Research Article

Inscription on a Naxian-Style Sphinx Statue From Potaissa Deciphered as a Poem in Dactylic Meter

Peter Z. Revesz (ID)1*

1 Professor, Department of Classics and Religious Studies, College of Arts and Sciences, and School of Computing, College of Engineering, University of Nebraska-Lincoln, Lincoln, NE
* **Corresponding Author:** revesz@cse.unl.edu

ARTICLE INFO	ABSTRACT
	This paper gives a translation of an inscription around the base of a bronze sphinx statue from the 3rd century Roman Province of Dacia. The bronze sphinx statue has several striking parallels with the famous Sphinx of the Naxians from 560 BCE, which is now located in the Archaeological Museum of Delphi. Presumably, the sphinx cult also spread to Dacia from Naxos. The inscription is identified as having been written using an archaic Greek alphabet. However, the Greek alphabet phonetic values render a text that is non-sensical in the Greek language. Therefore, the meaning of the inscription has puzzled scholars since the artifact's discovery in the early 19th century. The scribe probably intended to express something in a language other than Greek using an archaic Greek alphabet. The archaic Greek alphabet phonetic values record a short rhythmic poem in the Proto-Hungarian language. The inscription is unusual in that it contains some archaic letters that are mirrored and need to be read from right to left. **Keywords:** Archaic Greek Alphabet, Caesura, Dacia, Epigraphy, Potaissa, Pazyryk Culture, Sphinx, Translation.

INTRODUCTION

Sphinxes originated from Egypt, where they were depicted as mostly male statues with a lion's body and a pharaoh's head (Szabó, 2001-2002). In fact, sphinxes were so prominent in Egypt that there was an Avenue of Sphinxes with about 1,200 sphinx statues connecting the temples of Luxor and Karnak (Abraham, 2002). Sphinxes spread from Egypt to the Near East and to Greece during the Bronze Age and to Central Asia during the Iron Age. In their art, the Minoans and the Mycenaeans already depicted griffins, which are also winged lions but have eagles instead of human heads (Marinatos, 1984). The sphinx had a particularly strong association with Naxos. Figure 1 (a) shows the famous sphinx of the Naxians, which stood on top of an Ionian column in Delphi in front of the Temple of Apollo from 560 BCE, and which is now located in the Archaeological Museum of Delphi (Naxian Sphinx of Delphi, 2012). In contrast to the Egyptian sphinxes, the sphinx of the Naxians depicts a winged lion with a female face. This Naxian-style representation became common in Europe during later Greek and Roman times.

Figure 1 (b) shows the drawing of a small bronze sphinx statue that once belonged to the art collection of Count Kemény but was lost during the War of Independence of 1848-1849 (Szabó, 2001-2002). This bronze sphinx statute was said to have come from the Roman Empire's Dacian Provincial town of Potaissa, which is present day Turda, Romania (Vlassa, 1980). Szabó (2001-2002) wrote that statue was likely associated with an Isis sanctuary in Potaissa and that there are mentions of sphinxes on some Latin dedicatory plaques at 3rd century sanctuaries of Isis in two Pannonian Provincial towns: Savaria and Aquincum.

The Potaissan sphinx has an inscription with twenty letters around its pedestal as shown in Figure 2. The sphinx inscription uses a variant of the Greek alphabet unlike the Pannonian dedicatory plaques, which use the Latin alphabet. Vlassa (1980) gave an unconvincing translation of the sphinx inscription, as discussed in

"Discussion of Vlassa's Previous Translation" section. The goal of this paper is to present a new and true translation of the sphinx inscription.

The goal of this research is to give a translation of the mysterious sphinx inscription. The translation not only satisfies many researchers curiosity, who have pondered this artifact over decades, but it contributes to a broader understanding of cultural life in the Roman province of Dacia in the third century BCE. The minority religions that existed in the Roman Empire are less well-known than the predominant Roman religion. Some of the sects had an almost hidden presence and not much is known about them. Therefore, the discovery of this artifact, and its identification as an artifact bearing a religious text, is very important to help complete our picture of this aspect of Roman provincial culture.

Another interesting aspect of the inscription is that it is a metric poem. Poetry is usually associated with larger Roman cities where an artistic culture thrived in the Roman age. This fame often takes away the attention from provincial culture, which is lesser known for poetic works. It is interesting to see that in the provincial area of Dacia, poetry also thrived as well as visual art as represented by the imaginative figure of the sphinx.

In addition, the paper also aims to add to the broader picture. Provincial culture did not consist only of Roman colonists but was a more complex composition of ethnic groups, for which this inscription reveals additional evidence. The cultural influences can be traced back to Greece and even further to Egypt. Hence, while the sphinx looks like a simple artifact, it enables us to discover many novel connections that were not well documented before, and not attested in any similar inscription.

The rest of this paper is organized as follows. "Cultural Influences on the Potaissan Sphinx" section shows that the Potaissan sphinx is closely related to the famous sphinx of the Naxians. "Translation of the Sphinx Inscription" section presents the translation of the sphinx inscription. "Discussion of Vlassa's Previous Translation" section evaluates a previous translation attempt for the inscription by Vlassa (1980). Finally, "Conclusions and Future work" section gives some concluding remarks and directions for future work.

(a) Naxian Sphinx   (b) Potaissan Sphinx   (c) Pazyryk Sphinx

Figure 1. (a) The sphinx of the Naxians that stood on top of a column in front of the Temple of Apollo at Delphi, Greece in 560 BCE, and which is now located in the Archaeological Museum of Delphi. (b) A drawing of the Potaissan sphinx, (c) A Pazyryk sphinx with twelve star symbols

Image credits: (a) https://en.wikipedia.org/wiki/Sphinx_of_Naxos, CC BY-SA 3.0, (b) from *Illustrirten Zeitung*, 1847, no. 188, (c) https://siberiantimes.com/science/casestudy/features/2300-year-old-wooden-house-is-rebuilt-and-it-fits-together-down-to-the-last-centimetre/
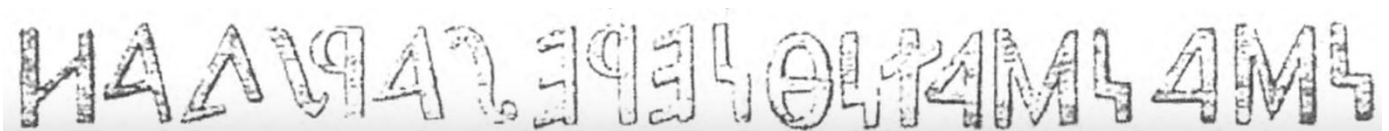

Figure 2. The inscription on the pedestal of the Potaissan sphinx.

