Evidence for an Early Nubian Dialect in Meroitic Inscriptions : Phonological and Epigraphic Considerations

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This paper will reconsider the possible relationship between Meroitic and an early, even proto, form of Nubian. The idea of such a link has been languishing in Meroitic circles for close to a century — proposed, rejected, revived and shelved again for lack of concrete evidence.

To propose such a relationship yet again calls for a new approach. This will be to question some of the accepted sound values of Meroitic signs and to point to possible counterparts in Old Nubian. Some striking epigraphic similarities between Meroitic signs and those of the Kharosthi alphasyllabary suggest an Old Nubian connection.

Inscriptions in the language of Meroë, or Kush, ancient Egypt's southern neighbor, survive on several large stelae, numerous funerary monuments and ostraca. These texts have yielded to only fragmentary decipherment.[1]

Background

The first step toward reading these texts is identification of the nearest descendant of the language in which they are written, or at least the nearest subgroup into which that language fits. Although the present consensus among scholars is that Meroitic probably belongs to

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1. Assessments of the state of research on Meroitic over the past 30 years include : Bruce G. Trigger, "The Classification of Meroitic : Geographical Considerations" in *Ägypten und Kusch*, ed. Erika Endesfelder...[et *al.*], Schriften zur Geschichten und Kultur des Alten Orients 13 (Berlin : Akademie, 1977), 421-435 ; Fritz Hintze, "Meroitisch und Nubisch, Eine vergleichende Studie" in *Beiträge zur Sudanforschung* 4 (Vienna, 1989), 95-106 ; László Török, *The Kingdom of Kush : Handbook of the Napatan-Meroitic Civilization* (Leiden : Brill, 1997), 49-51, 62-67, and Tormod Eide ...[et *al.*], ed., *Fontes Historiae Nubiorum*, v. 2 (Bergen : Klassisk Institutt, Universitetet i Bergen, 1996), 359-360.

Nilo-Saharan,[2] one of the four main language families in Africa, disagreement exists on where to situate it within that sizeable family.

The two most recent classifications for Nilo-Saharan are those of C. Ehret (proposed in 1989,[3] with a revised version in 2001[4]) and M.L. Bender (1997).[5] Their schemes differ sharply. Although neither sketches in the Meroitic branch on his classification tree, both scholars' research is useful to me, particularly Ehret's. I formulated the main lines of this paper in the fall of 2000, but the subsequent publication of his latest work with its detailed tables of sound shifts from original Proto-Nilo-Saharan phonemes has served to buttress some of my hypotheses. Where appropriate, I have tried to insert his findings as well as Bender's. Another recent source of useful data has been the three-part first section of the *Répertoire d'épigraphie méroïtique* (REM).[6]

In 1911, F.Ll. Griffith suggested that the Meroitic language, whose script he had just succeeded in transliterating, might somehow relate to Old Nubian,[7] now classified as a member of the Nilo-Saharan family. Five years later, however, he abandoned this line of inquiry in the belief that the " borrowing of individual words may... have gone on freely between Nubians (Nobatae ?) and Meroites, but so far the language of the Meroitic inscriptions does not appear to have been the ancestor of the Nubian dialect. "[8] Griffith's rejection of such a link helps

2. There is no unanimity on this assignment of Meroitic to the Nilo-Saharan family. Among the other language families that have also been proposed is Altaic, as supported by Siegbert Hummel, *Die meroïtische Sprache und das protoaltaïsche Sprachsubstrat als Medium zu ihrer Deutung* (Ulm/Donau: Fabri, 1992). An earlier suggestion was the Afroasiatic family : see E. Zylharz, " Das meroïtische Sprachproblem ", Anthropos 25 (1930), 409-463. Some researchers have also speculated that it may be related to such individual languages as Tokharian and even Sumerian : see Clyde Ahmad Winters, "A Note on Tokharian and Meroïtic ", *Meroitic Newsletter* 23 (June 1984), 18-21, and J.C. Sharman, " Meroitic : its Ancestors and Descendants — Some Relationships," *Azania* 9 (1974), 207-216. G. Böhm drew on all the above-mentioned families and languages in making a case for caste distinctions in speech and grammar to support the hypothesis of an ancient " Indo-nilotischen " proto language : Gerhard Böhm, *Die Sprache der Aithiopen im lande Kusch*, Veröffentlichungen der Institute für Afrikanistik und Ägyptologie der Universität Wien 47, Beiträge zur Afrikanistik 34 (Wien : 1988).

3. Christopher Ehret, " Subclassification of Nilo-Saharan : a Proposal " in M. Lionel Bender, ed., *Topics in Nilo-Saharan Linguistics*, Nilo-Saharan Linguistic Analyses and Documentation 3 (Hamburg : 1989), 35-49.

4. Christopher Ehret, *A Historical-Comparative Reconstruction of Nilo-Saharan*, SUGIA Beiheft 12 (Köln : R. Köppe, 2001), 65-110.

5. M. Lionel Bender, *The Nilo-Saharan Languages : A Comparative Essay*, LINCOM Handbooks in Linguistics 06 (München : Lincom Europa, 1997).

6. *Répertoire d'Épigraphie Méroïtique* , ed. Jean Leclant...[*et al.*] (Paris : Académie des Inscriptions et Belles-Lettres, 2000) . The computer-based corpus of all inscriptions in the language contains those published over the course of the last decades in the *Meroitic Newsletter*, which began in 1968. *MNL* 28 (November 2001) included the long-awaited publication, by Claude Carrier, of the " Abratoye stela " discovered by Jean Leclant in 1961 during the UNESCO campaign. This was followed closely by *MNL* 29 in 2002 with Claude Rilly's publication of Queen Amanishakheto's obelisk.

7. Francis Ll. Griffith, *Karanog : The Meroitic Inscriptions of Shablul and Karanog*, The Eckley B. Coxe Junior Expedition to Nubia IV (Philadelphia : 1911), 22.

8. Francis Ll. Griffith, " Meroitic Studies II ", *JEA*, v. 3 (1916), 123.

explain why for almost half a century virtually no one further investigated a connection between Meroitic and Old Nubian. [9]

In 1964, however, B. Trigger proposed a correlation between Meroitic and Nilo-Saharan's Eastern Sudanic branch. Besides the Nubian languages, Eastern Sudanic also includes Barea (also presently known as Nara) and six other subgroups of languages, [10] according to J. Greenberg's classification scheme for African languages, widely accepted at that time. [11] Subsequently, other researchers have explored a possible relationship without drawing definite conclusions. [12]

In 1977, Trigger fine-tuned his earlier suggestion: he concluded that the most promising area for research lay with the most northerly languages of the Eastern Sudanic branch of the Nilo-Saharan family, notably Barea and the various dialects of Nubian, [13] including Old Nubian, the focus of the present paper.

In a 1984 paper, M. Bechhaus-Gerst noted six words of possible Nubian origin in Meroitic, but she said the evidence was not sufficient to claim a family link between Nubian and Meroitic. [14]

In 1989, F. Hintze, who had earlier discounted connections between Meroitic and any other known African language, demonstrated some structural parallels between Meroitic and Old Nubian. He concluded, however, that without more research to reconstruct proto-languages, particularly in the Eastern Sudanic branch of Nilo-Saharan, the seeming lexical resemblances between the two languages could be mere coincidence and were not enough to prove a genetic relationship. [15]

In 1999, C. Peust briefly discussed the likelihood of an Old Nubian-Meroitic connection. In a work otherwise devoted to evidence of a specific dialect of Egyptian spoken in ancient

9. An exception is G. Murray, who suggested a few tentative cognates in 1923 : G.W. Murray, *An English-Nubian Comparative Dictionary* (London : Humphrey Milford, 1923), 28, 33.

10. Bruce G. Trigger, "Meroitic and Eastern Sudanic : a Linguistic relationship ?", *Kush* 12 (1964), 188-194.

11. Joseph Greenberg, *Studies in African Linguistic Classification* (New Haven : Compass Publishing, 1955), 75.

12. M.F.L. Macadam, "Queen Nawidemak", Allen Memorial Art Museum Bulletin 23.2 (1966), 48 ; École pratique des hautes études, Ve Section (Sciences religieuses), Annuaire (1970-71), 180-181 (concerning N. Millet and A. Heyler) ; B.G. Haycock, rev. of Bruce G. Trigger (with André Heyler), *The Meroitic Funerary Inscriptions from Arminna West* (New Haven : The Peabody Museum of Yale University, 1970) in *Journal of the American Oriental Society* 92.2 (1971), 307-309 ; Fritz Hintze, " Beobachtungen zur Altnubischen Grammatik I und II ", *Wissenschaftliche Zeitschrift der Humboldt-Universität zu Berlin, Ges.-Schprachw.* R. 20 (1971), 287 ; Werner Vycichl, " Trois études sur la structure du méroïtique ", *Meroitic Newsletter* 13 (1973 : July), 58-60, and Gerald M. Browne, *Introduction to Old Nubian Grammar, Meroitica* 11 (Berlin : Akademie, 1989), Vorwort des Herausgebers [by Fritz Hintze].

13. Trigger (1977), 434.

14. Marianne Bechhaus-Gerst, "Sprachliche und historische Rekonstruktionen im Bereich des Nubischen unter besonderer Berücksichtigung des Nilnubischen ", *SUGIA* 6 (1984), 94.

15. Hintze (1989), 103.

Napata,[16] Peust claimed that the Meroitic script was used to write two distinct languages, that of the Tanyideamani and Akinidad stelae and that of the Kharamadoye inscription. Peust suggested that further study of the sound equivalents in apparent cognates between the two languages might reveal that Meroitic really deserves the name of Old Nubian, while what has been called Old Nubian should rightly be called Middle Nubian.

