Phonemic Spelling and *Scriptio Continua* for Sandhi Phenomena and Glottal Stop Deletion: Proto-Sinaitic vs. Hebrew

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Introduction

Orthographic depth is the name given to one of the criteria for classifying writing systems. One definition of this term is given by Henry Rogers: "In a writing system which is orthographically *shallow*, graphemes represent phonemes; in a writing system which is orthographically *deep*, graphemes represent morphophonemes."[1] According to this definition, an orthographically shallow writing system is one that employs phonemic spelling;[2] an orthographically deep writing system is one that employs morphophonemic spelling. Martin Neef and Miriam Balestra provide an alternate definition: "According to a different terminological approach, a shallow orthography can be characterized as having a one-to-one relation between sounds and letters whereas a deep orthography deviates from this isomorphism."[3] This definition has the advantage of being broader; it includes all non-phonemic spellings, i.e., historical spellings as well as morphophonemic spellings. For the student of ancient texts, this definition is convenient because the information needed to distinguish purely historical spellings or purely morphophonemic spellings from spellings that are both historical and morphophonemic is often unavailable. In this article, therefore, we shall often speak simply of "non-phonemic spellings."

[1] Henry Rogers, *Writing Systems: A Linguistic Approach* (Oxford, 2005), 177.

[2] Geoffrey Sampson (*Writing Systems: A Linguistic Introduction* [Stanford, CA, 1985], 43–44) divides the orthographic continuum into *three* levels: (1) phonetic spelling, (2) phonemic spelling, and (3) morphophonemic spelling. In this division, (1) is the shallowest and (3) is the deepest. It must be emphasized, however, that the term *phonetic spelling* is commonly used with reference to phonemic spelling. Genuine phonetic spelling was rare until the creation of special symbols in the modern period. Normal alphabets do not contain nearly enough symbols to represent all of the phonetic (subphonemic, allophonic) variation that typically occurs in natural, colloquial speech. Indeed, most native speakers are, for the most part, quite unaware of such variation, which often requires special training to perceive. For example, native speakers of English are usually surprised to learn that the [k]-sound in *key* is quite different from the [k]-sound in *coo*, or that the [p]-sound in *spit* is quite different from the [p]-sound in *pit*. One might even argue that the adoption of genuine phonetic spelling would subvert the whole point of alphabetic writing, viz., simplicity.

[3] Martin Neef and Miriam Balestra, "Measuring Graphematic Transparency: German and Italian Compared," in *Typology of Writing Systems*, ed. Susanne R. Borgwaldt and Terry Joyce (Amsterdam, 2013), 114. See also Florian Coulmas, *Writing Systems: An Introduction to Their Linguistic Analysis* (Cambridge, 2003), 213.

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The distinction between phonemic spelling and morphophonemic spelling requires further clarification. Phonemic spelling is characterized by a one-to-one correspondence between graphemes (letters) and phonemes, ignoring allophonic variation.[4] Morphophonemic spelling is characterized by a one-to-one correspondence between grapheme sequences and morphemes, ignoring allomorphic variation. A few examples should make these definitions clearer. Readers who find these examples superfluous are free to skip them, but I believe that they are interesting in their own right.

As an example of morphophonemic spelling, we may take the suffixed morpheme used in English to express possession. It is (usually) spelled *'s* even though it has three distinct phonemic shapes (allomorphs) in *cat's* (voiceless /s/), *dog's* (voiced /z/), and *fish's* (epenthetic vowel + voiced /z/). If the spelling were phonemic, we would have *dog'z* and *fish'ez*.

For a Semitic example of the two types of orthography, we may turn to Judeo-Arabic. The standard orthography of Judeo-Arabic is deep, with morphophonemic spellings borrowed from the standard Arabic orthography. Thus, the prefixed morpheme used to express definiteness is always spelled אל, even though its pronunciation frequently diverges from that spelling as a result of apheresis (making the *aleph* superfluous) and/or total assimilation (making the *lamed* superfluous). Similarly, the suffixed morpheme used to mark feminine singular nouns is written ה-, not only in the absolute state, where it is pronounced [a], but also in the construct state, where it is pronounced [at].

In recent decades, it has become apparent that Judeo-Arabic also had, for a limited time, a shallow orthography:

> Until the 10th century A.D., another Judaeo-Arabic spelling in H(ebrew) characters existed, reflecting pure phonetic transcription of A(rabic), at least originally, without any influence of A(rabic) orthography. . . . Not only are all the erratic and idiosyncratic traits of A(rabic) spelling totally absent, including the marking of *tā' marbūṭa* in construct by -*h*, rather than by -*t*, but such a convenient feature as the morphophonematic spelling of the definite article is totally lacking: preceding "sun" letters the *l* is always omitted and in external close juncture

even the *(')a* is not marked at all, so that it is indicated by the context only.[5]

In other words, some of the earliest Judeo-Arabic texts are characterized by phonemic spelling,[6] in contrast to the morphophonemic spelling that later displaced it.

It is not at all unusual for phonemic and morphophonemic spellings to occur side by side in a single writing system. Indeed, they can even be found together in a single word. This is what Geoffrey Sampson means when he writes that "a given writing system may well be deep in its representation of one aspect of a spoken language but shallow in its representation of another aspect."[7] For example, the suffixed morpheme used in English to express plurality is spelled *s* in *cats* (voiceless /s/) and in *dogs* (voiced /z/), but *es* in *fishes* (epenthetic vowel + voiced /z/). The last spelling, contrasting with possessive *fish's* discussed above, could be viewed as partly phonemic (the *e*) and partly morphophonemic (the *s*).[8]

Similarly, in the earliest Judeo-Arabic translation of Proverbs, we find the phrase אילא ארב, "to the Lord."[9] The spelling of the definite article in the second word is partly phonemic and partly morphophonemic. A fully morphophonemic spelling of the second word would be אלרב; a fully phonemic spelling, representing the apheresis (elision) of /'a/ following אילא, "to" as well as the total assimilation of /l/, would be indistinguishable from indefinite רב.

So too in Akkadian, when *šu*, "his," was suffixed to *māt*, "land," the result, meaning "his land," was pronounced [mas:u]. However, it was frequently written *ma-at-su* or the like. This spelling is partly phonemic (the suffix *šu* written *su*) and partly morphophonemic (the stem *māt* written *ma-at* instead of *ma-as*). In the earliest texts, we find the purely phonemic spelling *ma-as-su*; peripheral Akkadian texts have purely morphophonemic spellings like *＊ma-at-šu*.[10]

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[4] For allophonic variation, see n. 2 above.

[5] Joshua Blau, *A Handbook of Early Middle Arabic* (Jerusalem, 2002), 21.

[6] For Blau's use of the term *phonetic transcription*, see n. 2 above.

[7] Sampson, *Writing Systems*, 45.

[8] Ibid., 44 (with modifications). See also immediately below and n. 41 below.

[9] Blau, *Handbook*, 147 (Prov. 16:3).

[10] For this whole discussion, see at n. 175 below. See also n. 41 below.

In this article, I shall argue three points: first, that in the proto-alphabetic[11] inscriptions discovered at Serābīṭ el-Khādem in the Sinai Desert, the orthography of Old Canaanite is shallow to a remarkable degree, much like the orthography of the Northwest Semitic serpent spells in the Pyramid Texts; second, that the *scriptio continua* employed in these early texts can be viewed as an integral part of their shallow orthography; and third, that the orthography of Hebrew (biblical and even postbiblical) is (despite exceptions here and there) deep.

Showing that a given spelling is phonemic is, for the phenomena discussed in this article, simply a matter of noting that a letter is omitted. It is much more difficult to show that a spelling is non-phonemic. To do that, one must often prove that a *consonant* is omitted even though its letter is not. In other words, one must prove that a letter is quiescent (silent). This is frequently impossible to do in dealing with inscriptions. In the Bible, by contrast, we have the Masoretic pointing system to guide us. In that system, any unpointed non-final letter is quiescent, as are unpointed final *aleph* and unpointed final *he'*. Many critics are skeptical of the Masoretic pointing, suspecting it of being anachronistic and/or artificial, but careful analysis has shown that such skepticism is frequently unwarranted or exaggerated.[12] In general, Bible scholars have been slow to recognize that the Masoretic pointing records an oral text tradition (the מקרא, originally viewed by

the Rabbis as part of the *Oral* Law), independent of the written text tradition (the מסורת),[13] and with deep roots in antiquity. These two distinct traditions, one written and one oral, are well suited for preserving the two distinct linguistic levels associated with morphophonemic spelling: the outward written form and the oral (phonemic) reality hidden beneath it.

In the cases discussed below, it will become apparent that the pronunciations recorded by the Masoretes are quite plausible, agreeing with other available evidence. In the most interesting case, a rare use of *dagesh* in the Leningrad Codex will be shown to reveal the existence of a strikingly distinctive Northwest Semitic phonological tendency—known also from Aramaic (Amherst 63 and Mandaic), Amoraic Hebrew, the Samaritan reading tradition of the Torah, and (to a lesser degree) two Northwest Semitic seals—that sheds new light on inscription 346 from Sinai.

Sandhi Coalescence of Identical Consonants in Northwest Semitic Orthography

In one recent study of writing, we read: "The development of syllabaries and alphabets . . . [and] the emergence of morphophonemic writing . . . deserve thoughtful study and explanation."[14] There is no better place to begin studying the dawn of alphabetic writing than the temple of Ḥatḥor and the turquoise mines at Serābīṭ el-Khādem in the Sinai Desert. Indeed, that was where Alan H. Gardiner began his groundbreaking study of the earliest alphabet a century ago.[15] Two inscribed statuettes from the temple are of particular interest: a small red sandstone sphinx bearing two short proto-alphabetic texts (Sinai 345) and a cuboid female statuette bearing another proto-alphabetic text

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[11] This term is used in Brian E. Colless, "The Proto-Alphabetic Inscriptions of Sinai," *Abr-Nahrain* 28 (1990): 1–52. I prefer it to the traditional term *Proto-Sinaitic*, used by Romain F. Butin, William F. Albright, and many others. The use of *Proto-Canaanite*, *Old Canaanite*, and *Canaanite* with reference to the early alphabet may well create confusion since these have long been used as linguistic terms.

[12] See, for example, Shelomo Morag, "On the Historical Validity of the Vocalization of the Hebrew Bible," *JAOS* 94 (1974): 307–15; Richard C. Steiner, "On the Monophthongization of **ay* to *ī* in Phoenician and Northern Hebrew and the Preservation of Archaic/Dialectal Forms in the Masoretic Vocalization," *Orientalia* 76 (2007): 73–83, and "Poetic Forms in the Masoretic Vocalization and Three Difficult Phrases in Jacob's Blessing: יֶתֶר שְׂאֵת (Gen. 49:3), יְצוּעִי עָלָה (Gen. 49:4) and יָבֹא שִׁילֹה (Gen. 49:10)," *JBL* 129 (2010): 209–35. In a future article, I hope to show that the Masoretes were even capable of preserving diachronic change. I shall argue that the two Masoretic vocalizations of the gentilic ערבי "Arab(ian)"—one with pretonic lengthening (עֲרָבִי) and the other with pretonic reduction (עַרְבִי)—are distributed chronologically: the former (the native Hebrew vocalization) in passages from the pre-exilic period, the latter (borrowed from Aramaic) in passages from the post-exilic period.

[13] See Richard C. Steiner, "*Ketiv-Ḳere* or Polyphony: The שׂ-שׁ Distinction According to the Masoretes, the Rabbis, Jerome, Qirqisānī, and Hai Gaon," in *Studies in Hebrew and Jewish Languages Presented to Shelomo Morag*, ed. Moshe Bar-Asher (Jerusalem, 1996), *153 n. 5, *167–*168, *175–*176, and "*A*-coloring Consonants and Furtive *Pataḥ* in Biblical Hebrew and Aramaic According to the Tiberian Masorah," in *Zaphenath-Paneah: Linguistic Studies Presented to Elisha Qimron on the Occasion of his Sixty-fifth Birthday*, ed. Daniel Sivan, David Talshir, and Chaim Cohen (Beersheba, 2009), *145 n. 8. See also at n. 138 below.

[14] John S. Robertson, "The Possibility and Actuality of Writing," in *The First Writing: Script Invention as History and Process*, ed. Stephen D. Houston (Cambridge, 2004), 37 n. 3.

[15] Alan H. Gardiner, "The Egyptian Origin of the Semitic Alphabet," *JEA* 3 (1916): 1–16.

(Sinai 346). The former object is discussed in this section; the latter is the subject of the next.

The sphinx is of particular importance for the decipherer because it is bilingual. Immediately above the proto-alphabetic text on its right side, it bears an Egyptian inscription: *mry Ḥtḥr* [*nbt*] *fk3t*,[16] "beloved of Hathor, [lady] of turquoise." Thanks to the work of Gardiner, Kurt Sethe, Robert Eisler, and Romain F. Butin,[17] it is clear that the proto-alphabetic text on the right side of the sphinx is an abbreviated Canaanite translation of the Egyptian text above it. Butin wrote:

מאהבעלת . . . . From the Egyptian inscriptions we know that one of the titles which the miners of Serabit liked to take was 'beloved of the Lady (of turquoise).' In Semitic one of the verbs that could express the idea 'beloved' is אהב, which in the intensive passive would give the form מאהב, the very form which we have here. As the last consonant of מאהב is identical with the initial beth of בעלת, it was written but once (haplography). The meaning of this group would then be 'beloved of Baʿalat.' This is all the more probable from the fact that this combination is always preceded by the proper name of a person (or by the common name of an office-holder). This sequence occurs in Nos. 345, 350. According to Leibovitch, with whom Cowley partly agrees, this same group of letters, but with the two beths kept separate, is to be read in the last column of No. 351. After careful examination, I believe that this is so.[18]

For Butin, then, Canaanite *m'hb* is equivalent to Egyptian *mry*, "beloved," and Canaanite *bʿlt* is equivalent to Egyptian *nbt*, "lady." With regard to the first equivalence, we may add that, in Hebrew, the *active* form of the *piʿel* participle מאהב is quite well attested, occurring 16 times in the Bible. With regard to the second, we may note that Butin's suggestion is virtually unknown today. The consensus of scholarly opinion follows Gardiner in equating *bʿlt* with Egyptian *Ḥtḥr*, "Hathor."[19]

The main opponent of the Eisler-Butin decipherment was William F. Albright:

Much confusion has been introduced into our picture by the group *m'hbʿlt*, commonly rendered since Eisler "beloved of Baalath,"[20] and combined with the Egyptian inscription *mry Ḥtḥr*, "beloved of Hathor," on the sphinx. However, this syntactic construction is not only improbable (though very rarely found in He-

[16] Note that the correct transcription is *Ḥtḥr* (or *Ḥwt-Ḥr*) . . . *fk3t*—not *Ḥtḥr* (or *ḥtḥr*) . . . *mfk3t* (Puech) and not *Ḥtḥr* (or *ḥt-ḥr*) . . . *mfk3t* (Wilson-Wright); see Émile Puech, "Notes sur quatre inscriptions protosinaïtiques," *RB* 109 (2002): 8, 30, and "Les inscriptions proto-sinaïtiques 346 et 357," in *Atti del V Congresso internazionale di studi fenici e punici*, ed. Antonella S. Giammellaro, vol. 1 (Palermo, 2005), 28; and Aren Wilson-Wright, "Interpreting the Sinaitic Inscriptions: A New Reading of Sinai 345," *Hebrew Bible and Ancient Israel* 2 (2013): 136. For the *m*-less form *fk3t*, see Robert Eisler, *Die Ḳenitischen Weihinscriften der Hyksoszeit im Bergbaugebiet der Sinaihalbinsel und einige andere unerkannte Alphabetdenkmäler aus der Zeit der XII. bis XVIII. Dynastie* (Freiburg im Breisgau, 1919), 30 n. 5 (cont.); Thomas O. Lambdin, "Egyptian Loan Words in the Old Testament," *JAOS* 73 (1953): 152; Raphael Giveon, *The Impact of Egypt on Canaan* (Göttingen, 1978), 67; and Robert Fuchs, "Türkis," in *Lexikon der Ägyptologie*, vol. 6, 789. For attestations of Egyptian *mry Ḥwt-Ḥr nbt mfk3t* at Serābīṭ el-Khādem, see Pierre Tallet, *La zone minière pharaonique du Sud-Sinaï - I* (Cairo, 2012), 128 (no. 153), 131 (no. 156), 134 (no. 157), 136–37 (no. 161), 143 (no. 171), 146 (no. 176), 175 (no. 195), etc. For the inverted order of the Egyptian hieroglyphs, see Carsten Peust, "Die honorative Transposition in der Ägyptischen Schrift," *LingAeg* 15 (2007): 97.

