The Glagolitic 'spidery kh' <ⱶ>, its origin and relatives

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1. Introduction

One of the most puzzling letters in the Glagolitic alphabet is the so-called "second x" or "spidery kh" (JAGIĆ 1883, 204; "paukoobraznyj xer"). It represented either [ç] or [x] and had no prototype in the Greek alphabet[1], it may or may not have filled slot 24, 34 (or 33) in the original Glagolitic alphabet according to different researchers, it rarely occurs in the preserved OCS texts (7 times, to be precise) or Abecedaria (2–3 times) at all, it occurs in one word only, and it was dropped from the inventory, when the Cyrillic alphabet was developed in the late 9th century, so it does not have a Cyrillic counterpart. In Slavic paleography, the character has been discussed separately several times[2], and MARTI calls it one of the "problematic graphemes" in the reconstruction of the original Glagolica.[3] In Unicode, it has been given its own slot for an uppercase and a lowercase version (U+2C22, U+2C52).

In the present paper we will tackle the hitherto unsolved provenience of this character from a different angle – not from a paleoslavistic, but from a semiotic and structural point of view. We will try to shed some light on the origin of this mysterious letter and its cognates, and present pictorial and other evidence to support our hypothesis. First, however, we will try to summarize some facts, not aiming at the already 'initiated' (i.e. paleoslavists), but for 'normal slavists'.

2. Occurrence in texts

As is well known, the 'spidery kh' is an extremely rare character. The classical literature knew only four occurrences: one in the *Codex Assemanianus* and three

[1] A corresponding glyph is missing from all alphabet tables and paleographic overviews regarding Greek writing in the 8–10th centuries. See, for example JAGIĆ (1911, 103) or GARDTHAUSEN (1913). TRUBETZKOY, however, seems inclined to derive the character from the shape of the Greek chi <χ> (see 1936; 1968), as GEITLER (1883, 125) had already done.

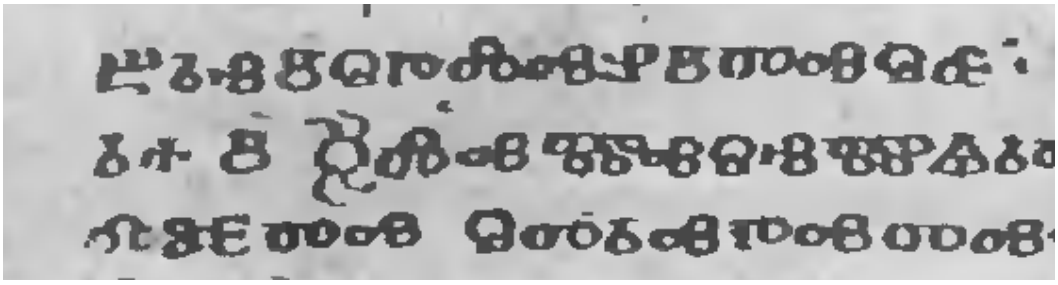
[2] For papers dedicated especially to this character, see, for example, TKADLČÍK (1964) and VELČEVA (1971). Among the papers of a more broader scope which discuss the character in detail and sum up the previous literature are MIKLAS (2003), MARTI (2004) and ČAMBA (2013, 24ff.).

[3] See MARTI (2004, 401). KOCH (2004, 442f.) discusses the character in an extensive footnote (Fn. 47). – I would like to express my gratitude to Roland Marti and to Winfried Boeder for commenting on a first draft of the paper.

in the *Psalterium Sinaiticum*. Today, we know of seven instances – three more in the newly found second part of the *Psalterium Sinaiticum* have been added to the list without changing any insights which have already been gained before. Below we are going to document all known occurrences of the letter.

Fig. 1 shows the occurrence from the *Codex Assemanianus* (fol. 138v) in in colour (from the facsimile published in Sofia 1981), in grey scale (from VAJS 1932, Tab. VIII), and in monochrome (from GEITLER 1883).[4] In this text, the glyph occurs in the word *хльмъ* 'hill'. As Geitler already noticed, the banal meaning of this word does not offer any clue why this glyph seems tied to this word. But there is another explanation – see below.

