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The Meroitic "Initial a" Sign as Griffith's Initial Aleph

Summary: This paper reassesses the sound value of the Meroitic sign 𐦀 𐦖 traditionally defined as 'initial a'. This sign is termed 'initial a' due to its non-occurrence anywhere other than word-initially in the Meroitic script. A re-evaluation of the evidence for its representation indicates that this sign should be considered as a syllable sign comprised of a glottal stop and the inherent unmarked 'a' vowel. Therefore, this sign is likely to be representative of a CV sign, which was one of Griffith's (1916) proposals, rather than a sign representing only a vowel of varying quality *V, as is currently assumed. As previous proposals for the sound value of this sign have heavily relied on Egyptian transcriptions, this paper reviews the discussions on the Egyptian transcriptions along with the relevant Egyptian phonemic values, and includes a proposal for a sound change process which contributes to the possible revision for the value of this sign.

## 1 Meroitic 'initial a' 𐦀 𐦖 and its Assumed Sound Value

In determining the origins of this Meroitic sign[1], Griffith (1911, 12) proposed that the Meroitic hieroglyphic form 𐦖 'may be connected with the Egyptian group 𓂝𓃭 for prothetic alif'[2], and in a further work (1916, 118), claimed that '[Meroitic] 𐦖, a [is] apparently derived

from Eg. 𓂝𓃭'[3]. For the origin of the cursive form Meroitic 𐦖, Griffith 1911, 12 decided that 'the Demotic seems actually to render the two signs in a modified form, as if 𓂝𓃭.' Priese (1973, 284–285) agrees with Griffith's proposal for this same origin, although Rilly (2007, 245) presents an alternative theory that the Meroitic cursive form could have been derived from a Ptolemaic form that was hence modified to be in line with the Meroitic vocalic sign 𐦥 e. As to the sound value of this Meroitic sign, Griffith (1911, 7) discovered that Meroitic 𐦖 was used to represent the 'initial vowel or alif' in the Egyptian theonym 'Amun'[4]:

(1) Meroitic 𐦲𐦴𐦧𐦖 *amni* < Egyptian *ỉmn*

Griffith also observed that the sign 𐦖 only ever occurred word-initially, and furthermore that the separate vowel signs (𐦲 *i*, 𐦴 *o*, and 𐦥 *e*) were never found to follow this sign. From these observations, Griffith initially states that the sign 𐦖 represented a 'vowel sound' (1911, 7), and then speculates that 'It seems possible that 𐦖 is really an initial vowel with aspirate, but, except in some Latin versions, the name of Ammon is without aspirate, and the frequent omission of 𐦖 in writing is against the idea of it being a real consonant' (1911, 9–10). An example from one of the equivalent forms Griffith

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1 The 'sign' refers to the hieroglyphic and cursive form. Throughout this paper, I use the cursive sign for ease of presentation.
**2** The term 'prothetic alif/aleph' signifies that the sign acts as a vowel carrier with no phonological value of its own.

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3 These differing Egyptian hieroglyphs are explained by Rilly 2007, 261, fn. 1, who states that the form for prothetic aleph is rather 𓂝𓃭 in Egyptian, but the form 𓃭𓂝 is used frequently in Napatan. Rilly 2007 uses the term 'Napatan' to refer to the system of transcribing Meroitic names in the Egyptian script and not in the broader sense. Peust 1999, 221 cites Zeidler's conclusion into the Egyptian syllabic orthography that this hieroglyph sequence is an unambiguous vowel indicator representing /ʼa/. The Egyptian syllabic orthography is suggested as being the writing of signs to express: 'CV-syllables rather than single consonants, which led to the alternative labelling "syllabic orthography". It is argued that there was a particular need of vowel notation in writing foreign words and names' (Peust 1999, 219). See Peust 1999, 218–221 for more on the Egyptian syllabic orthography. See also Priese 1973, 284–285, who gives the origins of the Meroitic hieroglyphic form as a combination of the Egyptian hieroglyphs 𓃭 and 𓂝.
4 The value of the Egyptian sign transcribed as <ỉ> is discussed in §3.1.

analysed for his proposal of the sound value for Meroitic ϚϨ follows where *a* = Eg. <*ḥ*> /ħ/[5] (> Coptic ϩ /h/)[6]:

(2) M. Ϛ /// ⸗ϨϚϨ　*atiye*　< Eg.　*ḥ.t-tiy*　toponym
(3) M. ⲱϚϨ　　　　*ar*　　< Eg.　*ḥr*　　theonym
　　　　　　　　　　　　　　　　　(Coptic ϩⲱⲣ)

These observations were problematic for Griffith in assigning a specific sound value for ϚϨ, as he states (1911, 12) that:

> "The question arises whether ϚϨ spells a variety of initial words as an alif or hamza, or whether it represents only one vowel, an initial *a*; the former seems the most probable theory, as Meroitic appears to possess no other sign than ϚϨ for expressing initial vowels."

Consequently, Griffith (1911, 11) chose to transliterate this sign by using *a*. In a later work on his progress of decipherment (1916, 118), Griffith puts forward an alternative view on the sound value of this sign when he claims that 'It may be looked upon like initial aleph ℵ as a kind of consonant, a breathing followed by a vowel.' Following the observation he made previously (1911, 12, fn. 2), Griffith 1916, 122 also proposes that the sign ϚϨ could be used for vowels other than *a* through considerations based on the following equivalent forms, where Meroitic ϚϨ = Egyptian <w> /w/ (Cuneiform *u*) (> Coptic ⲟⲩ/u/)[7]:

(4) M. ⸗ⲱ / Ϩ ϚϨ　*asori*　< Eg.　*ws-ỉr*　　　theonym
　　　　　　　　　　　　　　　　　(Coptic ⲟⲩⲥⲓⲣⲉ)
(5) M. /⸗/ ⸗ ϚϨ　*apote*　< Eg.　*wptj ~ wpwtj*[8]　title
　　　　　　　　　　　　　　　　　(Cuneiform *uputi*)

Unfortunately, Griffith never specifically defines his proposal for the sound value of this Meroitic sign ϚϨ in any of his later works, although several researchers would take up the consonantal hypothesis for this sign. Zyhlarz (1930, 416, 419, 421) proposes that Meroitic ϚϨ should be transliterated as <ꜥ> in line with Egyptological transcription practice to notate a '*laryngal explosive*', (<ꜥ> = the pharyngeal fricative /ʕ/ Peust 1999b, 99, Loprieno 1995, 33). Vycichl (1958, 74) calls the Meroitic sign an initial '*aleph* although it is unclear if he also considers it to be consonantal or whether he is simply following Grif-

fith's terminology[9]. The consonantal value of this sign is also propounded by Zawadowski (1972, 19), who claims that: "In the initial position, the vowel /a/ is always accompanied by the laryngeal consonant /ʒ/. In the writing it is expressed by a double sign – ϚϨ. The digraph permits to suppose that, like the alif-hamza of the Arabic script it represents by itself a double phonemic sign, perhaps a combination of a consonant with a vowel (C + V)."

Zawadowski (1972, 29) proposes Meroitic ϚϨ is <ʒ> which represents 'the glottal stop Semitic *aleph* or *hamza*' as the sign is used to 'render Egyptian and Coptic laryngeals + vowel' (1972, 19), although this was already observed by Griffith (1911). Zawadowski's claim comes in for critique by Vycichl (1973, 61) who asks how in this analysis Zawadowski is able to accommodate Griffith's observation of Meroitic aequivalent to Coptic /u/ in the name of Osiris.

Hintze's major discussions on the principles of the Meroitic language (1973a, 1974a, 1979) left the representation of Meroitic ϚϨ somewhat unclear, although in one short paper on Meroitic vowels (1973b, 332), he includes the representation of Meroitic ϚϨ as being phonologically /a/. However, he later proposes in his revision to the transliteration method of Meroitic that 'the letter *a* [ϚϨ] at the beginning of words could be used for practical reasons; this *a* stands for /ʼa/, /ʼe/, /ʼi/, or /ʼo/' (1974, 73)[10]. The consonantal value of this sign is later clearly rejected by Hintze (1987, 48-49) who states that there was no glottal stop word-initially in Meroitic. Earlier to Hintze's claim, Hofmann (1981, 31) asserts that the transliteration used by previous scholars, such as Priese (1973, 284), of <ꜥ> for Meroitic ϚϨ was wrong as it indicates a glottal stop, which she claims the Meroites did not possess, and that Meroitic ϚϨ was only used to transcribe word-initial /a/ and /u/ (1981, 42–43), and the vowel /i/ (1982, 47). The proposal that Meroitic ϚϨ represents word-initial /a/ [a] and /u/ [u] is also followed by Rilly, although he further extends this representation to include the vowel [ə] (2007, 287–290).

1.1 Meroitic *a* ϚϨ 𓂝 does not transcribe word-initial /u/ [u]

This section outlines that through a reliance on Egyptological transcription, the theory that Meroitic ϚϨ tran-

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5 See Loprieno 1995, 33 and Peust 1999, 98 for the phonemic assignation of this Egyptian sign as a voiceless pharyngeal fricative /ħ/.
6 The Egyptian sounds <*h*> /h/ and <*ḥ*> /ħ/ have phonetically merged by the Coptic stage of the language to ϩ /h/ (Peust 1999b, 99).
7 Griffith 1916, 122 states that 'the initial ϚϨ might represent other vowels than *a*, as when it corresponds to ⲟⲩin the Meroitic *Asori* for Coptic ⲟⲩⲥⲓⲣⲉ and to *u* in cuneiform *uputi*'.
8 This Egyptian form has a variant transcription which is discussed in the next section.