Thus, while some scholars have speculated about Meroitic's links to languages ranging from Altaic to Sumerian (see note 2), others have suggested that a link between Meroitic and Old Nubian may be found in the future. So far, however, little concrete evidence has been produced.

If scholarship since the 1960s has been moving hesitantly in the direction of identifying Meroitic with early Nubian, its progress now seems stalled. The problem is that despite some good matches of individual words and morphemes, the two languages do not appear to be relatives in the same way as are, for example, various Germanic or Romance languages. I hope to show that this lack of resemblance may be more apparent than real.

This paper deals with the nature of Meroitic's syllabic script. Certain assumptions about this fundamental aspect of the language have provided a framework for scholarly research that has been unquestioned over many decades. I will attempt to show that some assumptions underlying the present transliteration of Meroitic may be wrong ; these false premises may have had the effect of obscuring signs of family resemblances between Meroitic and the Nubian languages.

Future papers will deal with morphological, syntactical and lexical aspects of the problem of Meroitic's identity. By reinterpreting the evidence and pointing out alternative explanations for contradictions and ambiguities, my aim is to show that Griffith's initial hunch was close to the mark.

Ancient orthography

Scribes working in languages with syllabaries, such as Mesopotamian cuneiform or Linear B, developed certain spelling conventions to cope with the problems of adapting their scripts to record configurations other than straightforward Consonant-Vowel (CV) syllables.[17] To handle words with contiguous consonants or CVC (Consonant-Vowel-Consonant) patterns, Elamite scribes, for example, made use of both CV and VC type signs. This meant they could make CVC (that is, CV-VC) type syllables and words by simply ignoring the extra vowel in the middle.[18]

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16. Carsten Peust, *Das Napatanische : Ein ägyptischer Dialekt aus dem Nubien des späten vorchristlichen Jahrtausends : Texte, Glossar, Grammatik*, Monographien zur ägyptischen Sprache 3 (Göttingen : Peust & Gutschmidt, 1999), 74-81.
17. D. Gary Miller, *Ancient Scripts and Phonological Knowledge* (Amsterdam : John Benjamins, 1994), 1-2.
18. David W. McAlpin, *Proto-Elamo-Dravidian : The Evidence and Its Implications*, Transactions of the American Philosophical Society v. 71, pt. 3 (Philadelphia : The Society, 1981), 64.

Since their syllabary had no VC signs, Linear B scribes devised another method. They used a syllable with a " dummy " vowel identical to that of the preceding syllable sign to indicate a closed syllable or consonant blends like *pl* or *tr*.[19] It is possible that the alternate spellings of *Akinidd* versus *Akidd* (probably with an unwritten *n*) or such spellings as *pestili* and *pqrili* may be examples of the work of Meroitic scribes trained within a system with rules similar to those of the Linear B scribes. A variation of such a rule is evident in the apparent Meroitic convention of sometimes using *e* following a consonant to indicate a closed syllable, or lack of the default vowel.[20] In this respect it resembles the Indic devanegari script which also has a default vowel and uses a special sign to indicate a consonant alone.

Meroitic scribes may have adopted another Linear B spelling convention, that of omitting the *n* signs when they are final or precede another consonant. (Linear B actually omitted *l, m, r,* and *s* as well in such situations).[2] Linear B was a true syllabic script ; Meroitic, however, seems to be more of an alphasyllabary (with signs for syllables consisting of consonants plus *a* and for initial vowels and syllables which have vowels other than the default *a*). Meroitic shares this type of writing system with only three other scripts : Old Persian cuneiform, Brahmi (India) and Ethiopian Ge'ez.[22]

J. Justeson proposes that in the case of the Old Persian and Indic scripts this distinctive form resulted from transmission by value recitation of alphabetic scripts, a process that accounts for "unusual gaps in the inventory of syllabic values".[23] Justeson says that whereas the defective syllabaries of Old Persian resulted from misunderstanding the principles of the parent script (Aramaic), the same cannot be the case with Meroitic. He attributes Meroitic's defective syllabary to the adoption of Demotic Egyptian "group writing" signs, mainly used for writing foreign words and names, as originally proposed by K.-H. Priese.[24]

It is not surprising that modern research has had difficulty grasping the principles of syllabification and vowel harmonization in the Meroitic language and its notation in the script : the scribes themselves had a variety of methods for showing these. One example is the alternative spelling of *pši* and *piši* in the " Benediktionsätzen " of the funerary inscriptions, or the variants *mdewi* and *medewi* in the Akinidad stela. Such spellings may indicate an only partially observed convention that the vocalization of syllables preceding a vowel sign should match that vowel sign. Another example of alternative spellings is the variation in use of initial

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19. Michael Ventris and John Chadwick, " Evidence for Greek Dialect in the Mycenean Archives ", *Journal of Hellenic Studies* (1953), 91, and John Chadwick, *The Decipherment of Linear B* (New York : Random House, 1958), 76.

20. Fritz Hintze, " Some Problems of Meroitic Philology ", *Sudan im Altertum, Meroitica* 1 (Berlin : Akademie, 1973), 323.

21. Chadwick, 75.

22. Bruce G. Trigger, " Writing Systems : A Case Study in Cultural Evolution ", *Norwegian Archaeological Review* (1998), v. 31, n° 1, 53-54.

23. John S. Justeson, " The Evolution of Syllabaries from Alphabets : Transmission, Language Contrast, and Script Typology ", *Die Sprache* 35 (1991-1993) : 1 [2-46], 38-40.

24. Karl-Heinz Priese, " Zur Entstehung der meroitischen Schrift ", *Sudan in Altertum, Meroitica* 1 (Berlin: Akademie, 1973), 273-306.

a with names, both divine and noble : *mni/amni*, *Šoreyi/Ašoreyi*, *Brtoye*/Αβρατοεις[25] (Greek). Meroitic inscriptions prior to the first century CE actually used the spellings *Amni* and *Ašoreyi* for the gods' names Amun and Osiris. This could simply indicate that the initial *a* disappeared over time but could also mean it was a vocative or honorific particle, an explanation that would also account for the similar variation for *Brtoye*/Αβρατοεις. Another explanation, however, is possible.

Research on Meroitic may have proceeded on a false premise that the signs consist exclusively of CV type syllables (with a default *a* vocalization) and vowels. The sign for *m*, to begin with, requires a closer look. Besides the example of *mni/amni*, this sign occurs frequently in the funerary inscriptions where the word *mlo* is ever-present. Yet the presumed modern Nubian cognate for *mlo* is *amel*. Could this indicate that the sign was actually a VC syllable ? Since an initial *m* is taboo in some Nilo-Saharan languages, such as that of the Jebel Dair region,[26] these initial vowels could simply reflect a similar convention. Furthermore, linguists are fond of projecting " prothetic alephs " onto proto-roots that do not conform to their expectations. Ehret reconstructs a Proto-Nilo-Saharan nasalized labial consonant *mb* : it persists in non-initial position in Dongolawi (the language which he uses to represent the Nubian branch of Nilo-Saharan) although it has merged with *b* in initial positions.[27]

Another intriguing clue, however, points to a VC syllable : the Kharosthi script's sign for *am*, ꠂ (or *a* with anusvara, i.e., nasalization), is remarkably like the Meroitic *m* : ꠃ.[28] Actually, the Demotic, Kharosthi and Meroitic signs for *m* all resemble each other, and each has alternate forms, with and without the extra hook.

Possible Kharosthi connections

According to I. Hofmann (and several other scholars starting with F. Cailliaud in 1822), similarities in art may attest to significant cultural contacts between the Indian subcontinent and ancient Kush.[29] In addition, there are very clear resemblances between the Egyptian numeral system, particularly the Hieratic, and the oldest Indian forms.[30] Resemblances in script strengthen the hypothesis of contacts with the Nile Valley.

25. The notable of REM 1088 and 0321 and the stele recently published by C. Carrier (*MNL* 28, Nov. 2001).
26. Murray, xxv.
27. Ehret (2001), 30.
28. S.J. Mangalam, *Kharosthi Script* (Delhi : Eastern Book Linkers, 1990), 13.
29. Inge Hofmann, *Wege und Möglichkeit eines Einflusses auf die meroitische Kultur*, Studia Instituti Anthropos, v. 23 (St. Augustin bei Bonn : Anthropos-Institut, 1975), 130-148. For discussion, see Louis Žabkar, *Apedemak : Lion God of Meroë* (London : Aris & Philips, 1975). Žabkar cites Cailliaud, A.J. Arkell, J. Vercoutter, W. Vycichl, P. Shinnie, and Hofmann as proponents of " Indian influences " on Meroitic art (p. 1-5). Zabkar himself takes issue with this premise (p. 36-51), as does S. Wenig, " Meroitische Kunst ", *Journées internationales d'études méroïtiques*, Paris, 10-13 juillet 1973 (cited by Žabkar, p. 145, n.89).
30. Bühler, Georg, *On the Origin of the Indian Brāma Alphabet*, 2nd rev. ed., Indian Studies III (Strassburg : K.J. Trübner, 1898), [115]-119.