CULTURAL INFLUENCES ON THE POTAISSAN SPHINX

The identification of the cultural influences on the Potaissan sphinx can give important clues for the decipherment. "Stylistic Comparison of the Naxian, Potaissan and Pazyryk Sphinxes" section shows that the Potaissan sphinx is likely to be a copy of the famous sphinx of the Naxians, which suggests that the cultural influence likely came from Greek colonial areas around the Black Sea rather than from present day Italy. "Consideration of Possible Underlying Languages of the Inscription" section considers the reading direction of the inscription and discusses possible reasons for a right-to-left reading. "Why Some Hungarian Speakers Likely Were in Potaissa in the 3rd Century" section discusses the possible language of the inscription.

Stylistic Comparison of the Naxian, Potaissan and Pazyryk Sphinxes

The Potaissan bronze sphinx seems to be a copy of the Naxian sphinx as shown by the following interesting details.

1. The two sphinxes have similar headbands.

2. They both stand on a rectangular pedestal.

3. They both have front feet that slightly extend beyond the pedestal.

4. Each sphinx is designed to be raised highly in the air, by means of a column (Naxos) or by means of an iron spike (Potaissa), which can be inserted into a wooden pole.

5. There are several deep groves below the front feet of both sphinxes.

In the case of the Naxian sphinx, the groves belong to the Ionian columns, while on the Potaissan sphinx, they serve no obvious function, which indicates an imitation of the former. A complete imitation of an Ionian column may have been avoided to reserve space for the inscription with twenty letters around the rectangular base. The Potaissan sphinx is not necessarily a direct copy of the Naxian sphinx because there may have been some lost intermediate copies.

The Potaissan sphinx shares some features with the Iron Age Central Asian Pazyryk culture sphinx shown in Figure 1 (c). The Pazyryk people belonged to the Scythian culture which spread from the Altai region to Ukraine during the Iron Age (Kuzmina, 2008). The Pazyryk sphinx's head is like a man's head, although it has antlers. Nevertheless, the body is that of a lion, and it has wings like other sphinxes. The Pazyryk sphinx is engaged in fighting and looks more ferocious than the Naxian and the Potaissan sphinxes. The sphinx seemed to fight on the Pazyryk people's side and was likely perceived as a powerful protector spirit or god of war. On the sphinx's dark blue body, there are twelve yellow circles with plus signs within them, which are like stars. These twelve stars could represent the night sky as well as the twelve months of the year. That gives the Pazyryk sphinx a celestial dimension.

The Potaissan sphinx's chest has a clockwise swastika symbol, which symbolizes the sun in Hindu religion, while a counterclockwise swastika symbol, which is called a sauvastika, symbolizes the night (The Editors of Encyclopædia Britannica, 2023b). The plus signs on the dark blue body of the Pazyryk sphinx may be simplified sauvastika symbols enhancing the representation of the night sky. Hence, it is likely that both the Potaissan and the Pazyryk sphinxes share some of the Hindu beliefs associated with the swastika and the sauvastika symbols. This connection is especially interesting because swastika and sauvastika symbols are not found on the bodies of other Greek or Roman sphinxes. Hence, while the Potaissan sphinx shares very strong similarities with the Naxian sphinx, it also shares some similarities with the Pazyryk sphinx. This suggests that the members of the Potaissan sphinx cult probably had beliefs that syncretized traditional Greek and Central Asian religions.

Consideration of Possible Underlying Languages of the Inscription

The Roman colonial period in Dacia lasted from 106-275 CE, and the colonists came from all over the Roman Empire. Greek names constituted about 14% of the 3,000 names preserved in inscriptions from this period (Köpeczi, Makkai, Mócsy, Szász, & Barta, 1994). Potaissa was the military base camp of the Legio V Macedonica from 166 to 274 (Bărbulescu, 1991). Figure 3 shows a brick from Potassia marked with LVM as an abbreviation for Legio V Macedonia. In addition, a bust of Separis, an Egyptian-Greek god, was found in a bath in Potaissa (Bărbulescu, 2016). Hence, the bronze sphinx statue with the Greek alphabet inscription is likely due to colonists from Greek regions. However, Greek names do not always indicate Greek language speakers because Greek names could have been adopted by many peoples living within the Greek-influenced regions of the Roman Empire. Hence, the underlying language of the sphinx inscription could have been any of several languages that were spoken within the Greek-influenced regions of the Roman Empire.

Since the sphinx inscription uses an archaic Greek alphabet, it is natural to first consider Greek as the underlying language of the inscription. In fact, Vlassa (1980) attempted a Greek translation, but it has several problems that are described in "Discussion of Vlassa's Previous Translation" section. Here we point out one major problem when a Greek translation is attempted. The problem is that the sphinx inscription starts with IMA ("Translation of the Sphinx Inscription" section), while there is only one main entry with such a beginning in the ancient Greek dictionary of Liddell and Scott (2007). That entry is ἱμάς meaning 'a leathern strap or thong'. All of the other entries that start with IMA such as ἱμάντιον 'diminutive of ἱμάς' and ἱμαντόω 'furnish with straps' are derivatives of ἱμάς with related meanings. The meanings of these words do not apply to a religious context involving a sphinx. In addition, none of the entries that begin with IMA continues with a vowel as the inscription does, which continues as IMAI (Liddell & Scott, 2007).

Now we consider the possibility that an archaic Greek alphabet was adopted for the purpose of expressing another language. That language is more likely to be a language that does not yet have its own alphabet rather than a language which already has an alphabet. For example, it would be hard to imagine why an ancient Egyptian, Hebrew or Latin speaker would feel a need to express an ancient Egyptian, Hebrew or Latin message using the Greek alphabet.