This codex was presumably written in the second half of the 10th century or in the first half of the 11th century and is considered the oldest and one of the most important Glagolitic manuscripts to have been preserved. It is attributed to the Ohrid school in Western Macedonia, i.e. where Sv. Kliment and Naum had faithfully preserved their peers' script.



[4] It is interesting to see that the photograph published by GEITLER at the end of the 19th century is actually sharper than the modern facsimile made one century later. VAJS (1932, Tab. VIII) shows this very same page from the Codex Assemanianus.

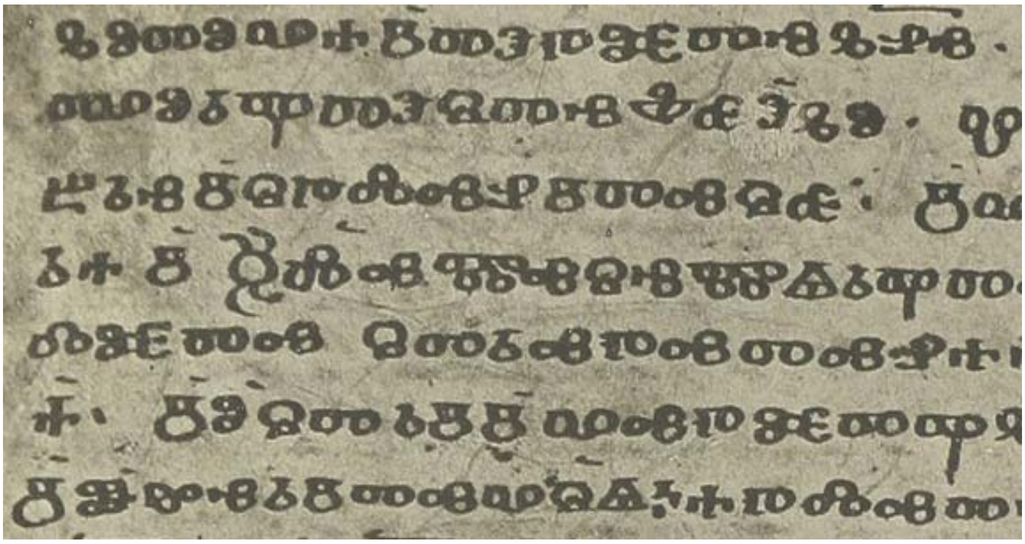


Fig. 1: The 'spidery kh' in the *Codex Assemanianus*, fol. 138v (different editions)

We are not sure if it has been noted before, but the 'spidery kh' is notably larger than other characters in word-initial position; with its large belly, it stands out and does not 'hide itself' in the surrounding text. By the way, ČAMBA (2013, 25) calls the character 'a hard one to write' ("graphisch umständlich zu realisieren") and assumes that this was the reason why the 'regular kh' took over its role. The observation may be true (the letter would require 5 separate strokes to write), but this may not be the only reason – see below.

Figs. 2 and **3** show the three occurrences of the letter in the older part of the *Psalterium Sinaiticum* – one on fol. 78r and two on fol. 149v, taken from ALTBAUER (1971). In addition, there is one mistake in the old part, where the 'spidery kh' is erroneously replaced by the similarly looking letter 'ot': ⰑⰎⰟⰏⰊ (fol. 88v, see **Fig. 4**).[5] **Fig. 5** shows the three occurrences in the new part (from TARNANIDIS 1998, see also MAREŠ 1997; N 10b11, N 18b2, N 28a26).

On fol. 149v, one and the same sentence gets repeated, so that it is not astonishing that the letters are written identically in both of them, but at the same time it proves that the first use was not accidental. These are the two phrases in translation: "The mountains skipped like rams, and the hills like lambs." (Psalm 114: 4) and "Why, mountains, did you skip like rams? Why, hills, like lambs?" (Psalm 114: 6).[6] It is the initial letter of the word 'hills' in which the 'spidery kh' occurs.

[5] MARTI (2004, 407, Fn. 29) argues that this proves that the blueprint already had a Ⱒ, but this is not the only possibility: the blueprint could of course have had the same replacement already, i.e. ⰑⰎⰟⰏⰊ, at least in theory.