9 Priese 1968, 187 fn. 121 also follows a consonantal sound value for this sign.
10 Hintze 1987, 48 specifies that his representation of /ʼa/ etc. in this earlier paper (Hintze 1974) indicates an initial glottal stop.

scribes a word-initial vowel /u/ [u] may have been mista-kenly assumed. As Griffith (1916, 122) initiated the proposal that Meroitic �६ᒾ was also used to transcribe the vowel /u/ [u], this section discusses the evidence from Egyptian that Griffith used for this assertion and puts forward that it may be too weak to maintain.

It must be taken into consideration that one of the two Egyptian forms that Griffith used for this assertion of Meroitic �६ᒾ indicating the vowel /u/ i.e. *wptj* ~ *wpwtj* is also found transcribed with an initial <i>/<j> *ipwty*[11] ~ *jpwtj*[12]. The value of Egyptian <i>/<j> being /ʔ/ (Hodge 1977, 933) and where <i>/<j> is /ʔ/ < /j/ (Loprieno 1995, 33) does not support the theory that Meroitic �६ᒾ also has the value /u/. It shows that the initial sound of the Egyptian form was subject to a sound change and thus cannot be used as definitive evidence for the Meroitic borrowed form *apote* transcribing the vowel /u/ with �६ᒾ.

The second Egyptian form that Griffith used for this assertion comes specifically from the following equivalent form for the theonym Osiris, where Egyptian <w> /w/ and Coptic ⲟⲩ /w/ → Meroitic �६ᒾ:

(6) M. ⳨ⲱ / ꢀᒾ *asori* < Coptic ⲟⲩⲥⲓⲣⲉ   "Osiris"
     (Eg.   *ws-ir*)

The following discussion re-examines the Egyptological transcription for this theonym. The theonym Osiris has been traditionally transcribed as *ws-ir*, although Osing's (1974) analysis of the names of the gods Isis and Osiris puts forward that the transcription of *ʒs.t-jr.t* should be seen as the basic form for the name of Osiris. He states that the initial consonant in the name which developed into Coptic ⲟⲩ must have been <ʒ> which was subject to a sound change. Osing points out that there is still an unexplained development of <ʒ> to the Coptic ⲟⲩ although a sound change of <ʒ> to <w> is only attested in other forms in adjacent places with the vowel /u/ in pre-stressed syllables. He proposes that there existed a vowel between <ʒ> and <s> and that if this vocalic position is not assumed then the sound change of <ʒ> to <w> would be without parallel. Osing also states that the throne sign must be interpreted as *ʒsᶜ/ʒuse* which is apparent in the name of Isis and is written in exactly the same way (*ʒws.t* ~ *jws.t*). He concludes that this means that the name of Osiris is made up of the name of Isis[13].

The transcription of the names of Osiris and Isis is also argued for revision in Muchiki's (1990) study in which he proposes that the transcription of Osiris should be read as *ʒs-ir*, whereby the name of Osiris transcribes a word-initial glottal stop [ʔ][14] and not the labiovelar glide [w][15]. These proposals on a re-evaluation of the transcriptions of correspondent forms in Egyptian and Meroitic weaken the claim for the Meroitic sign �६ᒾ transcribing a simple vowel sign – the vowel /u/ and thus being one of the attributed sound values. A brief summary of Muchiki's (1990) proposal is given for the revision to the Egyptological transcription of *ws-ir* to *ʒs-ir* now follows.

The hieroglyphic throne sign in the name of Osiris is transcribed as <ws> although Muchiki (1990, 191) outlines how it has multiple readings. Specifically four different phonographic values have been attributed to this sign: '(1) *s* in *s.t* 'seat'; (2) *ws* in *ws-ir* 'Osiris'; (3) *ʒs* in *ʒs.t* 'Isis'; (4) *ḥtm* in *ḥtmt* 'chair'.' This leads Muchiki to assert that:

> "The values of *s*, *ʒs* and *ḥtm* have been confirmed by occurrences of the requisite consonantal complements, but the reading *ws* has never been inscriptionally corroborated. What is more, 'Osiris' is the *only* case where the throne-sign has been read as *ws*. Why, then, should [Osiris] be read as *ws-ir*?"

Muchiki (1990, 192) criticises the evidence used by Erman, who advocated the reading <ws> for the throne sign only in the theonym Osiris. He cites and investigates Erman's evidence for this transcription, which was based upon Coptic, Greek and Aramaic forms:

(7) Coptic   ⲟⲩⲥⲓⲣⲉ
     Greek   Ὄσιρις
     Aramaic   ʼWSRY ~ ʼSRY

The Aramaic forms begin with *ʼaleph* (ʼ)[16], but Muchiki asserts that Erman ignored this, as he did not consider that the initial *ʼaleph* of *ʼWSRY* retained its consonantal value because 'the *ʼaleph* is not written in such compound forms as *PṬWSRY, PṬWSYRY*.' Muchiki agrees that *ʼaleph* is not written in Aramaic compound names but this 'does not prove that *ʼaleph* does not function as a

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11 Form taken from Lesko 2001, Vol. VI, 25 who states that this form appears in Gardiner's (1932) Late Egyptian Stories.
12 This variant form appears in Osing 1976, 532–3.
13 See Allen 2013 for a thorough consideration of the etymological relatedness of these theonyms.

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14 According to Loprieno 1995, 33, the value of the Egyptian signs transcribed with <ʒ> 'progressively tends to acquire the realization as glottal stop [ʔ] – an evolution which appears almost completed in the New Kingdom (1550–1050 BCE)'. See also Takács 1996, 345–352 for reliable lexical isoglosses that demonstrate that Egyptian <ʒ> corresponds to both Semitic ~ Afro-Asiatic *r/*l *and* *ʔ*.
15 During the Ptolemaic era of Egyptian (4ᵗʰ century BCE – 1ˢᵗ century BCE), the writing of "Osiris" starts to be attested written with word-initial <w> (hence the Coptic form).
16 Also Aramaic ʼSRMLK "Osiris is king" (Kornfeld 1978, 41).

consonant in initial position' (1990, 192). He then shows that medial 'aleph is often elided in compound names because it is probably followed by a long vowel [uː] e.g. *pete'ūsiri > petūsiri[17]. Muchiki also states that the Coptic and Greek forms are redundant, as they have no means of indicating a word-initial 'aleph and as such are 'irrelevant in deducing the original reading of any word which had initial 'aleph [ʔ] or 'ayn [ʕ]' (1990, 192)[18].

The Aramaic forms for the name Isis are also cited as further evidence for the corrected reading of ꜣs-ir and not *ws-ir by Muchiki (1990, 192). In Egyptian, Isis is also written with the throne sign word-initially where this form is transcribed as ꜣs.t. The theonym Isis is written in Aramaic as 'A or 'SY[19], and in compound forms, the 'aleph is again elided: *PṬ'SY > PṬSY; *NP'SY > NPSY. Muchiki (1990, 192) summarises this evidence[20]:

> "It is universally recognised that the name 'Isis' in Egyptian has initial ꜣ. Therefore, the attested absence of this 'aleph within the compound forms does not prove that there was no consonantal 'aleph at the beginning of the name 'Isis' in Egyptian. When 'Osiris' appears in Aramaic as 'WSRY as well as 'SR, then surely the initial 'aleph in the fuller spelling should be taken as a consonant followed by w as a mater lectionis. It is impossible, in West-Semitic usage, to consider both 'aleph and w to be vowel letters together as Erman did."

Muchiki (1990, 193) adds to the Aramaic evidence with the form of Osiris taken from Phoenician transcriptions. Phoenician scribes transcribed this divine name as 'S[R] ~ 'SR, again with an initial 'aleph[21]. He states that due to the rigid consonantal system of Phoenician, this form 'strongly support[s] the inference that the name 'Osiris' starts with an 'aleph. Phoenician scribes never fail to catch the initial 'aleph' (1990, 193–194). He also points out a further anomaly with the reading of Osiris as *ws-ir in that Aramaic and Phoenician normally render Egyptian <w> by W[22]. According to Muchiki, this means that

'if "Osiris" were *ws-ir, the normal Semitic form should be *WSR' (1990, 194), and therefore it should be written with word-initial W. Muchiki's revised transcription of Osiris as ꜣs-ir shows a close parallel with the reading of Isis ꜣs.t[23]. He concludes that this evidence means that 'there is no doubt that the Egyptian form of the name of Osiris should be transliterated as ꜣs-ir' (1990, 194).

Consequently, if this revised Egyptological transcription of the divine name Osiris as ꜣs-ir and not *ws-ir is followed then it weakens the primary claim (along with the form wpwtj ~ jpwtj) used for the Meroitic word-initial sign Meroitic ᐸ૨ as only a vowel sign of varying quality, where one of its values is the back vowel /u/.

1.2 Egyptian ꜣs-ir > Coptic ογcιρє Osiris

If it is followed that the divine name Osiris by the time of the New Kingdom (1550–1050 BCE), was articulated with a word-initial glottal stop [ʔ], then a more precise transcription should be ꜣs-ir. It is relevant to examine how the Coptic form transcribes this same divine name with the back vowel /u/ (and the Greek form 'O /o/) i.e. and 'Οσιρις. Peust (1999, 223) puts forward evidence for this in that vowel quality from the New Kingdom period (1550–1050 BCE) to Coptic (1st century-1100 CE) was subject to major restructuring in that the vowels shifted in a circular direction so that the pronunciation of most stressed vowels changed[24]. He states that similar vocalic chain-shifts 'are known to have taken place in other languages of the area roughly at the same time, such as in the Semitic languages … and Greek'[25]. Peust (1999, 223) formulates this chain-shift and describes its process as, 'Between New Kingdom Egyptian and [...] Coptic, most vowels proceeded one or two steps along the following circle': a → o → u → y/ø → i/e → a. As is well-known, the Egyptian language did not come to be written with vowels until the Coptic period, and so Peust and other scholars have examined Cuneiform transcriptions, where vowels are written which are contemporaneous with New Kingdom (1550-1050 BCE) era words in order to ascertain

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17 This is in line with the *hamzat-al-waṣl* 'eliding hamza' of Arabic.