In an effort to approach the question of the Meroitic script with a fresh eye I have so far avoided discussion of its relationship with Demotic and Hieratic. The many resemblances originally were noted by Griffith[31] and have been analyzed at length by Priese.[32] O. El-Aguizy's extensive work on Demotic inscriptions and the development of the script from Hieratic to the Demotic of the late Ptolemaic period provides a wealth of examples of characters that resemble their Meroitic counterparts.[33] Common sense dictates that the Meroitic script is more likely to have developed from the culturally and geographically closer Egyptian writing than from the distant Kharosthi. This does not, however, preclude the possibility that the Egyptian Demotic/Hieratic also influenced Kharosthi, perhaps via its influence on Aramaic, or perhaps via direct Indic contacts, such as Hofmann suggests, with the Meroitic-speaking (and writing) region. Any such influences, however far-flung, are worth examining in the search for clues about the nature of Meroitic (and particularly about those characters that show little or no resemblance to Hieratic or Demotic). In language history, it is not uncommon for the outermost reaches of a language's range to preserve archaic features long after the original language (spoken and written) has undergone considerable change. Icelandic's relation to Old Norse and Old Irish's relation to early Celtic are examples.

Kharosthi, closely related to Brahmi, another of the rare alphasyllabaries mentioned earlier, was a script used in western India beginning around 500 B.C.E. under the Maurya emperor Asoka ; it continued under the Kushana dynasty until the 4th century C.E. It appears on both Persian sigloi and on Indo-Greek, Indo-Scythian and Indo-Parthian coinage.[34] This script may have been a hybrid of Aramaic, which was introduced by the Persian Achaemenid rulers who conquered Northwest India, and the indigenous Brahmi script,[35] itself possibly inspired by Aramaic. It is sometimes referred to as Indo-Aramaic.[36] Justeson advances the well-accepted view that the Meroitic cursive signs developed from Demotic Egyptian as Pre-Meroitic " group writing ". Charts like those of Griffith[37] or K.-H. Priese[38] and more recently H. Longpré[39] readily demonstrate this development. These signs, however, also display many resemblances to Kharosthi.[40] In addition to similarities among the individual signs, Kharosthi, Hieratic, Demotic and Meroitic are all written from right to left, make use of connections between certain signs (Kharosthi, Hieratic and Demotic more so than Meroitic which only connects *i*) and employ diacritics on some signs.

31. Griffith (1911), 11.
32. Priese (1973).
33. Ola El-Aguizy, *A Palaeographical Study of Demotic Papyri in the Cairo Museum from the Reign of King Taharka to the End of the Ptolemaic Period (684-30 B.C.)*, MIFAO 113 (Le Caire : Institut Français d'Archéologie Orientale, 1998).
34. Mangalam, 8.
35. Sudhakar Chattopadhyaya, *The Achaeminids and India* (New Delhi : Munshiram Manoharlal, 1974), 55.
36. Mangalam, 4-5.
37. Griffith (1911), 18-19.
38. Priese (1973), 300-303.
39. Hélène Longpré, " Investigation of the Ancient Meroitic Writing System ", diss., Rhode Island College, 1999, leaves 47-54.
40. Since this was written I have come across an article by C. Winters that mentions similarities between the Meroitic and Kharosthi scripts although none specifically. While I do not support his unrelated

Whereas Hieratic mainly adds diacritic dots or strokes to certain signs to distinguish them from others similar in appearance, Kharosthi diacritic strokes affect the quality of the syllable sign's sound, as with Ge'ez. The Kharosthi strokes change the vocalization of the syllable signs, producing syllables with long *a, i, u, e, o*, or anusvara instead of the default vowel (short *a*). The short horizontal or oblique stroke used to denote an *r* sound, however, seems strangely like a similar stroke for *r* used as a preposition in Demotic.[41] Some of the Meroitic signs with which this paper deals resemble Kharosthi signs with these specific diacritic strokes, although there does not appear to be any evidence for a similar system of vocalization using diacritics.

Meroitic seems to have retained the Hieratic/Demotic idea of diacritics. One example is the dot on the *t* to distinguish it from the *l*. Another is the dot on the *to* to distinguish it from some of the versions of *ḫ* (although it is also tempting to see it as a sign of Indic-style anusvara in this case, given the unwritten *n* in *pesto*). Too bad the Meroitic scribes did not do the same for the *m, s*, and *ḫ* , even though the left-hand stroke on the *q* would seem to be an attempt to distinguish it from those same signs. Curiously, the diacritic left stroke of the Demotic *t* that originally was probably intended to distinguish it from the Demotic *q* was retained even though the other part of the sign does not resemble other Meroitic signs.

Not all dots and vertical strokes in Demotic were used to distinguish between similar characters. El-Aguizy discusses the use of verticals crossing horizontals as possible indicators of *t* or *d* in group writing, and dots may be used to show the presence of *t, n*, as mentioned above, or *k*.[42]

The second century B.C.E. (during the reigns of the Ptolemies in Egypt) is the time of the earliest known inscriptions in Meroitic cursive :[43] this period coincides with the same general dating for Greek ascendancy in western India, where Indo-Greek coins with Kharosthi inscriptions have been found.[44] It is tempting to speculate that contacts between people in different regions under Greek influence may have led to the use of new types of script. Another possibility : some version of the script reached India and Kush in comparable circumstances as early as the time of the Achaemenid Persian domination of both Hindu Kush and the Nile Valley. No examples have yet been found from this period, however.

Most of the Kharosthi syllable signs are for CV type syllables, but besides the VC type of syllable just discussed (*am*), there are signs for almost every CV type syllable in combination with *m* producing CVC syllables : *kham, gam, g'am, gham*, etc., most formed by attaching a diacritic type of stroke to indicate this *m* nasalization or anusvara. In addition, Kharosthi uses a great many syllable signs for CCV combinations, such as *khva, khsa, rtha, dra, sni*, etc.

conclusions about Meroitic, I do agree that the two scripts have many points of resemblance. Clyde A. Winters, " Inscriptions of Tañyidamani ", *Nubica et Æthiopica* 4/5 (2000 ?), [355]-387.

41. El-Aguizy (1998), 27.

42. El-Aguizy (1998), 237.

43. Török, 62.

**44.** A.K. Narain, *The Indo-Greeks* (Oxford : Clarendon Press, 1957), 29.

This is reminiscent of the Demotic group writing signs. As later discussion will suggest, Meroitic *m* is not the only sign that may possibly have a Kharosthi connection.

The Meroitic CV equivalent of the *m* or *mV* or perhaps even a *mba* syllable could be the *b* sign : $\text{$\rlap{/}\text{V}}$. Considerable ambiguity surrounds these two phonemes. E. Zyhlarz has proposed that the Egyptian toponym *Mrkr*, for example, might be related to both an ancient province *Markale* and the Pure Mountain,[45] now known in Arabic as Gebel Barkal. It is common in other Nubian languages not to distinguish between *b* and *m* or even *f* and *p*.[46]

The *m* or *am* sign is only one of several Meroitic signs that originally may have represented VC syllables. The peculiar *n* sign, /ᒾ, could be interpreted as a combination of the Kharosthi *e* sign, ᒷ, and the *n* sign, ᒑ [47] (reading right to left : ᒑ ᒷ), in other words *en/an*. This would explain why the other *ñ* (or *ne*) sign, ⵣ, is never followed by a vowel since it already includes one in CV form, although it rarely occurs initially, just like the corresponding *n* sign in Old Nubian, ⲯ,which it resembles.[48] If the *n* sign represents *en/an*, it would still conform to the Old Nubian rule that *n* is not allowed initially. It is curious that both Meroitic *n* signs most closely resemble Hieratic and Demotic group writing signs[49] that terminate rather than begin with *n*. This may be another indication that neither can represent an initial sound. Enigmatically, the Demotic sign representing group writing for three lines of waves[50] most likely has some sort of *n* sound, but it is identical to the right-hand side of /ᒾ, in other words, to ᒾ (Meroitic *k*). The *n* sound that does occur initially in Old Nubian, ⲛ, may result from a complex situation to be discussed later.

The same idea may apply to the *s* signs. Old Nubian also has two *s* signs : ⲥ, and ⲱ ; the latter, using the Coptic sign for the *sh* sound, is much less common than the former. It is possible that the Meroitic *š* or ᒾ, which actually resembles the Kharosthi sign for *dha* (zh), ᒾ ,[51] may be a VC sign. Griffith himself remarked that the pronunciation of the god's name invoked in the funerary inscriptions, *Šoreyi*, may really have been " *Ašoreyi* ", considering that there is a prefixed *A* in the earlier occurrences.[52] B.G. Haycock suggests that the Meroitic *ši/šo* in the funerary texts and on some sherds from Begrawwiya (Bej. N. 11 [*R.C.K.* IV, 21-3-371a-d]) where *irp n kmt* (" wine of Egypt ") is translated as *Qomo-š(o)* in Meroitic, means " make " or " made ".[53] Since the Old Nubian root for " work or effect ", according toBrowne, is ⲥ̄ or ⲉⲓⲥ [eis], this too could be seen as support for a VC pronunciation for the

45. E. Zyhlarz, " Countries of the Ethiopian Empire of Kash (Kush) and Egyptian Old Ethiopia in the New Kingdom ", *Kush* 6 (1958), 15.

46. Murray, XXIV.

47. Mangalam, 13, 25.

48. Browne (1989), 2.2.1.

49. El-Aguizy (1998), 216 (/ᒾ)and 168 (ⵣ).

50. *Ibid.,* 346 [CXLIII]. No phonetic equivalent is given.

51. Mangalam, 29.

52. Griffith (1911) 33. As with *mni* and *amni*, however, *Ašoreyi* is the older form and may include a vocative prefix.

53. Haycock (1971), 309.

Meroitic *š* sign. On REM 1270, 1271 and 1272, as well as the recently published E3652 from Tomb 307 now in the Musée de Bruxelles,[54] the form is *išo*, which corresponds even better. (The *o* would correspond to the Old Nubian third singular preterite I suffix with the *n* unwritten.)

