



THE MINERS WHO INVENTED THE ALPHABET – A RESPONSE TO CHRISTOPHER ROLLSTON*

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ABSTRACT

Was the alphabet an invention of elite Northwest Semitic speakers, officials in the Egyptian apparatus “quite capable with the complex Egyptian writing system,” as recently suggested by Christopher Rollston? Or was the alphabet born at the social and cultural fringe? This article reconstructs the possible milieu in which the alphabet was invented: in the mining camps in Sinai, around 1840 B.C.E. by illiterate Canaanite miners who came across the alluring pictorial hieroglyphic script. A paleographic study of the hieroglyphic inscription of Khebeded “(the) brother of (the) ruler of Retenu” on Sinai stela 92, sheds new light on the process of the invention, the possible inventors, and the date of the invention.

The invention of the alphabet stands at the crossroads of two great cultures of the Ancient Near East – The Egyptian and the Canaanite.

Whereas Egyptian culture was always centered on the icon and its complex semiotic and religious manipulations, some segments of Canaanite culture moved, during the last part of the second millennium, into a struggle against the “allure of the icon” eventually creating a new culture in which ideology and religion were manifested mainly in words and texts.

It may be an accident of history that the inventors of the alphabet walked a somewhat similar path: using Egyptian hieroglyphic icons in a wholly new way they released the *sounds* of language from the grip of the icons. In the newly invented system, the icon is marginalized. It serves only as a starting point of the semiotic process of reading, and its iconic referent must be abandoned, as a rule, in order to complete the reading process.¹

After the publication of my article on the alphabet in *BAR*,² Christopher Rollston published a response to my theory.³ He concentrated on the part of my hypothesis that suggests the inventors were illiterate miners, who did not belong to the elite of Canaanite society. Rollston criticizes some of my main assumptions and conclusions:

“.....they (the inventors, O.G.) apparently emerged from among the circle of one Khebeded. He is mentioned in several Egyptian Hieroglyphic

inscriptions at the site and is referred to as the ‘Brother of the Ruler of Retenu’” (Goldwasser 2010, 45), with Retenu being a means of referring to the southern Levant. She also affirms that “It is clear that this ‘Khebeded, brother of the Ruler of Retenu’ is a Canaanite” (Goldwasser 2010, 45). She contends that “Khebeded was involved with Egyptian expeditions to Serabit for more than a decade” and she argues that “he is clearly the highest-ranking Canaanite who left a Hieroglyphic inscription in the Serabit temple. He was probably a leader of the Canaanite workforce.” She contends that “the quality of the Hieroglyphs in an inscription that Khebeded added on a stela ... is very poor.” She also states that “his inscription on Stela 92 would have been an embarrassment for an educated Egyptian scribe.... (His) hieroglyphic signs [are of] different sizes and crammed next to each other, and vacant spaces appear at the end of the line. But the Hieroglyphic pictograms in Stela 92 bear a remarkable resemblance to the signs in the Proto-Sinaitic inscriptions” (Goldwasser 2010, 46). She also states that “it may seem strange, but I believe the inventors of the alphabet were illiterate—that is, they could not read Egyptian with its hundreds of Hieroglyphic signs.” She then queries: “Why do I think so?” and then answers herself: “The letters in the Proto-Sinaitic inscriptions

are very crude. They are not the same size. They are not written in a single direction.... This suggests that the writers had mastered neither Egyptian Hieroglyphic nor any other complex, rule-governed script” (Goldwasser 2010, 44). An additional piece of her argument is her contention that the “Canaanite inventors of the alphabet” unwittingly conflated two Egyptian signs for snakes into a single alphabetic sign for /n/ (Semitic: “nahash,” i.e., “snake”) and this “confirms their ignorance of the meaning of the Egyptian Hieroglyphs.”

At this juncture, a summary of Goldwasser’s argument is in order. She believes that at Serabit there were high officials, including scribes. She mentions that the names of many “interpreters” are present. She believes that there were Canaanites at Serabit el-Khadem. She does not believe that the Canaanites were slaves. She mentions that some of the high officials that left Egyptian inscriptions were Asiatic (i.e., Canaanite). She notes that among the Canaanites was one man named Khebeded and she notes that he was the “brother of the Ruler of Retenu.” She states that the “inventors of the alphabet....apparently emerged from among the circle of Khebeded.” She states that Khebeded was involved with Egyptian expeditions to Serabit for more than a decade. She states that he is a high ranking Canaanite and that he left a Hieroglyphic inscription in the Serabit temple. She indicates that the quality of his Egyptian penmanship is “very poor, an embarrassment for an educated Egyptian scribe.” She affirms that the letters in the Proto-Sinaitic inscriptions are very crude. She even contends that between Khebeded’s inscription on Stela 92 and the signs in the Proto-Sinaitic inscriptions there is a “remarkable resemblance.” But in spite of all of this, Goldwasser concludes that “I believe the inventors of the alphabet were illiterate—that is, they could not read Egyptian” (Goldwasser 2010, 43). Striking, however, is the fact that she has actually made a good case for precisely the reverse. Namely, she has made a case for the fact that the inventors of the alphabet were Canaanite, that they were part of the circle associated with a high ranking Canaanite official named Khebeded, who was the brother of the Ruler of Retenu. Furthermore, she contends that he himself wrote a Hieroglyphic inscription and the poor penmanship of that inscription shows striking similarity to the script of the alphabetic inscriptions from Serabit. That is, basically she has made a case for contending that the inventor(s) of the alphabet were Canaanite, that this (or these) Canaanites functioned in official circles and that at least some of them were literate in Egyptian (even if not capable of writing the script with good penmanship!). Finally, regarding the presumed combination of two Egyptian signs for two different kinds of snakes into a single alphabetic sign (that signified the phoneme /n/, from “nahash” “snake”), I would simply state that this could just as readily be understood as a conscious decision (after all, through time, humans often combine two similar

entities, for any number of reasons, especially within the realm of language).

Basically, I have thought for a number of years now that the cumulative weight of the evidence suggests that: (1) the *Muttersprache* of the inventors of the alphabet was a Northwest Semitic language, (2) and that the inventors of the alphabet functioned in a reasonably high status role within a component (or components) of the Egyptian administrative apparatus, that is, officialdom. (3) I believe that it is reasonable and tenable to argue that they learned Egyptian writing from Egyptian scribes. (4) I contend that it would be improbable that illiterate miners were capable of, or responsible for, the invention of the alphabet. (5) Ultimately, writing in antiquity was an elite venture and those that invented the alphabet were Northwest Semitic speakers, arguably they were officials in the Egyptian apparatus, quite capable with the complex Egyptian writing system. This, I believe, best accounts for the maximum amount of data.”

Being oriented to a wider audience, my text in *BAR* was not explicit enough on this point, and may have led to misunderstandings. I have recently published the latest version of my theory,⁴ but I would like to concentrate here on the particular issue raised by Rollston, namely, the relationship between the hieroglyphic paleography of Sinai Stela 92 and the Protosinaitic alphabet, and its consequences for the history of the alphabet.