18 See also the Egyptian Aramaic form אוסרי 'WSRY for Osiris in Muraoka, Porten 1998, 23 with word-initial 'aleph.

19 Also Aramaic 'SWRY "Isis is great" (Kornfeld 1978, 77).

20 The Aramaic form of Osiris" is 'WSRY, where W is used in this form as a mater lectionis, i.e. to indicate the vowel /u/. Healey (1990, 229) specifies that this is 'the occasional use of certain consonants, particularly **h**, **w** and **y**, to represent vowels. Aramaic from an early date used them for vowels within words as well as at the end of words.' It is interesting for the present discussion that Aramaic also renders Egyptian Osiris without the mater lectionis – W: 'SRY.

21 See also the forms which correspond to this in Krahmalkov 2000, 67.

22 For example, Aramaic and Phoenician WḤPR' – Egyptian wꜣḥ-ib-rʿ.

23 Peust 1999, 262, who also cites Osing, assumes an etymological connection between the theonyms Osiris and Isis. He states that 'an etymological connection is appealing since both gods are closely connected to each other both in Egyptian mythology and in the writing of their names'.

24 See also Loprieno 1995, 46–48 for more on these vocalic sound changes, and Zyhlarz's (1956, 32) remark on this chain-shift as a proposal for the pronunciation of the name of *Kush*.

25 See Fox 1996 for more on vowel shifts in Phoenician and other Near Eastern languages including Greek.

the likeliest vocalisation of Egyptian. These transcriptions are indicative in determining that the vocalisation by the Coptic stage was markedly contrastive from the earlier New Kingdom Egyptian vocalisation, and vocalic chain-shifts can be identified.

Peust (1999, 226) cites examples from Meroitic as further evidence for these chain-shifts. He explains that these certain Egyptian words must have passed into a predecessor language of Meroitic around the time of the New Kingdom (1550-1050 BCE) at the latest. This is because the Meroitic language only came to be written from the 2nd century BCE[26]. Peust explains that these Meroitic examples show that they did not take part in the sound changes (chain-shifts) that Egyptian experienced afterwards. Conclusively, for Peust, the following Meroitic examples confirm the sound shift of Egyptian /a/ > Coptic ⲱ/o/ ~ ⲟⲩ/u/:

(8) Eg. *ḥr* > (M. ⲱ ϩ *ar*) Coptic ϩⲱⲣ *hôr* /ho:r/ "Horus"
(Coptic ᴼˡᵈϩⲁⲣ ᴼˡᵈϩⲁⲣ-ⲡϩⲱⲧ)

In the correspondence forms above, Meroitic ϩ notates Egyptian <*ḥ*> /ħ/ and Coptic ϩ /h/, (it is put forward that ϩ represents a CV syllable which is expanded further on), thereby the vowel of the Meroitic 'initial a' sign is the unmarked 'a' [a]. Accordingly, this Meroitic form along with the Old Coptic forms reveals the chain-shift of Egyptian /a/ > (Old Coptic /a/ >) Coptic /o/, whereby the Egyptian theonym Horus *ḥr* /ˈħar/[27] is borrowed into Meroitic *ar* /ʔara/[28] along with the Egyptian initial syllable vowel /a/. Since this stressed vowel in Egyptian diachronically shifts to /o/, the vocalic shift can be evidenced in the Coptic written form ϩⲱⲣ *hôr* /ˈho:r/.

A further Meroitic example of a divine name is shown in Peust 1999, 226, and one which is particularly relevant to Griffith's initial claim for the value of this Meroitic sign, which also exhibits the chain-shift of Egyptian /a/ > Coptic ⲟⲩ /u/:

(9) Eg. *ỉmn* > (M. ⲩⳡ ⲙⲛⲓ *amni)* Coptic ⲁⲙⲟⲩⲛ *amun* /amun/ "Amun"

The Meroitic form ⲩⳡ *amni* has the unmarked vowel 'a' /a/ between *m* and *n*. The proposed Meroitic phonetic representation of this theonym would be [ʔaˈmani]. Furthermore, New Kingdom cuneiform transcriptions also give a word-medial vowel /a/ between *m* and *n* in *a-ma-na*[29]. Peust (1999, 226) then shows how this word-medial stressed vowel /a/ shifted to /o/ ~ /u/ from the 1st millennium BCE onwards: Cuneiform *a-mu-nu*; Hebrew אמון *'mwn*; Greek αμμων /ammon/ ~ αμουν /amun/; Coptic ⲁⲙⲟⲩⲛ /amun/. He summarises this evidence in that the Egyptian vowel /a/ 'was preserved as such ... in the ancient language(s) to the south of Egypt, whereas it shifted to u [diachronically] in Egypt itself' (1999, 226)[30]. Furthermore, Peust (1999, 72) states that:

> "It is curious to note that these [Meroitic] borrowings, despite their comparatively late date of attestation, show archaic phonetic features known elsewhere only from cuneiform transcriptions of the 2nd Millennium BC. So we can stipulate that these words had already spread south during the New Kingdom – a time when the area was politically dependent upon the Egyptian empire – and then failed to undergo the sound changes which subsequently took place in Egypt."

It is also evidenced that the vocalic chain-shift applies to the vocalisation of the divine name Osiris. This is important to note, as it allows a tentative assignment of the stress placement of this theonym, and thereby can explain the change in the Egyptian transcription of *ȝs-ỉr* becoming written as *ws-ỉr* during the Ptolemaic era, and subsequently as Coptic ⲟⲩⲥⲓⲣⲉ.

This evidence comes from the Meroitic form ⲩⲱ / ϩ *asori* for the theonym Osiris. It has already been discussed above how Meroitic could have fossilised the vowels of Egyptian before the process of the stressed vocalic chain-shift changed their quality. In the Meroitic form of ⲩⲱ / ϩ *asori* the penultimate vowel is / *o* /u/, although in the Coptic form the vowel is /i/. In determining this change, it is evidenced that the Coptic vowel ⲓ /i/ has shifted two stages along from the vowel /u/ as in Peust's (1999, 223) example given in (8). It can therefore be proposed that the Meroitic form indicates that the stress is on the penultimate vowel [ʔaˈsuri].

Since we are now in a position to define the stress placement in the Egyptian form *ȝs-ir* we can now ac-

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26 I point out that just because Meroitic only came to be written circa 2nd century BCE, this does not mean that before this era the Meroitic language only existed in a predecessor form.

27 This is possibly vocalised with a word-final vowel.

28 For consistency in this section's discussion, which rests upon further proposals in the following sections, I am representing the Meroitic sign ϩ transliterated as *a* as representing a CV sequence with the glottal stop /ʔ/ in consonantal position which includes the inherent unmarked 'a' [a] vowel.

29 Peust 1999, 28 specifies that, 'The official correspondence of New Kingdom Egypt with its Asian provinces was recorded in Akkadian, a Semitic language written in cuneiform which some Egyptian scribes were taught as a foreign language.' I assume that this New Kingdom cuneiform transcription is taken from this correspondence in Akkadian cuneiform.

30 Peust is referring to Meroitic and Nubian as the ancient languages to the south of Egypt, as he cites further evidence for chain-shifts from Nubian. For more on Coptic vowels, see Peust 1999, 226–258.

count for the change from Egyptian *ꜣs-ir* to the Ptolemaic era form *ws-ỉr* (and the Coptic form ⲟⲩⲥⲓⲣⲉ). The Egyptian form *ꜣs-ỉr* can be reconstructed as /ʔuˈsurV/[31]. Importantly Peust states that diachronically <ꜣ> /ʔ/ is 'always lost in pretonic position' (1999, 149)[32]. This pretonic loss of <ꜣ> /ʔ/ results in /uˈsurV/, whereby the pretonic word-initial vowel /u/ is interpreted as a consonantal glide <w> /w/, resulting in the Ptolemaic era written form of Osiris as *ws-ir*. This development is also able to explain the Greek and Coptic forms with word-initial /w/ ~ /u/ i.e. Greek Ὄσιρις, Coptic ⲟⲩⲥⲓⲣⲉ.

The Meroitic form is indicative for the stress placement in Osiris, indeed Peust (1999, 262) proposes a similar analysis of the diachronic change of Egyptian *ꜣs-ỉr* > Coptic ⲟⲩⲥⲓⲣⲉ, although he does not discuss the Meroitic form as evidence for the proposal of the stress placement:

> "... in the name of the god Osiris (Coptic ⲟⲩⲥⲓⲣⲉ). The pretonic ⲟⲩ points to an initial consonant <w> of the Egyptian predecessor, which is indeed attested in writing during Ptolemaic times. On the other hand, the more ancient writings of this name, although phonetically hard to interpret, can probably only be read with initial <ꜣ> ... If we assume that the pretonic vowel was /u/, we can reconstruct the Egyptian form as (ꜣuˈsurV) (or similarly) which after the loss of <ꜣ> may have been reinterpreted as (ˈwsurV)."

However, under Peust's analysis, the change in the placement of the stress from penultimate [AuˈsurV] to antepenultimate [ˈwsurV] position would not be able to explain the change in the quality of the penultimate vowel from /u/ being realised in Coptic as ⲓ /i/. That is, how does the unstressed vowel /u/ in the form [ˈwsurV] chain-shift to /i/ in the Coptic ⲟⲩⲥⲓⲣⲉ /ˈusirɛ/[33]? Unless the stress moved after the chain-shift process had taken place, I consider that the forms are better explained with no change on the placement of stress.