The other *s* sign, \|//, is never followed by a vowel (presumably because like the ⋉, it already includes one). It has no Kharosthi counterpart, but a similar sign is used in Egyptian Demotic script (7th-5th century B.C.E.).[55]

A convention of transliterating the Meroitic ⋉ as *ne* and the \|// as *se* (and the /4, which will be treated later, as *te*) has prevailed in most of the literature since Hintze's proposal in 1979.[56] Paradoxically, this presumed convenience may have contributed to the problems of decipherment.

Grounds also exist for suspecting that the *y*, ///, and *i*, +, signs may in fact be a *Vi/Vy* and a *yV/iV* sign respectively. Again, note the resemblance between the Kharosthi *yi* sign, ⋏, if rotated, and the Meroitic + (*i*).[57] Also, ⲣⲟⲉⲓ, meaning "oil",[58] offers an intriguing example of an Old Nubian word with a two-syllable vowel combination or diphthong that could be the equivalent of Meroitic *ni*, perhaps pronounced as /na-yi/.[59] Such apparent cognates support the possibility that sometimes vowel signs may have been pronounced as separate syllables. On the other hand, CV syllables with vowels other than the default vowel *a* may have been handled by juxtaposing CV syllables and vowel syllables, with the added complication that sometimes this may have signalled vowel harmonization in preceding syllables, as noted earlier.

Old Nubian connections

In discussing Meroitic syllable signs, it is hard to ignore resemblances to several Old Nubian alphabetic signs, such as the ⋉ sign and for one of the signs for *w*, ϐ.[60]

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54. Claude Carrier, "Un fragment d'amphore inscrite provenant de Méroé et conservé à Bruxelles (E 3652)", *MNL* 28 (Novembre 2001), 10-11.

55. Longpré, table II.

56. Fritz Hintze, *Beiträge zur meroitischen Grammatik, Meroitica* 3 (Berlin : Akademie, 1979), 15.

57. Mangalam, 35.

58. Gerald M. Browne, *Old Nubian Dictionary*, Corpus Scriptorum Christianorum Orientalium v. 556, Subsidia t. 90 (Lovanii : Peeters, 1996), 202.

59. The combination " *ni* " occurs repeatedly with numbers in temple graffiti, which could make sense if these record donations of vessels of oil for anointing. Another plausible explanation, however, could be that this is related to the Old Nubian multiplicative suffix " ⲛ/ⲁⲛ ". See Browne (1989) 3.8.3.

60. These two signs, which have striking Kharosthi counterparts (Mangalam, 16 : ga,and 13 : u respectively), have no close Demotic matches. The nearest Demotic characters are so-called group-writing signs for *šn* and *nw* (El-Aguizy, 168, 177), a peculiar situation in that the final rather than initial phonemes seem to characterize the signs. It does not take much imagination, however, to see that same Demotic *nw* in the Kharosthi *nu* sign reversed (Mangalam, 25).

Also worth noting is the obvious similarity between the two writing systems in the phonological rules against initial use of *l*, *r* and *ñ* in both languages.[61] Ehret proposes that Proto-Nilo-Saharan initial *l* became *d* while initial *r* disappeared in Dongolawi.[62] If this sound shift holds true for Old Nubian, then the frequent adjective *lḥe* that scholars believe means " great " may be a cognate of the Old Nubian ⲗⲁⲩⲉ̄ or ⲗⲁⲩⲉⲓ, a form of the verb meaning "to be great".[63] Without drawing any conclusions, it should be pointed out that the Kharosthi signs for *d* and *r* are identical to the Meroitic *l* sign. On the other hand, the appearance of initial *l* or *r* may signal that the word involved is borrowed (in which case the borrowed word could be Coptic ⲗⲉϩⲗⲱϩ meaning " high " or " tall "). It could also hint that these two signs represent VC syllables.

The role of assimilation

The tendency for *r* and *l* to assimilate in the spoken Nubian languages may come into play as well in the written Meroitic language. C. Rilly makes a convincing case for such an assimilation in the case of the word *qor* /qurra/ (meaning " king ") from *qore* /qur/ plus /la/, with assimilation of the *-l* nominalizing particle.[64] Such a type of assimilation involving *ñ* may also explain the puzzling occurrence of the *-yi* suffix in *qoreyi* in line 8 of the Kharamadoye stela.[65] The *ñ* of the *-ñyi* suffix of the parallel constructions of the presumed " invocation " may have been assimilated in the first case under the influence of the *r* of *qoreyi*.

Other cases of such a type of assimilation may not yet be recognized. Browne and Hintze list dozens of Old Nubian examples of assimilation of the sonorants ⲗ, ⲣ and ⲛ, both regressive and progressive, as well as less frequent assimilation of ⲅ, ⲕ and ⲡ.[66] Murray presents a tabulated alphabetical list three pages long of all the various assimilations possible in the modern Nubian languages.[67] Hintze points out, however, that in Old Nubian the spoken and written versions of words may have differed but both the assimilated and the " etymologische " orthographies seem to have been acceptable.[68]

Another reason that Meroitic may look so different from Old Nubian is that it may be spelled as it was pronounced before much of the assimilation occurred. Note, for example, that Browne postulates that many of the Old Nubian verb forms are based on the verbid (that is, a verbal noun, whether infinitive or participle). To this verbid Old Nubian added affixes : -ⲓⲗ/ⲉⲗ for the present, -ⲟⲗ for preterite I, -ⲥⲓⲗ for preterite II and -ⲁⲓⲗ/(ⲁ)ⲣⲓⲗ for the future

61. Browne (1989), 2.2.1. and Fritz Hintze, "Beobachtungen zur altnubischen Grammatik VI ", in *Nubische Studien*, heraus. Martin Krause (Mainz am Rhein : Philipp von Zabern, 1986), 288.
62. Ehret (2001), 22.
63. Browne (1996), 36.
64. Claude Rilly, " Assimilation et détermination en méroïtique : le déterminant masqué du mot *qore* ' roi ', *MNL* 26, 79-85.
65. Nicholas Millet, " The Kharamadoye Inscription ", *MNL* 13 (July 1973), pl. 2.
66. Browne (1989), 2.3 and Hintze (1986), 290-291.
67. Murray, XXVIII-XXXI.
68. Hintze (1986), 291-292.

plus personal endings for the subjunctive or plus personal endings and a predicative ⲁ for the indicative.[69] In the written forms of Old Nubian that survive, all these suffixes have undergone assimilation, in every case dropping the ⲗ of the verbid or transmuting it to ⲡ. If one examines the original unassimilated forms, which include the original ⲗ of the verbid, these verb suffixes appear as ιⲗι, ιⲗⲟ, ιⲗⲛ, ιⲗⲁⲛ (present), ⲟⲗι, ⲟⲗⲟ, ⲟⲗⲛ, ⲟⲗⲁⲛ (preterite I), ⲥιⲗι, ⲥιⲗⲟ, ⲥιⲗⲛ, ⲥιⲗⲁⲛ (preterite II) and ⲇιⲗι, ⲇιⲗⲟ, ⲇιⲗⲛ, ⲇιⲗⲁⲛ (future).

If such is the case, some of the many Meroitic forms with -*li*, -*lw*, –*sl*, -*sli*, and -*slw*, which commonly have been taken to be nominal forms or nouns with postpositions, should be re-examined as possible verbal forms. Many such examples exist in the Meroitic stelae. Such forms might answer the question of why the stelae do not seem to be written in the first person as are so many of their Egyptian counterparts. Perhaps we simply have mistaken some first person suffixes for nominal suffixes or postpositions. In the Akinidad stele, for example, there are abundant potential first person endings such as *li* and *sli*.

To the failure to differentiate *b* and *m* in some Nubian languages already mentioned, add the lack of distinction between *b* and *p* or *f* in Old Nubian. (Both are written as ⲡ ; with the exception of a few loan words, there are almost no occurrences of *b* except in personal and place names in the Old Nubian gospels).[70] On the other hand, the Demotic sign closest to the Meroitic *p* is a group writing sign representing *bn* (El-Aguizy CCLXXXIV). In the modern Nubian languages *p* is totally absent (as in Berber) except in Midob (also known as Tìdn-Aàl).[71] Hofmann has already noted some seeming labial alternations, possibly dialectal, in Meroitic : for example, *biši* and *piši*, in the funerary inscriptions, or *ameloloke* and *beloloke*.[72]

In searching for possible counterparts of Meroitic words containing *b*, then, Old Nubian words with ⲡ as well as ⲙ should also come under consideration.

Dentals

Most perplexing of the Meroitic cursive signs are those for *t* syllables : a generous total of three appears to exist, all of which bear resemblance to Demotic signs (El-Aguizy XXXVII, LXVI, CLXXXV). The Kharosthi script may again provide clues. Notice the clearer similarity between the Meroitic ⲍ and Kharosthi ⳳ, which also signifies *ta*,[73] than between the Meroitic and the Demotic : the former is more angular and less curved in virtually all cases. The Meroitic *te* sign, Ⳙ, on the other hand, looks more like Kharosthi *di*, ⳹, or *di*, ⳺,[74] although there are also equally good matches with some Demotic *t* characters.[75] Probable Old Nubian cognates

69. Gerald M. Browne, *Old Nubian Grammar*, Languages of the World/Materials 330 (Muenchen : Lincom Europa, 2002), 49-51.