SETTING THE SCENE – CANAANITES IN SERABIT EL-KHADEM

According to the *Egyptian sources* in Sinai, many Canaanites were employed by the Egyptian mining missions during the Middle Kingdom. Their social status, rank and role in the expeditions seem to vary widely. First, in the Egyptian inscriptions in the temple precinct, we find some high-ranking Egyptians of clear Canaanite origin. Although declaring their origin openly, they are clearly an integral part of the Egyptian administrative system on the mound. They carry Egyptian titles, Egyptian names, and represent themselves in the pictorial as Egyptians.⁵ A well-known example is *Imny sšn*, an expedition leader in the days of Amenemhet III, who mentions that his mother was a *ꜥ3mt* – “a Canaanite.”⁶

On the other hand, one finds in the temple, still within the framework of the Egyptian administration, a different sort of Canaanite dignitaries. These are Canaanites who proudly represent themselves in Egyptian hieroglyphs and in the pictorial as *Canaanites*. They are also part of *Egyptian inscriptions* in the temple precinct itself, yet their self-representation is not Egyptian. They are shown riding donkeys in *Damensitz*, a typical Canaanite status symbol, which is not shared by the Egyptians.⁷ Some of them clearly wear Canaanite attire and hairstyles.⁸ In Serabit we know of four representations of dignitaries riding donkeys. The pictorial lexicon of these representations is stable and repetitive, and seems to refer to both a Canaanite pictorial

decorum and a social reality. It is a clear *identity signifier* in Dorothea Arnold’s terminology.⁹ In all scenes the Canaanite dignitary sits on a donkey led by an acolyte. Behind the donkey may walk another acolyte. The most famous of all these donkey riders –and the individual about whom we possess the most information on in Sinai is Khebeded, “the brother of the ruler of (the) Retenu” (Figure 1). He is known from another pictorial representation, where he appears as last in line in a group of Egyptian officials.¹⁰

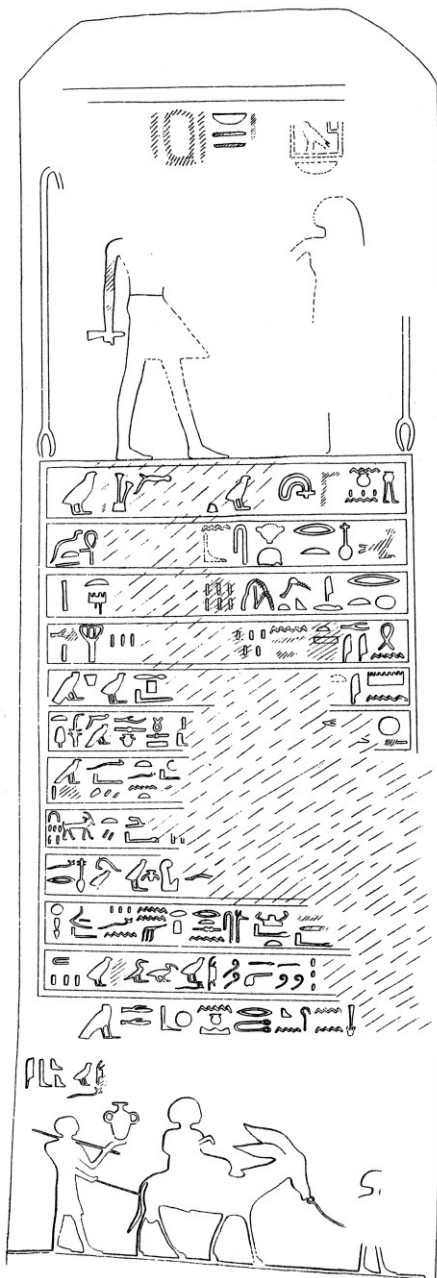
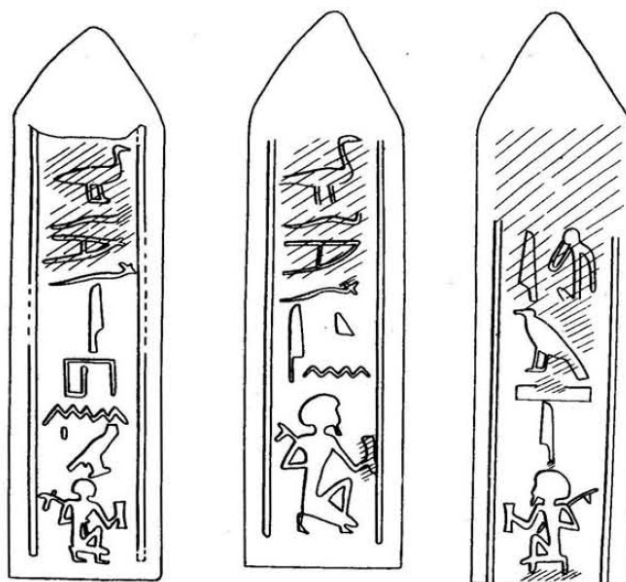


Figure 1: Khebeded on donkey (Sinai I, 112, W. Face, Pl. XXXVII)

Besides the very few Canaanite dignitaries, there must have been many more Canaanites on the plateau.¹¹ *ʿmw* are

represented and mentioned in more than a few inscriptions, both as petty officials and craftsmen, but surely there were many more.¹² An obelisk portraying three Canaanite soldiers is known from the temple (Figure 2). Hundreds of donkeys were part of every mission, and they had to be led by donkey drivers.¹³



Scale 1/2

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Figure 2: An obelisk of Canaanite soldiers (Sinai I, 163, Pl. LI)

We know very little about the miners. Oddly enough, the specific titles “miner” or “chief miner” are not identified with certainty in the *Egyptian* inscriptions in Sinai.¹⁴

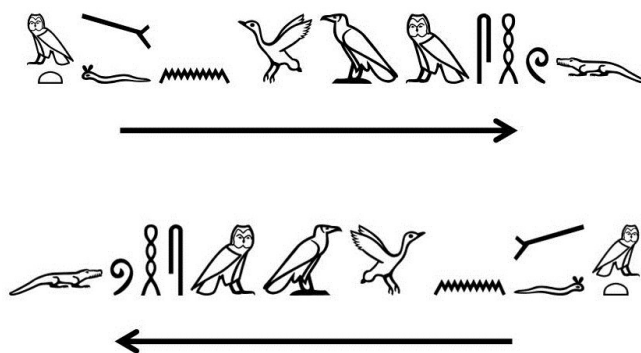


Figure 3: Example of reading directions in Egyptian

However, the Semitic title *rb nqbn*, translated as “chief miner,”¹⁵ appears as part of a Protosinaïtic inscription found in the entrance of mine L (Figure 4). The same title *rb nqbn* appears again on another inscription, the block statue found in the temple (Figures 5 and 6, see below). Here the “chief miner” is also specified by his name - *N^cm*, a Semitic name in use until the present day.¹⁶ The Protosinaïtic inscriptions around the mines

constantly mention the Canaanite goddess Baalat, identified very early by Gardiner as the Canaanite counterpart of the Egyptian goddess Hathor. The Canaanite supreme god El, also mentioned in the Protosinaïtic inscriptions, has no clear counterpart in the repertoire of Egyptian gods in Serabit.¹⁷

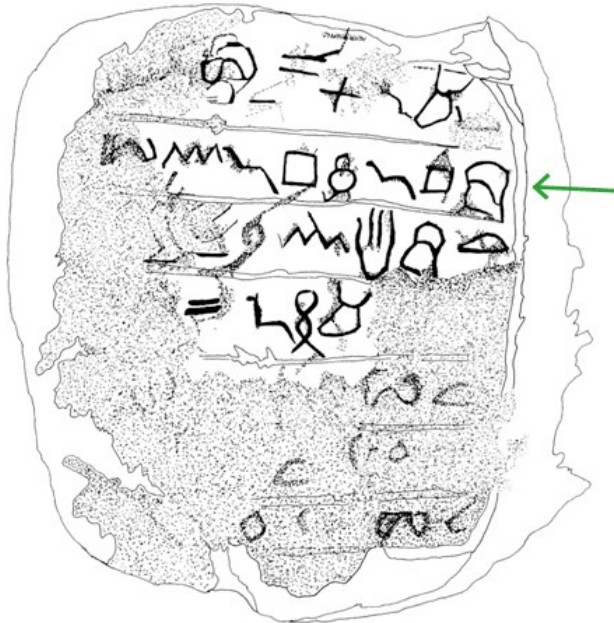


Figure 4: Protosinaïtic inscription 349, Mine L, entrance, with reading direction (after Hamilton 2006, 339)

It seems that from all the above we may conclude that at least some of the workers in the mines were Canaanites. These Canaanites represent themselves by their own inscriptions written in their own Canaanite idiom, not in Egyptian. Their inscriptions use an entirely new script-model and they never use Egyptian hieroglyphs in the “Egyptian way.” Their religious universe is clearly Canaanite – they write and pray directly without royal intermediaries to their Canaanite deities – Baalat and El.¹⁸

Darnell has suggested that groups of Canaanite “desert experts” were employed during the Middle Kingdom in the service of the Egyptian administration.¹⁹ These included soldiers, caravan leaders and their families, and probably quarrying experts.²⁰

It is possible that some groups were attached only ‘ad hoc’ to different Egyptian projects, if in Egypt or in Canaan and Sinai. Unlike Canaanites that were attached to the Egyptian system on a more recurring or permanent basis, these groups did not really mingle with the Egyptians, did not undergo processes of assimilation and acculturation, and surely did not master the Egyptian complicated scripts.