Hence, we need to consider languages that did not have their own alphabet but may have been spoken in Dacia in the 3rd century. These languages include the Dacian language, about which however little is known today, and the Proto-Hungarian language. Potaissa is not only close to modern day Hungary, but there is evidence that Proto-Hungarian speakers were in Potaissa during the 3rd century as we describe in "Why Some Hungarian Speakers Likely Were in Potaissa in the 3rd Century" section.

Figure 3. A brick from Potaissa marked with the acronym LVM denoting Legio V Macedonica.
Source: https://commons.wikimedia.org/wiki/File:LVM_Legio_Macedonica.JPG

Why Some Hungarian Speakers Likely Were in Potaissa in the 3rd Century

The Romans often caused the resettlement of peoples who had been recently pacified. The colonization of Dacia may have resulted in the resettlement of some Hungarian speakers who moved there from other areas a few years later. Pekkanen (1973) noted that *Magyar /maď͡ar/*, the Hungarian self-name, appears in the form *Ματῆροι* in a second century CE work by Ptolemy called *Geography* (Ptolemy, 1932). Word-medial t > d > dʲ is a possible sound change. The differences in the second syllabic vowels may be due to Ptolemy recording the original form of some compound words. As an etymology for the modern Hungarian *Magyar*, Zaicz lists the hypothetical earlier forms **Magyeri /maďʲeri/* and **Magyer /maďʲer/*, which are similar to the recorded form *Ματῆροι* (2006). Ptolemy places the *Ματῆροι* near the Volga on the Pontic Steppe as is shown in a map from a Latin edition where the name appears as *Matheri* [Figure 4 (a)]. This location seems to be supported by recent archaeogenetic research regarding a Proto-Hungarian or Ugric homeland (Török, 2023). Moreover, Pekkanen connected Ptolemy's *Ματῆροι* with Ovid's *Meterea turba* 'Hungarian hordes' who were found near the lower Danube (Ovid, *Tristia*, Book 2, 191) at the time of Ovid's exile in Tomis between 8-17 CE.

The differences in the vowels in Ovid's recording of the Hungarian self-name may be due to Hungarian having front-back vowel harmony, with a tendency to have all the vowels in a word be either all back vowels or all front vowels. The vowel-harmonizing could happen in either way, which may explain that besides the common *Magyar*, the dialectical *Megyer* also occurs as a Hungarian self-name. The endings of the *Ματῆροι* form recorded by Ptolemy in the Greek version and the *Matheri* form recorded in the Latin edition both have endings proper to

the plural masculine nominative form of the words in the Greek and Latin languages, respectively. Therefore, the ending vowels reflect those grammatical features and need no etymological explanation for their difference from the Hungarian form.

Pekkanen's observations imply that by Ovid's time, some Hungarians could also have been in the vicinity of Tomis, which was a Greek colony since the 6th century BCE, as shown in the map in Figure 4 (b). Pekkanen's proposed migration route from the Volga area to Tomis opens many possibilities for Greek influence, which may include the adoption of the Greek alphabet by some individuals. Pekkanen's observations are compatible with other theories about Hungarian origins because it is plausible that Hungarians came to the Carpathian Basin in several waves, as did the Celtic and Germanic tribes. Presumably, some other Hungarians were left near the Volga region and later came to the Carpathian Basin at the end of the 9th century. Regardless, this section of the paper shows that at least a few Hungarian speakers could have been in Potaissa during the 3rd century, and that therefore, the possibility that the underlying language of the sphinx inscription is Hungarian cannot be excluded on a geographic basis. We propose a decipherment of the sphinx inscription in Proto-Hungarian in the next section.

(a)

(b)

Figure 4. (a) map of Asiatic Sarmatia from the 1467 edition of Ptolemy's *Geography* accompanying the translation of Renaissance scholar Jacopo d'Angelo. The *Matheri* name appears in a red box, which the author added. (b) Greek colonies of the northern Black Sea region. Pekkanen (1973) proposes that some Hungarians moved from where the *Matheri* are located to the Tomis area by the early 1st century, where the Greek alphabet could have been adopted by some Hungarian speakers.

Image credits: (a) https://en.wikipedia.org/wiki/Sarmatia, (b) https://commons.wikimedia.org/wiki/File:Greek_colonies_of_the_Northern_Euxine_Sea_(Black_Sea).svg

TRANSLATION OF THE SPHINX INSCRIPTION

We give a translation of the sphinx inscription. "The Oddity of the Potaissan Sphinx Inscription's Reading Direction" section discusses the reading direction of the inscription. "Transliteration into the Modern Greek Alphabet" section presents transliteration into the modern Greek alphabet. "Translation" section presents the translation of the inscription. "Alliteration and Rhythm as Poetic Devices" section discusses the alliteration and poetic meter used in the translated text.

The Oddity of the Potaissan Sphinx Inscription's Reading Direction

Vlassa (1980) noticed that the inscription needs to be read from right-to-left. Indeed, if we take the mirror image of the sphinx inscription as shown in Figure 5, then we get more standard-looking Greek letters.

Figure 5. A mirror symmetric version of the sphinx inscription.

Vlassa (1980) attributed the right-to-left direction of the sphinx inscription to the incompetence of the bronze caster, who presumably forgot that the writing must be placed in reverse into the mould to be readable in the normal left-to-right direction. However, that is not the only possible reason. There are several Minoan Linear A script inscriptions (Godart and Olivier, 1976) that are to be read right-to-left, reversing the normal direction of left-to-right. Younger (2023) lists these as IO Za 9, IO Za 11, KN Za 19, PL Zf 1, and VRY Za 1. All these inscriptions are religious texts found at Minoan burial sites (Younger 2023). Sphinxes were often associated with death and burials, and they decorated and guarded tombs (Szabó, 2001-2002). Many writers argued that the famous Phaistos Disk writing, which many scholars suppose to be a religious text, needs to be read from right-to-left, although a recent experimental analysis shows it to be left-to-right (Revesz, 2022b). However, in this case the spiral nature of the inscription means that the inscription can be read left-to-right only if the disk is constantly rotated. If it is held stationary, then the writing at the bottom of the disk can be read left-to-right, but the writing at the top of the disk can be read right-to-left with upside-down oriented signs.