70. Murray, XXIV.

71. Murray, XXV.

72. Inge Hofmann, *Meroitische Grammatik* (Wien : Afro-Pub, 1981), 33-34.

73. Mangalam, 26.

74. Mangalam, 26.

75. For example, El-Aguizy (1998), 303 : i4.

would seem to indicate that the Meroitic *te* or *J4* may more likely represent a *d* syllable, for example ⲁⲉ (Old Nubian, "and": Meroitic *te* ?) or ⲁⲉⲣ, so frequent in Old Nubian compounds (to apply, reckon : Meroitic *ter* ?).[76]

Many scholars have commented on the Meroitic *d* phoneme. The Egyptians and Greeks seem to have heard it as *r*, for example, in *Mrw.t* and *Meroë* for the Meroitic *Medewi*, *Mdewi*, *Mdewe*, *Bedewi* or *Bedewe* (note again the ambiguous nature of the labial *m/b*) ; or as in Greek *Primis* for Meroitic *Pedeme*. In some African languages, a trilled sound that almost seems a combination *dr* or *tr* is common. Ehret's reconstructions of Proto-Nilo-Saharan non-initial consonants demonstrates a marked tendency for non-initial Proto-Nilo-Saharan *d* to become *r* in daughter languages.[77]

Kharosthi once again yields clues to the enigma of what sort of sounds the Meroitic *r* and *d* may actually represent. First, the signs for da and ra seem barely distinguishable in Kharosthi, ⟨ and ⟩, respectively, while *dra*, ⟨, as well as *tra*, resemble Meroitic *r*, ⟨w⟩.[78] Secondly, a great many signs exist for combinations of *t, th, d, dh*, with *r* both before and after in the Kharosthi syllabary. Thirdly, the Kharosthi *ra* sign looks very much like the dangling part of the Meroitic *te* sign (*J4*, proposed here as representing a *d* sound), which seems to have been left off some of the Kalabsha examples of this sign.[79] Lastly, most of the *t* and *d* signs in Kharosthi have distinct horizontal cross bars like the Meroitic signs for both *te* and *to*.

One of the Egyptian hieroglyphic signs used for *te* in the Meroitic hieroglyphic script is the outstretched arm determinative (which is the sign given on Priese's Tabelle[80] rather than the spiral type of sign ⟨⟩ given in standard usage). It meant "to offer or present" and seems to have had an original /di/ or /rdi/ pronunciation.[81] C. Kuentz, however, points out that dental occlusives in Semitic languages seem to have undergone mutations in Egyptian similar to the Germanic and Armenian consonant shifts.[82] The end result was that *d* and *t* came to be pronounced the same, probably as *t* if Coptic is any indication. One cannot be certain which pronunciation was in use at the time that Meroitic scribes were adapting the Egyptian hieroglyphs for their own purposes. By the time that scribes were using the Old Nubian alphabet, however, the pronunciation may have become /d/ in line with the shift of Proto-Nilo-Saharan initial *t* to Nubian *d* that Ehret describes.[83] Incidentally, almost all variations of the Kharosthi th syllable signs have a dangling stroke reminiscent of the Meroitic *te* sign.

76. Browne (1989), 3.10 and (1996), 43, 46.
77. Ehret (2001), 30.
78. Mangalam, 28, 36. The Meroitic sign is closer to the Kharosthi than to the single Demotic etymon that resembles it (El-Aguizy 1998, [LXXIII : g3]).
79. Priese, 302.
80. *Ibid.*, 303.
81. Alan Gardiner, *Egyptien Grammar*, 3rd ed. (London : Oxford University Press, 1957), 32, 579, 602.
82. Charles Kuentz, "Les deux mutations consonantiques de l'égyptien", in *Atti del III Congresso internationale dei linguisti* (Roma 19-26 Septembre 1933), eds. B. Migliorini, V. Pisani (Firenze : 1935), 193-199.
83. Ehret (2001), 21.

The third of the supposed *t* signs in Meroitic cursive, ↺, has been transcribed as *to*. It also had another form ⌣. El-Aguizy remarks that the Demotic form appears both with and without the dot and notes that W. Spiegelberg suggests that since the same sign was used for both *d* and *t*, the dot may have indicated when a *d* was intended.[84] There is a single Demotic example of this sign representing *dw*.[85] The Meroitic sign does not have a strong resemblance to its Kharosthi counterpart.

Lexical evidence hints that it may have been closer to a /ts/ sound. Adding weight to this suggestion is the fact that the Old Nubian word for " water " (presumably *ato* in Meroitic) appears both as ⲉⲧⲧⲱ and ⲁⲥⲥⲉ. On old maps such as those accompanying Burckhardt's *Travels in Nubia*,[86] the Atbara river appears as the Astaboras, with the *asta* component presumably meaning water since other rivers in the area also have this same prefix. This would appear to be a typical case of metathesis if the *to* were actually pronounced *ts*. A similar consonant alternation seems to have characterized the shift from Proto Afro-Asiatic to Pre-Egyptian, according to Ehret. In his numbered sound shift rules, numbers 4 and 5 reflect similar changes : " #4. PAA *t' > pre-Eg. *ts'. #5. PAA *c> pre-Eg. *ts... "[87] In Ehret's Nilo-Saharan reconstructions the picture becomes exceedingly complicated : he has proposed no less than nine proto-consonants for different types of *t* which have become all sorts of phonemes in the daughter languages, including those under discussion.[88]

Hintze and Hofmann suggest that the *to* sign may have been used with an optative or imperative sense ;[89] this would square with the Old Nubian imperative particle -ⲥⲱ.[90]

The problem of *se* + *l*

Although ample evidence exists of forward and backward assimilation in the Nubian languages, there seems to be no Nubian precedent for a mutation along the lines of a sound-change law whereby Meroitic *se* plus *l* becomes *te* or *se* plus *lo* becomes *to*.[91] This apparent sound shift or assimilation in Meroitic has been widely accepted by scholars ; Hintze, for one, in some of his transliterations reconstructs *se-l* and *se-lo* wherever *te* and *to* occur in the Meroitic texts.[92]

84. El-Aguizy (1998), 40.
85. El-Aguizy (1998), 343 [CXXXIV : g1].
86. John lewis Burckhardt, *Travels in Nubia*, 2nd ed., (London : Murray, 1822), [1].
87. C. Ehret, *Reconstructing Proto-Afroasiatic*, (Berkeley : University of California Press, 1995), 529.
88. Ehret (2001), 21, 31.
89. Hintze (1979), 76, and Hofmann (1981), 205-208.
90. Browne (1989), 3.9.17 ; and Gerald M. Browne, *Old Nubian Dictionary Appendices*, Corpus Scriptorum Christianorum Orientalium, v. 562, Subsidia t. 92 (Lovanii : Peeters, 1997), 38-43.
91. This phenomenon was first recognized by Griffith, " Meroitic Studies II ", Journal of Egyptian Archeology 3 (1916), 124. It came to be referred to as " Hestermannsches Lautgesetz " because of an article on the subject by F. Hestermann, " Ein Lautgesetz in den meroitischen Inschriften ", Folia Ethnoglossica 1 (1925), 11-13. It has also been noted by N. Millet, " A Possible Phonetic Alternation in Meroitic ", *Meroitica* 1 (1973), 314, and by I. Hofmann, *Meroitische Grammatik* (Wien : Afro-Pub, 1981), 36-37.
92. For example, F. Hintze, " Die Struktur der ' Deskriptionssätze ' in den meroitischen Totentexten ",

While Browne mentions no Old Nubian assimilation of this sort, Murray does mention an assimilation of *st* becoming *tt*.[93] Given that *t* and *d* interchange frequently in the Nilo-Saharan languages, one could perhaps think of that *tt* also as *dd*. Considering that Ehret proposes a sound shift of initial **l* to *d* in Nubian (as represented by Dongolawi),[94] the following shift becomes conceivable : *sl* > *sd* then *sd* > *dd*, which in Meroitic would look like the *te* sign (geminates were only written once). To add another interesting dimension to Ehret's proposed Proto-Nilo-Saharan **l* = Nubian *d* equation, the Kharosthi *d* sign (as noted above) appears to be identical to the Meroitic *l* sign.[95]

Another explanation for the interchange of *sl* with *d/te* may lie in two Old Nubian near synonyms : ϲⲓⲗⲉ meaning " every(one) "[96] and ⲗⲓⲉ, meaning " many ".[97] Neither of these necessarily requires a plural noun and may also be used more like a partitive genitive in some cases. Commonly in Meroitic, adjectives can attach to the nouns they follow, as we see in the numerous instances of *lḫ*. In many cases, then, the apparent *-sl* and *-te* suffixes could well be two different adjectives or partitive genitives (with the standard Old Nubian rectum/regens order).

Yet another explanation for the supposed *sl>te* assimilation could result from Browne's proposed original verb forms. If *te* indeed represents an Old Nubian ⲗ, such suffixes as ⲗⲓⲗⲓ, ⲗⲉⲗⲏ (>ⲗⲉⲛ), and ⲗⲓⲗⲩ might be comparable to *-teli*, *-te* (with unwritten *n*) or *-telw*. The supposed assimilation might thus simply represent different tenses of the same verbs with the *-sl* suffixes representing the Old Nubian preterite II forms and the *-te* suffixes representing the future forms.