The Ptolemaic era form *ws-ỉr* for Osiris is further discussed by Muchiki (1990, 192) which is transcribed as *ws-ir* with a word-initial labial glide <w> /w/. He states that this was also used as evidence by Erman for the transcription of Osiris as **ws-ỉr*, although Muchiki (1990, 192) points out that 'we must bear in mind that this writing is only attested from the Greek period [Ptolemaic], and that the Greek and Coptic forms of "Osiris" may reflect merely the vocalization of these periods, when *ʾaleph* and *ʿayn* went out of use'[34]. However, he does further point out that there is evidence that Egyptian <ꜣ> /ʔ/ was still in use at times during the 5th century BCE (1990, 194)[35]. A correspondence between Egyptian <ꜣ> /ʔ/ and Aramaic *ʾaleph* is found in the toponym "Abydos", Egyptian *ꜣbḏw* → Aramaic *ʾBWṬ*[36]. Thereby proving that Egyptian <ꜣ> /ʔ/ did not completely drop out of use at this time and that it could be represented by Aramaic *ʾaleph* into the Late Period (525–332 BCE).

1.3 Egyptian *ꜣs.t* > Coptic Isis

As already discussed, the etymologically related form for Isis is also written with the word-initial throne sign transcribed as *ꜣs.t*. Muchiki (1990, 192) outlines that Aramaic and Phoenician forms render the initial Egyptian <ꜣ> /ʔ/ with *ʾaleph* in their transcriptions of this theonym[37]. Peust (1999, 262 fn. 326) reconstructs Egyptian *ꜣs.t* with the glottal stop (<ꜣ> /ʔ/) followed by the back vowel /u/ i.e. ˈꜣustV [ʔustV][38]. His reconstruction of the theonym Isis is to bring it in line etymologically with his reconstruction of Osiris as *ꜣuˈsurV*. However, Peust does not take up the discussion on how Egyptian *ꜣs.t* > Coptic ⲏⲥⲉ (more specifically how Egyptian /ʔustV/ > Coptic /esɛ/)[39]. The discussion into the reasons for this diachronic

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31 The evidence for the vowel quality of the initial syllable in Osiris being /u/ [u] comes through the Coptic and Greek forms where this initial syllable is pretonic and as such is not subject to the chain-shift process. This is not to say though that the vowel of the initial syllable in the equivalent Meroitic form is [u].

32 However, some forms are evidenced where <ꜣ> /ʔ/ is not only lost in pretonic position: New Kingdom Egyptian > Coptic: Eg. *ꜣtp*/ ˈʔatpV/ > Coptic ⲱⲧⲡ /ˈotp/ "to load"; Eg. *ꜣpd* /ˈʔapdV/ > Coptic ⲱⲃⲧ /ˈoβt/ (Peust 1999b, 143-44).

33 Peust 1999, 260 puts forward that through etymological evidence, 'Unless (ⲉ)ⲓ and (ⲟ)ⲩ are stressed vowels, they always correspond to consonantal phonemes of Egyptian', and furthermore that 'Coptic has practically no graphical means of distinguishing glides (/j/, /w/) from the corresponding vowel phonemes (/i/, /u/)'.

34 It is noted that Coptic ⲟⲩ word-initially usually corresponds to Egyptian <w>, e. g. Eg. *wꜣḏ* Coptic ⲟⲩⲱⲧ "green"; Eg. *wdḥ* > Coptic ⲟⲩⲧⲁϩ "fruit". However, this can be explained, as Muchiki points out, that the Coptic form ⲟⲩⲥⲓⲣⲉ was taken from the Ptolemaic era form *ws-ỉr*.

35 The period just before the Ptolemaic era.

36 This Egyptian toponym *ꜣbḏw* also shows the diachronic pretonic loss of <ꜣ> [ʔ] and perhaps a vocalic shift in the Coptic form – ⲉⲃⲱⲧ /əˈβot/ (Peust 1999b, 149).

37 Isis *ꜣs.t* is transcribed in Aramaic as *ʾS ~ ʾSY* (Muchiki 1990, 193), and similarly in Phoenician (Krahmalkov 2000, 65).

38 The word-final vocalisation is Peust's theory, see Peust 1999 for the reasons into this.

39 The given phonemic representation of the Coptic form ⲏⲥⲉ /esɛ/ follows Peust's argument on the quality distinction of the vowels ⲏ and ⲉ.

change now follows, as this gives an indication into the stress placement of this theonym.

There are generally two different views of the phonemic representation for the Coptic vowel letters н and є. According to Loprieno (1995, 15), the Coptic sign н represents the long vowel /e:/ as he follows the tradition that the difference between the Coptic vowel signs н and є is one of vowel quantity i.e. н – /e:/ and є – /e/. This quantity distinction is rejected by Peust (1999, 201), who asserts that there is 'little evidence for this claim. The main argument seems to be the fact that the respective Greek letters indicate vowel quantity in Classical Greek.'[40] He argues that the difference between Coptic н and є is one of vowel quality.[41] Peust proposes that the Coptic vowel н is higher in articulation than є (1999, 202).[42] Therefore, н – /e/ and є – /ɛ/, this means that in the Coptic written form нсє for Isis is phonemically /esɛ/. We are now in a position to explain the diachronic change from Egyptian $ȝs.t$ > Coptic нсє.

Peust (1999, 204) asserts that the Coptic vowel н /e/, in many instances, is derived from original (Egyptian) /u/. Peust charts (1999, 223) the development evidenced in cuneiform documents of the late 2nd millennium BCE of an Egyptian vowel /u/, which shifts to the vowel /e/ (н) by the Coptic stage a → o → u → y/ø → i/e → a.[43]

Peust's (1999, 262) reconstruction for Isis $ȝs.t$ as /ˈʔustV/ is perhaps credible.[44] In the Egyptian form, the initial sign <ȝ> /ʔ/ is followed by the back vowel /u/, there is diachronic loss of the word-initial glottal stop /ʔ/,[45] the word-initial stressed back vowel /u/ is then subject to the chain-shift process resulting in /e/ by the Coptic stage of the language, accordingly the name Isis is written in Coptic as нсє/ˈesɛ/.

1.4 Evidence from Meroitic

The Meroitic form for Isis is ꒰ wos, which can be phonemically transcribed as /wusa/.[46] This Meroitic form gives a clear indication that the vowel of the initial syllable of this theonym was the back vowel /u/, borrowed from Egyptian at a period before the vocalic chain-shift process of /u/ > /e/. Further, the Meroitic form shows the labio-velar glide ꒰ w /w/ word-initially – ꒰, whereas the Egyptian form has the glottal stop <ȝ> /ʔ/ $ȝs.t$.

In Meroitic there also exists a hapax variant form of this same theonym written as sa as, with the word-initial sign ꒱ a rather than ꒰ w.[47] What does this variant form lead us to conclude about the Meroitic realisation of this theonym? It could be a suitable indication that the Meroitic sign ꒱ a does actually represents a glottal stop /ʔ/ [ʔ] including the inherent unmarked low vowel 'a' at phonetic realisation [a].[48] This would result in the phonetic representation of this form as [ˈʔasa]. The variation could be a more faithful representation of the Egyptian theonym, which had a word-initial glottal stop $ȝs.t$ /ˈʔustV/. Furthermore, it can also be proposed that the inherent vowel of the Meroitic sign ꒱ at phonetic realisation was not the back vowel [u] but the low vowel [a], and it was specifically this difference between the syllable initial vowels of the Egyptian and Meroitic forms that motivated the Meroites' variation in the written representation of Isis between ꒱ as [ˈʔasa] and ꒰ wos /ˈwusa/ [ˈwusa].

It is proposed that the evidence for the variation in these Meroitic forms comes from the stress assignment. It is known that vowels in stressed syllables have a clear or full quality whilst those in unstressed syllables are reduced. As Isis $ȝs.t$ /ˈʔustV/ is stressed on the first syllable (Peust 1999b, 175-188), the initial vowel /u/ would therefore have a clear quality. It is proposed here that it is this clarity of the /u/ vowel in this Egyptian form which perhaps motivated the Meroites to commonly represent this in their transcription of this form from the less common ꒱ as [ˈʔasa] to the more usual form ꒰ wos /ˈwusa/ [ˈwusa]. It is put forward that the analysis of Isis in Meroitic cannot maintain the general proposal that the

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40 The Coptic vowel signs are derived from the Greek, although 'their phonetic values are obviously not quite identical to those of Greek' (Peust 1999, 205).

41 The arguments that Peust puts forward cannot be summarised here, for a fuller discussion, see Peust 1999, 201–210.

42 Greenberg 1962 proposes this same analysis of the Coptic vowels.

43 An example of this is the Egyptian toponym $nȝ.t$ "Thebes", which is attested as nu-[...] in cuneiform transcription of the New Kingdom > Coptic нн /ne/ (Peust 1999, 232).

44 I am only concerned with the first syllable that Peust proposes for this theonym. The word final vowel is specifically Peust's theory that does not concern the present discussion.

45 As discussed, the phoneme /ʔ/ is not only lost in pretonic position.

46 Cf. Rilly 2007, 289, for an alternative proposal for the realisation of this theonym.

47 Rilly 2007, 289 remarks on this variant form (REM 0049) that it is easier to explain if we assume ꒱ is also /u/. Cf. Hofmann 1981, 42.

48 I am essentially defining here that it could be the case that there was underlying /ʔu/ → phonetic [ʔa]. The reasons into this are given in §3.7, and so for present purposes I am representing only the Meroitic phonetic forms.

sign ꕷ also transcribes the back vowel /u/. If this was one realisation, then why is there a variant form of ꕷ as */usa/ of the standard form *wos* /wusa/, as surely this variation would have been unnecessary[49]. This variation in the Meroitic written form for the representation of Isis is indicative of the vocalisation and representation of Osiris in Meroitic.