It seems that many people of ancient times thought of the spiritual world as a reversal of the earthy life. For example, Hungarians traditionally buried their dead with the right and left shoes reversed (Fehér, 1968). Hence, the reversal of the direction could have been because the reversed writing direction allowed a better connection or communication with the spiritual world. The concept of reversal of left and right in the spiritual world was apparently not a Proto-Indo-European concept because it was not shared by the Romans and the Greeks, although the Celts have acquired it from some other peoples. Druids buried the dead with their swords on the left sides. We suggest that the sphinx inscription was deliberately made to be read from right-to-left because of a religious belief in the reversal of right and left in the spiritual world. Hence, the maker of the sphinx inscription may have been a bronze caster who shared the religious belief of a reversal of right and left in the afterlife.

Transliteration into the Modern Greek Alphabet

Even a cursory look at Figures 2 and 5 reveals that the sphinx inscription does not use the standard Greek alphabet. Many of the ancient Greek alphabets had different allographs for the same phoneme. Allographs are common in other scripts too, such as in the Cretan Hieroglyphic (Olivier & Godart, 1996) and the Indus Valley Script (Daggumati & Revesz, 2021), although the presence of allographs in these scripts seem to be independent developments (Daggumati & Revesz, 2023). We investigated some of the archaic Greek alphabets to see whether they are closer to the sphinx inscription's letters. First, we considered the Megara alphabet because Megara had multiple colonies on the Northern Black Sea region (Figure 4) as well as an archaic Greek alphabet. One of Megara's colonies was Kallatis, where an inscription was found with very similar letters to those at Megara (Bottez

& Litu 2019).

Miletus, the other major city with many colonies in the Northern Black Sea region, was a Carian town at the earliest stages of colonization and is not listed as having an archaic Greek alphabet (Jeffery, 1961). We also made a comparison with the Naxos alphabet because "Stylistic Comparison of the Naxian, Potaissan and Pazyryk Sphinxes" section already suggested a close relationship between the Naxian and the Potaissan sphinxes.

The sphinx inscription mirrors the letters A, E, N, and R with respect to the Megara alphabet and mirrors the letters A, E, N, R, and S with respect to the Naxos alphabet as shown in Table 1. This suggests that the sphinx inscription needs to be read from right-to-left as discussed in "Consideration of Possible Underlying Languages of the Inscription" section.

Revesz (2022a) noticed that the percentage of mirror-symmetric signs tends to increase in scripts that use boustrophedon writing. Hence, the Megara alphabet's and the Naxos alphabet's I, which are identical vertical lines and mirror symmetric, seem to be subsequent letter forms, while the sphinx alphabet's I is an earlier letter form. The I of the sphinx alphabet seems to be more closely related to the I of the Dipylon vase alphabet, which is the oldest Greek alphabetic writing and was used during the 8th century BCE (Powell, 1988). Dipylon, which is a part of Athens, is only about 30 kilometers east of Megara (Powell, 1988).

Table 1. Comparison of the letters of the sphinx inscription with the Latin and several archaic Greek alphabets. The column headings are from the International Phonetic Alphabet (IPA) indicating the ancient Greek pronunciation of the letters. The pronunciation was /th/ for the Greek letter theta and only later changed to /θ/ (Horrocks, 2006).

Alphabet	/a/ /a:/	/e/ /e:/	/th/	/i/ /i:/	/l/	/m/	/n/	/r/	/s/	/t/
Latin	A	E	(n.a.)	I	L	M	N	R	S	T
Sphinx										
Megara	A	F	⊕	I	Λ	M	N	D	Σ	T
Are Sphinx-Megara mirrored?	yes	yes	no	no	no	no	yes	yes	no	no
Naxos	A	F	⊕	I	Γ	M	N	P	S	T
Are Sphinx-Naxos mirrored?	yes	yes	no	no	no	no	yes	yes	yes	no
Dipylon			(n.a.)							
Are Sphinx-Dipylon mirrored?	no	no	no	yes	no	no	yes	no	yes	no

The Dipylon inscription is also read from right-to-left (Powell, 1988) in a mirrored style, which explains why the E, N, and R letters have the same orientation as on the sphinx inscription. The author's preliminary classroom experiments show that many students do not properly reverse letters that look like S. Some ancient scribes could have also made mistakes when trying to reverse these letters, such as the sphinx inscription I and S. If we assume that the sphinx inscription has letters that are correctly reversed, then we must conclude that the Dipylon inscription's scribe did not reverse the letters I and S properly. Conversely, if we assume that the Dipylon inscription is correct in reversing letters, then we must conclude that the sphinx inscription's scribe did not reverse the letters I and S properly.

There are some indications that the sphinx inscription's scribe has a letter S that is correctly reversed with respect to the Naxos alphabet's letter S, which also occurs at Aegina, Attica, Boeotia, Euboea, Ionia, Knidos, Laconia, Rhodes, and Thessaly (Jeffery, 1961). Hence, the sphinx inscription's scribe seems to be correct, while the Dipylon inscription's scribe likely made a reversal omission in these cases.

The Dipylon and the Megara alphabets have E and N letters that are essentially the same, with the exception that they are mirrored forms of each other. Mirroring may be a scribe's stylistic choice similar to the choice of punctuation and not reflect the standard orientation of the letter at the time. For example, when a letter is deliberately reversed in boustrophedon style writing, the standard letter form at the time was actually the mirrored form of that deliberately reversed letter. The only known use of the Dipylon alphabet is on one

inscription that is read from right-to-left (Powell, 1988) in a deliberately mirrored style. As shown in Table 1, the E, N, and R letters in the Dipylon inscription have the same orientation as those in the sphinx inscription, since both inscriptions are cases of deliberate mirroring. Since the E and N are deliberately reversed in the Dipylon inscription, then the standard E and N letter forms at the time of the Dipylon inscription's recording were the mirrored forms of the Dipylon E and N letters, and essentially the same as the Megara alphabet forms of those letters. Therefore, we cannot conclude which E or N is more similar to the sphinx alphabet E or N, so we do not highlight anything in the E and N columns.

In summary, the sphinx inscription alphabet has many archaic features that remind one of the Dipylon alphabet. On the other hand, it has some features that are closer to the Megara and Naxos alphabets. This suggests that the sphinx alphabet is somewhere between the archaic Dipylon and the Megara alphabets. The sphinx inscription's I, R, S and T letters are closer to the Dipylon forms, while the A and M letters are closer to the Megara forms as shown in Table 2. It is plausible that this intermediate state existed at some time in history when the Megara colonies were founded, and that is the form that spread to Potaissa and appears on the Potaissan sphinx statue.