[17] Gardiner, "Egyptian Origin," 14–15; Kurt Sethe, "Die neuentdeckte Sinai-Schrift und die Entstehung der semitischen Schrift," in *Nachrichten von der Königlichen Gesellschaft der Wissenschaften zu Göttingen: Philologisch-historische Klasse aus dem Jahre 1917* (Berlin, 1918), 466–67; Eisler, *Die Ḳenitischen Weihinscriften*, 28–33; and Romain F. Butin, "The Protosinaitic Inscriptions," *HThR* 25 (1932): 130–203. For discussion, see n. 20 below.

[18] Butin, "Protosinaitic Inscriptions," 159–60.

[19] Gardiner, "Egyptian Origin," 15, followed by Frank M. Cross, "The Origin and Early Evolution of the Alphabet," *EI* 8 (1967): 8; Maurice Sznycer, "Protosinaïtiques (Inscriptions)" in *Dictionnaire de la Bible: Supplément*, vol. 8 (Paris, 1972), 1393; Raphael Giveon, "Protosinaitische Inschriften," *Lexikon der Ägyptologie*, vol. 4, 1156; Colless, "Proto-Alphabetic Inscriptions of Sinai," 14; Joseph Naveh, *Early History of the Alphabet: An Introduction to West Semitic Epigraphy and Palaeography* (2nd ed.; Jerusalem, 1997), 23–24; Meindert Dijkstra, "Semitic Worship at Serabit el-Khadim (Sinai)," *ZAH* 10 (1997): 89–90, etc.

[20] Pace Albright here, as well as Giveon ("Protosinaitische Inschriften," 1156), Eisler did not take *m'hbʿlt* to mean "beloved of Baalath." The latter rendering is Butin's revision of Eisler's rendering; see at n. 18 above. Eisler himself (*Die Ḳenitischen Weihinscriften*, 32) vocalized the phrase as מֵאַהֲבְעַלַת (equating the initial *m* with the Hebrew preposition *me-*, "from"), and he translated it as "*from* the beloved of Baʿalat." Even further from the mark are the attributions of the Eisler-Butin decipherment to Sethe ("Die neuentdeckte Sinai-Schrift," 466) and Gardiner ("Egyptian Origin," 14–15) found in Walther Hinz, "Zu den Sinai-Inschriften," *ZDMG* 141 (1991): 18; Puech, "Notes sur quatre inscriptions," 9; and Gordon J. Hamilton, *The Origins of the West Semitic Alphabet in Egyptian Scripts* (Washington, DC, 2006), 401.

brew and Phoenician, and quite common in later Aramaic) but the underlying characters do not reproduce a **mu'aḥḥabu Baʿalti*, which would be expected at this stage of Canaanite and Hebrew.[21]

There are two arguments here, neither of them persuasive. The first concerns the syntactic construction posited by Eisler and Butin. Albright claims that the construction is "improbable" and (he adds in a footnote) "excessively rare in Canaanite dialects."[22] To the extent that this claim is true, it makes more sense to interpret the rarity not as evidence against the Eisler-Butin decipherment, but rather as evidence that *m'hbʿlt* is a translation of *mry Ḥtḥr*—a translation that mimics the syntax of the original. Such a translation could well have originated with bilingual members of the mining expedition, appearing first in speech and later in writing. It should be noted, however, that the construction in question is not really all that rare. Albright himself points to BH בָּרוּךְ/בְּרוּכֵי ה׳, "blessed by the Lord" (3x) and its Phoenician parallel, to which we may add six additional examples of the construction: אֲהֻבַת רֵעַ, "loved by a companion" (Hosea 3:1), יְדִיד, ה׳ "loved by the Lord" (Deuteronomy 33:12, referring to Benjamin), the personal name יְדִידְיָה (2 Samuel 12:25, referring to Solomon), שְׂנֻאֵי נֶפֶשׁ דָּוִד "hated by David's soul" (2 Samuel 5:8), מֻכֵּה אֱלֹהִים, "smitten by God" (Isaiah 53:4), and יְלוּד אִשָּׁה, "born of woman, given birth by a woman" (Job 14:1).[23] All of these phrases, like *m'hb(b)ʿlt*, contain a passive participle in construct to its underlying subject. The construction and most of the examples were noted already at the end of the 19th century in a classic treatise on BH syntax.[24]

Albright's second argument against the Eisler-Butin decipherment is that "the underlying characters [of *m'hbʿlt*] do not reproduce a **mu'aḥḥabu Baʿalti*." He is referring, of course, to the spelling of *m'hbʿlt* with a single *bet*. Left unmentioned is the claim of both Eisler and Butin that the absence of a second bet is a

result of haplography.[25] Now, the term *haplography* is usually used with reference to an *accidental* omission in *writing*, a scribal error.[26] However, the spelling with one *bet* occurs in at least five—and possibly as many as nine—inscriptions.[27] It can hardly be the product of scribal error. An explanation based on *haplology* would certainly make more sense, although that normally involves two consecutive identical or similar syllables *in the same word*.

The best explanation, in my view, is that of Brian E. Colless: "Here the final *b* of the verb has coalesced with the initial *b* of *Baʿalat*."[28] We are dealing with the coalescence[29] of a sequence of identical consonants into a single geminated consonant.[30] At first glance,

[25] See at n. 18 above, and Eisler, *Die Ḳenitischen Weihinscriften*, 33: "the haplographic writing of the ב." So too Sass, *Genesis*, 13.

[26] Cf. Emanuel Tov, *Textual Criticism of the Hebrew Bible*, 3rd ed. (Minneapolis, 2012), 222: "Haplography . . . is the erroneous omission of one or more adjacent letters, clusters of letters, or words that are identical or similar."

[27] Sinai 345, 348, 353, 354, 356 and, according to some, 350, 361, 379, 380 as well. For details, see at n. 129 below.

[28] Colless, "Proto-Alphabetic Inscriptions of Sinai," 14.

[29] The term *coalescence* is far from ideal, because linguists and philologists use it in a number of different senses. Unfortunately, despite a lengthy search, I have not found anything better. To eliminate the other senses of the term, I shall often add the phrase "of identical consonants" to "coalescence." Even in places where that phrase is absent, it should be understood. In the case of a stop like /b/, the coalescence has audible consequences. A geminated stop has only one onset and one release.

[30] Some phoneticians use the term *fake geminate* or (less often) *concatenated geminate* for such a consonant. See Grace E. Oh and Melissa A. Redford, "The Production and Phonetic Representation of Fake Geminates in English," *Journal of Phonetics* 40 (2012): 82: "Fake geminates are phonetically long segments that . . . arise when morpheme concatenation results in a sequence of identical segments. . . . Concatenated geminates arise from identical consonant sequences that span a morpheme boundary within a word or in a phrase (e.g., *un+named*, *fun name*)." Some phonologists use the term *heteromorphemic geminate*, but this has a somewhat broader meaning. For a term used by some philologists, see n. 43 below. Scribes express the coalescence graphically by writing only one letter for the resulting geminate. They do this consistently when a word-internal morpheme boundary intervenes, e.g., נתנ+נו = נָתַנּוּ, "we gave," כרת+תי = כָּרַתִּי, "I cut, established (a covenant)," תְּקוֹנֵנָּה = תקוננ+נה, "they (fem.) shall keen," תרננ+נה = תְּרַנֵּנָּה, "they (fem.) shall jubilate," and ת+התתמם = תִּתַּמָּם, "You deal blamelessly" in Biblical Hebrew (henceforth BH). For morphophonemic spelling of such verbs in MH, see at nn. 80–81 below. For כָּרַתִּי and תִּתַּמָּם (with similar forms) cited as evidence in debates about the treatment of length in phonological theory, see M. Barkaï, "On Duration and Spirantization in Biblical Hebrew," *Linguistic Inquiry* 5 (1974): 458–59; and William R. Leben, "A Metrical Analysis of Length," *Linguistic Inquiry* 11 (1980): 507.

[21] William F. Albright, "The Early Alphabetic Inscriptions from Sinai and their Decipherment," *BASOR* 110 (1948): 16.

[22] Ibid., n. 49.

[23] For the morphology and semantics of ידיד, see Moshe Bar-Asher, *Studies in Classical Hebrew*, ed. Aaron Koller (Berlin, 2014), 23–46. For Amorite *Ia-di-du*, see Ignace J. Gelb, *Computer-Aided Analysis of Amorite* (Chicago, 1980), 103.

[24] A. B. Davidson, *Hebrew Syntax*, 1st ed. (Edinburgh, 1894), 131 §97b.

this explanation seems to be incompatible with Albright's vocalization of *m'hb* as *mu'ahhabu*, with a case ending separating the /b/ of the participle from the initial /b/ of the following word. In the passage above, Albright tells us that this vocalization "would be expected at this stage of Canaanite and Hebrew";[31] however, this expectation is a conjecture based on evidence from speakers of Northwest Semitic who were quite remote—geographically and/or socially—from the miners of Serābīṭ el-Khādem.[32] Such evidence can be used only if we are willing to make the simplifying assumption that all Northwest Semitic dialects and sociolects lost their case endings at the same time, i.e., that the miners laboring in Sinai enunciated short final vowels with no less care than, say, the priests and poets of Ugarit. Such dubious assumptions of uniformity have traditionally been considered perfectly acceptable in fields where evidence is scarce and unevenly distributed.[33] However, it makes little sense to rely on them when we have actual direct evidence, as is the case here.[34] In the words of Aren Wilson-Wright:

> We should not assume *a priori* what the language of the Sinaitic inscriptions was. Rather we should interpret clues within the texts themselves to determine its properties. I suggest, therefore, that single *bēt* is a *sandhi* writing of the phrase *mu'uhhab Ba'lat(i)*. This suggests that short final vowels had been lost or were in process of being lost when the Sinaitic inscriptions were written, at least on the head noun in the construct state.[35]

The evidence, of course, is the spelling of the phrase *mu'a/uhhab-ba'lat*, "beloved of Baalat," with only one *bet* (*m'hb'lt*) in the sphinx inscription and in most other occurrences, which is the reason that Albright rejected this interpretation. However, the participle has its own *bet* in Sinai 365 and 374,[36] and so the interpretation of this phrase is one of the few things that recent discussions of these inscriptions agree upon.[37]

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[31] See also William F. Albright, *The Proto-Sinaitic Inscriptions and Their Decipherment* (Cambridge, 1966), 6: "The Sinaitic texts clearly antedate the loss of inflectional endings (preserved in Ugaritic and in Amarna Canaanite)." In support of this claim, Albright refers to Zellig S. Harris, *Development of the Canaanite Dialects* (New Haven, CT, 1939), 59–60. Harris asserts that case endings "are written in the Canaanite forms and glosses in the Amarna letters, not merely as mechanical features of cuneiform orthography but even where that orthography did not require them: *zu-ú-nu* gloss to *ṣênu* 'sheep'" (ibid., 59). This single example from Amarna is, for many reasons, far from conclusive.

[32] For the view that the proto-alphabetic inscriptions of Sinai were written by "Semitic miners," probably "Hyksos captives" from Egypt, see Albright, *Proto-Sinaitic Inscriptions*, 12. See also Sznycer, "Protosinaïtiques (Inscriptions)," 1386; Seth L. Sanders, "What Was the Alphabet For? The Rise of Written Vernaculars and the Making of Israelite National Literature," *Maarav* 11 (2004): 33 (see at nn. 178–79 below); and, more cautiously, Dennis Pardee, "Proto-Sinaitic," in *The Oxford Encyclopedia of Archaeology in the Near East* (New York, 1997), 354. For the contrary view, see Jaroslav Černý, "Semites in Egyptian Mining Expeditions to Sinai," *Archiv Orientáli* 7 (1935): 384–89, esp. 385: "these Asiatics were not used in the mining work"; and, less clearly, Giveon, "Protosinaitische Inschriften," 1157. A more nuanced view, according to which one of the (Semitic-speaking?) Asiatics was the brother of a king (as demonstrated by Černý) while others were "men of humble rank," can be found in Alan Gardiner, "Once Again the Proto-Sinaitic Inscriptions," *JEA* 48 (1962): 47. For the purposes of this article there is no need to assume that all of the Semitic inscriptions were written by miners. It suffices that at least one of the two inscriptions discussed in this article (viz., Sinai 346) was written, or even dictated, by a miner. It is true that the miner in question was a chief miner or the chief of one of the mines (see at nn. 86–87 below, with n. 87), but it seems reasonable to assume that he acquired his knowledge of mining the hard way, beginning his career as a man "of humble rank."

[33] See Richard C. Steiner, "Variation, Simplifying Assumptions and the History of Spirantization in Aramaic and Hebrew," *Sha'arei Lashon: Studies in Hebrew, Aramaic and Jewish Languages Presented to Moshe Bar-Asher*, ed. A. Maman, S. E. Fassberg, and Y. Breuer (Jerusalem, 2007), *52–*65.

[34] Albright's vocalization of *b'lt* as **Ba'alti* is also dubious, because *b'l* is a segolate (CVCC) noun (cf. the Hebrew singular suffixed forms בַּעְלִי and בַּעְלָהּ), and segolate nouns took the *-at* variant of the feminine ending in Proto-Semitic and Proto-West-Semitic; see Richard C. Steiner, "Vowel Syncope and Syllable Repair Processes in Proto-Semitic Construct Forms: A New Reconstruction Based on the Law of Diminishing Conditioning," in *Language and Nature: Papers Presented to John Huehnergard on the Occasion of his 60th Birthday*, ed. Rebecca Hasselbach and Na'ama Pat-El (Chicago, 2012), 379. We may add that Albright's vocalization, presumably based on Akkadian *bēltu* (see ibid., 368 n. 11) and/or Greek Βααλτις, is tacitly rejected by his student, Cross ("Origin and Early Evolution," 8: *ba'lati*). Finally, the case ending of **Ba'alti* is dubious, as well, because divine names appear without case endings in our earliest East Semitic texts and because pausal forms lacked case endings even earlier.

[35] Wilson-Wright, "Interpreting the Sinaitic Inscriptions," 143. The author seems unfaithful to his own methodological principle when he writes that "the absence of the *aleph* at such an early date and in pre-vocalic position, where it would be maximally articulated, is puzzling" (ibid., n. 16).

[36] Also 351 according to both Butin (see at n. 18 above) and Colless, "Proto-Alphabetic Inscriptions of Sinai," 14.

[37] Sass, *Genesis*, 12–13; Giveon, "Protosinaitische Inschriften," 1156; Hinz, "Sinai-Inschriften": 18; Colless, "Proto-Alphabetic Inscriptions of Sinai," 14; Pardee, "Proto-Sinaitic," 354; Dijkstra, "Semitic Worship," 89–90; Françoise Briquel-Chatonnet, "Les in-

In my view, this consensus will not be easy to overturn. Even if it could be proved that the miners of Serābīṭ el-Khādem did normally pronounce *muʾa/uhhab* with a case ending, as Albright claimed, that would not be sufficient reason to reject the Eisler-Butin decipherment. The Arab grammarians taught that phrases such as *ṯawbu Bakrin*, "the garment of Bakr," could be pronounced [ṯawb:akrin] in proper classical Arabic, and they cited numerous pronunciations of this type that were permissible in reading the Quran.[38] In other words, a short vowel between identical consonants may be deleted, allowing them to coalesce; it may even be deleted between *similar* consonants, allowing one to assimilate to the other. This vowel deletion is similar, in a way, to haplology; both processes promote ease of articulation by avoiding the rapid iteration of alternating articulatory movements. We are dealing with phonological processes whose motivation applies to miners as much as it does to Quran readers.