THE GIST OF MY HYPOTHESIS

My hypothesis is that the alphabet was invented in Sinai,



Figure 5: Full view of Protosinaïtic inscriptions on block statue (after Hamilton 2006, 335)

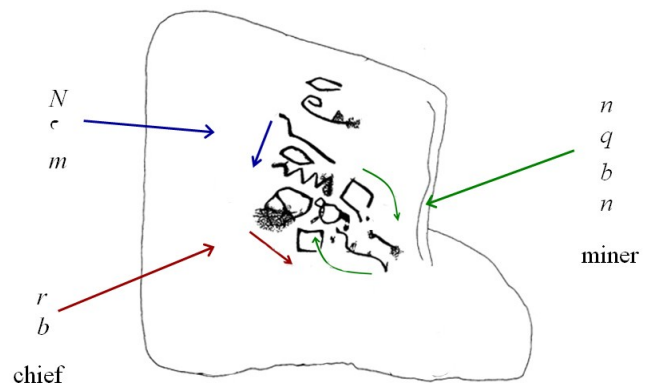


Figure 6: Protosinaïtic inscription on block statue with reading directions

before year 13 of Amenemhet III. All hieroglyphic prototypes for the letters of the alphabet clearly exist in the hieroglyphs of the Sinai inscriptions of this period.²¹ A special link is the letter 𐤀 h - ḥ. This alphabetic sign is a clear version of the hieroglyph 𐀀 which has an undisputed predominance in the Sinai Egyptian inscriptions in the Middle Kingdom. It appears in many of examples in Sinai, and was probably a local title related to the expeditions. This hieroglyph is relatively rare in Egyptian inscriptions in Egypt.²² Moreover, about 30 Protosinaïtic inscriptions were found in the area of Serabit el Khadem, mainly around the mines and the roads leading to the mines. All but one²³ show very early paleographical stages of the script, and were probably produced during a rather short span of time. In Egypt only three such inscriptions are known to date, and only an handful are known from Canaan, scattered along the Late Bronze Age, from the 18th to the 13th century B.C.E.

I differ from all other scholars by suggesting that the inventors were *illiterate* and *did not know to read or write Egyptian*. It is exactly this illiteracy that enabled or even pushed them to formulate new relations of sound and icon, and to come up with a new solution, a solution we call today acrophony.²⁴

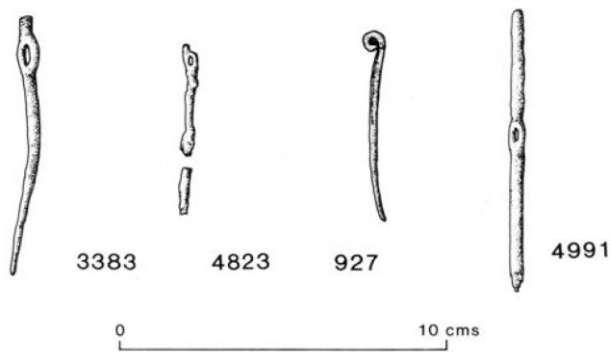


















Figure 7: Toggle-pins from Tell el Dab'a-Avaris, (after Bietak 1968, Figure.9, pl.xxxiiid)

The reasons for the illiteracy hypothesis:

1. Protosinaitic inscriptions consistently show the *wrong direction of writing, according to Egyptian rules*. No scribe that has any knowledge of Egyptian would or could choose this direction.²⁵ In Egyptian, signs that have fronts and backs must all face the beginning of the inscription (Figure 3). Alphabetic inscription 349 is one of the best examples of a Protosinaitic inscription (Figure 4). However this alphabetic inscription should be read in the “wrong” direction, at least from the point of view of Egyptian writing.
2. *Letters in one and the same inscription may show different stances.*²⁶
3. In most cases, the *writers do not try to follow any order in writing*. A conspicuous example is the statue of *N'm* - נמ the “chief miner” (Figures 5 and 6). Found in the temple itself, this small block statue was probably a prestige item of its owner, who had received special permission to put his statue in the Egyptian sacred precinct.²⁷ This way, he received direct access to the blessings of the goddess Hathor-Baalat. However, the inscription is utterly disoriented, not following any one reading direction, but rather running up and down in circles. No Egyptian scribe would ever produce such an inscription.
4. The writers of the Canaanite inscriptions may occasionally use *two different hieroglyphs as prototypes for a single letter*. Two hieroglyphs with different readings in Egyptian are taken for the prototype of a single letter, e.g. the snakes “viper”  *f* and “cobra”  *d* as the prototype for a

single letter  *n* 1.²⁸

Two different hieroglyphs *tp*  and *hr*  seem to serve as prototype for the Canaanite letter  *r* - .

5. In some cases the Canaanites produce their *own iconic readings to Egyptian signs*, which had nothing to do with the Egyptian meaning of the sign. A nice example is the letter *waw*    which probably depicts a Canaanite Middle Bronze Age toggle-pin (Figure 7).³⁰ The inspiration for the form of this letter may come not only from the referent of the everyday object. It may be that it was also influenced by the form of Egyptian inscriptions in Sinai, in some of which (which have rather cursive hieroglyphs), we find signs that bear a *pictorial resemblance* to the toggle-pin (e.g. )³¹ and might have reminded the Canaanites of their toggle-pins.³² Nevertheless, behind these two similar signs stand in Egyptian two different hieroglyphs, “oar,”  (P8),³³ and “mace,”  (T3). The “oar” (P8) often appears in Egyptian inscription horizontally as part of the phrase *m3-hrw* - “true of voice,” which follows personal names.³⁴ However, the cursive versions of these two signs in Sinai are very similar, even if their stance may differ. As the Canaanites did not read Egyptian, they saw them as a single icon that appears horizontally at times and vertically at others. This view may explain why the *waw* is used horizontally in not a few cases in the Canaanite inscriptions, actually following the Egyptian stance of “oar” (P8) and not the mace. The sign “mace,”  (T3), which is regarded by Hamilton as the sole possible source for the *waw* sign, is very rarely found in horizontal position in Egyptian inscriptions.
6. *At least two letters may have their origin in the “real world” and have no model in the Egyptian scripts*. The most conspicuous example is the letter  *k*  but also the letter  (bow), whatever its exact phonetic value in the early script (see Figure 12).
7. Any educated group of inventors would aspire to at least minimal *standardization*.³⁵ There is no sign of such efforts in Sinai. The most important issue in the early stage is the recognition of the pictorial meaning of the icon, and the direct realization of its correct name. The name of the icon leads the reader by the acrophonic process directly to the final sound of the sign. A most interesting example for this procedure is the letter *bet* that offers in Sinai a

plethora of house forms (Figure 8): The closed square (the prototypical, minimal concept of a house), the square house with an opening on the side, the square house with an entrance (imitation of Egyptian soul houses models of the period [Figure 9]?),³⁶ or even houses of multiple rooms.³⁷ An important yet single variation in Sinai is the house with bent entrance.³⁸ This variety appears later in Wadi el-Hôl.³⁹ The predominant form in Sinai is however the square house, with or without a small opening on the side.