Table 2. Comparison of the letters of the sphinx inscription with other Greek alphabets. The International Phonetic Alphabet (IPA) is given in the header of the table. Theta does not occur on the Dipylon vase. The Sphinx alphabet is shown to be an intermediary between the 8th century Dipylon alphabet and the later Megara alphabet.

IPA	/a/ /a:/	/e/ /e:/	/th/	/i/ /i:/	/l/	/m/	/n/	/r/	/s/	/t/
Dipylon alphabet	∀	ⅎ	(n.a.)	↯	⋀	⋔	⅄	◁	Σ	✝
Sphinx alphabet mirrored	A	E	Θ	↳	⋀	M	N	P	ʃ	✝
Megara alphabet	A	F	⊕	I	⋀	M	Ν	D	Σ	T

Translation

Since the sphinx inscription is mirrored, it is convenient to consider its mirror symmetric version in Figure 5 for the purpose of translation. Table 3 presents the sphinx alphabet's letters' equivalents to modern Greek alphabet letters.

Table 3. Transliteration of the sphinx inscription alphabet into modern Greek alphabet letters.

IPA:	/a/ /a:/	/e/ /e:/	/th/	/i/ /i:/	/l/	/m/	/n/	/r/	/s/	/t/
Sphinx mirrored	A	E	Θ	↳	⋀	M	N	P	ʃ	✝
Modern Greek	A	E	Θ	I	⋀	M	N	P	Σ	T

We transliterate the sphinx inscription as shown in Figure 6 using Figure 5 and Table 3.

I M A I M A T I Θ I E P E Σ A P Σ Λ A N

Figure 6. The mirror symmetric version of the sphinx inscription shown in Figure 5 is reproduced with a transliteration into the modern Greek alphabet below. Because of the mirror symmetric version presented here, the letters in Figure 6 are to be read from left to right, although the original inscription is read from right to left.

When an inscription is written without any spaces between words, then it makes sense to consider the beginning and the end of the inscription because the identification of the boundaries of the first and the last words has only one uncertainty. Following this general strategy, one can already recognize the following word at the end of the inscription: ΑΡΣΛΑΝ /arslan/. The word *arslan* means 'lion' in Turkmen and other Turkic languages. The same word was also borrowed into Hungarian according to Zaicz, Tamás, and Somogyi (2006). Apparently, the borrowing happened while the Hungarians were still living in the Volga area where they could meet Turkic people, and the borrowed word still had the form *arslan* in the first century and only later changed to *oroszlán*, which is its present form (Zaicz et al., 2006).

The inscription also seems to contain the word ΙΕΡΕΣ which is likely an adjective of *arslan* 'lion.' It recalls Greek *ἱερός* /hierós/ meaning 'filled with or manifesting divine power, supernatural' and 'holy' (Liddell & Scott, 2007). Hence, the combination of the last two words means 'holy lion,' which is an appropriate description of a sphinx. Religious vocabulary is often borrowed when some religion is adopted by people. There are many Hungarian examples of this phenomenon. For example, Hungarian *szent* 'saint, holy' is a borrowed word with an Indo-European origin (Zaicz et al., 2006). Hence, Greek *ἱερός* could have been adopted as Hungarian *hieres* in the 3rd century. The Hungarian language has a rather strict front-back vowel harmony, which means that the vowels in a word are either all front or all back vowels. Hence, *ἱερός* could have been adopted as *hieres* by the change of the back vowel /o/ to a front vowel /e/.

Furthermore, the /ie/ diphthong could have changed over time to a long /i:/, which is denoted by *í* with an acute accent in Hungarian orthography. That change would yield Hungarian *híres* 'famous.' The association between 'filled with or manifesting divine power, supernatural' and 'famous' is natural if one thinks about holy men and women, who were widely admired and sometimes were also deified in ancient times. Our suggested etymology is not in conflict with any etymology because Hungarian *híres* 'famous' is said to have an unknown origin in Zaicz et al. (2006). While we make this etymological suggestion, we would like to emphasize that our translation does not depend on accepting a later development from Greek *ἱερός* to Hungarian *híres*. It is enough to assume that Hungarian *hieres* was an adaptation of Greek *ἱερός* among Hungarian sphinx cult members in the 3rd century.

The word ΙΜΑ /ima/ at the beginning of the inscription seems to mean 'here'. Hungarian *íme* 'lo, behold' derives from a combination of *ím,* which is not used alone, and *e* (short form of *ez*) 'this' (Zaicz et al., 2006). Analogously, the combination of *ím* with *a* (short form of *az)* 'that,' which are the back vowel pairs of *e* and *ez*, would give *íma* with the same meaning. However, the length of the vowels was not indicated in the inscription. Hence, we can assume that IMA stands for Hungarian *íma* 'lo, behold'.

The next word is ΙΜΑΤ /imat/. This may be related to Hungarian *imád* 'worship', which also has an unknown origin but the ending *-d* is a frequentative suffix (Zaicz et al., 2006). Although the mismatch between the word final unvoiced /t/ and its voiced pair /d/ could be attributed to a scribal error, we have a better suggestion. IMAT records Hungarian *imádd,* which is an imperative form of the word 'worship.' The Hungarian pronunciation of /dd/ is just a strong /d/, which sounds much like a /t/. The modern Hungarian 2nd person singular imperative suffix -d was originally -t (Zaicz et al., 2006).

The remaining ΙΘ /itʰ/ seems to be Hungarian *itt* 'here.' The /tt/ in Hungarian *itt* is just one strong /t/ that sounds like /tʰ/, which is an aspirated t that was the pronunciation of *theta* in ancient Greece (Horrocks, 2006). In addition, the word *itt* is immediately followed by *hieres* or *híres* and the word final /t/ and word initial /h/naturally form a /tʰ/combination that the scribe writing phonetically recorded by Θ. Together with this final word, the entire translation can be seen in Table 4.