2 Meroitic ꕷ *asori* Osiris

The preceding discussions are taken into consideration for the analysis of Meroitic ꕷ in Osiris *asori*. This theonym has been used as primary evidence for the assertion that Meroitic ꕷ represents a vocalic sign, which not only represents the low vowel /a/, but also the back vowel /u/ (Griffith 1911, 12 fn. 2, 1916, 122; Hofmann 1981a, 42; 1982, 47; Hintze 1987, 48-49; Rilly 2007, 287–290)[50]. Since the theonym Isis in Meroitic has a variation form of ꕷ *as* where *wos* is used to represent the back vowel /u/ [u] of the initial stressed syllable, then the question must be asked why Osiris in Meroitic was not accordingly changed? Specifically, whether or not the Egyptian form for Osiris *ꜣs-ir* actually had the back vowel /u/ in the initial syllable /ʔusurV/, the fact remains that Meroitic did not transcribe *ꜣs-ir* as **wosori* */wusuri/ [wusuri], but as *asori* [ʔasuri]. Therefore, the Meroites must have remained faithful to the Egyptian representation of Osiris with the word-initial glottal stop <ꜣ> /ʔ/, which is contrary to their representation of Isis *ꜣs.t* as *wos*. What can be concluded as to these differences in Meroitic faithfulness to the Egyptian forms? Can the explanation be found in their varying prosodic structures?

    As already discussed, according to the stress assignment Peust (1999, 175188) proposes, Isis *ꜣs.t* has tonic stress on the initial syllable /ˈʔustV/[51], whereas Osiris *ꜣs-ir* has tonic stress on the second syllable /ʔuˈsurV/. It is possible that the force of tonic stress on the initial syllable of

Isis /ˈʔustV/ in Egyptian, influenced the Meroites representation of the stressed vowel /u/ [u] being more pronounced at the expense of its preceding consonant <ꜣ> /ʔ/ [ʔ], hence the Meroitic variation between *as* [ˈʔasa] and the more common *wos* /ˈwusa/ [ˈwusa]. Consequently, the pretonic consonant <ꜣ> /ʔ/ of Egyptian Osiris *ꜣs-ir* /ʔu ˈsurV/ *was* represented by the Meroites *asori* [ʔaˈsuri].

2.1 Pretonic loss of Meroitic *a* ꕷ 𓀿

The stress assignment of Meroitic forms can only be speculated although there are common variant forms where the Meroitic sign ꕷ is frequently omitted and these forms are suggestive for proposals on the placement of stress. It is claimed here that the omission of ꕷ in Meroitic is due to its pretonic position in the word[52]. When a is not in a pretonic position, there is no omission of this sign. This is comparable to the diachronic loss of Egyptian <ꜣ> /ʔ/ in pretonic position (Peust 1999b, 149).

    (10a)   *amni* > *mni* "Amun"

The Egyptian form of this theonym has stress on the second syllable /ʔVˈmanV/[53]. The Meroitic form *amni* transcribes this theonym with the unmarked low vowel /a/ between *m* and *n* [ʔaˈmani]. This stressed low vowel /a/ has chain-shifted to /u/ ⲀⲘⲞⲨⲚ /aˈmun/ as evidenced in the Coptic stage. This analysis suggests that the Meroitic form *amni* [ʔaˈmani] indicates that the sign ꕷ [ʔa] is in a pretonic position and subsequently subject to aphaeresis resulting in the later written form *mni* [ˈmani][54].

    (10b)   *abr* > *br* "man"

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[49] Rilly 2007, 399 remarks on another rare variant form of Isis as *wis* [wisa]. This form alternates with the more standard form *wos*. This form could be explained through the Meroites representing the vowel of the intermediate stage in the Egyptian chain-shift: u → y → i/e. It is possible that this intermediate stage of the front rounded vowel [y] in Egyptian Isis /ysɛ/was interpreted with [wi] in the Meroitic variant form of this theonym *wis*.

[50] Some of these scholars have proposed that ꕷ could represent other vowels than these two.

[51] Further, because it is this initial syllable that is evidenced as chain-shifting from /u/ > /e/ by the Coptic stage.

[52] This supports Rilly's (2007, 288 fn. 5) observation that the preservation or disappearance of the word 'voyelle initiale'. Rilly supports the theory that Meroitic ꕷ is a vowel sign (V) that then deletes (aphesis), rather than the view put forward here that it represents the laryngeal /ʔ/ which includes the unmarked 'a' [a] vowel (CV) which then deletes (aphaeresis).

[53] Griffith 1916, 120 also states in his discussion of the vowel placement of this Egyptian form that, 'in Egyptian the long vowel and stress preceded the *n*'.

[54] See Rilly 2007, 395, who outlines that the 'initial a' of the theonym "Amun" in the Meroitic texts is mainly preserved unless the theonym is suffixed with the genitive postposition. In accounting for this, he states that it is plausible that the addition of the postposition modified the prosodic structure.

This Meroitic noun ⲱⲗⲋⳍ *abr* can have the representation [ʔaˈbara] with stress on the penultimate syllable. This leads to the sign ⳍ, representing the syllable [ʔa], being deleted due to its pretonic position, as the syllable [ʔa] is subject to aphaeresis, and so the later form ⲱⲗ *br* is evidenced.

(10c) ⳡⲱ/Ⳍⳍ *asori* > ⳡⲱ/Ⳍ *sori* "Osiris"

The vocalic process of stressed vowels being subject to chain-shifts between New Kingdom Egyptian and Coptic supports an indication for the stress assignment of this theonym. As already discussed, the Meroitic form ⳡⲱ/Ⳍⳍ *asori* is proposed as being phonetically realised as [ʔaˈsuri], containing the stressed vowel [u] on the penultimate syllable, as can be shown when the Meroitic form is compared to the Coptic ⲟⲩⲥⲓⲣⲉ /usirɛ/ the chain-shift has taken place: /u/ > /i/[55]. As stressed vowels are subject to this process, it can now explain the deletion of the word-initial sign ⳍ. The Meroitic stress is on the penultimate syllable [ʔaˈsuri], this means that ⳍ [ʔa] is in pretonic position and consequently is subject to aphaeresis. This results in the later written form ⳡⲱ/Ⳍ *sori* [ˈsuri][56].

2.2 Meroitic forms with no loss of *a* ⳍ 𓃀

There are also forms in Meroitic where there is no aphaeresis of word-initial ⳍ [ʔa]:

(11)
a. ⲱⳍ	*ar*	theonym	"Horus"
b. Ⳋⳝ/ⲱⳍ	*arome*	toponym	"Rome"
c. ⳡⳍ ~ ⳡⳌⳍ	*ant ~ at*	title	"Priest"

The two forms "Horus" and "Rome" in (11a) and (11b) are not subject to aphaeresis as the following consonant ⲱ *r* /r/ would then be in a word-initial position and this is prohibited, since there is a phonotactic restriction that disallows /r/ from occurring word-initially in Meroitic (Rilly 2007, 287 fn. 5). However, it can also be shown in the case of the Meroitic form for the theonym "Horus", the word-initial ⳍ [ʔa] is the stressed syllable and so is

not subject to aphaeresis. Again, evidence for this comes through the vocalic chain-shift process. As already discussed, the Meroitic form ⲱⳍ *ar* [ʔara] has fossilised the low vowel /a/ [a] from the Egyptian ḥr /ħar/, where diachronically this stressed vowel chain-shifts to /o/, as evidenced in the Coptic form ϩⲱⲣ *hôr* /hoːr/. From this evidence, the Meroitic stress is therefore on the penultimate syllable [ˈʔara], whereby the sign ⳍ *a* representing the syllable [ʔa] is not in a pretonic position in which to be subject to aphaeresis.

The third form in (11c) above, ⳡⳍ ~ ⳡⳌⳍ *ant ~ at* "Priest", is interesting as evidence is put forward to show that the placement of stress is on the first syllable of the archaic and late forms. Consequently, there is evidence of reduction and subsequent syncope of the posttonic penultimate vowel and this analysis can explain the change from the archaic to the late written forms.[57] The archaic form for "Priest" ⳡⳌⳍ *ant* is phonemically represented as /ʔanata/. However, the nasal sign Ⳍ *n* /na/ is not written in the late period form ⳡⳍ *at*, as the nasal has become resyllabified into coda position due to diachronic vowel reduction/weakening and subsequent complete syncope of the following vowel[58]:

(12) ⳡⳌⳍ *ant* /ˈʔanata/ > /ˈʔanəta/ > /ˈʔanta/ = ⳡⳍ *at*

The vowel weakening of the penultimate syllable can be explained by it being in an unstressed (post-tonic) position, i.e. the stress is on the antepenultimate (first) syllable /ˈʔanata/ > /ˈʔanəta/ > /ˈʔanta/[59]. Therefore no aphaeresis of the sign ⳍ representing the syllable [ʔa] takes place, and so there are no variant forms with the deletion of this word-initial ⳍ[60].

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55 The Egyptian form is *ꜣs-ỉr* /ʔusurV/, whereby the Meroitic form must have 'fossilised' the stressed vowel at a period before the chain-shift process happened.

56 The deletion of word-initial glottal stops in Ethio-Semitic languages is remarked on by Ullendorf 1955, 43, who points out that, 'the articulation of ' does, in fact, exist in Cushitic languages, although initially it is often omitted. Thus: Sem. *ʾkr*; Gəˁəz *hagär*; Amh. (ʾ)*agar*; Galla *irge*; Somali *hag*'.

57 Rilly 2007, 395 defines this neutralisation as taking place during the first century CE. He also proposes that the reduction of this vowel is probably due to the positioning of the vowel in the word or to the force of tonic stress.

58 Evidence for the realisation of the nasal consonant in this Meroitic form comes through the Egyptian ḥm-ntr and Coptic ϩⲟⲛⲧ equivalences.