What does the proposed revision of *te* (*|4*) as *d* or *th* mean for the Meroitic sign which has been labelled *d* (ⵣ) ? Again, the Kharosthi script may point to the answer : Kharosthi *g'a*, ⵁ, or *j'a*, �ػ, looks much like the Meroitic ⵣ sign, which can also have the form ⵌ.[98] As well, some Old Nubian words proposed here as possible cognates for Meroitic ones have a *j* or *ğ* sound. Examples : Meroitic *dḫ* as in *adḫite* in Akinidad 8 (and Old Nubian ϭⲁⲩ, " to proclaim " ?), Meroitic *d* as in the Old Nubian direct object marker represented by the sign ϭ (or ϭ in Browne's grammar and dictionary).[99] The dominant sound in the Egyptian word for the eye of Horus or the *watch / wḏ-t* hieroglyph 𓂀, the same hieroglyph which Meroitic scribes used before the development of the cursive, was *tch* or *ḏ* or *ğ*, as Y. Zawadowski[100] and Griffith[101] point out.

Mitteilungen des Instituts für Orientforschungen der Deutschen Akademie der Wissenschaften zu Berlin, Bd. IX, Heft 1 (1963), 3.

93. Murray, xxx.
94. Ehret (2001), 22.
95. Mangalam, 28.
96. Browne (1996), 158.
97. *Ibid.*, 45.
98. Mangalam, 17, 20.
99. Browne (1989), 3.9.5b.
100. Yuri Zawadowski, " Some Considerations on Meroitic Phonology ", *MNL* 10 (July, 1972), 27.
101. Griffith (1916), 117.

Ehret's reconstructed Proto-Nilo-Saharan initial *d became *j* in Dongolawi. Other types of *d, however, remained as *d* while both initial and non-initial *g also became *j* in Dongolawi ; to further complicate the picture, initial *t and non-initial *t and *th shifted to *d*.[102] Such shifts have produced a situation in which possible cognates between Meroitic and Old Nubian as well as the other Nubian languages seem to keep multiplying.

Possible evidence for a *j* sound for the Meroitic *d* is the word *Medjay*, the Egyptian term for an ethnic group from the desert region of Nubia whose members often served as police or servants in Egypt. In Demotic sources they are called *Brhm* while in classical sources they are the *Blemmyes*, ancestors of the modern Beja.[103] Scholars have speculated that these are the *Mdd* people who are cited in the Irike-Amanote and Harsiotef stelae.[104] One might also wonder whether they could be ancestors of the *Amag* or *Hamaj*, who are cited in later documents from Funj history and by early Arab and European travellers.[105] Their name could also reflect an association with the area referred to as *Amod* (probably the region now known as Qustul between Gebel Adda and Faras) in Meroitic in the *hllhror* inscriptions.[106] The Meroitic word *mdes* in the opening lines of the Kharamadoye stela may well refer to the king's dominion over this land or people. Browne in his Old Nubian dictionary cites the Meroitic word *mde* as possibly meaning " servant" under the Old Nubian entry for ⲘⲈⲖⳒⲞⲨ.[107]

The Meroitic *q* sign or ⳕ may have been pronounced more like a hard *k*, while the *k* sign or ⳍ may have sounded more like a softer *k* or *kh*. Although the closest Demotic match in appearance for the *k* sign is the one that represents the triple-wave group writing sign, El-Aguizy gives no phonetic equivalent for this etymon.[108] Strangely, the other Demotic sign that resembles the Meroitic *k* is the group writing sign for *bk*. Neither the *q* nor the *k* has a Kharosthi equivalent.

The Coptic evidence also supports the pronunciation as *k* of the Egyptian goose biliteral hieroglyph used by Meroitic scribes (𓅬), while the Greek transcription seems to have been *kh*. This sign originally represented *gb* in Egyptian, as in the earth god Geb, but probably was pronounced *k* as in Coptic ⲔⲎⲈⲧ, or *kh* as in the Greek version of the same god's name, χηβ, by the time the Meroitic scribes adopted Egyptian signs to write their own language, according to A. Dembska.[109]

A look at a likely Old Nubian cognate reinforces the idea of a /k/ pronunciation for the Meroitic *q*. It is generally agreed that Meroitic *qo* was probably an honorific with the conno-

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102. Ehret (2001) 20-21, 30-31.

103. Török (1997), 39.

104. For example, Eide, ed., v. 2, 407, 448-449.

105. Jay Spaulding, "The Fate of Alodia", *MNL* 15 (October 1974), 12, 16.

106. Eide, ed., v. 2, 675-676. The Old Nubian word ⲘⲈⲖⳒⲞⲨ meaning " servant" may reflect the fact that members of this ethnic group often wound up as prisoners.

107. *Ibid.*, 114.

108. El-Aguizy (1998), 346 [CXLIII].

109. Albertyna Dembska, "A Note on the Sound Shift in the Egyptian Language and the Phonetic Value of the Meroitic [k] Sign", Rocznik-Orientalistyczyny (1987), 45 :2, 73-75, and Kuentz (1935), 193-199.

tation of " noble person ", comparable to Old Nubian ⲕⲟ meaning " master ".[110] The Meroitic word for king or sovereign, *qore*, might be a contraction of *ko* and the Dongola and Kenuz word for " chief " or " king ", *ur* or *uru* in Nobiin, ⲟⲩⲣⲟⲩ in Old Nubian, ⲟⲩⲣⲟ in Coptic.

Bechhaus-Gerst, on the other hand, suggests that the Old Nubian cognate for *qore* is ⲅⲟⲣ or ⲅⲟⲗ, which would equate Meroitic *q* with Old Nubian ⲅ (pronounced as a prenasalized *g* or /*ng*/ rather than the unvoiced *k*). Browne and Murray both say this means " Lord " with an upper-case *L*.[111] The modern Nubian (Nobiin) cognate *nor* can mean " master " or " owner " as well as " god " ; its resemblance to Coptic ⲛⲟⲩⲧⲉ meaning " god "[112] seems stronger than to *qore*. Perhaps a better cognate for ⲅⲟⲗ would be Meroitic *note* as in the god's name *Mnote*, or Lord Amon (for example in the Kharamadoye stela, lines 9 and 12) ; this could also be the equivalent of Egyptian *Jmn-njwtj* or " Amon-of-Thebes ", literally, " Amon-of-the-city ".[113]

If Old Nubian ⲅ is indeed the equivalent of Meroitic ⳘⳘ, both signs may hark back to an earlier Nilo-Saharan phoneme not present in the Egyptian language. Proto-Nilo-Saharan, according to Ehret, had four nasals : /m/, /n/, /ny/ and /ŋ/.[114] The last, while lost in present-day Dongolawi through the strong influence of Afro-Asiatic languages in the area, may still have been in use as an initial during Old Nubian times. As Bechhaus-Gerst suggests, it could be a vestige of Meroitic *q*.[115]

Scoring Meroitic and Kharosthi

In an honors thesis written for Rhode Island College in 1999, Longpré presents a useful method of tabulating ancient scripts from various regions of the Middle East and North Africa.[116] She assigns a score to each sign according to how closely it resembles its Meroitic counterpart and then gives each writing system a total score. The highest scoring systems (that is, those which most resembled Meroitic) were what she calls " Enchorial Egyptian ",[117] Demotic Egyptian (7th-5th c. B.C.E.) and Nabatean Aramaic with 28 out of a possible 38, 25 out of 34 and 19 out of 36 points respectively if each sign receives a 2 for strong resemblance, 1 for some resemblance or 0 for no resemblance. The second figure for each pair varies because some of

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110. Browne (1996), 95.
    L. Reinisch gives another definition of the word *ko* in the modern Nubian language Nobiin. In his glossary of the Barea language, he says that the Barea word *ku*, meaning " man ", is a cognate of Nubian *ko* which he says means " person " or " self ". [Leo Reinisch, *Die Barea-Sprache: Grammatik, Text und Worterbuch nach den handschriftlichen Materialen von Werner Munzinger Pascha*, Sprachen von Nord-Ost-Afrika 1. Bd. (Wien : W. Braumüller, 1874), 138]. Murray, on the other hand, gives the modern Nubian meaning as " alone ". [Murray, 101].
111. Browne (1996), 201 ; Murray, 134.
112. Lambdin, 251.
113. C. Rilly, personal communication.
114. Ehret (2001), 6.
115. Bechhaus-Gerst (1984), 94.
116. Longpré, 47-54.
117. " Enchorial " represents the Demotic of the Rosetta stone in the Ptolemaic period (332-30 B.C.E.).

the scripts lack signs for certain sounds. Converting these scores to percentages gives results of 74%, 73% and 53%.

It should be pointed out, however, that Longpré seems to make no allowances for the fact that some of the Demotic signs, while not matching the specific Meroitic sign cited in each column, do bear a likeness to other related signs. For example, the Demotic signs for *t* do not resemble the Meroitic *t* but rather the Meroitic *te*. As well, the Meroitic *se* resembles not an Enchorial *se* but rather *s*. If she had had access to El-Aguizy's thorough examination of Demotic papyri, some of her scores might be different.

Because such omissions might have affected the outcome, I scored the same three scripts myself. The results were : Enchorial, 31 out of 40, or 77%, Demotic, 21 out of 38, or 55%, and Nabatean Aramaic, 17 out of 40, or 43%.

Repeating Longpré's exercise by matching Meroitic signs with the Kharosthi script produces a slightly higher score, 34 out of a possible 42, or 81%. For some signs like *r*, *d*, *t* and *w*, closer matches occur in Kharosthi than in the other languages mentioned.