The coalescence in [muʾa/uh:abaʕlat], like that in [ṯawb:akrin], affects identical consonants separated by a word boundary. Modern scholars (including Wilson-Wright), following the ancient Sanskrit grammarians, refer to such phonological processes using the term *sandhi*. Linguists distinguish two types of sandhi. Processes that operate between words (i.e., across a word boundary) are said to exhibit *external sandhi*. An (American) English example is the palatalization of *t*[39] in *gotcha < got ya < got you*. By contrast, processes that operate between morphemes *within* words (i.e., across an internal morpheme boundary) are said to exhibit *internal sandhi*. In (American) English, for example, the *t* of *habit* and *fact* is palatalized to [č][40] in *habitual*

and *factual*. It will be noted that the palatalization is concealed by the deep, morphophonemic spelling of *habitual* and *factual*, but revealed by the shallow, phonemic spelling of *gotcha*.[41]

External sandhi coalescence of identical consonants is well attested in Northwest Semitic. Already in 1936, Zellig S. Harris pointed out an example (together with other sandhi phenomena) in Phoenician:

> In Cyprus, two like consonants were often written as one. This writing occurs in a Cyprian name in Phoenicia, דעמלך for דעממלך, and in Cyprus itself it takes place even in sandhi: מלך כתי for מלכתי; אדן מלכם for אדמלכם (the full forms being, however, more common). . . . The pronunciation consisted not of two separate sounds but of one long one; the spelling could therefore contain one sign.[42]

W. G. E. Watson has collected many additional examples of what he calls "shared consonants."[43] At Ugarit, for example, the personal name written *ia-tar-*ᵈMAŠ.MAŠ = *ia-tar-Rašap* in syllabic script appears as *ytršp* = [yatar:ašap], with a single *r*, in alphabetic

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scriptions proto-sinaïtiques," in *Le Sinaï durant l'Antiquité et le Moyen Âge*, ed. Dominique Valbelle and Charles Bonnet (Paris, 1998), 57; André Lemaire, "Les 'Hyksos' et les débuts de l'écriture alphabétique au Proche-Orient," in *Des signes pictographiques à l'alphabet: La communication écrite en Méditerranée*, ed. Rina Viers (Paris, 2000), 115–16; Puech, "Notes sur quatre inscriptions," 8, 9–10; Hamilton, *Origins*, 401; Wilson-Wright, "Interpreting the Sinaitic Inscriptions," 143.

[38] Karl Vollers, *Volkssprache und Schriftsprache im alten Arabien* (Strassburg, 1906), 166; Karl Brockelmann, *Grundriss der vergleichenden Grammatik der semitischen Sprachen*, vol. 1 (Berlin, 1908), 257–58 §96b, cf. 279–80 §100b; Henri Fleisch, *Traité de philologie arabe*, vol. 1 (Beirut, 1961), 146 §29d–148 §29j, cf. 82 §12a–91 §12q.

[39] More precisely: coalescent (reciprocal) assimilation of [t] and [y] to [č]. Note that I am using phonetic symbols from Semitics, not IPA symbols.

[40] See the preceding footnote.

[41] Cf. the deep spelling of *inflation* (~ *inflate*) vs. the relatively shallow spelling of *decision* (~ *decide*) and *derision* (~ *deride*) discussed in J. M. Y. Simpson, "Writing Systems: Principles and Typology," in *The Encyclopedia of Language and Linguistics*, ed. R. E. Asher, vol. 9 (Oxford, 1994), 5059. One could argue that the spelling of *gotcha* is partly phonemic (the *ch*) and partly morphophonemic (the *t*); see at nn. 8–10 above.

[42] Zellig S. Harris, *A Grammar of the Phoenician Language* (New Haven, 1936), 30. Note that Harris uses the term *sandhi* as a synonym of what modern linguists call *external sandhi*. This usage is still standard among Semitists. Note also that אדמלכם for אדן מלכם exhibits external sandhi *assimilation* (see section 3 below) in addition to external sandhi *coalescence* (see the end of n. 76 below).

[43] W. G. E. Watson, "Shared Consonants in Northwest Semitic," *Biblica* 50 (1969): 525–33, and "More on Shared Consonants," 44–50. See also I. O. Lehman, "A Forgotten Principle of Biblical Text Tradition Rediscovered," *JNES* 26 (1967): 93–101. Note, however, that not all of Lehman's examples of "the textual ambivalence of Hebrew consonants" involve external sandhi coalescence of identical consonants. Indeed, Lehman's principle would be more accurately called "the textual ambivalence of Hebrew *letters*." In other words, Lehman deals with "shared *letters*" rather than "shared *consonants*." For terms used by phoneticians and phonologists, see n. 30 above. For external sandhi *assimilation* (discussed in the next section), see David Toshio Tsumura, "Scribal Errors or Phonetic Spellings? Samuel as an Aural Text," *VT* 49 (1999): 390–411; and Menahem Kister, על משמעויות טקסטואליות ולקסיקליות של תופעות לשוניות, *Lešonenu* 78 (2016): 7–20.

script.[44] And the name *adnʿm* may be a variant of the also attested *adnnʿm* (cf. *mlknʿm*).[45] It is not difficult to add examples to Watson's collection. At Harran (?), for example, the turtan Šamaš-šar-ibni appears in an Aramaic tablet as סמסרבן, with only one medial sibilant.[46] At Lachish, "ḥay plus the Tetragram . . . are written as one, and share one *yod* between them."[47] At Qumran, we find a biblical paraphrase (*4QReworked Pentateuch^b* = 4Q364 26 13) with פסולכה corresponding to פְּסָל־לְךָ, "carve for yourself" in Deuteronomy 10:1.[48] This type of spelling can be found already in the earliest connected Semitic texts, the Northwest Semitic serpent spells embedded in Unas's Pyramid Texts (24th century BC): *ꜣꜣꜣ imḥw imḥw = rīrrīr, ʾimmu-ḥiwwi ʾimmu-ḥiwwi*, "Rīr-Rīr, Mother-Snake-Mother-Snake (PT 235).[49] (Note that the reduplicated name Rīr-Rīr—formed from the Northwest Semitic noun *rīr* "spittle"—has four occurrences of /r/, but the Old Egyptian sign ꜣ, used to transcribe Semitic /r/, occurs only three times.) And it is not uncommon in P. Amherst 63, e.g., *kr^m m.še.r.b.n.^m = kol maśʾallibbanā*, "every request of our hearts" (XI/16), and *ys.rk.^m = (ʾ)ēzellāk*, "go, get thee!" (XX/7).[50]

The phonemic spelling of geminates resulting from sandhi coalescence of identical consonants (and from sandhi assimilation of non-identical consonants, discussed in the next section) is particularly well attested with Northwest Semitic words meaning "son of." The earliest attestation is in Samalian Aramaic, where we find the personal name *Brrkb* spelled once as *Brkb*.[51] In Jewish Aramaic (Talmudic literature, Palestinian inscriptions, geonic documents, etc.), genitive phrases consisting of בר, ביר, "son of" and רבי, ריבי, "rabbi," are normally spelled with one *resh* (ברבי, בריבי, בירבי, etc.).[52] Similar spellings involving Hebrew and Phoenician בן will be discussed below.

In the Masoretic Text of the Bible, by contrast, phonemic spelling of geminates resulting from external sandhi coalescence of identical consonants is almost entirely limited to examples involving the preposition מִן, "from," such as מִנְּהַר, "from the river of" (Genesis 19:4), מִנַּעַר, "from young man (to old man)" (Genesis 19:4), מִנֶּפֶשׁ, "from soul (to flesh)" (Isaiah 10:18), and so on. Nevertheless, it is clear that there were other examples of this sandhi phenomenon concealed by morphophonemic spelling. Let us examine some of these examples.

The earliest explicit discussion of external sandhi coalescence in Hebrew is found in Rabbinic literature. The Mishnah (*Berakhot* 2:3) requires precision in pronouncing the letters of the *Shemaʿ* prayer. One aspect of that precision, according to the Talmud (*Berakhot* 15b), concerns the pronunciation of pairs of sounds that have a tendency to "stick together" (דבקים), such

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[44] Watson, "Shared Consonants," 528, and "More on Shared Consonants," 45. Cf. Gregorio del Olmo Lete and Joaquín Sanmartín, *A Dictionary of the Ugaritic Language in the Alphabetic Tradition* (Leiden, 2003), 747 s.v. *ršp* and 994 s.v. *ytršp*.

[45] Watson, "Shared Consonants," 528, and "More on Shared Consonants," 45.

[46] André Lemaire, *Nouvelles tablettes araméennes* (Geneva, 2001), 42 (no. 4, l.14), 46, 48. I am indebted to A. R. Millard for this example and this reference.

[47] Moshe Greenberg, "The Hebrew Oath Particle Ḥay/Ḥē," *JBL* 76 (1957): 35. This spelling is found in Lachish letter 3 (l. 9); in letter 6 (l. 12), the two words are written separately.

[48] I am indebted to Elisha Qimron for this example.

[49] See Richard C. Steiner, *Early Northwest Semitic Serpent Spells in the Pyramid Texts* (Winona Lake, IN, 2011), 15–22, 28–32, together with the review in *JARCE* 51 (2015): 368–72 by Antonio J. Morales. The latter, in a series of email communications, has called my attention to foreign personal names from the Old Kingdom which appear to be Semitic and which contain the sequence *ꜣꜣꜣ* = Rīr-Rīr—presumably as a theophoric element. This evidence, which he plans to present in a future publication, sheds further light on the divine mother-snake. And Pierre Meyrat has sent me a Northwest Semitic serpent spell in Egyptian script from a later period—a spell that I hope to publish with him in the near future. In that spell, as in PT 235, the Semitic word for snake is *ḥw*. Thus, in the past five years, the decipherment of PT 235 has received unexpected confirmation from two very different directions.

[50] Charles F. Nims and Richard C. Steiner, "A Paganized Version of Ps 20:2–6 from the Aramaic Text in Demotic Script," *JAOS* 103 (1983): 263, 268 (XI/16); Richard C. Steiner and Charles F. Nims, "Ashurbanipal and Shamash-shum-ukin: A Tale of Two

Brothers from the Aramaic Text in Demotic Script," *RB* 92 (1985): 76 (XX/7). Contrast *ysr^m r.k.^g = (ʾ)ēzel lāk* "go, get thee!" (ibid.: 71; XVII/15, reading *g* instead of *w*) and *ysrrh.^m = (ʾ)ēzel-lēh* "he went, got himself" (ibid.: 78: XXI/7). My vocalization of (ʾ)ēzellāk, etc. is based on Biblical Aramaic.

[51] Johannes Friedrich and Wolfgang Röllig, *Phönizisch-Punische Grammatik*, rev. M. G. Amadasi Guzzo with W. R. Mayer (Rome, 1999), 56 n. 5.

[52] For an exhaustive survey and critique of the medieval and modern literature dealing with the meaning(s) of this genitive phrase, see Shamma Friedman, מחקרי לשון ומינוח בספרות התלמודית (Jerusalem, 2014), 225–433. When followed by a personal name, the phrase is part of a patronymic, viz., "son of Rabbi X." In other contexts, Friedman argues, the phrase means "rabbi's son"; previous scholars have held that "rabbi's/rabbis' son" is only the *original* meaning of what evolved into a more general honorific title. Either way, I suggest that there may be some connection with the phrase בֶּן־נָבִיא (targumic בר נבי) "prophet's son" in Amos 7:14—a famous phrase that served as a model for other "son of" phrases in the Talmud (Bava Batra 4a, Avodah Zarah 50b). For the spelling ריבי, see n. 63 below.

as the two abutting, identical consonants of וַאֲבַדְתֶּם מְהֵרָה, "you will perish quickly" (Deuteronomy 11:17), עַל־לְבַבְכֶם, "upon your hearts" (11:18), etc. The reciter of the *Shemaʿ* prayer is enjoined to put a space (ריוח) between such sounds in order to prevent coalescence.[53] If so, the spelling of וַאֲבַדְתֶּם מְהֵרָה and עַל־לְבַבְכֶם, with a space separating the words and no omitted letters, is a faithful representation of the correct pronunciation and, thus, is phonemic. However, they were aware of a more popular pronunciation of those phrases according to which their spelling is taken to be morphophonemic.

The Masoretic pointing, too, hints at the existence of external sandhi coalescence in various ways.[54] For example, some occurrences of the *paseq* sign are used to warn the reader to avoid coalescing identical consonants, as in וּבַרְזֶל | לָרֹב, "and iron in abundance" (1 Chronicles. 22:3) and לְהַגְדִּיל | לְמַעְלָה, "to make (it) exceedingly great" (1 Chronicles 22:5).[55] Here, too, the spelling of the phrases with no omissions (spaces or letters) is phonemic according to the standard pronunciation, but morphophonemic according to the substandard pronunciation.

Some occurrences of the *dagesh* sign belong here as well. For example, some manuscripts have the pointing בֶּן־נּוּן, "son of Nun," with *dagesh* in the second

nun,[56] a pointing that an early Masoretic treatise, *Kitāb al-khilaf*, attributes to (the school of) Ben-Naphtali.[57] The function of this *dagesh* is controversial. For G. Bergsträsser it marks gemination derived from the sandhi coalescence of identical consonants: "Clearly it means that the two consonants should be pronounced together as a geminated consonant; in older times, before the introduction of word division, the consonant in such cases was even written once."[58] Israel Yeivin originally rejected Bergsträsser's view, asserting that the function of this *dagesh* was to *separate* the abutting consonants.[59] Later, however, he admitted to uncertainty about which interpretation is correct.[60] A considerable amount of evidence suggests that Bergsträsser was right.

One piece of evidence is the pointing of בִּן with a *ḥireq* instead of the usual *segol* (בֶּן). This exceptional pointing has a very straightforward explanation according to Bergsträsser's interpretation. Short *i is preserved (with no change of height or length) in Hebrew in a number of environments, including unstressed syllables closed by (the first half of) a geminated consonant.[61] Thus, the alternation בִּן־נוּן ~ בֶּן־אִישׁ, "the son of a man" (Leviticus 24:10),[62] is comparable to alternations such as לִבּוֹ, "his heart"

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[53] Most of the phrases listed by the Talmud involve identical consonants, but two of them have sounds that are merely similar. In עֵשֶׂב בְּשָׂדְךָ, "grass in your field" (Deut. 11:15), for example, we have external sandhi assimilation of spirantized *bet* to plosive *bet*. Spirantized *bet* was probably still pronounced as a voiced bilabial fricative ([β]), in the time of the Rabbis. For the date of spirantization, see Steiner, "Variation," *52–*65. For the pronunciation of spirantized *bet* in the 10th–11th centuries CE, see Geoffrey Khan, "The Tiberian Pronunciation Tradition of Biblical Hebrew," *ZAH* 9 (1996): 4: "According to *Hidāyat al-qāri*, *bet* with *rafe* is pronounced by closing the lips lightly. Taken by itself, this could be a description of a bilabial articulation of *bet rafe*. This is not confirmed, however, by other sources. The light closure of the lips would have accompanied a labio-dental articulation and no doubt it is this secondary feature that the author refers to." Put differently, we may be dealing with a pronunciation in which friction is created by *two* constrictions—one between the upper *incisors* and the *inside* of the lower lip, and the other between the upper *lip* and the *top* of the lower lip. Alternatively, we may be dealing with two distinct pronunciations of spirantized *bet*—an older one ([β]) and a newer one ([v]).

[54] Israel Yeivin, משמעות סימן הדגש בניקוד הטברני ה״מורחב״ in מחקרי לשון מוגשים לזאב בן־חיים בהגיעו לשיבה, ed. Moshe Bar-Asher, Aron Dotan, Gad B. Sarfatti, and David Téné (Jerusalem, 1983), 302–303.

[55] Ibid., 303; and Israel Yeivin, המסורה למקרא (Jerusalem, 2003), 180–81 §312.