It seems that at this stage of the invention the important factor was the smooth move from *picture* - to *meaning* - to *name* - to *initial sound*. Any house icon that “did the job” was acceptable.

The standardization of a single stable iconic representation of each grapheme would be of great importance should a system be invented for large-scale administrative uses, when texts had to travel long distances. If my reconstruction is correct, and the texts in Sinai were invented by for local religious use, this should not have been a concern of the non-professional inventors.⁴⁰ For hundreds of years to come, Protocanaanite texts were not to be used for administrative purposes by any institution or state. Until the beginning of the Iron Age they kept their original role – allowing peripheral sectors of society to write their names, to write a name of the god, or to present a short prayer.

8. Both Sass and Hamilton contend⁴¹ that in Sinai, there might have still been two icons “competing” for the representation of a single sound.⁴² If such is indeed the case, it shows again a lack of standardization.⁴³
9. The Protosinaitic script shows no signs of “contamination” from the complex Egyptian ideographic system. It is acrophonically pure to a surprising degree. It seems that the inventors and writers had access only to the pictorial level of the Egyptian hieroglyphic script, while its complex semiotic mechanism escaped them.⁴⁴ Moreover, there is no clear sign of borrowing from the Egyptian monoconsonantal repertoire of signs.⁴⁵

STELA 92 – “THE LINK” – GENERAL INFORMATION

Stela 92 is a typical Middle Kingdom stela from Sinai. It is inscribed on four sides. The *East Face* (Figure 10) was always the most privileged side as it faced the sanctuaries.⁴⁶ In Stela 92 we find, as in most cases, a royal inscription on the upper part of the stela, and the remains of the full titular of Ptah of Memphis. The

Bet signs from Sinai

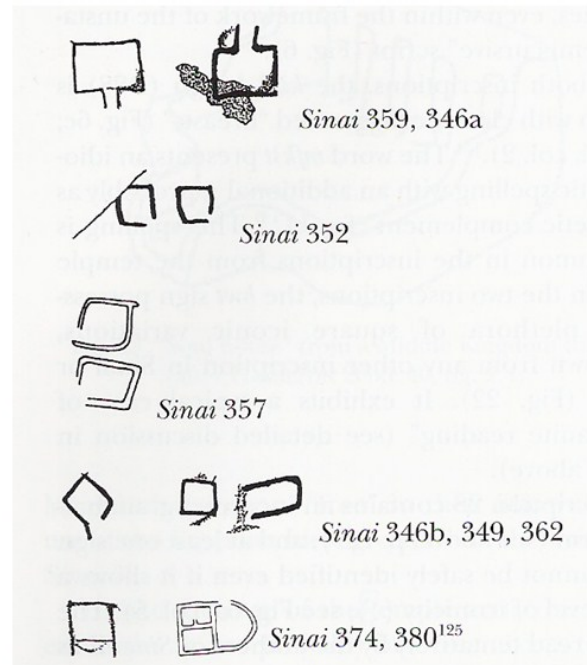


Figure 8: *Bet* signs from Sinai



Figure 9: Soul-house model, source unknown

lower part would have contained the private inscription of the beneficiary of the stela. A date - year 13 (most probably of Amenemhet III), adorns the upper part.

The *North Edge* was inscribed with the titles and name of the beneficiary. His name is now lost.

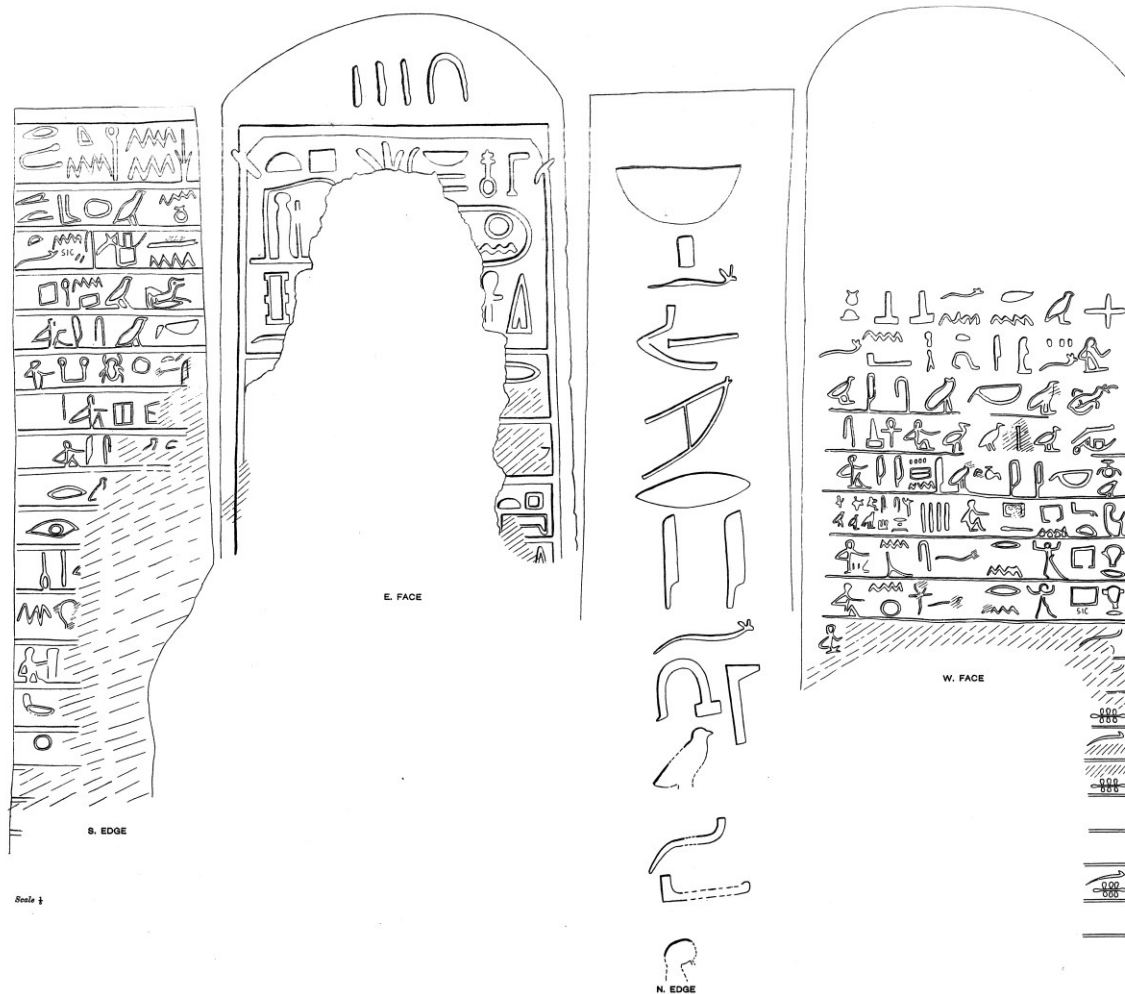


Figure 10: A full representation of stela 92 (Sinai I, Pl. XXXVII)

The *West Face*, the less prestigious side, contains today only a list of names and titles of some of the mission participants. Such lists usually appear below the name and title of the beneficiary. A good possible comparison to this side in Stela 92 is Sinai Stela 115, which has a similar text. In Stela 115, on the upper part (which is destroyed in our stela), before the listing of the “staff” - *d3d3t* - appear the name and titles of the owner of the stela.⁴⁷ In stela 92 the sentence *imy rn.f n d3d3t.f iyt hn.c.j* “The list of his staff that came with him,” the pronoun *f* probably refers back to the destroyed upper part, i.e. to the lost name of the beneficiary. The beneficiary may have been the chancellor Inen, who was known to be active between years 11-13.⁴⁸

The *South Edge* of Stela 92 opens with the title and name of *sn.n h3 n Rtnw hbdd* “(The) brother of (the) ruler of Retenu, Khebeded.” He is followed by the titles and names of two petty officials, and then in what seems to be a list of four names without a title. Line 9 resumes what may be a title that ends on line 11 with a name followed by the [MAN] classifier⁴⁹ and the

phrase *m3c hrw* – “true of voice.” The next line contains again what seem to be a two-line title and a name that ends with a [SOLDIER] classifier on line 13. The rest is lost.