[6] In Greek, the word for 'hill / hills' is *βουνός / βουνοὶ*. It is probably a Cyrenaic loanword (see https://en.wiktionary.org/wiki/βουνός). There is nothing about this grapheme sequence which could have prompted Konstantin to search for a special solution for the initial letter in the translated word. For the solution to this riddle see the next paragraph.

All six occurrences are in the same word as in the Codex Assemanianus: *хлъмъ* ‘hill’. This also happens to be its name in the acrostics (abbreviated as *хл҃ъ*), but it has been suggested by MIKLAS (2003, 181) that actually *хрьстъ* ‘Jesus’ was its original name. If true, this would go a long way to explain the shape of the glyph (see below). The first observation, however, does indeed offer a very simple explanation for the restricted use of the letter (at least in the surviving texts): it seems to have been used only when its name occured as a noun in a text. If it ever had a broader use originally, this would be the niche it was relegated to in the 12th century.

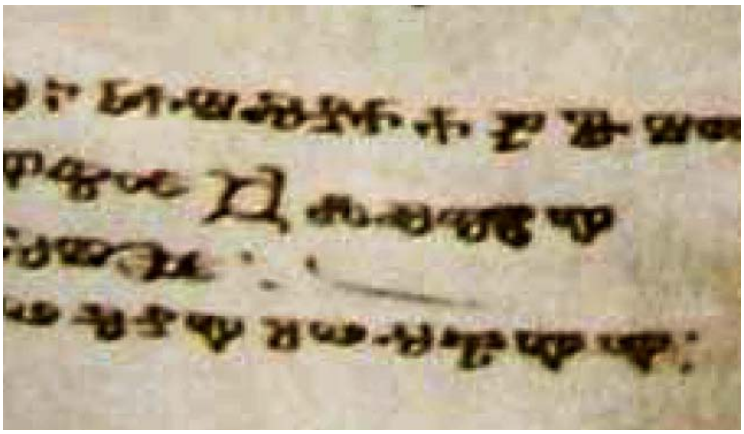


Fig. 2: The ‘spidery kh’ in the *Psalterium sinaiticum*, fol. 78r.

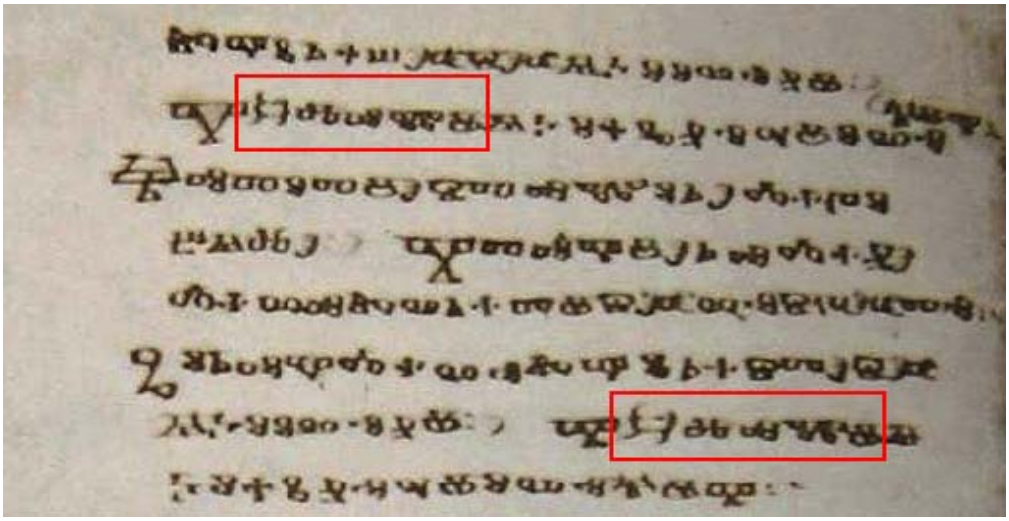


Fig. 3: The ‘spidery kh’ in the *Psalterium sinaiticum*, fol. 149v.