[56] G. Bergsträsser, *Hebräische Grammatik*, vol. 1 (Leipzig, 1918), 67 §10u (citing also עַם מַרְעִיתוֹ, "the people of his shepherding," in Ps. 95:7; and עַל לֶחֱיָהּ, "on her cheek" in Lam. 1:2); Mordechai Breuer, כתר ארם צובה והנוסח המקובל של המקרא (Jerusalem, 1976), 36 (citing also הִקָּהֲלוּ־לִי, "gather to me," in Deut. 4:10); Israel Yeivin, הבלעת ן׳ בסוף תיבה, *Lešonenu* 42 (1977–78): 74 (citing also עַל לֶחֱיָהּ in Lam. 1:2), and כתר ארם־צובה: ניקודו וטעמיו (Jerusalem, 1968), 51 (citing also, at the end of the previous paragraph, הֲתִקְשָׁר־רֵים, "can you bind the wild ox?" in Job 39:10), and המסורה למקרא, 246 §453 (citing also, on p. 10 §21, אֲגַם־מָיִם, "a pool of water" in Ps 114:8). In each case, the *dagesh* is found in only some manuscripts.

[57] Mishael b. Uzziel, ספר החילופים, ed. Lazar Lipschütz (Jerusalem, 1965), 24, cited by Yeivin, הבלעת ן׳, 74. Is it merely a coincidence that the Ben-Naftali school of Masoretes paid special attention to the /n/-/n/ sequence in the patronymic Bin-Nun? In a future article, I hope to show that a number of early Jewish scholars were sensitive to specific issues of pronunciation and the like relevant to their own names.

[58] Bergsträsser, *Hebräische Grammatik*, vol. 1, 67 §10u. Note that this was published a year before the publication of Eisler's decipherment of Sinai 345.

[59] Yeivin, הבלעת ן׳, 74. See at n. 111 below.

[60] Yeivin, משמעות סימן הדגש, 302–303.

[61] See, for example, E. J. Revell, "The Tiberian Reflexes of Short *i in Closed Syllables," *JAOS* 109 (1989): 186.

[62] For another vowel alternation in BH that can be attributed to a geminated consonant resulting from external sandhi coalescence

~ לֶב־אִישׁ, "the heart of a man" (Proverbs 19:21, etc.) and שְׁנַּיִם "teeth, fangs" ~ שֶׁן־בהמת, "the fang of beasts" (Deuteronomy 32:24).[63]

Additional evidence for Bergsträsser's position comes from the phonemic Rabbinic spelling ישוע בנון (in a citation of Nehemiah 8:17).[64] The spelling represents a pronunciation in which the two identical consonants were pronounced together as a single geminated consonant, needing only a single letter to represent it. I suggest that the spelling בנון is comparable to Rabbinic spellings like ישכר (instead of יִשָּׂשׂכָר, in a citation of 2 Chronicles 30:18),[65] יישכר (instead of יִשָּׂשׂכָר, in a citation of Deuteronomy 33:18),[66] and למחצרים (instead of לַמְחַצְּצְרִים, in a citation of 2 Chronicles 5:13).[67] If so, the unpointed first final *nun* of בֶּן־נוּן should be viewed as a silent letter, comparable to the unpointed (and hence silent) *š/ sin* of יִשָּׂשׂכָר and *ṣade* of לַמְחַצְּצְרִים. In these cases, the biblical spellings are non-phonemic, while the Rabbinic spellings are phonemic.[68] In the biblical forms, we see clearly how the two distinct text traditions preserved by the Masoretes, the written one and the oral one, preserve two distinct linguistic levels: the non-phonemic written form and the oral phonemic reality that would otherwise be concealed.

Parallels to בנון, albeit somewhat further afield, are also found in early inscriptions from Phoenician. In Old Byblian:

Nun assimilated to the following consonant even between words, as for example ביחמלך "son of Yehimilk" (Shiptibaal 3; Elibaal 1 [partially restored]) < *bin* + Yehimilk and בכלבי "son of Kalbay" (ʿAbdo) < *bin* + Kalbay. This particular assimilation was restricted to בן + PN, when the two words were pronounced in sandhi. . . .[69]

Another example from Byblos is found in an 11th century inscription: לאחאם בבד, "belonging to ʾAḥīʾem son of Bōdī.[70] The personal name בענת, inscribed on an Old Phoenician arrowhead (11th or very beginning of the 10th century BC), may be another parallel of this type. André Lemaire compares בענת to the name בנענת, "lit., son of Anat," which occurs on four other arrowheads (and elsewhere), and asks: "Is this another case of B for BN as in several old Byblian inscriptions?"[71] According to Lipiński, another Old Phoenician arrowhead inscription contains the patronymic בירים > *בן ירים, "son of Yarīm."[72] (It is perhaps not an accident that these last two examples occur on arrowheads, where space was very limited.) All of these parallels are similar to בנון in that they involve *bin*, but dissimilar in that they involve external sandhi assimilation of non-identical consonants (in addition to external sandhi coalescence of identical consonants).[73]

Another piece of evidence comes from the earliest Hebrew grammarians. Jonah Ibn Janāḥ begins his discussion of sandhi coalescence (external and internal) with בֶּן־נוּן:

(as confirmed by phonemic spelling in Lachish letter 3:9), see Greenberg, "The Hebrew Oath Particle Ḥay/Ḥē": 34–39.

[63] The *ḥireq* in בֶּן־לַיְלָה (Jon. 4:10) may point to external sandhi assimilation of /n/ to /l/; see section 3 below. In בֶּן־יָקֶה and בִּנְיָמִין, by contrast, it is probably vowel harmony with /y/ that preserves the *ḥireq*, cf. רְבִי > רְבֵי > רַבִּי in Mishnaic Hebrew.

[64] גנזי מדרש: לצורתם הקדומה של מדרשי חז״ל לפי כתבי יד מן הגניזה, ed. Zvi Meir Rabinowitz (Tel-Aviv, 1976), 191 l. 35. Cf. the discussion of Nahmanides (Ramban) in פירושי התורה לרבינו משה בן נחמן (רמב״ן), ed. C. B. Chavel, vol. 1 (Jerusalem, 1962), 518 line 17–519 line 2 (Exod. 33:11).

[65] תוספתא על פי כתבי יד ערפורט וינה, ed. M. S. Zuckermandel (Jerusalem, 1970), 417 l. 23.

[66] מדרש ויקרא רבה, ed. Mordecai Margulies (New York, 1993), part five, 78 l. 20.

[67] See *b. Sukkah* 51a (MSS Munich 95 and Munich 14); *b. Arakhin* 11b (MSS Vatican 119 and Oxford 370), according to the Talmud Text Databank (Saul Lieberman Institute). Additional attestations of ישכר, יישכר, and למחצרים can be found by searching the database of Genizah texts at www.genizah.org. And Elisha Qimron calls my attention to the occurrence of ישכר at Qumran (4Q522 3 8).

[68] The spellings ישכר and יישכר are, to be more precise, only *partially* phonemic. Fully phonemic spellings would be יסכר and ייסכר.

[69] W. Randall Garr, *Dialect Geography of Syria-Palestine, 1000–586 B.C.E.* (Philadelphia, 1985), 40. So too Friedrich and Röllig, *Phönizisch-Punische Grammatik*, 56 §99b.

[70] Frank M. Cross and P. K. McCarter, "Two Archaic Inscriptions of Clay Objects from Byblus," *Rivista di Studi Fenici* 1 (1973): 3–8; Javier Teixidor, "An Archaic Inscription from Byblos," *BASOR* 225 (1977): 70–71; Frank M. Cross, "Early Alphabetic Scripts," in *Symposia Celebrating the Seventy-fifth Anniversary of the Founding of the American Schools of Oriental Research*, ed. F. M. Cross (Cambridge, MA, 1979), 103. For the (corrected) reading of the first name, see Cross's, "Newly Found Inscriptions in Old Canaanite and Early Phoenician Scripts," *BASOR* 238 (1980): 18 n. 11. As for the second name (בד), Maria Giulia Amadasi wonders why Cross vocalizes it as Bōdī instead of Bōdō (personal communication).

[71] André Lemaire, "From the Origin of the Alphabet to the Tenth Century B.C.E.: New Documents and New Directions," in *New Inscriptions and Seals Relating to the Biblical World*, ed. Meir and Edith Lubetski (Williston, VT, 2012), 7–8.

[72] Edward Lipiński, *Semitic Languages: Outline of a Comparative Grammar* (Leuven, 1997), 203. Lipiński does not say whether this inscription was ever published.

[73] See the end of n. 76 below.

I have seen a treatise attributed to al-Fayyūmī [Saadia Gaon],[74] head of the academy, may God have mercy on him, in which he claims that there are those among the Hebrews who insert (ידגם)[75] the *nun* of בן into the (initial) *nun* of (the name) נון, and those among them who keep it distinct.[76]

The treatise cited by Ibn Janāḥ is potentially quite important if we may rely on its attribution to Saadia Gaon. The latter studied Bible—including the Tiberian oral tradition—in Tiberias at the beginning of the 10th century.[77] He would certainly have learned of the disagreements between the two major schools of Tiberian Masoretes, the school of Ben-Naphtali and the school of Ben-Asher.[78] As noted above, Ben-Naphtali's pointing בֶּן־נוּן, with *dagesh* in the initial *nun* of the name, points to a pronunciation [bin:u:n]. Assuming, with Ben-Naphtali, that this pronunciation goes back to the biblical period, we may say that the biblical spelling (בֶּן־נוּן) is morphophonemic—in contrast to the Rabbinic spelling (בנון), which is phonemic.

We have seen that spellings that express external sandhi coalescence of identical consonants phonemically appear to be the norm in the proto-alphabetic inscriptions from Sinai. In Northwest inscriptions from the first millennium BC, by contrast, such spellings are sporadic and sometimes uncertain.[79] In the Masoretic Text of the Bible, external sandhi coalescence of iden-

tical consonants is normally concealed by morphophonemic spelling (except with the preposition מִן).

Mishnaic Hebrew (henceforth MH) orthography shows how far this trend toward morphophonemic concealment of sandhi coalescence could be taken. In a small number of MH examples, we find the coalescence left without orthographic expression even in *internal* sandhi, i.e., when it spans the morpheme boundary between stem and suffix. For example, the citation of 2 Chronicles 14:10 in the *Mekhilta* substitutes the new morphophonemic spelling נשעננו (= נשען+נו), "we have relied" for the phonemic Masoretic spelling נִשְׁעַנּוּ.[80] Similarly, in the Tosefta, we find נתננו (= נתנ+נו), "we gave" (*Peʾah* 1:6) instead of biblical נָתַנּוּ (Genesis 34:16, etc.); and נבעתתי (= נבעת+תי), "I was terrified" (*Rosh Hashanah* 1:15) instead of biblical נִבְעַתִּי (Daniel 8:17).[81] It is only in MH that we find evidence of a nascent tendency to replace phonemic spelling of geminates resulting from *internal* sandhi coalescence with morphophonemic spelling. It is true that the MH phonemic spellings ישוע בנון and למחצרים could be viewed as signs of a nascent tendency in the opposite direction, but these are isolated forms with much less significance for the orthographic *system* than the morphophonemic spellings נשעננו, נתננו, and נבעתתי.

Sandhi Assimilation in Northwest Semitic Orthography

We have already seen examples of external sandhi assimilation in early texts from Phoenicia: ביחמלך, "son of Yehimilk" (KAI 6,1 and 7,3), בכלבי, "son of Kalbay" (KAI 8), and the personal names בבד, בענת, and בירים.[82] These examples involve בן, "son of." They are phonemic spellings, and they are old enough to be considered a relic of the phonemic spellings in the earliest alphabetic texts.[83] In later Byblian, by contrast, we

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[74] For this treatise, see Aron Dotan, ספר אור ראשון בחכמת הלשון: צחות לשון העברים לרב סעדיה גאון (Jerusalem, 1997), 88, 92–93.

[75] This term is rendered מבליע "cause to be swallowed up" in Ibn Tibbon's Hebrew translation.

[76] Ibn Janāḥ, *Parterres fleuris*, 236 ll. 22–24 = ספר הרקמה, 252 ll. 1–2; cf. Dan Becker, מקורות ערביים לדקדוקו של ר׳ יונה אבן ג׳נאח (Tel Aviv, 1998), 91. This passage is from Ibn Janāḥ's chapter on *ʾidġām*. For the technical meaning of this Arabic term, see Fleisch, *Traité de philologie arabe*, vol. 1, 243 §50h: "the contraction of two identical consonants into a geminate" marked by the *shadda* sign. Thus, the term *ʾidġām* is essentially equivalent to the term *coalescence* (of identical consonants)—not, as often assumed, to the term *total assimilation*. The latter refers to a process that makes two abutting non-identical consonants identical, thereby triggering coalescence. Once again, we may quote Fleisch (ibid., §50i): "*ʾidġām* is preceded by an assimilation when the consonants in contact are not identical but [merely] similar." The coalescence that follows total assimilation is so automatic that it is largely invisible—a universally ignored by-product of the assimilation.

[77] Dotan, אור ראשון, 19, 34–38.

[78] For Saadia's use of Ben-Naphtali traditions, see Dotan, אור ראשון, 422 n. 46.

[79] Friedrich and Röllig, *Phönizisch-Punische Grammatik*, 56 §99a with n. 5.

[80] מכילתא דרבי ישמעאל, ed. H. S. Horovitz and I. A. Rabin (Frankfurt am Main, 1931), 93 l. 4.

[81] תוספתא, ed. Saul Lieberman, vol. 1 (Jerusalem, 1992), 43 l. 28; vol. 2 (New York, 1962), 309 l. 56. For two additional examples of נתננו, "we gave," in reliable manuscripts of the Talmud, see Maagarim (http://maagarim.hebrew-academy.org.il, accessed May 2016) s.v. נתננו*. The sporadic representation of gemination in Punic probably began in Latin names and then spread to native words; see Friedrich and Röllig, *Phönizisch-Punische Grammatik*, 55 §97b.

[82] See at nn. 69–72 above.

[83] For the external sandhi assimilation of *mn* in the serpent spells, which are also from Byblos, see Steiner, *Serpent Spells*, 52, 54–55.

find בן יחרבעל.[84] Either the sound change had ceased to operate in Byblian, or the older phonemic spelling had been replaced by morphophonemic spelling.

Another example of the external sandhi assimilation of /n/ is found, in all likelihood, at Serābīṭ el-Khādem. The example does not involve the word for "son of."[85] Instead, it involves the noun *mtn*, "gift," which, according to Albright, occurs in Sinai no. 346. It is inscribed on a cuboid female statuette found at the entrance to the hall of Sopdu in the Ḥathor temple. As deciphered by Albright, parts II-III of that text read: *ʿl n[ʿm] mt<n> lbʿlt; ʿl nʿm rb nqbn[m]*, "on behalf of N[uʿmu], a gift for Baalat; on behalf of Nuʿmu, chief of the miner[s]."[86] A number of scholars have accepted Albright's decipherment of the last four words, albeit with various modifications.[87]

I find Albright's decipherment of the first four words persuasive as well. It is supported by Albright's interpretation of *mtn* at the beginning of the Lachish Ewer inscription as a common noun meaning "gift."[88] Additional support comes from a Punic inscription (KAI 99 l. 1): לאדן לבעל מתנת, "for the lord, Baal, a gift."

An objection to Albright's interpretation, however, has been raised by Émile Puech. In his view, the lacuna

in *ʿl n[ ] mtlbʿlt* has room for three letters rather than two (*ʿayin* and *mem*).[89] Albright's interpretation assumes that the engraver left a blank space following ʿ*m*, but Puech—unlike Albright, Sass,[90] etc.—believes that he can see "an outline of *bet*" there.[91] If this reading is correct, it requires only a minor change of translation: "(given) on behalf of N[uʿmu] *as* a gift to Baʿlat." The same use of *bet* occurs in a Phoenician/Punic votive inscription from Pyrgi (Italy): . . . יתן במתן, "gave . . . *as* a gift" (KAI 277 ll. 2–5). It also occurs dozens of times in tannaitic literature in the expression נ-ת-ן ל-X במתנה, "give to X *as* a gift." Perhaps the closest parallels are performative declarations, such as הרי הפירות/המעות האלו נתונים לך במתנה, "these fruits/coins (obols) are hereby given to you *as* a gift" (m. Maʿser Sheni 4:5, Nedarim 11:8), and הרי הוא לו במתנה, "it is hereby (given) to him *as* a gift" (m. Sukkah 4:4). In the latter example, as in our inscription (assuming that it really had a *bet*), the passive participle meaning "given" is understood (unless the meaning is "it is hereby his *as* a gift"). The tannaitic expression is closely related to biblical expressions such as לָתֵת אֶת־הָאָרֶץ בְּנַחֲלָה, "to give the land *as* an inheritance" (Num. 36:2). Compare also Egyptian Aramaic זילי באגר יהבת לה, "which is mine *as* payment I gave him" (Cowley 69A 12), with ambiguous syntax.[92]

Another alleged problem with Albright's interpretation concerns the word *mtn*, "gift." Unfortunately, Albright weakened the interpretation by transcribing the word as *mt<n>*, with angle brackets suggesting that the scribe accidentally omitted a letter. In other words, Albright assumed that his interpretation was dependent on emendation. Not surprisingly, some scholars have cited this assumption as a reason to reject Albright's interpretation.[93]

As we shall see in a moment, Albright's assumption is tied to another assumption of his, viz., that the Proto-Semitic case endings were preserved in the Old Canaanite speech of the miners. This assumption can be seen in

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[84] Friedrich and Röllig, *Phönizisch-Punische Grammatik*, 56 §99b.