This Canaanite dignitary and his titles are known from a few other occurrences in Sinai.⁵⁰ It is difficult to say whether Khebeded is mentioned here as a party of the group of the *West Face*, which is under the direct control of the beneficiary of the stela, or whether he appears as a party unto himself.

PALAEOGRAPHIC DISCUSSION OF STELA 92

Stela 92 contains two very different *paleographical varieties*. The first, the superior variety, appears on the *East Face* and the *North Edge* of the stela. These sides have suffered severe weathering. However, the remaining hieroglyphs on these two sides are of relatively high quality and show a good standard of monumental Egyptian hieroglyphs of the period. They could be ranked in the upper 10% quality-scale of hieroglyphs in Sinai.

The *West Face* and the *South Edge* of the stela are of a different standard. The quality of the hieroglyphs falls abruptly, and could be ranked somewhere in the lowest 10% on a quality scale of Sinai hieroglyphs.

It is difficult to know why these parts were left to a much less professional writer. It is possible the time of Egyptian scribes was very precious, and was available only for the leaders.⁵¹ However, these two sides show paleographic affinities and were possibly produced by the same “school,” if not by the same scribe.⁵² It seems that in Sinai there were a few Canaanites who could read and write basic Egyptian⁵³ and it is possible that the *West Face* and the *North Edge* inscriptions were put in the hands of such writers.

The *West Face* shows also an unusual paleographical feature,⁵⁴ an incorrect version of the hieroglyph *pr* 𓂏 “house” (line 8). A closed square appears instead of the correct hieroglyph; its appearance was already noted with a *sic* by the publishers (see Figure 10).

The paleographical variety of the *South Edge* (Figure 11) is significantly the worse on the stela, although it shows some affinities to the *West Face*.

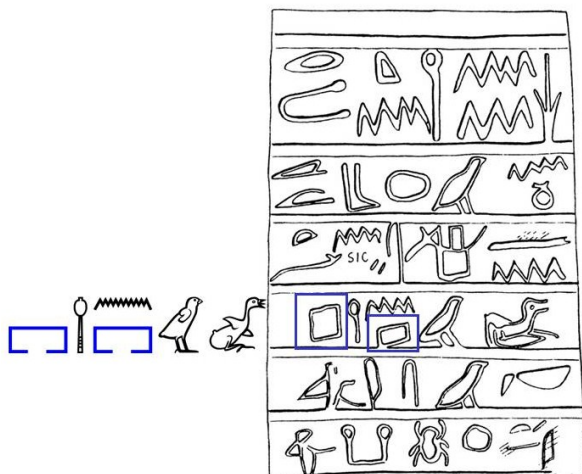


Figure 11: The inscription of Khebbedd (Sinai I, 92, *S. Edge*, upper part, Pl. XXVII)

The hieroglyphs of this part are very clumsy, reminiscent of the cursive varieties of graffiti of the Middle Kingdom and 2nd Intermediate Period.⁵⁵ Sass remarked already in 1988 that these hieroglyphs show close affinities to the Protosinaitic alphabetic signs.⁵⁶ Three hieroglyphs stand out in this respect: *n*, *hk3*, and *pr*.

For *n* in the first two lines one could suggest some parallels from other stelae in Sinai written in rather clumsy hieroglyphs.⁵⁷ However, the repetitive *n* sign differs from other low-quality hieroglyphs by the “high waves” effect, which gives the sign a very exaggerated look in the context of this specific stela. Such proportions are uncommon in Egyptian hieroglyphs, even in Sinai. The declining hieroglyphs of the first and second line add

to this impression.⁵⁸

The *hk3* 𓂏 sign has a very unusual look, which is a clear distortion of the hieroglyphic sign. A similar sign is used in Sinai for some examples of other hieroglyphs, such as *hd* “treasury” or *hm* – “majesty.” The hieratic and cursive versions of 𓂏 are usually opened on the side, different from the version found on our stela.⁵⁹ This sign on the stela strongly reminds the beholder of the Canaanite *waw* (see above).⁶⁰

The word *Rtnw* has no classifier, but this may be due to space considerations. In the name *hbdd*, the two *d* hieroglyphs are

An Evolving Alphabet

Hieroglyphic from Sinai	Proto-Sinaitic	Phoenician & Paleo-Hebrew	Early Greek	Greek	Latin	Modern Hebrew

Table illustrating the alphabet’s evolution from Egyptian hieroglyphs.

Bottom-left: Egyptian depiction of a contemporary Canaanite warrior with his bow. This type of bow may have served as the prototype for the letter shin. The warrior sports the Canaanite “mush-room” hairdo. (O. Goldwasser)

Figure 12: Alphabet Chart

clearly close to the hieratic version of this hieroglyph, which shows the palm without heel of the hand. This choice puts the *South Edge* clearly in the framework of the “mixed scripts” of the Middle Kingdom.⁶¹ This paleographic phenomenon, which had many variations, flourished in the Middle Kingdom, and shows different levels of *Mischung*. It is typical of the cultural and geographical periphery in the Middle Kingdom. In the Sinai corpus in general the *Mischung* level is very refined overall, and is represented in a relatively small number of inscriptions, with a limited repertoire of signs.⁶²

However the most important and most conspicuous paleographical irregularity in the stela is line 4 of the *South Edge*. Here we encounter (as in one instance on the *West Face*, see above) an unknown variation of a hieroglyphic sign. The correct

Egyptian \square “house” hieroglyph was exchanged twice in the noun phrase *pr ḥd* “silver house” for the closed square sign \square .⁶³ A closed square never functions as a hieroglyph for “house” in Egyptian. This pictorial slot is taken by another hieroglyph \square *p*, which is a depiction of a square stool.⁶⁴ The hieratic version of the “house” \square sign consistently shows the opposite tendency during the Middle Kingdom. The sign is open in its lower part, creating an upright three-sided square \square . The open variation covers almost all known examples.

In his book on the alphabet, Hamilton put forward the suggestion that the *Bet* sign was adopted from hieratic models. His parallels are a few unique occurrences. Two isolated examples come from a hieratic letter from the early 12th dynasty from Thebes. The other examples are to be found in Papyrus Westcar, a manuscript dated to the Hyksos period. The two examples from the Hekanakht letters are a rarity. The examples from Papyrus Westcar are not a mainstream development, and are about 200 years later than our inscriptions in Sinai.⁶⁵ The papyrus may represent a Hyksos hieratic variety, which had its roots in Eastern Delta paleographic traditions.

Sass, who observed the close paleographical affinities between the *South Edge* script in Stela 92 and the Protosinaïtic inscriptions,⁶⁶ regarded the stela as a possible *source of borrowing* for the Canaanite inventors. Following this line of thought means that the square house model of the alphabet was taken from the Egyptian Stela 92 in Sinai. In 2006, when I published my first article on the alphabet, I was still thinking along this line, looking for a path from the Egyptian examples of the *pr* hieroglyph in Sinai 92 to the new alphabetic system.⁶⁷

However, such a reconstruction is highly problematic. If hieroglyphs are the source for borrowing, why was this isolated, abnormal model chosen from all other hundreds of possible examples? If the inventors were indeed literate in hieratic, why would they look for a very rare, remote variation of the sign? Would it not be more natural to choose the mainstream hieratic form, which is the prevailing form in hieratic and all “mixed scripts,” in Sinai as well as in other places?⁶⁸

In 2010, I came to the conclusion that the path should be reversed. It is the writer of the *South Edge* of Stela 92 that “borrows” from the alphabetic system.