In the following table, I have chosen representative examples in each script. Many variations of each sign exist according to individual scribes and time period.

	a	e	i	o u	y	b m	d j	ẖ kh	ḫ	k	l r	m −m	n −n	ñ	p py	q	r dr	s	š	t	te d	to ts	w u
Mer.																							
Khar.																							
score	2	2	2	1	0	2	2	1	2	0	2	2	2	0	2	0	2	1	2	2	2	1	2

Strictly from the point of view of resemblance, then, Kharosthi would seem to have a roughly equal claim to Enchorial/Demotic as far as some kind of relationship with Meroitic goes. As mentioned earlier, from a strictly geographical viewpoint, influence on the Meroitic script by the Enchorial/Demotic script appears far more likely than by Kharosthi. What the results of the above comparison may signal is that Meroitic and Kharosthi owe their mutual resemblance to the fact that they are both greatly indebted to the Egyptian. A different direction of influence, however, even that of Meroitic to both Demotic and Kharosthi, cannot be ruled out entirely.

Another tabulation helpful in approaching the Meroitic cursive script is Rilly's recent " Comparaison paléographique ".[118] That article's grid has revealed a curious phenomenon. The syllable signs that may prove to be of the VC type (⟨glyph⟩, ⟨glyph⟩, ⟨glyph⟩, and ⟨glyph⟩) all have a component

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118.   Claude Rilly, " Approche comparative de la paléographie et de la chronologie royale de Méroé ", *MNL* 28 (Paris : Groupe d'études méroïtiques de Paris, 2001), 85.

that resembles the right-hand part of the *a* syllable sign (𝟸). This sign itself uncannily resembles the Old Nubian, Coptic and Kharosthi signs for *h* as well as a reversed "hamza" of Arabic script. Possibly this element of the ና produced the quality of *Vokalanlaut*, as Priese refers to it.[119]

In sum, this experiment of scoring scripts, for all its limitations, does emphasize that the Meroitic cursive script resembles Kharosthi about as much as it does Demotic/Enchorial. In addition, a few of the Kharosthi signs like *r* seem closer matches than the Demotic ones while others, such as *w*, *ñ* and *n*, have matches whose phonetic counterparts in Demotic seem to be group writing.

The possible consequences of the change of scripts

This article would be incomplete if it did not suggest a possible historical explanation for why the relationship between Meroitic and Nubian became obscured.

Our knowledge of Old Nubian comes from inscriptions and manuscripts from the time of the Christian Nubian kingdoms ; these realms occupied more or less the same area as the earlier kingdom of Kush. In the late 8th and 7th centuries B.C.E., Kushite pharaohs ruled Egypt as the 25th Dynasty ; when forced back to Kush by an Assyrian invasion, the Meroitic-speaking Kushite society continued to flourish with its center at Meroë until it disintegrated in the early 5th century C.E. The Christian kingdoms rose soon after.

Bechhaus-Gerst, in 1984, used glottochronological methods to hypothesize a history of the Nubian languages.[120] In a 1989 paper, she speaks of the " Pre-Nobiin ", the ancestors of Old Nubian speakers and modern Nobiin speakers. Citing cultural vocabulary, she proposes that it is " highly probable the migration of pre-Nobiin speakers into the Nile Valley took place no later than 1400 B.C. "[121] She does not give an earliest possible date.

Vague though it is, this time frame is useful. It provides a general era for the emergence of early Nubian in the region and, although Bechhaus-Gerst does not suggest it, would appear to put these early Nubian speakers in the right place at roughly the right time to have been Kushites, and as such, Meroitic speakers.

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119. Priese (1973), 284-285.
120. Bechhaus-Gerst (1984), 18. Her work was based in part on the research of Peter Behrens, " C-group-Sprache-Nubisch-Tu Bedawiye : ein sprachliches Sequenzmodell und seine geschichtlichen Implikationen ", *Sprache und Geschichte in Afrika* 3 (1981), 17-49, and on lexico-statistics assembled by Robin Thelwall, " Lexico-statistical relations between Nubian, Daju and Dinka ", in *Études Nubiennes, Colloque de Chantilly, 2-6 Juillet 1975* (Cairo : 1978), 265-286.
121. Marianne Bechhaus-Gerst, " Nile-Nubian Reconsidered ", *Topics in Nilo-Saharan Linguistics*, ed. M. Lionel Bender, Nilo-Saharan 3 (Hamburg : Buske, 1989), 92.

Archaeologists and anthropologists suggest that the peoples of the area have been of virtually the same stock for the last 5,000 years.[122] This increases the likelihood that the Nubian speakers of the Christian kingdoms were the descendants of Kushites. If so, how has misunderstanding arisen about their language ? Perhaps the source of confusion can be found in the writing change that accompanied the advent of Christianity in Nubia.

The following scenario might have occurred. Ancient scribes and possibly even the Church fathers (who first attempted to render the Bible into the language of the inhabitants of the former Meroitic empire) may have had considerable difficulty in converting the Meroitic cursive syllabic script to the Greek-based alphabets used in Coptic and Old Nubian. In continuing the written tradition of Kush and Meroë in an alphabetic form, these scribes may have made some decisions that seem peculiar now.

Some of their changes in orthography might reflect changes in pronunciation due to sound shifts. Almost a thousand years separate the most recent examples of Meroitic cursive script from the earliest surviving examples of Old Nubian. We need only look at the development of Old Anglo-Saxon into Shakespearean English (over a shorter period) to appreciate how much a language can change in such an amount of time.

In adapting the new Greek/Coptic script to the needs of the language of the former Meroitic empire, the scribes faced the challenge of how to cope with all the nasals that appear to characterize not just Meroitic (in which so many seem to have been unwritten) but also numerous Nilo-Saharan languages, as a glance at Ehret's proto phonemes indicates.[123] In converting from syllabary to alphabet, the scribes would have had to choose between considering unwritten syllable-final nasals as letters in their own right or as pre-nasalization of the initial consonant of the following syllable. For example, where Meroitic speakers had written *pesto* but pronounced /pesante/, the new written form could have been written p-e-s-a-n-t-(e) or p-e-s-a-nt-(e).

Ehret identifies these prenasalized medial consonants as distinct phonemes in proto Nilo-Saharan, but for *nt, nd, nk,* and *ng* the scribes may have opted to write these blends as two separate letters, using the simple ν, the equivalent of the Meroitic *Vn* syllable. It is even possible that the dot on the Meroitic ᒫ sign may indicate nasalization as such a dot indicates anusvara in the Brahmi, Sanskrit and Hindi alphabets. Priese's table has examples of the sign both with and without the dot.[124]

As speculated earlier, the Meroitic ᒫ may have been closer to *ts* in pronunciation. When the scribes began to use the Coptic/Greek alphabet to transcribe the Old Nubian

122. William Y. Adams, *Nubia : Corridor to Africa* (London : Allen Lane, 1977), 667 ; Peter Shinnie, *Meroe : A Civilization of the Sudan* (London : Thames and Hudson, 1967), 155 ; Bruce Trigger, "Nubian, Negro, Black, Nilotic ? " in *Africa in Antiquity,* v. 1 : *The Arts of Nubia and the Sudan* (New York : Brooklyn Museum, 1978), 27-35, and Török (1997), 43-44.
123. Ehret (2001), 20, 32.
124. Priese, 303.

language, they may have arbitrarily opted for the C for both *s* and *ts* since the *ts* had no equivalent sign in those alphabets.

The Greek alphabet also had no way of indicating the *nV* sign with its constraints against word-initial use. The scribes therefore may have continued to employ the existing Meroitic symbol, ⵣ, slightly tipped, where necessary.

However, for words that contained the laryngeals *ḫ* and *ḥ*, neither of which occurs in the Coptic/Greek/Old Nubian alphabet, problems would have arisen. There is only a single Old Nubian word, other than loan words, with an initial *h* (2) : the word for heaven, ⲡⲁⲡⲏ. Many of these Meroitic laryngeals occur in conjunction with unwritten final nasals in the preceding syllable. For example, a bilingual rendering (in Egyptian and Meroitic) of the name of the owner of Pyramid no. 5 at Meroë shows that Irknhrl = Arikḫror.[125] The *ḫ* (probably close to Ehret's proto Nilo-Saharan *h) appears to have dropped out of the spoken language (as happened across the board in most of the Nilo-Saharan languages, according to Ehret[126]) or to have been assimilated in most words containing it.

For words in which the *ḫ* followed an unwritten nasal, however, the loss of the *ḫ* through sound change would have meant that the nasal, doubtless altered in some way, would have become the initial phoneme of the following syllable. This could explain why the scribes may have re-interpreted the Meroitic *ḫ* sign, ⵎ, which had come to represent a nonexistent sound, as the symbol for the syllable-initial *ñ* sound that had resulted. Since the Greek/Coptic alphabet had no letter for such a sound, they could have continued to make use of the Meroitic sign although it now stood for a different sound than it had originally. This ⵎ or ⲧ sign rather than ϣ may have come into use for all initial N sounds in Old Nubian.

With words that had unwritten syllable-final nasals before *ḫ*, the proto *kh type of sound had probably shifted to *k* by the time of the Old Nubian writers so they could have spelled out ⲛⲕ using the Greek/Coptic alphabet. Millet suggests that the Meroitic word *ḫlo* is the number word "seven", cognate with Nobiin *kolod* and Old Nubian ⲕⲟⲗⲟⲧ ; this would produce an equivalence of Old Nubian ⲕ for Meroitic *ḫ*,[127] as corroborated by Ehret's research.[128] Peust supports this contention and has added Meroitic *ḫara*, possibly meaning north, as a cognate for Old Nubian ⲕⲁⲗⲟ or ⲕⲁⲗⲗⲉ.[129] Still, these cognates are by no means certain. Neither Ehret nor Bender shows any interchange of medial *l* and *r* (as would have had to have taken place between *ḫara* and ⲕⲁⲗⲟ) from proto Nilo-Saharan to the present,[130] although such an alternation was common for Egyptian (which had no sign for *l*) and Meroitic. In addition, Millet bases his hypothesis on the Meroitic combination *yereḫlo* (with the *yere*

125. Macadam, 53.

126. Ehret (2001), 15-16, [22].

**127.** N.B. Millet, " Some Possible Meroitic Number Words " in Steffen Wenig, ed., *Studien zum antiken Sudan : Aktum der 7. Internationalen Tagung für meroitische Forschungen vom 14. Bis 19. September in Gosen/bei Berlin, Meroitica* 15 (Wiesbaden : Harrassowitz, 1999), 616-621.