Table 4. A translation of the sphinx inscription. The first line is the original inscription broken into five words. The second line is the transliteration into the modern Greek alphabet. The third line is the IPA phonetic equivalent of the second line. The fourth line shows the Proto-Hungarian words that follow from the previous line. The fifth line shows the modern Hungarian words. The sixth line is the English translation.

I	M	A		I	M	A	T		I	Θ		I	E	P	E	Σ		A	P	Σ	Λ	A	N
i:	m	a		i	m	a:	t		i	th		hi	e	r	e:	s		a	r	s	l	a	n
*íma				imád-*t								*ἱερός > */hiere:s/						*arslan					

Íme	imádd:	itt	híres	oroszlán!
Lo, behold,	worship!	Here	[is the] holy	lion.

The translation contains the following expression: "*Íme imádd: itt híres oroszlán.*" This can be translated as "*Lo, behold, worship: here is the holy lion.*" The translation assumes that the original meaning of the word *híres* was the same as the meaning of Greek *ἱερός*, and that it acquired the meaning of 'famous' only later due to the association of the concepts of 'holy' and 'famous' as we described above. The second sentence omits the predicate *van* 'is' and the definite pronoun *a* 'the.' The omission of the verb to be is a common occurrence in Hungarian because it is assumed to be there by default. The omission of the definite article is a regular occurrence in many inscriptions, especially in a case such as this where it would be a single phoneme /a/.

The translation of the sphinx inscription makes sense in the context of a religious ceremony, where the spike below the pedestal of the sphinx statue is inserted into a pole and raised high into the air while the inscribed sentences are pronounced. Presumably, this could be a climax in the ceremony of the sphinx cult, and the worshippers were reacting in some way to the pronouncement, for example by jubilation, prayer, singing, or performing a sacrifice.

Alliteration and Rhythm as Poetic Devices

The translation contains instances of alliteration. All the words *íma*, *imádd*, *itt*, start with the vowel /i/. Moreover, the first two words start with /im/. These occurrences are deliberate alliterations rather than accidents. Alliteration is common in Hungarian poems, and there are many examples of it in the earliest recorded Hungarian poem, which is known as the *Ómagyar Mária Siralom* (Benkő, 1980). Here is an example of a verse from the original poem rewritten with modern Hungarian spelling (Benkő, 1980) in which we underlined the alliterations:

<p style="text-align:center">Világ világa,</p>
<p style="text-align:center">virágnak virága,</p>
<p style="text-align:center">keserűen kínzatul,</p>
<p style="text-align:center">vos szëgekkel veretül!</p>

The heavy use of alliterations is evident and recognizable without any translation. The alliteration is a poetic repetition of sounds that is achieved without a repetition of words. Similarly, IMA and IMAT sound alike but slightly different, and so a repetition of words is avoided.

Another poetic device is rhythm. West (1982) defines the dactylic pentameter with a caesura as follows:

$$|- \underline{\cup\ \cup} | - \underline{\cup\ \cup} | - || - \cup\ \cup | - \cup\ \cup | -$$

where — denotes a long syllable and ∪ denotes a short syllable, and || a caesura or pause. The underlining means the option of having either two short syllables or one long syllable. We can shorten the above and define a dactylic tetrameter with caesura as follows:

$$| - \cup\ \cup | - || - \cup\ \cup | - \underline{\cup\ \cup} | -$$

The dactylic tetrameter with caesura can be applied to the sphinx inscription well, given that the last syllable always counts as long. Alpha, epsilon, and iota could denote both short and long vowels in pre-classical archaic Greek spelling, because of the absence of the letter eta in many early versions of the Greek alphabet (Jeffery, 1961).
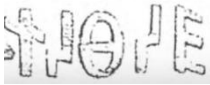
$$| - \cup\ \cup | - || - \cup\ \cup | - - | -$$

/iːma imaːt   itʰ hiereːs arslan/

The above may have been the original rhythm of the sphinx inscription. As in many old English poems, if we substitute the old words with their present forms and pronunciations, then the original rhythm is disrupted.

DISCUSSION OF VLASSA'S PREVIOUS TRANSLATION

The translation of Vlassa (1980) is the only serious earlier translation of the sphinx inscription because other authors tried to read the inscription from left-to-right (Szabó, 2001-2002). We highly respect Vlassa's work as an archaeologist, but we disagree with his linguistic work that led to an incorrect translation, as we explain below. Vlassa's translation contains four words as shown in Table 5.

Table 5. Vlassa's translation of the sphinx inscription. The first line is the original inscription broken into four words. The second line is the transliteration into modern Greek letters augmented with Latin W and the hyphenation sign. The third line is a transcription into IPA notation. The fourth line has the actual words that were obtained. The fifth line contains the words of Vlassa's translation.

I	W	A		I	W	A		T	I	Θ	I	E		P	E	-	A	P	M	A	H
i	w	a		i	w	a		t	i	tʰ	i	e		r	e		ha	r	m	a	ɛ ː
iwa				iwa				Tithie						Re-Harmae							
iao				iao				Tithoes						Ra-Harmachis							

The letters shown in red in Vlassa's translation in Table 5 are derived incorrectly. We give a detailed explanation about these below.

1. Transliteration errors: Vlassa (1980) took the first two *mu* letters to denote /w/. He likely thought that the *mu* letters were upside-down Latin W letters. That may be imaginable for the type of Latin M that was used at Potaissa as shown in Figure 3. Vlassa (1980) took the first archaic *sigma* to be a hyphenation sign. He combined the second archaic *sigma* with the following *lambda* and transliterated them as a single *mu*. Finally, he mistook a *nu* for an *eta* at the end of the inscription.

Vlassa's extension of the Greek alphabet with the Latin W and hyphenation sign is unwarranted because the W letter did not exist at the time when Dacia was a Roman province. It was added only in the Middle Ages (Diringer & Olson, 2023). Similarly, no Greek or Latin inscription used hyphenation without using any spaces to divide words.