[85] It has been claimed that the name *bnṣ/zr* occurs in two inscriptions (Sinai nos. 352 and 364); see William F. Albright, *The Proto-Sinaitic Inscriptions and Their Decipherment* (Cambridge, 1966), 20–21, 26; and (more tentatively) Sass, *Genesis*, 22–23, 33–34. However, it is unclear whether this is *bn-ṣ/zr*, "son of Zur" (so Albright) or *bn-nṣ/zr* (with sandhi coalescence of identical consonants) from the root *n-ẓ-r > n-ṣ-r* "protect."

[86] Albright, *Proto-Sinaitic Inscriptions*, 17.

[87] Sass, *Genesis*, 15; Hinz, "Sinai-Inschriften": 19; Pardee, "Proto-Sinaitic," 354; Hamilton, *Origins*, 401; cf. also Puech, "Notes sur quatre inscriptions," 17–19. Hinz, Pardee, Puech, and Hamilton read *rb nqbn*, taking the phrase to mean "chief of the miner(s)" (Hinz), "chief of the mine(rs)" (Pardee); "lord of the mine" or "lord of our miners" (Puech); or "chief of our mine" (Hamilton). Albright's reading, *rb nqbn[m]* "chief of the miner[s]," appears to reflect two assumptions: (1) *nqbn* means "miner," with -*n* used to form the name of a profession, as often in MH (cf. perhaps רַחֲמָנִיּוֹת in Lam. 4:10); and (2) *X* must be plural in the expression *rb X*, as in רַב־טַבָּחִים and רַב סָרִיסָיו. However, even if assumption (1) is correct, assumption (2) is not. Judging from parallels such as רַב הַחֹבֵל, רַב־סָרִיס, and רַבְשָׁקֵה, the phrase *rb nqbn* can mean "chief miner."

[88] William F. Albright, "The Early Alphabetic Inscriptions from Sinai and their Decipherment," *BASOR* 110 (1948): 15 n. 43. For improved versions of this attractive interpretation, see Richard C. Steiner, "The Lachish Ewer: An Offering and a Tribute," in *Eretz-Israel* 32 (2016) (Memorial Volume for Joseph Naveh: 103*–112*).

[89] Puech, "Notes sur quatre inscriptions," 15, 17.

[90] Sass, *Genesis*, 14.

[91] Puech, "Notes sur quatre inscriptions," 15.

[92] For the (revised) reading and translation, see Bezalel Porten and Ada Yardeni, *Textbook of Aramaic Documents from Ancient Egypt*, vol. 2 (Jerusalem, 1989), 160–61 B8.5 l. 15.

[93] See Hinz, "Sinai-Inschriften": 20–21: "It is unlikely that the scribe or the stone mason would have forgotten the *n* in *mtn*"; and Puech, "Notes sur quatre inscriptions," 17: "the insertion of an unengraved consonant . . . cannot support this interpretation."

his vocalizations: *Nuˤmu* and *muʾahhabu Baˤalti*.[94] For Albright, then, the word for "gift" in our inscription was pronounced [mat:anu], with a final vowel.

In my view, there is no need to make Albright's interpretation dependent on emendation. We are dealing with another external sandhi phenomonon—a total assimilation that ignores the word boundary, yielding [mat:al:ibaˤlat]. Albright assumed that the pronunciation was [mat:anu libaˤlti], with a case ending on the first word making sandhi assimilation impossible, but we have already shown that this assumption is quite gratuitous.[95] The evidence for external sandhi assimilation in this phrase is surprisingly strong—much stronger than generally recognized. Let us now review some of this evidence.

It is hardly necessary to document the tendency of /n/ to undergo total regressive assimilation in the Semitic languages—a tendency that goes all the way back to Proto-Semitic.[96] It is well known that in Hebrew, for example, we find this assimilation crossing morpheme boundaries within words (internal sandhi, with the third radical of נ-ת-ן, in נָתַתִּי, "I gave" = נתנ+תי* > נתת+תי, etc.) and even word boundaries (external sandhi, with the preposition מִן).[97]

It has not been noticed, however, that external sandhi assimilation of the third radical of *n-t-n* is widely attested in Northwest Semitic—so widely that one is almost tempted to reconstruct it for Proto-Northwest Semitic. Two examples of this total assimilation have been published from seal inscriptions by N. Avigad: נתשי "(Abirgad) has given an offering (to Ḥammon),"

and the personal name נתבעל, whose literal meaning is "Baal has given."[98] Most of the examples, however, involve the preposition *l-*.

Perhaps the clearest attestation of this assimilation is found in Mandaic. There we find regular morphophonemic alternation, as in *nitin*, "he gives" ~ *nitilan*, "he gives us"; *mitin*, "to give" ~ *mitilan*, "to give us"; etc.[99] The similarity between Mandaic *mitilan* and Old Canaanite *mtlbˤlt* is striking. In Syriac, the alternation has been eliminated through analogical leveling, with a back-formation yielding a new root: *n-t-l* in place of *n-t-n*. In the words of Carl Brockelmann: "Since the verb 'give' constantly occurs in connection with the preposition *l*, the *n* of **netten* 'he gives' . . . is always assimilated to this *l* in ancient Syriac. . . ."[100] Not surprisingly, we find this sandhi assimilation represented in the Aramaic text in Demotic script (early third century BC), as well: *enir.k.ᵐ ksp.ᵐ ywwspr.k.ᵐ ṫ.h.bᵐ* = *ʾnt(n)-lk ksp(ʾ) ywsp-lk dhb(ʾ)*, "I shall give you the silver; the gold will accrue (lit., will be added) to you" (P. Amherst 63 XV/7–8).[101] There are also attestations in Amoraic Hebrew (Jerusalem Talmud) and the Samaritan oral tradition of the Pentateuch.[102]

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[94] See n. 31 above.

[95] See at nn. 32–38 above.

[96] Joaquín Sanmartin, "Über Regeln und Ausnahmen: Verhalten des vorkonsonantischen /n/ im 'Altsemitischen,'" in *Vom Alten Orient zum Alten Testament - Festschrift fur Wolfram Freiherrn von Soden*, ed. M. Dietrich and O. Loretz (Neukirchen-Vluyn, 1995), 433–66; Steiner, "Vowel Syncope," 380–81.

[97] We are dealing here with the phonemic representation of external sandhi *assimilation* (plus coalescence) involving מִן. (For pure sandhi *coalescence* involving מִן, see after n. 52 above.) Occasionally, the two distinct text traditions—the written one and the oral one—preserve two distinct linguistic levels, viz., the morphophonemic spelling and the phonemic reality hidden beneath it. In 1 Sam. 24:8, for example, the written text tradition has the morphophonemic representation מן המערה, "from the cave," but the oral text tradition has the phonemic representation מֵהַמְּעָרֶה, "id." Similarly, in Lam. 1:6 the written text tradition has morphophonemic מן בת, "from the daughter of," but the oral text tradition has phonemic מִבַּת, "id." For *min-* in inscriptions, see Garr, *Dialect Geography*, 44; and Steiner, *Serpent Spells*, 52, 54–55.

[98] N. Avigad, "Two Phoenician Votive Seals," *IEJ* 16 (1966): 243–47, esp. 244 n. 9: "The writer is inclined to agree with Prof. B. Mazar that the missing *nun* of our inscription assimilated to the following consonant *š*." Avigad seems to take both examples as Phoenician, but Maria Giulia Amadasi Guzzo notes that "in Phoenician we have YTN not NTN so the two seals that you cite . . . are perhaps not Phoenician" (personal communication).

[99] E. S. Drower and R. Macuch, *A Mandaic Dictionary* (Oxford, 1963), 307–308 s.v. *NTN*.

[100] Carl Brockelmann, *Grundriss der vergleichenden Grammatik der semitischen Sprachen*, vol. 1 (Berlin, 1908–1913), 291 §102m. Cf. Hans Bauer and Pontus Leander, *Historische Grammatik der hebräischen Sprache des Alten Testamentes* (Halle, 1922), 199 n. 2.

[101] Note the appearance of *r.k.* = *lk* in each of the parallel hemistichs. Note also that, ironically, the *first* radical of *n-t-n* is *not* assimilated in *enir.k.ᵐ*. For the translation (slightly revised here) and the context, see Richard C. Steiner, "The Aramaic Text in Demotic Script," in *The Context of Scripture*, ed. William W. Hallo and K. Lawson Younger, Jr., vol. 1 (Leiden, 1997), 320. To the best of my recollection, only the translation of this passage has been previously published. P. Amherst 63 also has examples of the external sandhi assimilation of /l/, a phenomenon attested in a variety of Aramaic sources from the Achaemenid period onward; see Richard C. Steiner, "Why Bishlam (Ezra 4:7) Cannot Rest 'In Peace': On the Aramaic and Hebrew Sound Changes that Conspired to Blot Out the Remembrance of Bel-Shalam the Archivist," *JBL* 126 (2007): 397–99.

[102] Yeivin, הבלעת ן, 74 (לית לי = ליתלי = *littellī*, "to give me," etc.); Z. Ben-Ḥayyim, עברית וארמית נוסח שומרון (Jerusalem, 1977), 62 (*nētella* = נתן לה in Lev. 19:20).

What about Biblical Hebrew? It has long been suspected that this very specific type of external sandhi assimilation existed there without being represented in writing. Hans Bauer and Pontus Leander write: "Undoubtedly, the assimilation of *n* to a following consonant was carried out in sandhi as well, even though the writing does not show it. Thus, יִתֶּן־לוֹ "he gives him," was pronounced *i̯ittæl lő̆*."[103] In a footnote they cite Syriac *nettel*, "he gives," together with a brief explanation of its origin.[104]

The earliest known discussion of this type of external sandhi assimilation comes from Jonah Ibn Janāḥ:

> Insertion (אדגאם) is also permitted, in my opinion, in the case of any two *non*-identical letters, if they are close to each other in place of articulation and they are at the (adjacent) ends of two (adjacent) words, as we have said. An example of that is וְיִתֶּן־לִי את מערת המכפלה "and let him give/sell me the cave of Machpelah" (Gen. 23:9), for it is permitted, in my opinion, to insert the *nun* of וְיִתֶּן into the *lamed* of לִי because of their closeness to each other in place of articulation—if someone wishes to do so.[105]

Ibn Janāḥ thought that [wǎyit:el:i:] could perhaps be considered a legitimate (albeit optional) pronunciation of וְיִתֶּן־לִי (Genesis 23:9). David Qimḥi (Radaq) disagreed.[106] For our purposes, however, the question is not whether the pronunciation was considered legitimate in the Middle Ages but whether it was in use then among some readers. It seems unlikely that Ibn Janāḥ invented this example. One gets the impression that he had heard it from one or more readers—readers whose tradition he did not consider absolutely reliable.[107]

Evidence bearing on this question began coming to light in 1976, when Mordechai Breuer drew attention to some strange occurrences of *dagesh* following נ-ת in the Leningrad Codex: וַיִּתֶּן־לוֹ, "and he gave to him" (Genesis 24:36; contrast 24:35), מַה־תִּתֶּן־לִי,

"what will you give to me?" (Genesis 38:16; contrast 28:22), אֶתֶּן־לָךְ, "I should give to you" (Genesis 38:18), וַיִּתֶּן־לָהּ, "and he gave to her" (ibid.), תִּתֶּן־לִי, "you shall give to Me" (Exodus 22:28), תִּתֶּן־לוֹ, "you shall give to him" (Deuteronomy 18:4).[108] Breuer ventured no opinion concerning the function of this *dagesh*, although he did offer a tentative explanation for a related example in a subsequent section.[109] In 1977, Israel Yeivin added another example to Breuer's list from a Genizah fragment (New York JTS 226): וַיִּתֶּן־לוֹ (1 Kings 11:19).[110] According to him:

> Those vocalizers who opposed the assimilation put a *dagesh* in the first letter of the second word of the phrase. The *dagesh* apparently indicates a pronunciation like *wayyittén lló*. The doubling of *lamed* lengthens the consonant, thereby preventing the assimilation.[111]

In that same year, Z. Ben-Ḥayyim pointed out the assimilation in *nētella*, a Samaritan pronunciation of נתן לה (Leviticus 19:20) that he described as a revealing slip of the tongue.[112] In the course of two years, then, three experts on biblical reading traditions gathered enough evidence to corroborate the sandhi assimilation in יִתֶּן־לִי posited by Ibn Janāḥ, and Bauer and Leander.

To this evidence we may add an intriguing Akkadian parallel:

> When the final consonant is *n*, mainly with the verb *nadānu*, OB often showed assimilation to the *š* of the suffix pronoun, e.g., *inaddiššum* (CH 17, viii 58). In MB and the peripheral dialects such an assimilation is virtually unknown.[113]

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[103] Bauer and Leander, *Historische Grammatik*, 199.

[104] Ibid., n. 2.

[105] Ibn Janāḥ, *Parterres fleuris*, 237 ll. 21–24 = ספר הרקמה, 252 l. 19–253 l. 3. See also Yeivin, הבלעת ן, 73; and Kister, על משמעויות, 8. For the technical meaning of אדגאם, see n. 76 above.

[106] R. David Qimḥi, מכלול (Lyck, 1842), 72b.

[107] In the continuation of his discussion (*Parterres fleuris*, 238 ll. 6–8, 12–16 = ספר הרקמה, 253 ll. 12–13; 253 l. 16 - 254 l. 1), he stresses that he cannot say with certainty that this and other readings are correct, because, despite his best efforts, he has never managed to find any contemporary with a completely reliable reading tradition.

[108] Mordechai Breuer, כתר ארם צובה, 36.

[109] Ibid.

[110] Yeivin, הבלעת ן, 73. See also Kister, על משמעויות, 8–9. It appears that Kister, like the present writer, agrees with Bergsträsser's interpretaion of the *dagesh* rather than Yeivin's.

[111] Yeivin, הבלעת ן, 74. See also at nn. 59–60 above.

[112] Z. Ben-Ḥayyim, עברית וארמית נוסח שומרון, vol. 1 (Jerusalem, 1977), 62.

[113] Anson F. Rainey, *Canaanite in the Amarna Tablets: A Linguistic Analysis of the Mixed Dialect Used by Scribes from Canaan* (Leiden, 1996), 43. Rainey's findings concerning the peripheral dialects are consistent with those of John Huehnergard in *The Akkadian of Ugarit* (Atlanta, 1989), 101. (I am indebted to Alan Millard for this reference.) For an Old Babylonian example of *external* sandhi assimilation involving this root, see Lipiński, *Semitic Languages*, 203: "a *sandhi* spelling, which involves the assimilation of *n* to the following consonant, is attested in Babylonian *ni-di-pi-im* [*nidippīm*] for *nidin pīm*, 'promise.'" For other examples of ex-

The form *inaddiššum* in the Code of Hammurapi is a phonemic spelling of *inaddin+šum* "he shall give (to) him." It may be compared to the Hebrew form תִּתֶּן־לוֹ, "you shall give to him," discussed above.

All of this evidence provides solid support for the suggestion that *mtlbʿlt* in Sinai 346 is to be interpreted as *mattallibaʿlat < *mattan-libaʿlat*. If that suggestion is correct, *mtlbʿlt* exhibits phonemic spelling of a very specific type of external sandhi assimilation: the total assimilation of the third radical of *n-t-n* to a following word, especially one beginning with the preposition *l-*. That assimilation is represented phonemically in Aramaic (Mandaic and P. Amherst 63), Amoraic Hebrew, and (without the preposition) in two Northwest Semitic seals. In Biblical Hebrew, it is concealed by morphophonemic spelling. We know of it thanks to a few Masoretes and a medieval grammarian who recorded an oral tradition that seems to go back to the biblical period.