59 Furthermore, stress in general is attracted to heavy syllables, i.e. those containing a consonant in coda position e.g. CVC(C).

60 A salient point made by Griffith 1911, 71 and picked up by Rilly 2007, 303, which warrants further investigation is that the deletion (aphaeresis) of the 'initial a' sign in the theonym *amni* and its derivatives, seems to be blocked when the word-final vowel of the preceding word is Ⳍ *e*. A cursory proposal is that this could indicate elision of the 'initial a' sign due to being intervocalic, albeit across a word-boundary, and perhaps there is usually a length duration on Meroitic word-final vowels, but when the vowel Ⳍ *e* precedes,

3 Evidence for *a* ς₂ 𓂝 as [ʔa]

This section puts forward further evidence for the proposal of the representation of the Meroitic sign ς₂ as [ʔa]. The following equivalent forms are updated and unless otherwise stated are found in Griffith (1911, 1916) and Rilly (2007):

(13)

a. M.	ᴡ/ᴡ⊂ȝ₄ᴡς₂	*arikḫror*	>	Eg.	*ỉrk-nḫrr*	Anthroponym
b. M.	⅄₄Ʒς₂	*akin*	>	Eg.	*ỉqn*[61], *ᶜqnȝ.t*[62], *ỉqn, ỉkn, ỉkỉnȝ*[63]	"Lower Nubia"
				Dem.	*ȝkjny*	
				Latin	*acina*	
				Greek	Ἀχίνη	
c. M.	/ᴡ/ᴡȝς₂	*akroro*	>	Dem.	*ȝkrrj*	Title
d. M.	ς₃ʄςᴗςᴡς₂	*arebetke*	>	Dem.	*ȝrbtgᶜye, ȝrbtngyᶜ*	Title
e. M.	₄ʓ̧ᴗ/ᴗς₂	*aborepi*	>	Eg.	*ỉpbrp, jpbrpt, jbbrᶜnḫt*,[64] *jbr, ȝbr*	"Musawwaret"
f. M.	/ȝ/ℓς₂	*adomn*	>	Latin	*andumana* (?)	Toponym
g. M.	ℓ/ȝς₂	*amod*	>	Latin	*amoda*	Toponym
h. M.	₄ȝʓς₂	*amni*	<	Eg.	*ỉmn*	Theonym
				Coptic	ᴮᵒʰᴀᴍᴏʏɴ	
i. M.	ʓȝʓς₂	*amnp*	<	Eg.	*ỉmn(-m-)ỉp.t*	Theonym
				Greek	Ἀμενωφις	
j. M.	ʄ///₄ʄς₂	*atiye*	<	Eg.	*ḥ(w).t-tỉy, jttyt*	Toponym
k. M.	/ʄʄᴗς₂	*arette*	<	Eg.	*ḥr-nd-ỉt≠f*	Theonym
				Greek	Ἀρενδωτης	
l. M.	ʄȝς₂	*ant*	<	Eg.	*ḥm-ntr*	Title
				Coptic	ˢᵃʰ·ᴮᵒʰ₂ᴏɴᴛ	
m. M.	₄ᴡʄς₂	*atri*	<	Eg.	*ḥ.t-ḥr*	Theonym
				Dem.	*ḥwt-ḥr, ḥ.t-ḥr*	
				Greek	Ἀθυρ	
n. M.	₄ᴡȝ/ς₂	*asori*	<	Eg.	*ȝs-ỉr*	Theonym
				Coptic	ᴏʏϲɪⲣⲉ	
o. M.	ᴡς₂	*ar*	<	Eg.	*ḥr*	Theonym
				Dem.	*ḥr*	
				Coptic	ˢᵃʰ₂ⲱⲣ, ᴼˡᵈ₂ⲱλ, ᴼˡᵈ₂ᴀⲣ, ᴼˡᵈ₂ⲣ, ᴼˡᵈ₂ᴀⲣ-ⲡⲱⲱⲧ	
p. M.	ʓȝ/ᴡς₂	*arome*		Eg.	*jrm, jrmj, jrmjw, jrmy*[65], *hȝlmᶜ(t)*[66]	"Rome"
				Coptic	ꜰⲣⲟⲙⲏ[67]	
			<	Latin	*roma*	
q. M.	/ʄ/ʓς₂	*apote*	<	Eg.	*ỉpwty, jpwty (wpwtj)*	Title

These equivalences show the following phonemic correlations:

(14)
a. Meroitic ς₂ *a* = Egyptian ⟨ỉ⟩ /ʔ/,[68] ⟨ḫ⟩ /ħ/, ⟨ȝ⟩ /ʔ/
b. Meroitic ς₂ *a* = Eg. dem. ⟨ȝ⟩ /ʔ/
c. Meroitic ς₂ *a* = Coptic ⲥ /h/
d. Meroitic ς₂ *a* = Greek Ἀ /a/
e. Meroitic ς₂ *a* = Latin *a* /a/

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which perhaps is only short, this does not cause elision as it is only triggered when the preceding vowels are long – as similar to the Aramaic examples.

61 Zibelius 1972, 94.
62 Gauthier, Tome I, p. 158 (ancient form).
63 Gauthier, Tome I, p. 158 and gives the Greek form.
64 Zibelius 1972, 77.
65 Zibelius 1972, 84–5.
66 Gauthier, Tome IV, p. 2.
67 Gauthier, Tome IV, p. 2. Coptic dialect unspecified.

68 I follow Loprieno's (1995, 33) and Hodge's (1977, 933) theory that Eg. ⟨ỉ⟩ is /j/ > /ʔ/, contra Peust 1999, 97–97, who supports the realisation of Eg. ⟨ỉ⟩ as only the glide /j/. Peust 1999, 97 does state that the question of whether there were glottal stops /ʔ/ in Egyptian is 'difficult to judge'. It is highly problematic to the theory that Egyptian ⟨ỉ⟩ is only /j/ when this Meroitic equivalence is examined. If it was the case that Egyptian ⟨ỉ⟩ is only /j/, then why is this Meroitic equivalence of Egyptian ⟨ỉ⟩ not transcribed with the Meroitic glide sign /// *y* /j/? E.g. Egyptian *ỉmn* is transcribed in Meroitic as ₄ȝʓς₂ *amni* and not as * ₄ȝʓ/// *ymni*.

3.1 The correspondence between Egyptian <i̯> /ʔ/ and Meroitic *a* ꜱꝫ ⳝ

The correspondence between Egyptian <i̯> /ʔ/ and Meroitic ꜱꝫ [ʔa] is very indicative. Loprieno (1995, 33) gives the phonemic representation of Egyptian <i̯> as diachronically shifting, during the Middle Kingdom (2000–1750 BCE), from /j/ > /ʔ/ before 'an unstressed vowel in initial position (*/ja'nak/ > */ʔa'nak/ "I")'. It can be seen how this representation is applied to the Egyptian form *i̯mn*. We know that the stress of the Egyptian form *i̯mn* is on the second syllable /ʔa'manV/, through the chain-shift of the stressed vowel /a/ (/ʔa'manV/) to /u/ in the Coptic form ⲁⲙⲟⲩⲛ /a'mun/[69]. Therefore, we expect the phonemic representation of the Egyptian form *i̯mn* with <i̯> as /ʔ/ because it is before an unstressed vowel in initial position /ʔa'man/, that is, the vowel /a/ of the initial syllable is unstressed and <i̯> /ʔ/ occurs before it. Subsequently, there is a correlation between Egyptian <i̯> /ʔ/ and Meroitic ꜱꝫ [ʔa].

3.2 The correspondence between Egyptian <ḥ> /ħ/ (> Coptic ϩ /h/) and Meroitic *a* ꜱꝫ ⳝ

The Egyptian sign <ḥ> represents the guttural consonant /ħ/, a voiceless pharyngeal fricative (continuant). There is no evidence for the existence in the Meroitic inventory of this phoneme, therefore it could be the case that the Meroites represent Egyptian <ḥ> /ħ/ with their nearest equivalent guttural phoneme /ʔ/, which is incorporated into their CV sign ꜱꝫ [ʔa]. By the Coptic stage of Egyptian, Egyptian <ḥ> /ħ/ had merged with the laryngeal /h/, and subsequently both sounds conflated into ϩ /h/ (Peust 1999b, 99). Here also we have a correlation between Egyptian/Coptic guttural phonemes and the Meroitic laryngeal (guttural) ꜱꝫ [ʔa].

3.3 The correspondence between Egyptian and Demotic <ꜣ> /ʔ/ and Meroitic *a* ꜱꝫ ⳝ

Egyptian and Egyptian Demotic forms transcribed with <ꜣ> also have the phonemic realisation of /ʔ/ (Loprieno 1995, 33). It is evidenced that Meroitic ꜱꝫ [ʔa] is used to represent both this Egyptian and Egyptian Demotic phoneme.

3.4 The correspondence between Greek Ἀ ~ α /a/ and Latin *a* /a/, and Meroitic *a* ꜱꝫ ⳝ

Greek and Latin do not contain the glottal stop phoneme /ʔ/ in their inventories, and it is observed that the vowel /a/ is positioned in the Greek and Latin equivalences where Meroitic positions the word-initial ꜱꝫ sign [ʔa]. In the case of the laryngeals, Harris (1936, 15) refers to the Greek borrowing of the Phoenician script for their alphabet, in that:

> "it is the same acrophonic principle which explains the appearance of vowels when the Greek borrowing of the Phoenician alphabet gave vocalic value to the Phoenician laryngeal signs. This change is not to be understood as an intentional dropping of the laryngeals ,because the Greeks had no use for them,' but rather as a purely mechanical development. From the fact that the Greeks took over, together with the letters, also their names, it follows that the Greek borrowing consisted not so much of a set of signs with their phonetic values, as of a set of signs with their acrophonic names. Thus they took over the name 'alp with the sign which represented its first sound. But the first sound in 'alp was to them not ' but *a*, for ' was not phonemic in Greek, i.e. it was not recognised as a speech sound. Therefore the value of that sign to the Greeks was *a*."

