case of metathesis occurs in the Hitpa'el form of the verb, when the first root consonant is any of the sibilants, /s/, /z/, /ṣ/, /š/, or the lateral fricative /ś/. In such cases, the /t/, which forms part of the morphology of this verbal stem and which normally precedes the first root consonant, interchanges with the above consonants. For example, * *'etšammer* > ['ɛštammer] 'I guard myself'.

Other examples of metathesis are the word pairs [kɛvɛś] ~ [kɛśɛv] 'sheep', and [śimlɔ] ~ [śalmɔ] 'article of clothing', both of which interestingly contain the lateral fricative /ś/.

5.8.2. Assimilation

Regressive assimilation occurs with vowelless /n/, except before pharyngeals and laryngeals. Thus, for example, to use an item noted earlier, **gint* > **gitt* (eventually shifting to [gat]) 'winepress, olivepress'. Similarly, **yandur* eventually emerges as [yiddor] 'he vows'. Note also the same phenomenon with vowelless /l/ in various forms of the verb *lqḥ* 'take' (e.g., **yilqaḥ* > *yiqqaḥ* 'he takes'); and with vowelless /d/ preceding its voiceless counterpart /t/. A

regular example of the latter is * *'aḥadt* > ['aḥat] 'one' (fem.). Another unique example occurs in * *lalidt* > * *laladt* (via Philippi's Law) > * *lalatt* > [lɔlat] (with surrendering of final gemination) 'to give birth', a form which occurs only once in the Bible (the normal form is [lɔlɛdɛt], or with fricativization [lɔlɛḏɛṯ], arrived at through different means).

Partial progressive assimilation occurs in the Hitpa'el form of the verb, when the first root consonant is /z/ or /ṣ/ and it precedes /t/ (see also § 5.8.1). No examples with /z/ occur in the Bible, but from post-biblical Hebrew we may cite * *hiztayyef* > [hizdayyef] 'be forged', in which /t/ shifts to /d/ because of the preceding /z/. One example with /ṣ/ occurs in the Bible: * *niṣtaddaq* > [niṣṭaddaq] '(how) shall we justify ourselves', in which /t/ shifts to /ṭ/ because of the preceding /ṣ/.

5.8.3. Prothetic vowel

The pronunciation of initial consonant clusters is assisted by the placement of a prothetic vowel. The best example is the attestation of both [zəroa'] and ['ɛzroa'] 'arm', though the latter may be limited to specific regional dialects. Another example is ['ɛṣba'] 'finger', which from the cognate evidence (especially Egyptian *ḏb'*) can be shown to be originally without the initial ['ɛ-].

5.8.4. Anaptyxis

The presence of anaptyctic vowels has been noted on several occasions above (see §§ 5.5.3, 5.6.3). One further example occurs in the creation of the "segolate" nouns, e.g., * *dalt* > *dalet* (attested in Hebrew in sentence positions requiring a pause, e.g., at the end of a verse) > *delet* [dɛlɛt] (with vowel harmony) 'door'. Greek and Latin transliterations of such words tend to show the forms without anaptyxis, though they do so inconsistently. In any case, this development most likely occurred in the 1st millennium C.E.

5.8.5. Stress

Stress in Hebrew at times is phonemic, e.g., [rɔḥel bɔ'ɔ́] 'Rachel is coming' vs. [rɔḥel bɔ́'ɔ] 'Rachel came'.

Bibliography

Blau, Joshua. 1970. *On Pseudo-Corrections in Some Semitic Languages.* Jerusalem: Israel Academy of Sciences and Humanities.

———. 1982. *On Polyphony in Biblical Hebrew.* Proceedings of the Israel Academy of Sciences and Humanities 6/2. Jerusalem: Israel Academy of Sciences and Humanities.

Garr, W. Randall. 1990. "Interpreting Orthography." In W. H. Propp, B. Halpern, and D. N. Freedman, eds., *The Hebrew Bible and Its Interpreters*, pp. 53–80. Winona Lake, Ind.: Eisenbrauns.

Kutscher, E. Y. 1982. *A History of the Hebrew Language*, ed. Raphael Kutscher. Jerusalem: Magnes; Leiden: Brill.

Levin, Saul. 1988. "The Hebrew of the Pentateuch." In Y. L. Arbeitman, ed., *Fucus: A Semitic/Afrasian Gathering in Remembrance of Albert Ehrman*, pp. 291–323. Amsterdam: Benjamins.

Moscati, Sabatino, et al. 1964. *An Introduction to the Comparative Grammar of the Semitic Languages.* Wiesbaden: Harrassowitz.

Qimron, Elisha. 1986. *The Hebrew of the Dead Sea Scrolls.* Atlanta: Scholars Press.

Rendsburg, Gary. A. 1990a. *Linguistic Evidence for the Northern Origin of Selected Psalms.* Atlanta: Scholars Press.

———. 1990b. "Monophthongization of *aw/ay* > *ā* in Eblaite and in Northwest Semitic." *Eblaitica* 2: 91–126.

Segal, M. H. 1927. *A Grammar of Mishnaic Hebrew.* Oxford: Clarendon.

Steiner, Richard. C. 1977. *The Case for Fricative-Laterals in Proto-Semitic.* New Haven: American Oriental Society.

———. 1982. *Affricated Ṣade in the Semitic Languages.* New York: American Academy for Jewish Research.

Waldman, Nahum M. 1989. *The Recent Study of Hebrew.* Cincinnati: Hebrew Union College Press; Winona Lake, Ind.: Eisenbrauns.

Zevit, Ziony. 1980. Matres Lectionis *in Ancient Hebrew Epigraphs.* Cambridge, Mass.: American Schools of Oriental Research.

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