Another possible example of the total assimilation of /n/ in external sandhi is found in יְשֻׂשׂוּם מִדְבָּר וְצִיָּה, "the wilderness and desert shall rejoice" (Isaiah 35:1).[114] Already in the 10th century, Dunash b. Labrat argued that the form יְשֻׂשׂוּם is a variant of *יְשֻׂשׂוּן.[115] According to him, the same variation is exhibited by הַפְּדִיֹּם, "the redemption" (Numbers 3:49) = *הַפִּדְיוֹן.[116] Some modern grammarians have added that both of these examples can be viewed as a product of external sandhi assimilation, since both are followed by a word beginning with /m/: יְשֻׂשׂוּם מִדְבָּר and הַפְּדִיֹּם מֵאֵת, "(so Moses took the money of) redemption from (those who were. . .)."[117] If this view is correct, these examples exhibit an interesting mixture of phonemic and morphophonemic spelling. The spelling is phonemic in representing the external sandhi assimilation, but morphophonemic in ignoring the concomitant external

sandhi coalescence.[118] A fully phonemic spelling of יְשֻׂשׂוּם מִדְבָּר would have been *יְשֻׂשֻׂמִּדְבָּר. The coalescence could also have been represented solely in the pointing, without abandoning the morphophonemic spelling, as *יְשֻׂשֻׂוּן מִּדְבָּר.[119]

Scriptio Continua in Northwest Semitic Orthography

It has not been recognized that the phonemic representation of external sandhi phenomena—coalescence of identical consonants and assimilation of non-identical consonants across word boundaries—is related to another orthographic feature of the proto-alphabetic texts from Sinai: the absence of any sort of word division, a feature known as *scriptio continua*.[120] This feature is explained by Joseph Naveh as follows: "The earliest word divider was a short vertical stroke, which was very often omitted in cursive and vulgar writing. Thus in the Serābît el-Khâdem texts from *ca*. 1500 B.C., which are actually graffiti, the separation between words is not marked."[121]

This brief discussion is intuitively appealing, but it is not without problems. Naveh's definition of the term *graffiti* is fairly broad. He notes explicitly that, in some cases, burial inscriptions can also be viewed as graffiti; however, he does not say the same about votive inscriptions.[122] Thus, the characterization of the Serābît el-Khādem texts as graffiti does not seem appropriate to the votive inscriptions on the statuettes dedicated to Baʿlat and displayed in her temple, and yet they too have no word division. More generally, the classic study of A. R. Millard, upon which Naveh based his discussion, seems to show that it is not possible to identify conditions that

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[118] See the end of n. 76 above.

[119] See the discussion of בנון and בֶּן־נוּן above.

[120] For this feature, see Albright, "Early Alphabetic Inscriptions," 8; A. R. Millard, "'Scriptio Continua' in Early Hebrew: Ancient Practice or Modern Surmise?", *JSS* 15 (1970): 5; Sass, *Genesis*, 134. Millard notes that this feature is exhibited not only by the texts from Sinai but also by "their relatives from Palestine." We may add that *scriptio continua* is not simply a "*modern* surmise." One of the greatest Jewish scholars of the Middle Ages, Nahmanides (Ramban), writes that, before being given to Moses, the Torah existed in what today would be called "virtual" form: black fire on white fire. At that time, "it seems . . . that the writing was continuous, without separation of words" (נראה . . . שהיתה הכתיבה רצופה, בלי הפסק תיבות), allowing it to be read also as a series of divine names; see פירושי התורה לרבינו משה בן נחמן, 7 ll. 7–11.

[121] Joseph Naveh, "Word Division in West Semitic Writing," *IEJ* 23 (1973): 206.

[122] Naveh, *Early History*, 3.

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ternal sandhi assimilation in Akkadian, see Erica Reiner, "New Cases of Morphophonemic Spellings," *Orientalia* 42 (1973): 36–37.

[114] I am indebted to Elisha Qimron for this very stimulating suggestion. The Masoretic spelling is identical to that of 1QIsᵃ, for which see *Scrolls from Qumrân Cave I* (Jerusalem, 1972), 70–71.

[115] Dunash b. Labrat, ספר תשובות דונש הלוי בן לברט על רבי סעדיה גאון, ed. Robert Schröter, vol. 1 (Breslau, 1866), 20 §65. The same interpretation appears in a number of medieval commentaries on Isa. 35:1 from subsequent centuries, including those of Judah ibn Balʿam (פירוש ר׳ יהודה אבן בלעם לספר ישעיהו, ed. Moshe Goshen-Gottstein with the assistance of Maʿaravi Perez [Ramat Gan, 1992], 162), Abraham Ibn Ezra, and David Qimḥi.

[116] Dunash, ספר תשובות, 20 §65.

[117] See, for example, Heinrich Ewald, *Grammatik der hebräischen Sprache des Alten Testaments* (3rd ed.; Leipzig, 1838), 50 §128.

are both necessary and sufficient for the use of *scriptio continua* in Northwest Semitic inscriptions.[123] In any event, it is worth noting that word dividers are found in the ʾIšbaʿal Inscription from Khirbet Qeiyafa (early 10th century BC)—even after בן, "son of."[124] This could be viewed as supporting Naveh's position, since "the writing quality of this inscription is higher than that of most other known Canaanite inscriptions, indicating a skilled hand."[125]

Scriptio continua seems odd to us today,[126] but it is actually a phonetically accurate representation of the stream of speech. As every phonetician knows, when casual speech is recorded on a spectrogram, it becomes apparent that there is an "absence of obvious acoustic markers at word boundaries, such as silent pauses."[127] We often find the same assimilations (or "coarticulations") *between* words that we find *within* words.[128] Thus, the absence of word dividers in the orthography of our earliest alphabetic texts goes hand in hand with the frequent phonemic representation of sandhi phenomena that ignore word boundaries. Rather than viewing the absence of word division at Serābīṭ el-Khādem as a result of omission, we should perhaps view this feature as an integral part of the shallow orthography employed there. And if so, the use of *scriptio continua* by Phoenician scribes and others may well have a diachronic explanation, even if it has no synchronic explanation. It can be viewed as a relic from an earlier era.

Glottal Stop Deletion in Northwest Semitic Orthography

The last orthographic feature of the Sinai texts to be discussed here is the frequent omission of *aleph* in the expression meaning "beloved of Baʿlat," yielding *mhbʿlt* (Sinai 348, 353, 354, 356, and perhaps 361, 379/386, 380/387), alongside *mʾhbʿlt* (Sinai 345 and perhaps 350) and *mʾhbbʿlt* (Sinai 374 and perhaps 351).[129] In the form *mhbʿlt*, the omission of *aleph*, like the omission of a second *bet*, is an example of phonemic spelling.[130] If we consider only the six attestations of the expression whose spelling is reasonably certain, we find that *aleph* is omitted in four of them. In other words, the forms in which *aleph* is omitted are twice as numerous as those in which *aleph* is written.

Another Old Canaanite example of glottal stop deletion seems to be attested on one of five inscribed arrowheads from the village of el-Khaḍr, near Bethlehem. The arrowheads belonged to an archer named עבדלבאת, literally "Servant of the Lioness," as we learn from the inscriptions that they bear. In one out of the five inscriptions (el-Khaḍr II), the name is spelled עבדלבת, with the *aleph* omitted in the component meaning "lioness."[131] Milik and Cross took the omission as reflecting a phonological change, either *labiʾt* > *labīt* or *labaʾt* > *labāt*.[132] This explanation is plausible despite Cross's subsequent second thoughts.[133] Since all of the five inscriptions were written for a single owner and at least two of them were written by a single scribe,[134] it is not unlikely that they all reflect the same pronunciation. If so, four of the spellings are non-phonemic while one is phonemic. These inscrip-

[123] Millard, "'Scriptio Continua'," 2–15 (esp. 13–14).

[124] Yosef Garfinkel, Mitka R. Golub, Haggai Misgav and Saar Ganor, "The ʾIšbaʿal Inscription from Khirbet Qeiyafa," *BASOR* 373 (2015): 223, 224–25 (figs. 11 and 13), and 231.

[125] Ibid., 231.

[126] Cf. Naveh, "Word Division," 208: "We really do not know what was the conception or the idea of the Phoenician scribes, who rejected the system of *matres lectionis* and introduced *scriptio continua*. An observer can only ask why they endeavored to make the reading as difficult as possible."

[127] Anne Christophe et al., "Discovering Words in the Continuous Speech Stream: The Role of Prosody," *Journal of Phonetics* 31 (2003): 585.

[128] See already the sophisticated discussion of *Satzphonetik* in Carl Brockelmann, *Grundriss der vergleichenden Grammatik der semitischen Sprachen*, vol. 1 (Berlin, 1908), 279 §100a.

[129] See Butin, "Protosinaitic Inscriptions," 160; Sass, *Genesis*, 12 n. 8; Colless, "Proto-Alphabetic Inscriptions of Sinai," 14–15; and Puech, "Notes sur quatre inscriptions," 29–30. Note that the inscriptions numbered 379 and 380 by Sass are numbered 386 and 387 by Puech.

[130] We cannot say whether the *presence* of *aleph* in *mʾhbʿlt* and *mʾhbbʿlt* exemplifies phonemic spelling or morphophonemic spelling, because we do not know whether the *aleph* was meant to be pronounced or not.

[131] J. T. Milik and Frank M. Cross, "Inscribed Javelin-Heads from the Period of the Judges: A Recent Discovery in Palestine," *BASOR* 134 (1954): 6.

[132] Ibid.: 8.

[133] Frank M. Cross, "Newly Found Inscriptions," 5. Cross writes that his earlier assumption "may now be questioned" because the same archer is called עבדלאת, with accidental omission of *bet*, on another one of his arrowheads.

[134] Ibid., 4. Unfortunately, the inscription with the omitted *aleph* is not among the two that Cross assigns to the same scribe. Nevertheless, the argument for a single pronunciation underlying the two spellings of the name (one with *aleph*, one without) is clearly stronger than the argument for a single pronunciation underlying the two spellings of the word for "beloved" (one with *aleph*, one without) in the Sinai inscriptions; see n. 130 above.

tions, dated to ca. 1100 BC by Cross, obviously exhibit a markedly lower percentage of phonemic spelling than the earlier inscriptions from Sinai. They may well be the earliest Old Canaanite inscriptions exhibiting non-phonemic spelling alongside phonemic spelling.

The serpent spells in the Pyramid Texts may also have examples of glottal stop deletion: *rw-n = rū-na < *riʾū-naʾ* "see! (masc. plur.)"; cf. רְאוּ־נָא (1 Samuel 14:29; 16:17; 2 Samuel 13:28).[135] Elsewhere in these spells, we find the glottal stop written with *i*, but here that sign is missing. This spelling reinforces the impression given by *mhbʿlt* that Old Canaanite had a tendency to elide the glottal stop following short open-syllabic unstressed vowels. It is possible that such vowels underwent syncope[136] and that the glottal stop was deleted as a syllable repair process, enforcing the constraint against syllables beginning with a consonant cluster.[137]

It is well known that BH had a similar tendency (which may or may not have had some genetic relationship to the apparent tendency in Old Canaanite), and it is instructive to examine BH parallels to *mhbʿlt ~ mʾhbbʿlt* and *rw-n*. The form *rw-n*, which we compared above to רְאוּ־נָא, may also be compared to the gentilic רְאוּבֵנִי, "Reubenite(s)." There are 18 occurrences of this gentilic in the Bible (Numbers 26:7, etc.). All of them are written with an *aleph*, but the Masoretes left those *aleph*s unpointed because they did not have a corresponding glottal stop in their oral text tradition. According to that tradition, then, the spelling with quiescent *aleph* was morphophonemic (cf. רְאוּבֵן with *non*-quiescent *aleph*) and perhaps historical as well. Once again we see how the two distinct text traditions preserved by the Masoretes, one written and one oral, preserve two distinct linguistic levels: the non-phonemic spelling and the phonemic reality hidden beneath it.[138]

The form *mhb ~ mʾhb* is a I-*aleph pual* participle. In BH, we find two such participles: מְאָדָּם "reddened" (7x, singular and plural) and מְאֹרָשָׂה "engaged" (3x). None of the 10 occurrences has an omitted or quiescent *aleph*. In addition, I have found a dozen I-*aleph piel* participles in BH. The most common of them is the active counterpart of Old Canaanite *mʾhb*, occurring 16 times in forms such as מְאַהֲבַי, "my lovers," מְאַהֲבַיִךְ, "your (fem.) lovers," מְאַהֲבֶיהָ, "her lovers." Here again none of the occurrences has an omitted or quiescent *aleph*. The other 11 I-*aleph piel* participles are from the roots א-ב-ד (1x), א-ז-ר (2x), א-ח-ז (1x), א-ח-ר (3x), א-ר-ב (1x), א-ל-ף (1x), א-מ-ץ (1x), א-ס-ף (8x), א-ל-ם (2x), א-ר-ר (6x), and א-ש-ר (3x). Only one of the 29 occurrences of these 11 participles exhibits glottal stop deletion: *מְאַלְּפֵנוּ < מַלְּפֵנוּ, "He who teaches us" (Job 35:11). To sum up, the total number of occurrences of I-*aleph piel/pual* participles that I have found in the Hebrew Bible is 55, of which only one—less than 2 percent—is spelled without *aleph*.[139] By contrast, 4 out of 6 occurrences of a I-*aleph pual* participle found in the Sinai texts—almost 67 percent—are spelled

[135] Steiner, *Serpent Spells*, 39, 42.

[136] For the syncope of short open-syllabic antepretonic vowels in Phoenician, see Friedrich, Röllig, and Amadasi Guzzo, *Phönizisch-Punische Grammatik*, 51 §94. The corresponding rule of reduction in Hebrew is well known. It, too, may originally have involved syncope, i.e., deletion.

[137] For syllable repair processes in Proto-Semitic, see Steiner, "Vowel Syncope," 367–68 and passim. The history of glottal stop deletion as a syllable repair process needs further investigation, taking into account Arabic *raw* "see! (masc. plur.)" < *rʾaw.

[138] Non-phonemic spellings with quiescent *aleph* created many discrepancies between the two traditions. Usually the Masoretes were content to mark them by leaving the quiescent *aleph* unpointed, but here and there they felt the need to acknowledge them

explicitly. Thus, the Leningrad Codex describes the mpl imperative יראו "fear!" (Ps. 34:10) as יתיר א "spelled with a superfluous *aleph*" in a marginal note; see Israel Yeivin, *Introduction to the Tiberian Masorah*, trans. and ed. E. J. Revell (Missoula, MT, 1980), 55. Even more similar to רְאוּבֵנִי are the mpl participles חֹטְאִים, "sinning" (1 Sam. 14:33), and קֹרְאִים, "calling" (Ps. 99:6), which are included in a list of מ״ח מלין נסבין א׳ במצעא תיבות׳ ולא קרין "forty-eight words take medial *aleph*s, but they are not read"; see ספר אכלה ואכלה, ed. S. Frensdorff (Hannover, 1864), 97–98 list 103. Finally, we may note that, due to a quirk of the pointing system, יראו can be read as either ירו or יאו, and ראובני can be read as either רובני or אובני. The second reading in each of these examples normally goes unnoticed. Nevertheless, we should consider the possibility that the Masoretic note on יראו was motivated by this orthographic ambiguity.