It is difficult to ascertain if this was done erroneously or with a “sportive” intention. The writer inserts *into the Egyptian* writing system the house icon of the alphabetic system which he already knows. He simply mixes the two systems.

This mixture of the Egyptian sign house and the alphabetic letter *bet* is not unique to the writer of the *South Edge* of Stela 92. It is known from a few other examples in Sinai, as well as from one occurrence on the *West Face* of Stela 92 mentioned above.⁶⁹

The *South Edge* was inscribed by somebody who seems to have mastered somewhat partially the hieroglyphic script system, although he knows tri-consonantal and bi-consonantal signs, as

well as phonetic complements. Linguistically speaking, this side is also very limited, only names and titles.

Before we continue, it is important to note that one matter is certain in any event. According to this reconstruction, the alphabet already existed in Year 13 of Amenemhet III.

PROTOSINAÏTIC INSCRIPTIONS AT THE MINES

Twelve(!) Protosinaïtic inscriptions have been discovered at the entrance and around mine L.⁷⁰ One additional inscription have been found *inside* the mine. Mine L inscriptions are some of the better examples of Protosinaïtic script. Inscription 349 (Figure 4), which was found in the entrance to Mine L, certainly stands out as the most Egyptianized Protosinaïtic inscription. It shows base-lines, while imitating the form of an Egyptian stela. The layout gives a relatively organized impression, which is missing in most other inscriptions. The letters between the base-lines are similar to each other in size. Inscription 351 strives to imitate an Egyptian inscription with a full representation of the Egyptian god Ptah. Most of the inscriptions are relatively long, comprising a few short sentences.

Five inscriptions were found around Mine M. One was found inside the mine.⁷¹ However, Mine L and Mine M are very close to each other.⁷²

All other known inscriptions were found in single examples around other mines, on the Serabit plateau, in open areas around the temple, or on the roads to Serabit.

Only four small votive artifacts carrying examples of the Protosinaïtic script were found in the temple.⁷³ It is possible that some high-ranking members of the mining community (or their votive offerings) were allowed access to the temple and its sanctuary as a special privilege. The only item that carries an inscription with a title among the four finds indeed substantiates this assumption (see above).

KHEBEDED AND THE MINES

In the days of one expedition leader, a certain Sanofret, Khebeded was already at the peak of his career. We learn about his status from Stela 112 (Figure 13). Stela 112 is the official stela of Sanofret in the temple area. Khebeded appears twice on this stela. First, he appears as the second official in a long list of officials on the *South Edge* of the stela (Figure 13). Five lines below him appears a certain *imy-r mšc i-i-w-k-i* “overseer of the expedition *Iwky*.” We shall come back to this individual later. From the *West Face* of this stela comes the famous scene of Khebeded riding a donkey (Figures 1 and 13).

The date of this stela is not preserved, but it seems that Sanofret was active during the years 9-10 of the reign of Amenemhet III.⁷⁴

The same Sanofret left a unique inscription near mine D.⁷⁵ He announces the opening of what was probably a new tunnel or a new part of the mine called *ptrt nfrw ḥwthr* “seeing the

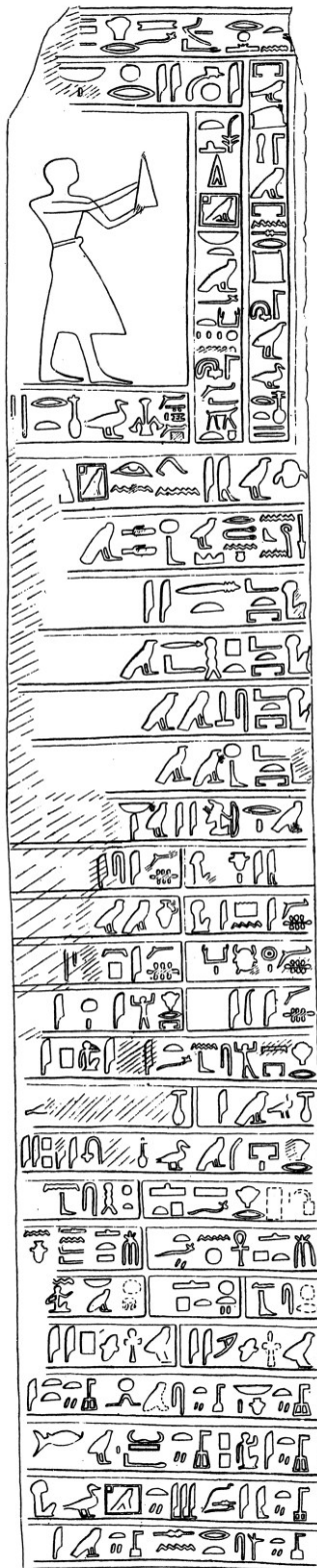


Figure 13: A mention of Khebeded (Sinai I 112, S. Edge, Pl. XXXVII)

beauties of Hathor.⁷⁶ Only one other person is mentioned on this small rock inscription – the same official mentioned together with Khebeded on Stela 112, *imy-r mš^c i-w-k-i* (Figure 14).

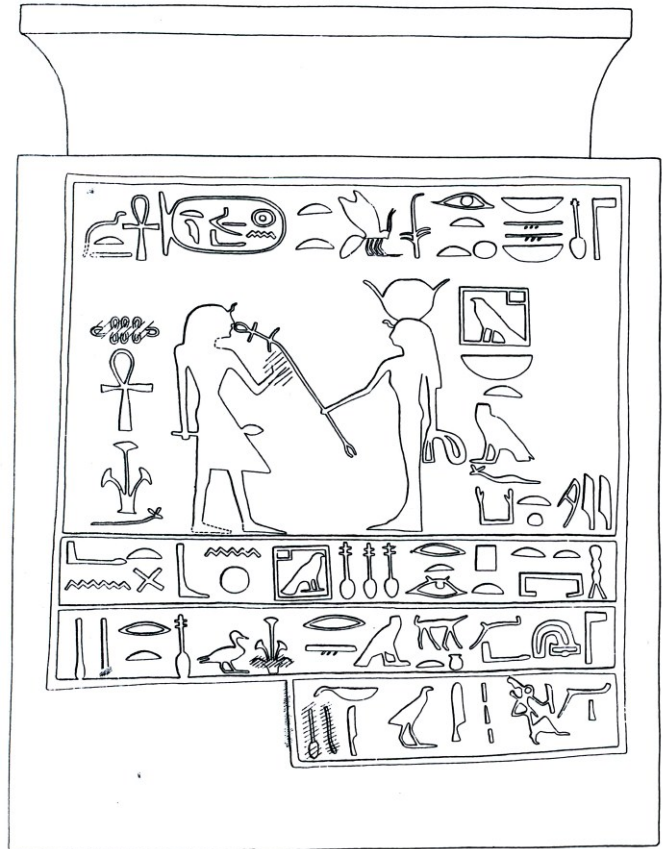


Figure 14: A rock inscription of Sanofret, Mines. (Sinai 56, Pl. XVIII)

This small inscription is an undisputable witness to a direct connection and involvement of Khebeded's boss with the Mines. Sanofret and his officer were surely not the only participants in such ceremonies, and the connection between Sanofret and the mines surely did not begin or end with this opening ceremony. The Serabit plateau is a small area, and we can rather safely assume that Khebeded and his entourage were also in close connection with the projects and workers, also of Mine L.

It is probably there that erudite Canaanites associated with Khebeded and his entourage met the "Canaanite Script." It may have been regarded by the schooled and high-class Canaanite as a curiosity, but it seems that they took the time to learn it. It might have fit into the Canaanite *Zeitgeist* of cultural independence.⁷⁷ It entered their consciousness to the extent that when they wrote Egyptian hieroglyphs (e.g., Stela 92), *some hieroglyphic signs were "contaminated" by signs from the new Canaanite system.*

THE INVENTORS OF THE ALPHABET – FINAL REMARKS

I believe that Khebeded and his followers that left their names and titles in Egyptian hieroglyphs on Stela 92 were not the inventors. If they indeed inscribed the *South Edge* of Stela 92, why would they go to the trouble of inventing a new script? Why did they not just use Egyptian monoconsonantal signs, as was done so often in this period for spelling foreign names?⁷⁸ Why would this elite Canaanite group concentrate its writing activities around and even inside the remote mines?