This would indicate that it would be expected that the Meroitic glottal phoneme would be interpreted as the vowel /a/ in Greek and Latin.

3.5 Interchange of word-initial *a* ꜱꝫ ⳝ and *y* ⫽⫽⫽ �

An interesting process is observed whereby variant forms are found in Meroitic where word-initial ꜱꝫ interchanges with ⫽⫽⫽ *y* /j/. This interchange supports the proposal that Meroitic ꜱꝫ consonantally represents the glottal stop /ʔ/ [ʔ]. A sample of these Meroitic variant forms are: ꜱ�ꜱ꒱ꜱ *atepoke* ~ ꜱ꒱ꜱꝫꜱ⫽⫽⫽ *yetepoke*; ꜱꝫ *ato* ~ ꜱ⫽⫽⫽ *yeto*; ꜱꝫ *arihlo* ~ ꜱꝫ⫽⫽⫽ *yerehlo*[70]. It is very interesting that these Meroitic examples correspond with this process found in Semitic (Afro-Asiatic) languages that show

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many examples of similar interchanges between initial *'alef* (' ~ *a* /ʔ/) and *yod* (*y* /j/) (Isbell 1978):

(15)
a. Ugaritic
asḫ~ ysḫ   "he shouts"
aḥd ~ yḥd   "with one change in meaning"
akl ~ yakl   "food"

b. Hebrew
'd ~ yd   "hand"
'šr ~ yšr   "go straight/be straight"
'śr'lh ~ yśr'lh proper name
'hyh ~ yhwh   "Yahweh"

c. Ugaritic Akkadian
yrq   "gold"
arqu   "yellow"

Isbell (1978, 229) puts forward many examples of this kind from Semitic languages, mainly Biblical Hebrew, Ugaritic, Aramaic and Amorite, and that, 'the appearance of so many examples of similar interchanges in other Semitic languages, examples which show clearly that initial *'alef-yod* interchanges' (1978, 231). She also states that 'several Hebrew roots exhibit either initial *'alef* or initial *yod* with identical or closely related meanings, as is well known'[71]. A further example of this interchange is also found in cognate forms (Hodge 1977, 933):

(16) Egyptian   *ỉmn*   "right (hand)"
     Akkadian   *ʔimnu*
     Hebrew   *yemen*
     Arabic   *yami:n*

This is an interesting process which could explain the Meroitic examples showing variation between word-initial ⸢a /ʔ/ [ʔ] and /// *y* /j/ [j], although this does not discount that another process could be at work, the Meroitic variant forms are very reminiscent of this interchange as found in Semitic languages between *'alef* [ʔ] and *yod* [j] and thus could be evidence in support of the proposal that the Meroitic word-initial sign ⸢a does indeed represent the glottal stop consonant, as Griffith initially proposed.

3.6 The non-occurrence of word-internal *a* ⸢⸢ 𐦀

In light of the above proposal that Meroitic ⸢⸢ represents [ʔa], it is a query as to why this sign, and therefore this syllable, is only ever found word-initially. The pro-

posal that is put forward here is that the glottal stop /ʔ/ is elided word-medially in Meroitic due to its intervocalic positioning. Whereby, for example, a phonemic representation of a hypothetical form such as /baʔa/ will elide the intervocalic glottal stop /ʔ/ resulting in [baa], this form would then be written as ⸝ *b* /baa/ [baa][72]. Consequently, the representation of word internal glottal stops could be impossible to discern within the Meroitic script and hence their language.

This elision of a word-internal glottal finds a correlation between Egyptian and Aramaic. Aramaic transcriptions of Egyptian personal names (circa late 1st century BCE) show that Egyptian <ꜣ> /ʔ/ is represented in Aramaic with *'alef* /ʔ/ only when <ꜣ> is in word-initial position, in other word positions, Aramaic does not indicate the glottal stop (Satzinger 1997, 29)[73]. The omission of word-internal glottal stops is also reflected in certain Arabic dialects and in historical variation with the articulation of the *hamzat-al-waṣl* (eliding hamza) sign which indicates a glottal stop /ʔ/[74]. al-Nassir (1993, 82–83) examples the realisations of *hamzah* that Sibawayh proposes occur in intervocalic position across Arabic dialects: (i) when *hamzah* (') is weakened it either becomes [ɦ] /yaʔisa/ → [yafiisa] "he despaired"; or (ii) it is replaced by a long vowel (elision): /saʔala/ → [sa:la] "he asked".

'Alef is reported as eliding in intervocalic placement across Arabic dialects (Al-Ani 1970, Ingham 1982) and in discussing the correlation between Hebrew and Arabic, Rosenhouse (1991, 1351) summarises the inter-linguistic similarity with regards to the elision of *'alef* in that ''*aleph* does not seem to differ between native speakers of Hebrew and Arabic. Also its inherent weakness (often leading to its elision) is common to the two languages.' More specifically, she goes on to state that '/'/ often elides so that only the vowel remains (with [vowel] lengthening as a possible compensation for the lost phoneme)' (1991, 1353)[75].

Harris (1936, 27) asserts that the Phoenician laryngeal א /ʔ/ 'was weak … as seen from a number of changes which it suffered,' such as being absorbed into a preceding vowel in same syllable (elision). Furthermore, as already discussed, Aramaic does not notate *'alef* /ʔ/ in

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71 See Kautzsch, Cowley 1910 for other examples of *ye-* or *yi-* to *'i* in Hebrew.

72 Vowel length is not indicated in Meroitic.

73 See also Vittmann 1989.

74 Abdalla 1992, 22 also speculates that the representation of the Meroitic 'initial a' is similar to 'Semitic *hamza*' due to its non-occurrence in word-medial or final position.

75 See Blav 1980 for more on Biblical Hebrew laryngeal 'weakening'.

compound forms as it is elided because of its intervocalic position (or that the following vowel is long). Aramaic also shows alternate forms where 'alef /ʔ/ is either represented word internally or not (Steiner 2001, 261):

(17)   Aramaic   *mt ʾkdh ~ mtkdy*   "the land of Akkad"
       Old Aramaic   *mr ʾlhʾ ~ mrlhʾ*   "lord god"

In fact, we can see this same elision process in the Meroitic anthroponym ⟨glyphs⟩ *ntkmni* > Eg. *ntk-ỉmn*, *ntg-ỉmn*, *nḏkꜣmn*. The Meroitic anthroponym contains the Egyptian divine theonym Amun ⟨glyphs⟩ *mni*, as is evidenced through its transcription into Egyptian ⟨*ỉmn*⟩ ~ ⟨*ꜣmn*⟩[76], further it corresponds to the Meroitic isolated form ⟨glyphs⟩ *mni* with pretonic loss of ⟨glyph⟩ *a*. This example is very distinct in showing that there is omission of the sign ⟨glyph⟩ *a* [ʔa] when it is compounded to ⟨glyphs⟩ *ntk* exactly as in the Aramaic examples (and also from other Semitic languages). This form is supports the proposal that the sign ⟨glyph⟩ *a* actually represents the syllable [ʔa] and was subject to elision due to its intervocalic placement: M. *⟨glyphs⟩ *ntkamni* /natakaʔama-ni/ → *[natakaʔamani], and therefore written as ⟨glyphs⟩ *ntkmni* [natakaamani] ~ [natakamani]. Whether the resulting phonetic form after the elision of the glottal consonant in ⟨glyph⟩ *a* /ʔ/ exhibits a long vowel [aa] or a short vowel [a] cannot be discerned from the text, as vocalic length (if at all present) is not marked in the Meroitic script.

3.7 The non-occurrence of separate vowel signs following *a* ⟨glyphs⟩

As initially observed by Griffith (1911, 7), there is a complete non-occurrence of the separate Meroitic vowel signs ⟨glyph⟩ *i*, ⟨glyph⟩ *e* and ⟨glyph⟩ *o* following the Meroitic 'initial a' sign *a* ⟨glyphs⟩. A tentative explanation for this could be that it is due to the laryngeal (guttural) articulation of the consonant of *a* ⟨glyphs⟩ /ʔ/ and as such was always perceived by the Meroites to be followed by the vowel [a] as a CV 'consonant' sign. Hayward, Hayward (1989, 179) state the effect the guttural consonants have on vowels as being, 'typologically associated with low vowels and/or phonological processes involving vowel lowering.' Rose (1996, 84), in her paper analysing laryngeals and the vowel-lowering effect they have on adjacent vowels, explains that 'In Arabic, a vowel [i] or [e] is lowered to [a] in the environment of guttural consonants.' McCarthy (1994,

25–26) discusses the quality of the epenthetic (schwa) vowel in Tiberian Hebrew. He asserts that when a guttural is word-initial in a plural noun the vowel is the a-coloured schwa. He contends, through analysing other positional epenthesis sites in Tiberian Hebrew, that, 'the consistent picture is one where gutturals are followed by a-colored schwa' (1994, 25). The lowering effect of the laryngeals on vowels in Ethio-Semitic languages is also discussed in Ullendorf (1955, 212–216), Hayward & Hayward (1989), Rose (1996) and McCarthy (1994). Ullendorf (1955, 215) states that 'The preference of a laryngal for the vowel *a*, if in immediate contact, is, of course, well-known everywhere in Semitic.'