[139] One could expand the search for parallels to include all I-*aleph piel/pual* imperfects. That would add many biblical forms with non-omitted *aleph*, and even a few forms from Hebrew and Phoenician inscriptions, such as אלתאחר, "don't tarry" in the Arad letters (2:6). It would also add a few biblical forms with omitted *aleph*, such as וַתַּזְרֵנִי, "You have girded me" (2 Sam. 22:40)—corresponding to וַתְּאַזְּרֵנִי, "idem" in the parallel version (Ps. 18:40). My guess is that it would not change the percentage by much. For additional BH examples of the elision of glottal stops that follow reduced vowels, see the preceding footnote and Bergsträsser, *Hebräische Grammatik*, vol. 1, 89–93. Some of these examples exhibit phonemic spelling, as in שְׁלָתֵךְ, "your request" (1 Sam. 1:17), and some exhibit morphophonemic spelling, as in מָאתַיִם, "two hundred." For Aramaic examples, see Richard C. Steiner, המלים ׳מאה׳ ו׳מאתין׳ בדרשות שנתיסדו על ניבים עממיים של הארמית, *Tarbiz* 65 (1996): 33–36. Here too we find both phonemic spelling, as in מֵאָה < מה, "one hundred," and morphophonemic spelling, as in בְּאִישְׁתָּא (Ezr. 4:12) and מָרַאי "my lord" (Dan. 4:16, 21).

without *aleph*. This is a striking contrast, but one must be careful not to misinterpret it. According to the oral tradition of the Masoretes, the *aleph* of מְאַהֲבַי (unlike the *aleph* of רֽאוּבֵנִי) was pronounced. This implies that the spelling of מְאַהֲבַי is just as phonemic as the spelling of *mhb*. Thus, if the Masoretic pronunciation of מְאַהֲבַי goes back to the biblical period, the difference between it and *mhb* is phonological, not orthographic.

Another parallel worth mentioning is the Punic surname מארח, appearing in Greek as Μηρρη and in Latin as *Merre*. It has been suggested that this name may be derived from a *piel* participle meaning "guide" and that the Greek and Latin transcriptions reflect elision of the glottal stop.[140] If so, מארח is a fine example of non-phonemic spelling.

More on Glottal Stop Deletion in Hebrew Orthography

In the previous section, we discussed the Bible's treatment of glottal stop deletion in the gentilic רֽאוּבֵנִי and in the *piel/pual* participle in order to compare it with parallels attested in Old Canaanite. Here we add a few observations concerning the treatment of glottal stop deletion in other Hebrew forms.

The Biblical spelling of words with an elided glottal stop can be seen in I-*aleph* verbs and III-*aleph* verbs. We may begin with the latter group, using attested verbal forms from the roots מ-צ-א, "find," and י-צ-א, "go out," as examples. Many such forms have a quiescent *aleph*, e.g., the 1cs perfects מָצָאתִי, "I found," and יָצָאתִי, "I went out," and the fs participle יֹצֵאת, "going out."[141] These spellings may well be historical, but they are also morphophonemic because there are verbs derived from the roots מ-צ-א and י-צ-א with a *non*-quiescent *aleph*, e.g., מָצְאוּ ~ מָצָאוּ, "they found," יָצְאוּ ~ יָצָאוּ, "they went out," and יֹצְאִים, "going out (mpl)." More precisely, the root morpheme has two different phonemic shapes, i.e., two different allomorphs (י-צ-א and י-צ-Ø) but only a single, invariant spelling. Alongside these common morphophonemic

spellings, we find מָצָתִי (Numbers 11:11), יָצָתִי (Job 1:21), הַיּוֹצֵת (Deuteronomy 28:57).[142] These rare spellings are phonemic.

For I-*aleph* verbs, we may take the imperfects of א-מ-ר, "say," and א-כ-ל, "eat," as examples. In the overwhelming majority of cases, these extremely well-attested verbs are spelled with a quiescent *aleph*, e.g., יֹאמַר, "he will say," and יֹאכַל, "he will eat."[143] This spelling of the verbs is morphophonemic and probably historical as well. The phonemic spelling without *aleph* is found regularly in the first person singular (אֹמַר and אֹמַר, instead of *אאמר with two consecutive *alephs*) but only rarely in other forms: תֹמְרוּ, "you shall say" (2 Samuel 19:14), יִמְרוּךָ, "they invoke (lit., say) You" (Psalms 139:20), יֹכְלוּ, "they would take away (lit., eat)" (Ezekiel 42:5). In Qumran Hebrew and MH, we find additional spellings of this type but only in a small percentage of cases.[144] Qumran Hebrew and MH also have hybrid spellings, such as יואמר/יאמר and יואכל/יאכל.[145] Such spellings presumably result from the desire of scribes to employ phonemic spelling without completely abandoning morphophonemic and historical spelling.

In nouns, too, phonemic spellings are the exception rather than the rule. Take, for example, the nouns צֹאן, "sheep and goats," and רֹאשׁ, "head." The spelling of צֹאן appears to be purely historical. It is not morphophonemic, because there is no allomorph of צֹאן with a pronounced (non-quiescent) medial *aleph*. As for רֹאשׁ, it is possible to argue that its spelling is morphophonemic (as well as historical) because the vocalization

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[140] See Friedrich, Röllig, and Amadasi Guzzo, *Phönizisch-Punische Grammatik*, 89 §143–44.

[141] The discussion that follows makes the plausible assumption that the *aleph* was quiescent in these forms, and the spelling morphophonemic, already in the biblical period. For quiescent *aleph* in Phoenician קראת, "I called," see Garr, *Dialect Geography*, 49. Cf. חטאים, "sinning" (1 Sam. 14:33) and קראים, "calling" (Ps. 99:6; vs. the construct form קֹרֵאי two words before), discussed in n. 138 above. They, too, exhibit morphophonemic spelling.

[142] Cf. וְנִטְמֵתֶם, "and become unclean" (Lev 11:43), בָּנוּ, "we have come" (1 Sam. 25:8) and וַתִּשֶּׂנָה, "and they raised" (Ruth 1:14).

[143] It is usually assumed that the compensatory lengthening resulting from elision of the glottal stop (*a' > ā*) in these verbs took place so early that it "fed" the Canaanite shift (*ā > ō*). For a somewhat different view, see Joshua Blau, *Phonology and Morphology of Biblical Hebrew: An Introduction* (Winona Lake, IN, 2010), 87.

[144] See, for example, Elisha Qimron, מגילות מדבר יהודה: החיבורים העבריים (Jerusalem, 2010), 1:26 l. 12 (יוכל); 30 l. 64 (תוכל); 220 l. 13 (יומרו); Gideon Haneman, תורת הצורות של לשון המשנה: על פי מסורת כתב־יד פרמה (דה־רוסי 138) (Tel-Aviv, 1980), 226 יוֹמַר and יוֹ כָל alongside יֹאמַר and יֹאכַל, in a reading tradition that does not distinguish *qameṣ* from *pataḥ*). For additional examples, see Maagarim (http://maagarim.hebrew-academy.org.il). A search in this database for *תומר and *יומר between the years 200 BC and AD 300 turns up 60 examples (only 5 of them from Qumran) vs. ca. 830 for *תאמר and *יאמר (and similar spellings). Note that use of the phonemic spelling יוכל makes reading more difficult because it creates homography between "he will eat" (יֹכַל) and "he will be able" (יוכל).

[145] See Maagarim s.v. *יאמר, *יומר, *יאכל, and *יאכל.

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of its plural, רָאשִׁים from the segolate plural רְאָשִׁים*, suggests that /ʾ/ is still present in the underlying structure. However, this argument loses its force if the *aleph* of רָאשִׁים, like that of רֹאשׁ, was quiescent at a very early period.[146] There are no phonemic spellings of these nouns (with the same meaning) in the Bible, although the adjective רִאשׁוֹן, "first," appears once (out of 140 occurrences) in the spelling רִישׁוֹן (Job 8:8). Outside of the Bible, the spelling of these two nouns is slightly less consistent. The Mesha stele (KAI 181) has צאן (l. 31) alongside רש- (l. 20), with the latter usually taken to be a phonemic spelling of ראש- (singular or plural).[147] The spelling רש, "head," also appears on a coin of John Hyrcanus (I?), together with other defective spellings (היהדים, "the Jews," etc.),[148] presumably selected to fit the limited space. In Qumran Hebrew and MH, we find additional phonemic spellings, such as רוש and צון, but only in a small percentage of cases.[149] Qumran Hebrew and (rarely) MH also have hybrid spellings of these nouns, ראוש/רואש and צאון/צואן, combining phonemic spelling with non-phonemic spelling.[150] In 4Q396, one of the copies of 4QMMT, we find quiescent *aleph* preserved in ראש (1–2 iii 1 = B 61) and ראשית (1–2 iii 3 = B 63), but not in צון, occurring immediately afterwards (1–2 iii 4 = B 64).[151]

Consider also the nouns from the root ח-ט-א, "sin." The noun meaning "sin offering, sin" appears hundreds of times as חַטָּאת with a quiescent *aleph*, but only once in the Bible as חַטָּת (Numbers 15:24).[152] We find חטת in Qumran Hebrew and MH, as well, but only in a small percentage of cases.[153] The spelling חַטָּת

is phonemic, while the spelling חַטָּאת is morphophonemic (cf. חַטָּאוֹת, "sin offerings," in 2 Kings 12:17 with non-quiescent *aleph*)[154] and perhaps historical as well. Another BH noun from this root appears exclusively as חֵטְא, with a quiescent *aleph*, in the unsuffixed singular. Here, too, we have a spelling that is morphophonemic (cf. חֶטְאָם, "their sin," and חֲטָאִים, "sins," with non-quiescent *aleph*) and perhaps historical as well. In postbiblical Hebrew (Qumran, Ben Sira [Genizah], and MH), we find phonemic spellings, such as חט and (later) חיט, in around a quarter of the cases,[155] an unusually high percentage.

This is only a sample, but it suffices to show that the phonemic representation of glottal stop deletion tends to be rare in the Bible and uncommon in postbiblical texts—in contrast to the proto-alphabetic texts, where it appears to be the norm. However, as with all tendencies, there are exceptions.

One such exception involves a word denoting a certain type of valley. Although the spelling גַּיְא/גֵּיא, with quiescent *aleph*, predominates, the spelling גַּי/גֵּי is not rare. The reason for the difference between חֵטְא and the outwardly similar גַּיְא/גֵּיא may be that the spelling with quiescent *aleph* is morphophonemic (and perhaps historical) in חֵטְא[156] but apparently purely historical in גַּיְא/גֵּיא.[157] Another exception involves the root ב-ו-א, "come in." With that root we find a surprising number of *aleph*-less forms: בָּנוּ, "we have come" (1 Samuel 25:8), וַיָּבוֹ, "and he came" (1 Kings 12:12), מֵבִי, "bringing" (2 Samuel 5:2, 1 Kings 21:21, Jeremiah 19:15, 39:16), אָבִי, "I will bring" (1 Kings 21:29, Micah 1:15). Clearly, phonemic spellings are not as rare with that root as they are with י-צ-א, its antonym, discussed above.

Another exception involves not a lexeme but a document: the oldest copy of the Damascus Covenant

[146] See at n. 187 below.

[147] *See DNWSI* vol. 2, 1042, 1044 s.v. *rʾš*.

[148] See Maagarim s.v. רש.

[149] For רוש, see Qimron, מגילות, vol. 1, 28 ll. 38, 39, 42; 228 l. 8; 241 l. 23; vol. 2, 15 l. 19. For צון, see Qimron, מגילות, vol. 1, 57 l. 45; vol. 2, 302 l. 6. For רש and additional attestations of רוש and צון, see Maagarim s.v. A search in this database for *רוש* and *רש* between the years 200 BCE and 300 CE turns up 12 examples (11 from Qumran and the Hasmonean coin) vs. ca. 1340 for *ראש* (and similar spellings). A search for *צון* during the same period turns up 4 examples (all of them from Qumran) vs. ca. 165 for *צאן* (and similar spellings).

[150] See Maagarim s.v. *רואש*, *ראוש*, *צואן*, and *צאון*.

[151] Elisha Qimron and John Strugnell with contributions by Y. Sussmann and A. Yardeni, *Qumran Cave 4: V Miqṣat Maʿaśe Ha-Torah* (DJD X; Oxford, 1994), 18; cf. p. 68.

[152] This exceptional spelling is, not surprisingly, the subject of much Rabbinic discussion.

[153] For חטת in Qumran Hebrew, see Qimron, מגילות, vol.1, 57 l. 35; 215 l. 8; vol. 2, 51 l. 7; 60 l. 3. For additional attestions in postbiblical Hebrew, see Maagarim s.v. A search in this database for

חטת between the years 200 BCE and 300 CE turns up 9 examples (all from Qumran) vs. ca. 1385 for *חטאת* (and similar spellings).

[154] Cf. מוֹאֲבִית, "Moabitess," whose biform מוֹאֲבִיָה has a pronounced (consonantal) *yod*. For these and similar biforms, see Steiner, "Vowel Syncope," 373–74.

[155] For חט, see Qimron, מגילות, vol. 1, 196 l. 10. For חיט and additional attestions of חט, see Maagarim s.v. A search in this database for *חט* between the years 200 BC and AD 300 turns up 40 examples (only 1 of them from Qumran) vs. ca. 160 for *חטא* (and similar spellings).

[156] See above.

[157] Note the irregular plural גֵּאָיוֹת and the absence of any singular forms with suffixed pronouns in the Bible.

(4Q Damascus Documentᵃ = 4Q266).[158] This text frequently—although not always—omits quiescent *aleph*, even when quoting (or alluding to) biblical verses, e.g., רוש, "head," רישון, "first," [רישו[נים, "forefathers," צון, "sheep and goats," חטת, "sin offering" (2x), להבי, "by bringing," בו, "setting (of sun)," יבו, "he shall enter," יוכל, "he shall eat" (2x), תוכל, "she shall eat" (2x), לו, "not" (9x alongside לא and לוא), שרת, "remnant," and שת, "swelling."[159] The tendency of the scribe to omit quiescent *aleph* can perhaps be explained based on his handwriting, which has been characterized as "idiosyncratic,"[160] "rapid and careless,"[161] with a "markedly high number of scribal erasures, deletions, and cancellation dots . . . [that] is unusual among the Qumran manuscripts."[162] Further, "the hand seems to be that of a literate person, trained in writing, who was familiar with the formal script style but preferred, for some reason, to write in a non-calligraphic handwriting."[163] All of this suggests that the scribe was simply in a hurry and decided to save time by adopting an informal spelling (with many quiescent *aleph*s omitted) as well as an informal handwriting. If so, this text represents a deliberate departure from the norm.

Conclusions and Directions for Further Research

The proto-alphabetic texts from Sinai (Serābīṭ el-Khādem) contain a number of spellings that seem anomalous to the modern philologist—spellings that have sometimes been viewed as scribal errors. In fact, the writers of these texts spelled them as they sounded in casual speech. The spelling that they employed is, therefore, far more revealing than the spelling of later Northwest Semitic texts. It represents external sandhi processes (coalescence of identical consonants and assimilation of non-identical consonants) as well as an

internal non-sandhi process (glottal stop deletion) far more regularly than does the spelling of later texts. And like the external sandhi processes (not to mention the continuous stream of casual speech as viewed on a spectrogram!), it ignores word divisions, employing *scriptio continua*. It should now be clear that this last feature, whose widespread use in later Phoenician inscriptions puzzled a leading epigrapher, makes perfect sense in the context of Proto-Sinaitic orthography. The use of *scriptio continua* by Phoenician scribes—like their occasional phonemic representation of external sandhi processes—can now be viewed as a relic from an earlier era.

In short, the spelling of the proto-alphabetic texts from Sinai is phonemic to a remarkable degree.[164] The same goes for the oldest connected Semitic texts, the serpent spells in the Pyramid Texts—at least to the extent that the spelling of a text employing a newly borrowed writing system can be called phonemic. In the Bible, by contrast, the orthographic representation of the aforementioned processes (in places where we have evidence for them) is normally morphophonemic or historical or both.

At first glance, this finding appears to conform in every detail to a rule stated by Peter T. Daniels:

> Language changes continually but writing is generally fixed. So, however perfectly phonemic an alphabet was when it was first applied to a language, every phonological system changes over time. . . . Then the original writing system comes to reflect an earlier historical stage of the language, and in effect becomes morphophonemic rather than phonemic. Only when spelling has very recently been introduced or ruthlessly reformed is an alphabet likely to be phonemic.[165]

This discussion appears to suggest that morphophonemic spelling is a form of historical spelling, arising when the spelling fails to keep up with changes in the phonological system. This may be true in some instances, e.g., when conditioned sound change produces a morphophonemic alternation that is not represented in the old spelling. But morphophonemic

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[158] I am indebted to Elisha Qimron for calling my attention to this text and to many of the spellings that follow. It is discussed in his forthcoming comprehensive grammar of Qumran Hebrew. Some of the spellings are listed in Joseph M. Baumgarten et al., *Qumran Cave 4 XIII: The Damascus Document (4Q266–273)* (DJD XVIII; Oxford, 1996), 30.