2. Translation errors: Vlassa (1980) obtained three words using his partially incorrect transliteration: *iwa*, which occurs twice, *Tithie*, and *Re-Harmae*. We consider these three words separately below.

a). *Iwa* is taken as an alternative form of *iaw* with a metathesis of /w/ and /a/. Further, the word final W is assumed to denote /o/, yielding *iao*. The repetition *"iao, iao"* is a Semitic-origin invocation or acclamation with a significant connection to solar radiation [Szabó]. Hence, according to Vlassa (1980) the translation's beginning *"iao, iao"* is a Semitic acclamation that is used by an ancient Egyptian-origin sphinx cult that is transmitted via Greek culture and is practiced in a Roman city in Dacia. Unfortunately, that is not convincing. One cannot grab words from all the Eastern Mediterranean just to fit one translation for a single occasion use in the Dacia region. Neither the exact acclamation *"iao, iao"* nor any later derivative of it is found anywhere in the Dacia region. Contrast that with our hypothetical Hungarian **arslan* 'lion.' It is more probable that it occurs on the sphinx inscription because its derivative word *oroszlán* is still used in the region today.

b). *Tithie*: Vlassa (1980) translated *Tithie* as *Tithoes* without a sufficient explanation for the /i/ > /o/ sound change of the second vowel. Such a sound change requires an explanation because a change from a front vowel to a back vowel is less common than a change between two front vowels or two back vowels. There is also no convincing explanation for the omission of the word final /s/. Omission of the final /s/ was not typical in Greek inscriptions in the Pontic region. For example, the final /s/ is always written out on the Kallatis inscription in names like ΑΡΊΣΤΩΝΟΣ /Aristɔ ː nos/ (Bottez & Litu, 2019). Hence, *Tithios* is an unacceptable translation because of the lack of explanation for the above sound changes. Vlassa was apparently looking for some name that sounded like *Tithie* and could be linked to sphinxes. That is a questionable method given the numerous other

popular god names that could have fit phonologically better than *Tithios* but were overlooked because they had no sphinx associations. These include the following mythological figures (Brunet, Palaima, Smith, & Trzaskoma, 2004):

- *Tethys*, the daughter of Uranus and Gaia and the wife of Oceanus.
- *Thetis*, the daughter of Nereus and Doris.
- *Titias*, the son of Anchiale and a companion of Cybele.
- *Tityos* the giant, who was the son of Zeus and Elera.

All the above are better known Greek mythological figures than *Tithoes*, who is not even mentioned in the 517-page *Anthology of Classical Myth* by Brunet et al. (2004). Although these four other names have extra /s/, /as/, or /os/ endings, and some require a common *tau-theta* sound change, their first two vowels are front vowels like in *Tithie*. Vlassa's search among the numerous Greek mythological figures ended with *Tithoes. Tithoes* is mentioned third in Manetho's pre-pharaonic list, and according to Szabó, he was an Egyptian sun god represented as a sphinx (2001-2002). Manetho's work on the history of Egypt was lost and only survives in fragments in quotations from other writers. The collection of the available fragments contains only one sentence mentioning *Tithoes,* recording that he was a demigod who reigned for 37 years (Manetho, 2015). While *Tithoes'* name fits Vlassa's apparent requirement for a sphinx connection, it is unimpressive because there is no known cult of *Tithoes* in ancient Greece. Hence, it is unlikely that such a minor figure would be worshipped at Potaissa.

c). *Re-Harmae*: Vlassa's transliteration yielded *Re-armae*, which was assumed to be *Re-Harmae,* which is possible. Vlassa then translated *Re-Harmae* as *Re-Harmachis* with an unconvincing /kʰis/ ending instead of the /e/. Besides the different word endings, another potential problem is that *Re-Harmachis* may not be correct because in ancient Egyptian *Ra* means 'sun' according to the dictionary of Budge (1981). The Royal Collection Trust uses *Ra-Harmachis* as a label for an Egyptian god's statue (Royal Collection Trust, 2023). These sound change problems make *Re-Harmachis* an unacceptable translation.

Vlassa apparently chose *Re-Harmachis* because it also had a sphinx connection. The ancient Egyptian *Heru-em-åakhuti* recorded in the Greek language as 'Harmakhis' (Budge, 1981) was only one of the many names for the sun that started with *Heru* 'Horus,' but *Ra-Harmachis* or *Ra-Harmakhis* describes a specific manifestation of the sun, in particular "Horus-in-the-horizon" meaning dawn or the early morning sun (The Editors of Encyclopaedia Britannica, 2023a). He was often depicted as a sphinx with the head of a man, like the Great Sphinx of Giza (Hawkes, 1974). However, there are some discrepancies here. First, the Egyptian sphinx does not have wings unlike the Potaissan sphinx. Second, the Egyptian sphinx is a male mythological figure, while the Potaissan sphinx has a female face. Hence, the Potaissan sphinx figure cannot be a depiction of *Ra-Harmachis*.

Finally, we also must consider how the above three parts fit together. It is not clear what is the supposed meaning of the inscription because the three parts do not form a sentence. What is the acclamation for? Is it an acclamation given to the Sun-God for rising on the horizon? Where else was an acclamation defined as 'a loud eager expression of approval, praise, or assent' given (Merriam-Webster, 1999) for such a literally everyday occurrence? In addition, Tithoes and Ra-Harmachis were not closely associated with Egyptians, not to mention by Potaissans, unlike the translation by Vlassos implies. Tithoes and Ra-Harmachis were rarely, if ever, worshipped together or mentioned together in a text, even by the original Egyptians from whom the cult of these mythological figures supposedly spread all the way to Potaissa. In summary, after a partially incorrect transliteration and very questionable sound changes, Vlassa (1980) found words that may be related to sphinxes, but they do not fit together into a coherent message. Hence, this older translation attempt cannot be correct.

CONCLUSIONS AND FUTURE WORK

This paper gave a translation of the Potaissan bronze sphinx inscription. Although the inscription consists of only twenty letters, the translation is greatly helped by the fact that the inscription is related to sphinxes as could be expected in this case. The message is about a **hieres arslan* 'holy lion,' which is a good description for a sphinx. It may have been more natural and understandable to use this phrase instead of the word "sphinx" for the religious community of Potaissa that used the bronze sphinx statue, because 'sphinx' would have been a newly borrowed word, while **hieres* 'holy' and **arslan* 'lion' could have been already used words. These words likely developed into the presently used Hungarian words *híres* 'famous' and *oroszlán* 'lion.' The other words are native Hungarian words. Hence, the translation shows a Hungarian text that is written using the Greek alphabet.