It becomes clear that a close scrutiny of the archaeological context of the Protosinaïtic inscriptions inevitably leads us to the conclusion that writing activity involving the early alphabet clearly concentrated around mine L. It is there that we find the largest and highest-quality concentration of inscriptions by far.

I would like to suggest in the light of all the above that the literate group of Khebeded and his followers learned the “Canaanite script” from the miners. It is precisely in Mine L, in the Sinai mountains, among *illiterate Canaanite workers*, that we should look for the inventors of the alphabet.

NOTES

* I am grateful to Benjamin Sass for reading the manuscript. Halely Harel assisted in the preparation of this article. All mistakes are of course mine.

¹ See detailed discussion in Goldwasser 2011. The monoconsonantal signs of the Egyptian script bear only a *superficial resemblance* to the alphabetic system. Unlike the letters of the alphabet, they originally represented single-consonant *words* and did not acquire their phonetic value, as far as we know, by the use of an acrophonic procedure. (I am grateful to Pascal Vernus for this observation).

² Goldwasser 2010a.

³ Rollston 2010.

⁴ Goldwasser 2011, also Goldwasser 2010b.

⁵ For similar Asiatic self-representation in Egypt, see Arnold 2010, 196-197.

⁶ E.g., Sinai I, 95, Pl. XXX. Does he represent himself on the right side of this inscription as a bearded Canaanite? See discussion in Schneider 2003, 189. Valbelle and Bonnet suggest that he was the son of a Canaanite princess who married the king, see Valbelle and Bonnet 1996, 26.

⁷ Staubli 1991, 100-107; Stadelmann 2006, 301-304.

⁸ See the description by Černý of the colorful dress of the Canaanites, Černý 1935, 388.

⁹ See the groundbreaking article, Arnold 2010, 194-196.

¹⁰ Sinai I, 87, Pl. XXIV. For a discussion of Khebeded and his pictorial representations see Goldwasser, forthcoming.

¹¹ Were all Canaanites in Serabit of the same origin? Did they speak the same Semitic dialect? If not, did they understand each other?

¹² Pelsmaekers 1980, Schneider 2003, Hikade 2007.

¹³ The animals were used to transfer all goods from the Red Sea shore to the Serabit plateau. These were probably used on the plateau to provide the daily water supply for the hundreds of workers and other staff of the expeditions.

¹⁴ For a discussion of titles and officials in Sinai see Seyfried 1981, 188-220. For Asiatics in Sinai carrying the title *hrty-ntr* “stone worker” or “stone mason” “Steinmetz” see Schneider 2003, 233-235 and bibliography there. Do the miners hide under this title?

¹⁵ Literally, very specifically “chief ‘hole maker.’”

¹⁶ See Sass 1988, 14-15; see below p. 6 and note 61.



¹⁷ Sinai 378, Hamilton 2006, 383-384. For a possible mention of Baal in the inscriptions, see Sinai 367, Hamilton 2006, 370-371. In my response to Rainey in the *BAR*, I suggested that it is the identification of the bull with El and Baal that gave the *Aleph* icon the opening position in the common alphabet order, see Goldwasser 2010b.

¹⁸ There is a single *pictorial* intrusion from the Egyptian pantheon into the Protocanaanite universe of the mines. It does not appear in the script itself, but Sinai inscription 351, found in the entrance of Mine L, shows a large figure of the god Ptah in his shrine. However, in the Protosinaïtic inscription that appears by the figure no mention of Ptah could be identified with any certainty, see Sass 1988, 21, 137 and Hamilton 2006, 343-344.

¹⁹ Darnell *et al.* 2005, 90.

²⁰ Canaanites might have been involved in quarrying the underground galleries in the Pyramid of Sesostrius III. A series of graffiti portraits, non-Egyptian in style, portraying different Canaanites were carved on the walls in the deep tunnels. Arnold writes “. . .the Dahshur men exhibit no sign of having adjusted to Egyptian ways of life. On the contrary, the persons who drew the figures put special emphasis on foreign features,” Arnold 2010, 204-205 with a detailed discussion of the graffiti. However, she dates the graffiti to the 13th Dynasty, while the tunnel should date to the 12th Dynasty, see Arnold (following Dieter Arnold) above.


²¹ See the detailed table in Goldwasser 2006, 154-156. Gardiner 1916 and 1961 and Sass 1988 were staunch supporters of this hypothesis. Sass has changed his mind in the last decade. For detailed bibliography and discussions see Goldwasser 2006, 2011.

²² “. . .it seems that due to its frequent occurrence in the Sinai inscriptions that the sign  has passed into the Protosinaïtic alphabet” (Sinai II, 67, note 1), see also discussions in Simpson 1963, 82-83, Seyfried 1981, 21 and Schneider 2003, 240. The best parallel for the combination *hry pr +*  comes from the Middle Kingdom stela of ^cEzbet Rushdi, see Bietak and Dorner 1998, 18, Fig. 6 [after S. Adam].

²³ Sinai 375c must have been inscribed in the New Kingdom.