128. Ehret (2001), 21.

129. Peust, 79-80.

130. Bender (1997), 68 and Ehret (2001), 33.

supposedly meaning " ten "), which he suggests means " seventeen " since it appears both with and without the written numeral 17. This, he proposes, may be a case of dittography. However, the same group of signs, *yerehlo*, appears many times in graffiti at Kawa with all sorts of numbers other than seventeen.[131] It may simply be the first or second person plural form of a verb and does not seem to be proof that *hlo* means " seven ". The weakness of the cases for these cognates, however, does not necessarily invalidate the idea that Meroitic *ḥ* could be the equivalent of Old Nubian ĸ.

There is also some evidence that the Meroitic sign for *ḥ*, or ⟨, originally may have been a labialized laryngeal *hw* sound, perhaps similar to *ʼw, the glottalic glide that Ehret hypothesizes for proto Nilo-Saharan.[132] When the laryngeal component disappeared, it may have left behind a residual *w* sound that came to be written as ʏ or " oʏ " in Old Nubian. Several Old Nubian words appear to be cognate with some of Ehret's reconstructions for initial *ʼw : oʏe, to say (Browne {1996}, 204) and *ʼwe, to say or tell (Ehret {2001}, #1424) ; oʏoʏ, to shout (Browne {1996}, 130) and *ʼwi, to cry out (Ehret {2001}, #1438) ; oʏp, burning (Browne {1996}, 139) and *ʼwir, to shine (Ehret {2001}, #1441); oap/oaʌe, night (Browne {1996}, 122) and *aʼwa : d, night (Ehret {2001}, #1465).

Another explanation may be that diphthongs created by the loss of a consonant tend to become pronounced with a medial *w* when the second component is a back vowel, or with a medial *y* when the second component is a front vowel. The very fact that *w* came to be written as a diphthong *ou* or oʏ in the Old Nubian alphabet may indicate that its original sign was for a VC syllable, similar to the alternate *s*, *m* and *n* signs examined earlier. Its CV counterpart in this case would have to be the Meroitic " *o* " sign (/), which some scholars would prefer to transliterate as *u*[133] and which resembles nothing so much as the Semitic *waw* or vav.

The apparent confusion by Old Nubian writers about how to handle the *w* sound may in itself testify to the possible existence of both VC and CV syllables in Meroitic. The Greek alphabet of the time had no true sign for *w* (since the old digamma was no longer in use). As a result, Coptic scribes had resorted to using an oʏ combination to represent this sound. While Old Nubian scribes used this technique also, they seem to have found it insufficient, perhaps because of the existence two types of syllable (CV and VC) in Meroitic ; they therefore may have adopted an additional sign, the Meroitic *w* : ẞ. This sign is similar to the Demotic group writing sign for *nw*,[134] another example of a Meroitic sign that represents the final rather than the initial phoneme of an Egyptian sign. Coincidentally, it also resembles the Kharosthi *nu*, reversed, although it is closer to the *u*. It shows no resemblance to the Demotic signs for the hieroglyphic that Meroitic scribes used for *w*. Browne's dictionary lists only eight entries under this sign, all of them followed by the vowels a or e (there are no ı, eı, o or oʏ).

131. M.F.L. Macadam, *The Temples of Kawa* (London : 1949), v. 1, 96-99.
132. Ehret (2001), 14-15.
133. Yuri Zawadowski, " Some Considerations on Meroitic Phonology ", *Meroitic Newsletter* 10 (July 1972), 20-21.
134. El-Aguizy (1998) [cxcvi].

Some of the *y* semi-vowel signs also might have become written as diphthongs. *Ye* and *yi* may have become ϵι and ⲁι, as in Old Nubian ⲁï, meaning " I " or ϵιⲣ meaning " you ". These spellings in themselves may indicate the presence of VC signs. Such spellings would be in keeping with sound shift rule 4 for Dongolawi (as representative of Nubian) that Ehret postulates :[135] PSN *Y>zero. Such a rule would also be consistent with the change from *ye-* to *e-*, evidenced by a comparison of the Akinidad stela with that of Tañyideamani.

The sound shifts that apparently occurred as the Egyptian language evolved into Coptic were not confined to the consonants studied by Dembska and Kuentz. The language also underwent the effects of vowel precession : front vowels became back vowels so that many Coptic words have ⲟ or ⲟⲩ or ⲟⲟ or even ⲟⲩⲟ and ⲟⲩⲟϵι where the hieroglyphs showed no vowels. There is reason to think that Meroitic also experienced such vowel precession. For example, the Meroitic *wte-* (in the formulaic opening lines of the so-called " epistolary " inscriptions such as REM1096) may have become ⲟⲩϵιⲁ (meaning " to be distant ", in Old Nubian). As well, *tke*, as in line 3 of the Kharamadoye stele, may have become ⲧⲟϵк (meaning " power ").

In addition, frequent gemination that had been unwritten became written. Syllable-final nasals hitherto unwritten also became written. Thus Meroitic *ye* sometimes may have become Old Nubian ϵιⲛ, which is both a demonstrative and an equivalent of the verb " to be " used in periphrastics that serve as substitutes for relative clauses.

The scribes also may have seen fit to break up clauses and phrases that were formerly undivided by the two- or three-dot separators in Meroitic and to write them as discrete words. Thus prefixed subject-, direct object- and possessive-pronouns like *tr, eqe-* or *tk-* or *t[an]-* and *a[n]* may have come to be written separately though still maintaining the SOV word order shared by Meroitic and Old Nubian syntax conventions.

When switching from Egyptian to Meroitic for monumental inscriptions several centuries before, scribes had already experienced the adjustment problems that some scholars have cited as responsible for the peculiar Egyptian grammar of the inscriptions of the Harsiyotef and Nastasen stelae.[136] These anomalies may have been the result of a change from Egyptian to Meroitic word order but could also have resulted from a tendency to treat the entire verb phrase, including pronouns, as a whole. Such a tendency in some other languages has led to the development of conjugations with the subject pronouns becoming inseparable affixes. Meroitic seems to have included object pronouns in these agglutinated verb phrases, a convention that the scribes may have discontinued in switching to the Old Nubian alphabetic script.

The net effect was to produce a written language with frequent long strings of vowels and doubled consonants that looked quite different from present-day transliterations of Meroitic texts. And, to be sure, the disappearance and transformation of laryngeals, the diphthongization and the conversion of semi-vowels to vowels all contributed to the written language's new look.

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135. Ehret (2001), 27.
136. Eide, ed., v. 2, 494.

Conclusion

We may obtain new insights into Meroitic by approaching the syllabary with a fresh eye.

First, we should be open to the possibility of CV, VC, and even CCV or VCC types of syllables.

Second, we should question the accepted equivalencies for certain other syllable signs and be ready to revise some. These revised transliterations could include *te>d*, *to>ts* and *d>j*.

Third, we must concede that many of the Meroitic cursive signs resemble not only Demotic signs but also forms with similar phonetic values found in the Kharosthi script. We must ask what this means in terms of ancient relations between Kush/Meroë and the Middle East/Indian subcontinent and be alert to any linguistic clues from that area that might prove to be vestiges of ancient Meroitic contact.

Finally and most important, we must recognize that the phonological and epigraphic evidence points more and more to some early version of Old Nubian as a daughter language of Meroitic.

Some of these suggestions fly in the face of Griffith's transliterations and might call into question some of the revised ones used in compiling the *Répertoire d'Épigraphie Méroïtique* (*REM*). On the other hand, the father of Meroitic and Old Nubian studies might be amused if the hunch he had almost a century ago should prove to be true.

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Phonetic Correspondences between Meroitic and Old Nubian

Standard translit.	Suggested revision	Meroitic sign	Old Nubian
initial a	V-	�	ⲗ
e		ⲥ	ⲉ
i	yV	+	ⲓ
o or u	Vw or o or u	/	ⲟ or ⲟⲩ
y	Vy	///	ⲉⲓ
w	wV	ƀ	ⲟⲩ
b	bV or mV	ν	ⲡV or ⲙV
p	pV or Vp	�ᒿ	ⲡ
m	Vm	⟩	Vⲙ
n	Vn	ß	Vⲛ
ñ or ne	nV	ⲭ	ⳝ
r	rV/Vr/trV/drV	ⲱ	ⲣ (r)
l	lV or Vl	⟩	ⲗ or ⲗ
ḫ	h or hw	▽	ⲩ or zero
ḥ	k	⟩	ⲕ / ⲅ
s or se	sV	Ⅶ	ⲥ (s)
š (sh) or s	Vs	Ⳍ	ⲱ
k	g/k or Vg/Vk	Ⳍ	ⲅ / ⲕ
q	g/k + w	Ⳣ	ⲕ / ⲅ
t	tV	⟩	ⲧ or ⲗ
te	d	ⲓⲁ	ⲗ or ⲣ
to	ts	ⳕ	ⲧ or ⲥ
d	j or d	ⳮ	ⳝ or ⲗ