In addition to the visual clue that the sphinx statue gives, the poetic form of the text also helps to verify the translation because an incorrect translation would be unlikely to result in a poem in a dactylic meter. Since most inscriptions are in prose, the presence of a metric poem is also a lucky occurrence. Nevertheless, it remains an

interesting open problem to investigate other Greek alphabet inscriptions from Potaissa and other Roman Dacian towns. Perhaps we can find other clues to the topic of these inscriptions that will help the translation and its verification.

REFERENCES

Abraham, G. (2002). The comprehensive development plan for the city of Luxor. *WIT Transactions on Ecology and the Environment*, *54*.

Bărbulescu, M. (1991). Das römische Legionslager von Potaissa (Rumänien). *Antike Welt*, 22(1), 22-30.

Bărbulescu, M. (2016). Potaissa: l'arte romana in una città della Dacia. *Potaissa*, 1-336.

Benkő, L. (1980). *Az Árpád-kor magyar nyelvű szövegemlékei*. Budapest, Hungary: Akadémiai Kiadó.

Bottez, V., & Litu A. (2019). A travelling stone from Callatis. *Pontica*, (52), 237-240.

Brunet, S., Palaima, T. G., Smith, R. S., & Trzaskoma, S. M. (2004). Anthology of classical myth: Primary sources in translation. Indianapolis, IN: Hackett Publishing Company.

Budge, E. W. (1981). An Egyptian hieroglyphic dictionary. Moscow, Russia: Рипол Классик.

Daggumati, S., & Revesz, P. Z. (2021). A method of identifying allographs in undeciphered scripts and its application to the Indus Valley Script. *Humanities and Social Sciences Communications*, *8*(1), 1-11.

Daggumati, S., & Revesz, P. Z. (2023). Convolutional neural networks analysis reveals three possible sources of bronze age writings between Greece and India. *Information*, *14*(4), 227.

Diringer, D., & Olsen, D. R. (2023) Later development of the Latin alphabet. Retrieved from https://www.britannica.com/topic/alphabet-writing/Later-development-of-the-Latin-alphabet

Fehér, M. J. (1968). *Középkori magyar inkvizíció*. Buenos Aires, Argentina: Editorial Transylvania.

Godart, L., & Olivier, J. P. (1976). Recueil des inscriptions en linéaire A. Number 21 in Études Crétoises. Paris, France: P. Geuthner.

Hawkes, J. (1974). Giza. In *Atlas of ancient archaeology* (pp. 150). New York, NY: McGraw-Hill.

Horrocks, G. (2014).*Greek: A history of the language and its speakers* (2nd ed.). Hoboken, NJ: John Wiley & Sons.

Jeffery, L. H. (1961). *The local scripts of archaic Greece*. Oxford, UK: Clarendon.

Kiss, J., & Pusztai, F. (2018). *A magyar nyevtörténet kézikönyve*. Budapest, Hungary: Tinta Könyvkiadó.

Köpeczi, B., Makkai, L., Mócsy, A., Szász, Z., & Barta, G. (1994). *History of transylvania–From the beginnings to 1606*. Budapest, Hungary: Akadémiai Kiadó.

Kuzmina, E. (2008). *The prehistory of the Silk Road*. Philadelphia, PA: University of Pennsylvania Press.

Liddell, H. G., & Scott, R. (2007). *Liddell and Scott's Greek-English lexicon, abridged: The little liddell*. London, UK: Simon Wallenberg Press.

Manetho. (2015). *Manetho: History of Egypt and other works* (W. G. Waddell, Trans.). Norris, MT: Ravenio Books.

Marinatos, N. (1984). *Art and religion in Thera: Reconstructing a Bronze Age society*. Athens, Greece: D. & I. Mathioulakis.

Merriam-Webster. (1999). Acclamation. In *Merriam-Webster's Collegiate Dictionary* (10th ed.). Springfield, MA: Merriam-Webster Inc.

Naxian Sphinx of Delphi [Image] (2012). Retrieved from https://www.worldhistory.org/image/872/naxian-sphinx-of-delphi/

Olivier, J., Godart, L., & Poursat, J. (1996). *Corpus hieroglyphicarum inscriptionum cretae*. Athens, Greece: École française d'Athènes.

Pekkanen, T. (1973). On the oldest relationship between Hungarians and Sarmatians: From Spali to Asphali. *Ural-Altaische Jahrbücher*, *45*, 1-64.

Powell, B. (1988). The Dipylon oinochoe and the spread of literacy in eighth-century Athens. *Kadmos*, *27*(1), 71-94.

Ptolemy, C. (1932) Claudius Ptolemy: The geography (E. L. Stevenson, Trans. & Ed.). New York, NY: New York Public Library.

Revesz, P. Z. (2022). The Development and Role of Symmetry in Ancient Scripts. *Symmetry: Art and Science*, 308-315.

Revesz, P. Z. (2022). Experimental evidence for a left-to-right reading direction of the Phaistos Disk. *Mediterr.*

Archaeol. Archaeom, *22*, 79-96.

Royal Collection Trust. (2023). Ra-Harmachis. Retrieved from https://www.rct.uk/collection/83050/ra-harmachis

Szabó, Á. (2001-2002). Zur pannonischen Sphinx Kult. *Folia Archaeologica*, *XLIX-L*, 235-245.

The Editors of Encyclopaedia Britannica. (2023). Horus: Egyptian god. Retrieved from https://www.britannica.com/topic/Horus

The Editors of Encyclopædia Britannica. (2023). Swastika: Symbol. Retrieved from https://www.britannica.com/topic/swastika

Török, T. (2023). Integrating linguistic, archaeological and genetic perspectives unfold the origin of Ugrians. *Genes*, *14*(7), 1345.

Vlassa, N. (1980). Sfinxul de bronz de la Potaissa. *Potaissa Studii și Comunicări*, *2*, 133-153.

West, M. L. (1982). *Greek metre*. Oxford, UK: Oxford University Press.

Younger, J. (2023). Linear A Texts & Inscriptions in phonetic transcription & Commentary. Retrieved from http://www.people.ku.edu/~jyounger/LinearA/

Zaicz, G., Tamás, I., & Somogyi, M. T. (2006). Etimológiai szótár: Magyar szavak és toldalékok eredete. Budapest, Hungary: Tinta Kiadó.