[159] In compiling this list, I have taken into account the revised readings in Qimron, מגילות, vol. 1, 5–58. For the last two examples, cf. שֶׁרִית (1 Chr. 12:38/39) and מִשֵּׁתוֹ (Job 41:17, contrasting with וּמִשְּׂאֵתוֹ in 31:23).

[160] Baumgarten et al., *Qumran Cave 4 XIII*, 2, 30.

[161] Ibid., 26.

[162] Ibid., 2.

[163] Ibid., 26.

[164] Failure to recognize this fact may be one of the reasons that the decipherment of these texts has been so slow. Further work on these texts is likely to turn up additional examples of phonemic spelling.

[165] Peter T. Daniels, "The First Civilizations," in *The World's Writing Systems*, ed. Peter T. Daniels and William Bright (New York, 1996), 27.

spelling and historical spelling are quite distinct. In forms such as נתנו ,נשענו, and נבעתתי, we have morphophonemic spelling that is not historical. In other Hebrew forms, we have historical spelling that is not morphophonemic.[166]

In any event, Daniels may well be right in positing a general tendency for alphabetic writing systems to be phonemic when they are introduced. Such a tendency can be observed when writing systems belonging to one language are transferred to another language, creating a new orthography, as we find in the Aramaic text in Demotic script and a number of the earliest Judeo-Arabic texts.[167] Such texts teach us much more about phonology than do standard texts because they do not conceal variation with spelling that is morphophonemic or historical or both.[168]

This tendency can be seen already in the earliest connected Semitic texts, the Northwest Semitic serpent spells embedded in Unas's Pyramid Texts (24th century BC). There, as in the proto-alphabetic texts from Sinai, we find external sandhi coalescence of identical consonants,[169] external sandhi assimilation (at least involving the preposition *mn*),[170] absence of word division (the expected determinatives),[171] and possibly glottal stop deletion[172] as well.

It seems natural to assume that any tendency for writing systems to be phonemic when they are introduced would be found only with *alphabetic* writing systems. After all, why were alphabets invented if not for phonemic spelling? Alphabetic writing made it possible to establish a one-to-one correspondence between grapheme and (consonantal) phoneme, something that was not possible in the cuneiform system, with its mixture of logographic and syllabic writing.

Conversely, one might expect the earliest cuneiform writing to exhibit *morphophonemic* spelling. In the words of Christopher Woods:

Logography tends to mask morphophonemic alternations. . . . This is particularly true of Maya

writing, and, although often misunderstood, of Sumerian writing as well.[173]

Abraham H. Jagersma, however, cites a case where morphophonemic spelling is a later development in Sumerian orthography as well:

Hence, the earlier and later forms [of the final person-prefix of the second person singular] differ not only in spelling but also in pronunciation. As to spelling, the earlier one is more phonemic, reflecting the actual pronunciation, while the later one is more morphophonemic, being closer to the morphological structure but more distant from the actual pronunciation.[174]

Similarly, Erica Reiner noted that the cuneiform orthography of Akkadian became less phonemic (i.e., partly morphophonemic) during or after the Old Babylonian period:

All morphophonemic rules must be established on the basis of the oldest dialects, since these rules eventually became obscured through a peculiar scribal practice, to which the name "morphographeme" has been given (by Gelb, although he used this term in a different context in Gelb 1961b, 194).

This scribal practice consists in restoring in the writing as much as possible of the free form of the morph which is the base of the word, indicating in the writing the morphophonemic alternant of the affix only, and this in itself must be sufficient to indicate the morphophonemic alternant of the base. For example, the bound morph /ma:t/ (substantive nominative singular /ma:tu/), when combined with a suffix beginning with /š/, has the morphophonemic alternant /ma:s/ and the suffix, the alternant with initial /s/. The inflected form /ma:t/+/šu/ yields √ma:s:u, /massu/ or /mas:u/. This is written in the earlier periods as <ma-su> or <ma-as-su>; later, however, it is written <mat-su> or <ma-at-su>. In such a case, the morpheme alternant of the suffix sufficiently indicates the shape of the whole inflected form. Writings of

[166] See at n. 157 and after n. 188 below.

[167] See at nn. 5–6 above.

[168] Richard C. Steiner, "Papyrus Amherst 63: A New Source for the Language, Literature, Religion, and History of the Arameans," in *Studia Aramaica: New Sources and New Approaches*, ed. M. J. Geller, J. C. Greenfield, and M. P. Weitzman (Oxford, 1995), 201–203. See also at nn. 50 and 101 above.

[169] See at n. 49 above.

[170] See n. 97 above.

[171] Steiner, *Serpent Spells*, 7.

[172] See at nn. 135–37 above.

[173] Christopher Woods, "Visible Language: The Earliest Writing Systems," in *Visible Language: Inventions of Writing in the Ancient Middle East and Beyond*, ed. Christopher Woods (Chicago, 2010), 23.

[174] Abraham H. Jagersma, A Descriptive Grammar of Sumerian" (Ph.D. diss., Leiden University, 2010), 336.

the type *<ma-at-šu> occur in peripheral scribal areas; elsewhere they are extremely rare. . . .[175]

The writers of the proto-alphabetic texts from Sinai appear to have been untrammeled by any consistent, official orthography based on underlying, morphophonemic structure or even on slow, careful speech. How are we to interpret this fact? No definitive answer to this question is possible at the moment given the fragmentary state of our knowledge.[176] We shall have to make do with some preliminary thoughts.

One possible answer is that the phonemic spelling of these texts is a function of their date. It is possible that the texts from Sinai were written very close to the time of the invention of the alphabet, which may well have been originally phonemic. Unfortunately, the date of the texts is controversial, as is the date of the invention of the alphabet.

Another possibility is that the phonemic spelling of these texts is a function of their genre. Naveh, for example, writes that "the Serābît el-Khâdem texts from *ca*. 1500 B.C. . . . are actually graffiti. . . ."[177] Seth L. Sanders marginalizes the writers as well as the writing: "For the first half millennium or so of its history, the main attested use of the alphabet was for marginal people—foreign soldiers and laborers—to write graffiti in desolate, out-of-the-way places."[178] Further:

> In this earliest phase, the alphabet is the quick and dirty tool of foreign workers, scrawled in desolate places: the mines, the gulch of terror. There is no high culture here. While it may have been used for low-budget scribal record-keeping, the alphabet's first documented use boils

down to the most basic and touching form of communication—"I was here."[179]

For this type of writer and this type of use, phonemic spelling—which requires less training and less labor (i.e., fewer letters to carve into uneven rock)—has always been the natural choice.

This answer is probably in need of some modification, because the genre of the texts is almost as controversial as their date. We have already noted that the votive inscriptions on statuettes found in the Temple of Hathor at Serābīṭ el-Khādem are not graffiti, even by Naveh's own definition of that term.[180] This point has been emphasized by André Lemaire:

> We are not dealing with simple graffiti but with monumental or quasi-monumental inscriptions. The quasi-official character of the Proto-Sinaitic writings alongside Egyptian hieroglyphic inscriptions is evident not only from their geographic proximity but also from the fact that several of them were engraved on sphinxes or cuboid statuettes placed in the temple of Hathor, or engraved in steliform panels in the rock.[181]

For Lemaire, the bilingualism of one of these inscriptions is another sign of its semi-official character:

> The existence of a sort of bilingual inscription . . . on the famous sphinx of Serabit el-Khadim seems to suggest the existence of a sort of official bilingualism which would be quite understandable during the Hyksos period. What is more, such a scribal innovation can better be understood if it arose within a milieu of bilingual royal scribes, such as was probably the case under the Hyksos domination.[182]

We have shown above that the votive inscriptions on two of the statuettes exhibit phonemic spelling. We must conclude, therefore, that phonemic spelling was not limited to graffiti in this period.

There is, however, no reason to conclude that genre played no role in the spelling of Old Canaanite. Lemaire notes that "the linear script . . . was associated with papyrus and leather, materials which preserve very poorly in any climate that is at all moist, and

[175] Erica Reiner, *A Linguistic Analysis of Akkadian* (The Hague, 1966), 56. Cf. p. 30, where she refers to this change as a "decrease of sandhi-writings." For further discussion, see Edward L. Greenstein, "The Assimilation of Dentals and Sibilants with Pronominal *š* in Akkadian," *JANES* 12 (1980): 52, and the literature cited therein in n. 4. See also at n. 10 above.

[176] The extent of our ignorance is even greater than previously imagined if the proto-alphabet was really in use in the southern marshes of Babylonia ca. 1500 BC; see David Hamidović, "Alphabetic Inscriptions from the Sealand," in *Studia Mesopotamica* 1 (2014): 137–55. (I am indebted to Aaron Koller for this reference.) We should explore the possibility that these inscriptions, written on the edges of cuneiform tablets, are the forerunners of the Aramaic dockets/epigraphs on the edges of cuneiform tablets from the Neo-Assyrian, Neo-Babylonian, and Achaemenid periods.

[177] Naveh, "Word Division," 206. See at n. 121 above.

[178] Seth L. Sanders, "What Was the Alphabet For?," 33.

[179] Ibid., 44.

[180] See at and after n. 122 above.

[181] André Lemaire, "Les 'Hyksos'," 115.

[182] André Lemaire, "The Spread of Alphabetic Scripts (*c.* 1700–500 BCE)," *Diogenes* 218 = 55/2 (2008): 47.

which have generally not come down to us."[183] We may surmise that papyrus and leather were used for official (legal, administrative, etc.) documents—precisely the ones that one would expect to exhibit standardized, non-phonemic spelling. There is, in fact, good evidence that such spelling existed already in proto-alphabetic texts of the second millennium BCE.[184] The evidence comes from the BH forms ראש and צאן. These forms exhibit non-phonemic spelling, but how far back do they go? How long was quiescent *aleph* preserved in these forms?

The earliest epigraphic attestation of the spelling ראש appears to be from eleventh-century Byblos: יד עזבעל תצמתן בראש אבו, "may the hand of ʿUzzibaʿl inflict permanent destruction upon the head(s) of his enemies."[185] The earliest epigraphic attestation of צאן known to me is from ninth-century Dibon (Mesha), but the wide diffusion of this spelling (Hebrew, Moabite, Ammonite, and Phoenician)[186] hints that it too originated in the second millennium.

Additional evidence bearing on this question is preserved in the Amarna letters, in which we find Old Canaanite *ṣú-ú-nu* glossing Akkadian *ṣēnu* (EA 263,

12) and Old Canaanite *ru-šu-nu* glossing Akkadian *rēšu-nu* (EA 264, 18). It has long been accepted that these two Old Canaanite glosses and their Hebrew cognates reflect a sequence of sound changes: $aʾ > ā > ō$. First, the glottal stop was deleted in syllable-final position. Then, the deletion triggered compensatory lengthening, turning short a into long $ā$. Finally, the lengthening triggered the so-called Canaanite shift, raising and rounding $ā$ to $ō$.

This reconstruction, familiar to every beginning student of Semitic linguistics, would seem to date the glottal stop deletion in the Canaanite reflexes of **ṣaʾnu* (**ḍaʾnu*) and **raʾšu* to some time before the Amarna period. Are we to conclude from this that the non-phonemic spelling of צאן and ראש, with quiescent *aleph*, also antedates the Amarna period? In the case of ראש, this conclusion is not absolutely necessary, since it is possible to claim that the spelling with *aleph* was morphophonemic, introduced after the Amarna period from the segolate plural form **raʾašīm*—assuming, of course, that the syllable-initial glottal stop of the latter did not disappear (cf. רָאשִׁים) until much later. We should note, however, that evidence presented above seems to indicate that Old Canaanite had a tendency to elide the glottal stop following short open-syllabic unstressed vowels,[187] precisely the environment that we find in **raʾašīm*.

In the case of צאן, there is no such complication, since we are dealing with a non-alternating form. There is no segolate plural of צאן because צאן itself is a plural.[188] In other words, the spelling of צאן in Hebrew (and, by implication, צאן in Phoenician, Moabite, and Ammonite) appears to be purely historical—not historical and morphophonemic. We may contrast the spelling of צאן with that of its Aramaic cognates, קן and ען. The latter forms exhibit phonemic spelling, without quiescent *aleph*.

It would appear, then, that the forms צאן and (less certainly) ראש go back to a time when their spelling with *aleph* was still phonemic because they were still pronounced with a glottal stop. At some point, prior to the Amarna period, their glottal stop disappeared and their spelling with *aleph* became historical instead of phonemic. All of this has an interesting implication, pointed out to me by Aaron Koller: "The conclusion

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[183] Lemaire, "Spread of Alphabetic Scripts," 49.

[184] The discussion that follows was inspired by a comment from Aaron Koller on an earlier draft of this article: "The example of ראש seems very important because of the Canaanite shift, thus potentially dating the frozen spelling to the second millennium" (email communication of Dec. 2, 2015).

[185] See Maria Giulia Amadasi Guzzo, "Une inscription archaïque de Byblos," in *Il mio cuore è a Oriente* לבי במזרח*: Studi di linguistica storica, filologia e cultura ebraica dedicati a Maria Luisa Mayer Modena*, ed. Francesco Aspesi et al. (Milan, 2008), 19; André Lemaire, "'Ozibaal de Byblos? (XIᵉ s. av. n. è.)," in *Ritual, Religion and Reason: Studies in the Ancient World in Honour of Paolo Xella*, ed. Oswald Loretz et al. (Münster, 2013), 289–96, and "West Semitic Epigraphy and the History of the Levant During the 12th–10th Centuries BCE," in *The Ancient Near East in the 12th–10th Centuries BCE: Culture and History*, ed. Gershon Galil et al. (Münster, 2012), 294: "May the hand of ʿOzibaʿal destroy his enemies at the head." Lemaire's translation is based on the syntactic analysis of Amadasi Guzzo. My translation takes ראש אבו as a genitive phrase governed by the preposition -ב; cf. הַשֹּׁאֲפִים . . . בְּרֹאשׁ דַּלִּים, "who trample . . . upon the head(s) of the poor" (Amos 2:7) and (without the preposition) יִמְחַץ רֹאשׁ אֹיְבָיו (Ps. 68:22). The latter is generally taken to mean "will smash the head(s) of his enemies," although "will smash his enemies on the head" is not impossible. I take the literal meaning of BH הצמית to be "inflict permanent destruction upon" based on the adverbial לִצְמִ(י)תֻת, "permanently, in perpetuity" (Lev. 25:23, 30). For *yad X* as the subject of a semantically related verb, cf. *ta/imītu yaduhinnō/iduhinnō* "their hand deals death" in Steiner, *Serpent Spells*, 52, 58.

[186] See *DNWSI* vol. 2, 954 s.v. *ṣʾn*.

[187] See nn. 136 and 139, and at nn. 135–37.

[188] For צאן as a suppletive, suffixless, feminine plural rather than a collective noun or a mass noun, see Richard C. Steiner, "Ancient Hebrew," in *The Semitic Languages*, ed. Robert Hetzron (London, 1997), 152.

necessitates scribal schools earlier than we have evidence for them" since "purely historical spellings presumably need scribal schools" to be preserved.[189] As we have seen, Lemaire believes that the alphabet owes its very existence to such a school. It seems to me that this would be a fruitful direction for future research.

In the meantime, we may offer some preliminary conclusions. The spelling of Old Canaanite was originally phonemic to a great extent. The earliest

[189] Email communication, Dec. 2, 2015.

evidence for *non*-phonemic spelling in Old Canaanite involves glottal stop deletion. The direct evidence, from inscriptions engraved on arrowheads found near Bethlehem, is not especially early (ca. 1100 BC), nor is it beyond reasonable doubt. The indirect evidence seems more helpful. From it, we can plausibly surmise that non-phonemic spelling arose already before the Amarna period, in the Canaanite reflexes of *ṣaʾnu* (*ḏaʾnu*) and *raʾšu*. Such spelling may have been used in Old Canaanite official (legal, administrative, etc.) documents written on papyrus and leather.