- see Hamilton 2006, 377.
- ²⁴ On acrophony as a “shaky hypothesis” even in hieroglyphic cryptography, see Darnell 2004, 16-17.
- ²⁵ Some rare and sophisticated Egyptian “sportive” writings may deliberately change the writing direction. However, this procedure is very restricted in Egyptian and is not at all typical of administrative scripts.
- ²⁶ E.g., Sinai 357, 358, see Hamilton 2006, 354, 357.
- ²⁷ On the socio-cultural milieu of the small block statues, see Schulz 2011.
- ²⁸ For some very “viperish” examples see, Sinai 363, Hamilton 2006, 364, and 262-263.
- ²⁹ Compare Hamilton 2006, 267.
- ³⁰ For this suggestion see already Naveh 1997, 27 “peg” and recently Rainey 2009, 85, םווי = “*wawim*,” and also my discussion in Goldwasser 2011, 15-16, and list of parallels in Goldwasser 2006, 155-156. For the use of the toggle-pins in Canaanite culture, see Ziffer 1990, 59*-61*.
- ³¹ For these examples from the Egyptian inscriptions see my table in Goldwasser 2006, 154-156.
- ³² For the “Canaanite Reading” of hieroglyphs on scarabs in the Middle Bronze Age, see Goldwasser 2006, 121-130.
- ³³ This enumeration refers to the sign list in Gardiner 1957, 438 ff.
- ³⁴ E.g., Sinai I, 102, line 3. Pl. XLIV.
- ³⁵ Compare here the institutional standardized invention of the Ugaritic alphabet, Goldwasser 2011, 292-293. Sass writes that “... the cuneiform alphabet appears quite suddenly in its fully evolved form.... It seems likely that the Proto-Canaanite alphabet made such a deep impression on the cuneiform-trained scribes of Ugarit that they adopted it, lock, stock and barrel, with the same letter names and order.... Cuneiform shapes were given to the letters in conformity with local scribal tradition...”, Sass 1988, 165.
- ³⁶ For this idea see also Hamilton 2006, 40.
- ³⁷ Sass 1988, Fig. 103; Hamilton 2006, 385.
- ³⁸ Sinai I, 353, Hamilton 2006, 347.
- ³⁹ Hamilton 2006, 324 (after Darnell). In my first article on the alphabet (Goldwasser 2006, 146-151), I discussed at length the paleographic similarities and differences between the Sinai inscriptions and the Wadi el-Hôl vertical inscription. For a detailed discussion of Egyptian comparisons to the letter *bet*, see Goldwasser 2006, 143-147.
- ⁴⁰ For the religious impetus for the invention see Goldwasser 2006, 115-116; 2010; 2011, 267-268. See recently also Morenz 2011.
- ⁴¹ Sass 1988, 113-114; Hamilton 2006, 61-75.
- ⁴² E.g. the sound *d*, see discussion in Goldwasser 2011, 27-8.
- ⁴³ This lack of any standardization system speaks in my opinion strongly against a reconstruction of a “conscious decision” taken by the inventors to unite two different Egyptian icons into a single one, see Rollston above.
- ⁴⁴ For a comparison of the hieroglyphic and Protosinaitic semiotic mechanisms see Goldwasser 2011, 17-23.
- ⁴⁵ See on this topic Goldwasser 2011, 268. In Wadi el-Hôl in Egypt, the circumstances may have been a bit different. The inscriptions there are probably of a slightly later date (Darnell *et al.* 2005). At least one inscription may show “intrusions” from the Egyptian system. The original Protosinaitic real-life icon $\mathfrak{K} k \text{ } \mathfrak{D}$ was exchanged for a *hieroglyph* that probably had a similar phonological value $k\mathfrak{Z} \mathfrak{R} \mathfrak{S}$ (Gardiner 1957, D28). Another, even more significant intrusion of Egyptian is the [MAN] classifier, (Gardiner 1951, A1; ‘determinative’) “contaminating” the otherwise pure acrophonic system. If my reconstruction is correct, the writer in Egypt had some basic knowledge of the hieroglyphic system. See my detailed paleographic discussion of Wadi el-Hôl in Goldwasser 2006, 146-151.
- ⁴⁶ Valbelle et Bonnet 1996, 75-77.
- ⁴⁷ Sinai 115, Pl. XXXIX, *imy rn.f d3d3t wn m bi3 pn*
Sinai 106, Pl. XXXV *d3d3t iy r bi3 pn*
Sinai 141, Pl. LII, (*imy*) *rn.f n d3d3t* continues with enumeration of names and pictures.
- ⁴⁸ See Valbelle and Bonnet 1996, 25.
- ⁴⁹ Only the back hand of the A1 [MAN] classifier can be seen.
- ⁵⁰ See Černý 1935, 385, and above page 4 and Fig. 1.
- ⁵¹ For one *sš n d3d3t* 103 *W. Face*, line 5 Pl. XLIV.
- ⁵² Written by the same writer but not at the same time?
- ⁵³ For the detection of their possible works in Serabit and their relation to the Canaanite cultural environment, which developed an independent secondary use of hieroglyphs during this period, see Goldwasser 2006, 149-150.
- ⁵⁴ Morenz 2011, 237, claims that the use of *nh wd3 snb* (life, prosperity, health) is reserved for the king alone, and thus it is abnormally used in Stela 92. Yet, already in the beginning of the Middle Kingdom, in Nubia, one finds in Egyptian graffiti the use of this formula with personal (non-royal) names, see Žába 1974, 89-90, with discussion and more references.
- ⁵⁵ E.g., Baines 1983, 24, Fig. 1; and Žába 1974 and Hintze and Reineke 1989, Ins. 84a-b, 86.
- ⁵⁶ In general, this suggestion was already put forward very early by Gardiner 1916 and Ullman 1927. Sass 1988, 143 writes that “Hebeded and the other Semites in Sinai during the Middle Kingdom had at their disposal a selection of hieroglyphic inscriptions. . . which included prototypes of almost all the Proto-Sinaitic letters. . . Ullman . . . suggested that the signs of one Egyptian inscription, Sinai 53 . . . could by themselves have sufficed for the origin of most of the Proto-Sinaitic letters. To this I would add at least Sinai 92 . . . in which Hebeded is mentioned, the god Ptah is depicted standing in a shrine, and the shape of the letters is reminiscent of the Proto-Sinaitic inscriptions.”
- ⁵⁷ Sinai I, 141 *Face B*, Pl. LII.
- ⁵⁸ For declining *n* hieroglyphs see the ‘Ezbet Rushdi stela, Bietak and Dorner 1998, 18.
- ⁵⁹ Möller 1909 Vol I, no. 453.
- ⁶⁰ Sass already remarked on the similarity between the Proto-sinaitic *waw* and this sign on Stela 92. He sees the sign on Stela 92 as a possible source from which the Canaanites borrowed the *waw* sign, see Sass 1988, 115.
- ⁶¹ Möller 1909 Vol I, no. 115. The “mixed scripts” have been discussed by Darnell in Darnell *et al.* 2005. An excellent

example for this phenomenon is a rock inscription from Nubia, No. 64 in the list of Žába dated to the beginning of the 12th Dynasty. It contains an elegant mixture of hieroglyphs and hieratic signs. This Nubian inscription also shows the personal name of the beneficiary with an *ʿnh wdʒ snb* wish after the [MAN] classifier (see above note 47). Žába discusses in his book in detail the problematic borders between “hieroglyphs” and “hieratic” in rock inscriptions, see Žába 1974, 91-92 with Figs. 128-129 and pages 259-264 for the discussion.

- ⁶² E.g., Sinai I, 168, Pl. LV, it is more conspicuous in the Wadi Magharah inscriptions, e.g., Sinai I, Pl. XIII.
- ⁶³ This phenomenon was already remarked by Sass, see Sass 1988, 111 and note 44 above. The first square stands for the logogram “house” and second for the classifier [HABITAT], for this classifier see Goldwasser 2005.
- ⁶⁴ This unilateral of the Egyptian system is based on a monoconsonantal word that still exists in Coptic: *pōi*, “bench” (Gardiner 1957, 500, Q3).
- ⁶⁵ Möller 1909 Vol I, p.17-18; Hamilton 2006, 39-41.
- ⁶⁶ See above, note 49.
- ⁶⁷ Goldwasser 2006, 143-146.
- ⁶⁸ For a detailed discussion on “house hieroglyphs” in Egyptian hieroglyphic and cursive scripts in the Middle Kingdom, see Goldwasser 2006, 143-150, 154. The Sinai hieroglyphic variety shows not a few examples of the hieratic  versions. It can be found in inscriptions that

show different levels of *Mischung*, e.g. Sinai I, 114, S. Edge, lower part, Pl. XXXVI.

- ⁶⁹ See Goldwasser 2006, 143-146.
- ⁷⁰ Sinai Protosinaitic inscriptions 349, 350, 351, 352, 353, 354, 356, 359, 362, 363, 367, 378. Sinai 357 is carved inside Mine L, see Hamilton 2006, 339-383. Mine L yielded only two small pottery sherds probably dating to the New Kingdom. However, the mine was in use also during the Middle Kingdom, see Valbelle and Bonnet 1996, 60.
- ⁷¹ Sinai Protosinaitic inscriptions 364, 374, 375, 375a, 375c. Inscription 358 was found inside the mine, see Hamilton 2006, 357-337.
- ⁷² See Sinai I, Pl. XC.
- ⁷³ Sphinx, block statue, and two little busts, see Sass 1988, 12-16.
- ⁷⁴ Valbelle and Bonnet 1996, 24-25, date Sanofret in years 9-10 of Amenemhet III. See also Seyfried 1981, 176-177.
- ⁷⁵ For an excellent picture see Valbelle and Bonnet 1996, 61, Fig. 74.
- ⁷⁶ Sinai II, 80-81. The Wörterbuch translates here as a participle “Bruch (namens) ‘Erblickerin der Schönheit der Hathor’.” <http://aaww.bbaw.de/tla/servlet/DzaBrowser?START.x=21&START.y=142&newpid=DZA+26.463.120&dispscale=100&set=EM&wn=99810&lastpid=26463120&wid=0>
- ⁷⁷ Arnold 2010; Schiestl 2006.
- ⁷⁸ See Sass 1991, 4-27.

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