The examples of laryngeals (gutturals) lowering vowels to [a] are taken from Afro-Asiatic languages, although this lowering effect is seen as a typologically common, cross-linguistic process[77]. Therefore, this empirical evidence can support the claim that Meroitic does not transcribe any separate vowel signs following the 'initial a' sign *a* ⟨glyphs⟩ because of the consonantal value being the laryngeal /ʔ/, which is always followed by the vowel [a] and therefore is left unmarked (inherent 'a'). It could also be proposed that underlyingly it is possible that vowels other than /a/ are present i.e. /ʔu/, /ʔi/ and /ʔe/ but due to the lowering effect that the laryngeal has on the vowels, this means that at phonetic realisation the vowel is always realised (lowered) as [a] ([ʔa]) and accordingly is left unmarked. This analysis would indicate that the Meroites were encoding the phonetic level of the script in these forms (or perhaps just the syllable [ʔa]) and therefore this could explain why no separate vowel signs duly follow the 'initial a' sign *a* ⟨glyphs⟩. Due to the speculative proposal of vowels other than /a/ being underlying in this sign, I have tried to be consistent in the discussions given in this paper by representing the sign *a* ⟨glyphs⟩ with its phonetic realisation [ʔa] rather than phonemic.

4 Conclusion

From the considerations into the Meroitic 'initial a' sign *a* ⟨glyphs⟩ as discussed herein, the following claims can be put forward. The sign is more likely representative of a CV syllable which is composed of the laryngeal glottal stop and the inherent unmarked 'a' vowel [ʔa]. However, it is possible, but speculative, that underlyingly this vowel can be of a varying quality, which is lowered by the

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76 It is evidenced that Egyptian retains the glottal stop ⟨*ỉ*⟩ ~ ⟨*ꜣ*⟩ /ʔ/ in this compound position.

77 See Rowan 2011 for more on this.

laryngeal at the phonetic level to [a]. The reliance on the Egyptological transcription of Osiris as *ws-ỉr for the claim that Meroitic a ᎒᎒ ᎒ is a vowel sign (of varying quality) has been called into question. It is also claimed that the syllable [ʔa] (a ᎒᎒ ᎒) is subject to aphaeresis in a pretonic position except when its deletion would cause a violation in the phonotactics of the Meroitic language, i.e. the resyllabification of /r/ as word-initial. The interchange of forms with word initial a ᎒᎒ a and y ⫽⫽ y could be evidence towards the proposal that the 'initial a' sign a ᎒᎒ ᎒ does not indicate a vowel sign of varying quality but that it is because the 'initial a' sign is a laryngeal that alternates with the glide word-initially, as evidenced in Semitic (Afro-Asiatic) languages. Finally, the occurrence of the sign a ᎒᎒ ᎒ not being found word-internally can be explained if it is followed that consonantally it represents the glottal stop /ʔ/ [ʔ], which is strongly subject to elision in this intervocalic placement. Revising this sign to be representative of a CV sign also brings it in line with the other consonantal + inherent 'a' vowel signs in the script and thus supports Griffith's original claim that this Meroitic sign 'may be looked upon like initial aleph א as a kind of consonant, a breathing followed by a vowel' (1916, 122).

Bibliography

Abdalla, A.M., 1992, "A system proposed for the transliteration of Meroitic into Arabic", BSF 5, 5–29.

Al-Ani, S.H., 1970, Arabic Phonology: An Acoustical and Physiological Investigation, The Hague and Paris.

Allen, J.P., 2013, "The name of Osiris (and Isis)", LingAeg 21, 9–14.

Blav, J., 1980, "Stages in guttural weakening: Laryngeals/pharyngeals in Biblical Hebrew", Leshonenu 45, 32–9.

Fox, J., 1996, "A sequence of vowel shifts in Phoenician and other languages", JNES 55, No. 1, 37–47.

Gauthier, H., 1925–1931, Dictionnaire des Noms Géographiques Contenus dans les Texts Hiéroglyphiques, Vol. 1–7, Cairo.

Greenberg, J.H., 1962, "The interpretation of the Coptic vowel system", Journal of African Languages 1, 21–28.

Griffith, F.Ll., 1911, Karanòg: The Meroitic Inscriptions of Shablûl and Karanòg, Eckley B. Coxe Junior Expeditions to Nubia: Vol. VI, Philadelphia.

Griffith, F.Ll., 1916, "Meroitic studies II", JEA 3, 111–124.

Harris, Z.S., 1936, A Grammar of the Phoenician Language, New Haven, Philadelphia.

Hayward, K.M., Hayward, R.J., 1989, "Guttural: Arguments for a new distinctive feature", Transactions of the Philological Society 87:2, 179–93.

Healey, J.F., 1990, "The early alphabet", Reading the Past: Ancient Writing from Cuneiform to the Alphabet, London, 197–258.

Hintze, F., 1973a, "Some problems of Meroitic philology", Meroitica 1, Coll. 1973, 1, Internationale Tagung für meroitistische Forschungen in Berlin 1971, Berlin, 321–330.

Hintze, F., 1973b, "Die meroitische Vokalschreibung", Meroitica 1, Coll. 1973, 1, Internationale Tagung für meroitistische Forschungen in Berlin 1971, Berlin, 331–336.

Hintze, F., 1974, "Some problems of Meroitic philology", in: Abdel Gadir Mahmoud (ed.), Studies of the Ancient Languages of the Sudan, Sudanese Studies 3, Khartoum, 73–78.

Hintze, F., 1979, "Beiträge zur meroitischen Grammatik", Meroitica 3, Berlin, 1–214.

Hintze, F., 1987, "Zur interpretation des meroitischen Schriftsystems", BSF 2, 41–50.

Hodge, C.T., 1977, Review of "Middle Egyptian" by John B. Callender, Language 53, No. 4, Dec 1977, 930–940.

Hofmann, I., 1981, Material für eine meroitische Grammatik, VIO 16, Beiträge zur Afrikanistik 13, Vienna.

Hofmann, I., 1982, "Probleme der meroitistischen Sprachforschung", Sprache und Geschichte in Afrika 4, 41–54.

Ingham, B., 1982, North East Arabian Dialects, London.

Isbell, C.D., 1978, "Initial alef-yod interchange and selected Biblical passages", JNES 37, 227–236.

Kautzsch, E., Cowley, A.E. (eds.), 1910, Gesenius' Hebrew Grammar, Oxford.

Kornfeld, W., 1978, Onomastica Aramaica aus Ägypten, Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse, Wien.

Krahmalkov, C., 2000, Phoenician-Punic Dictionary, Studia Phoenica XV, OLA 90, Leuven.

Lesko, L.L., Switalski Lesko, B., 2001, A Dictionary of Late Egyptian, Providence, Rhode Island.

Loprieno, A., 1995, Ancient Egyptian: A Linguistic Introduction, Cambridge.

McCarthy, John J., 1994, "The phonetics and phonology of Semitic pharyngeals", in: P. Keating (ed.), Papers in Laboratory Phonology III, Cambridge, 191–283.

Muchiki, Y., 1990, "On the transliteration of the name Osiris", JEA 76, 191–94.

Muraoka, T., Porten, B., 1998, A Grammar of Egyptian Aramaic, Leiden.

al-Nassir, A.A., 1993, Sibawayh the Phonologist: A Critical Study of the Phonetic and Phonological Theory of Sibawayh as Presented in his Treatise Al-Kitab, Library of Arabic Linguistics, Monograph No. 10, London and New York.

Osing, J., 1974, "Isis und Osiris", MDAIK 30, 91–113.

Osing, J., 1976, Die Nominalbildung des Ägyptischen, Mainz/Rhein.

Peust, C., 1999, Egyptian Phonology: An Introduction to the Phonology of a Dead Language, Monographien zur Ägyptischen Sprache 2, Göttingen.

Priese, K.-H., 1968, "Nichtägyptische Namen und Wörter in den ägyptischen Inschriften der Könige von Kusch I", MIO 14, 165–191.

Priese, K.-H., 1973, "Zur Enstehung der meroitischen Schrift", Meroitica 1, Coll. 1973, 1, Internationale Tagung für meroitistische Forschungen in Berlin 1971, Berlin, 273–306.

Rilly, C., 2007, La Langue du Royaume de Méroé, Collection de l'École Pratique des Hautes Études, Paris.

Rose, S., 1996, "Variable laryngeals and vowel lowering", Phonology 13, 73–117.

Rosenhouse, J., 1991, "Two unstable phonemes in Israeli Hebrew and colloquial Arabic: ʾaleph and ʾayin", in: Alan S. Kaye (ed.), Semitic Studies in honor of Wolf Leslau on the occasion of his eighty-fifth birthday, Vol. II, Wiesbaden, 1345–1362.

Rowan, K., 2011, "Meroitic consonant and vowel patterning", LingAeg 19, 115–124.

Satzinger, H., 1997, "Egyptian in the Afroasiatic frame: Recent Egyptological issues with an impact on comparative studies", Afroasiatica Neapolitana, Studi Africanistici, Serie Etiopica 6, Napoli, 27–48.

Takács, G., 1996, "Egyptian historical phonology and comparative-historical Afroasiatic linguistics", in: J. Lecarme, J. Lowenstamm & U. Shlonsky (eds.), Research in Afroasiatic Grammar, Papers from the Third Conference on Afroasiatic Linguistics, Amsterdam and Philadelphia, 345–378.

Ullendorff, E., 1955, The Semitic Languages of Ethiopia. A Comparative Phonology, London.

Vittmann, G., 1989, "Zu den ägyptischen Entsprechungen aramäisch überlieferter Personennamen", Orientalia 58, 213–229.

Vycichl, W., 1958, "The present state of Meroitic studies", Kush 6, 1956–58, 74–81.

Vycichl, W., 1973, "Notes sur la phonologie du méroïtique", MNL 13, 61–66.

Zawadowski, Y., 1972, "Some considerations on Meroitic phonology", MNL 10, 15–31.

Zibelius, K., 1978, Ägyptische Siedlungen nach Texten des Alten Reiches, Wiesbaden.

Zyhlarz, E., 1930, "Das Meroïtische Sprachproblem", Anthropos 25, 409–463.