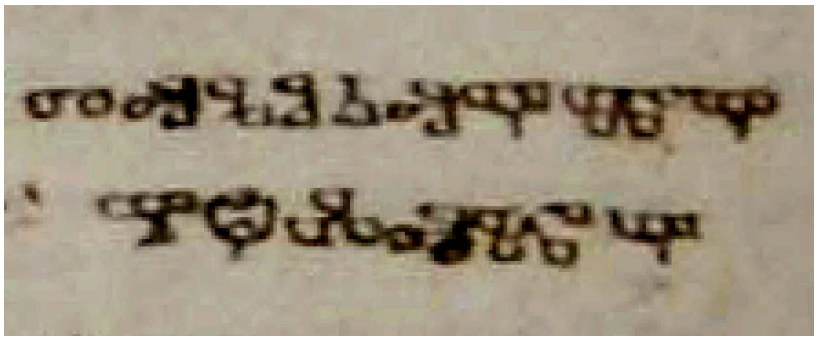


Fig. 4: ‘ot’ instead of ‘kh’ in the *Psalterium sinaiticum*, fol. 88v.

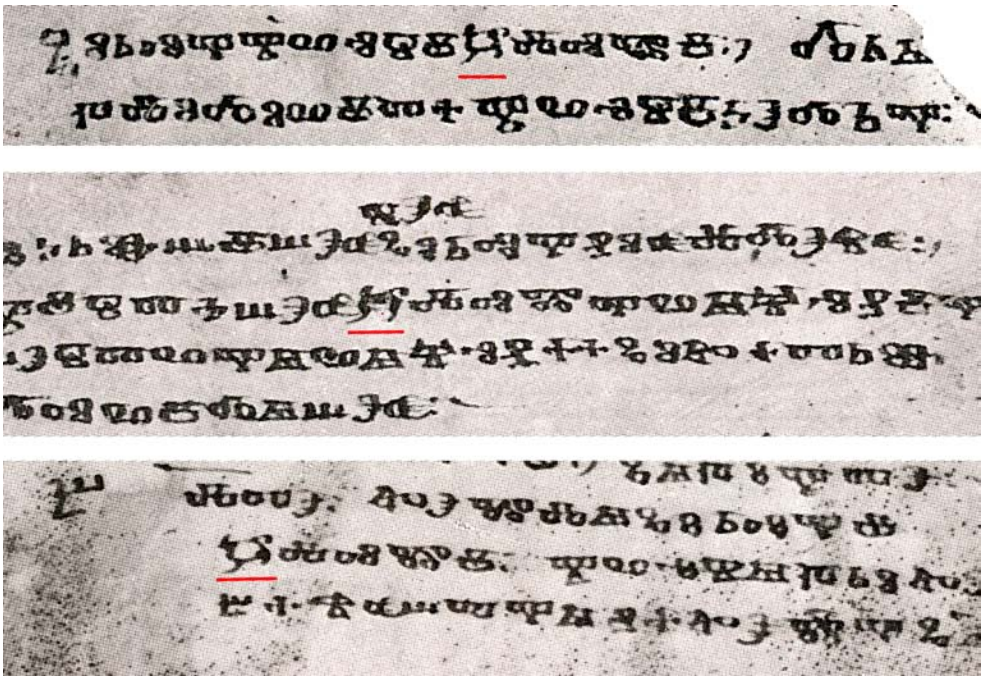


Fig. 5: The 'spidery kh' in the *Psalterium sinaiticum* (new part)

The glyphs in the *Psalterium Sinaiticum* are consistent among themselves as to the basic glyph shape: a very large belly (circle) and four arms. The arms, however, differ a bit. The first occurrence in the old part of the *Psalterium Sinaiticum* is better visible than the other two: its two upper arms clearly point *anticlockwise*, whereas the lower two arms look more like feet. The right foot points in a clockwise direction, while the left seems more neutral. The occurrences on fol. 149v exhibit arms that are bend in a *clockwise* direction – at least for three out of four arms this is clearly visible. The fact in which direction the arms point is not trivial, as we will see below. Again, as above, the occurrence of the letter on fol. 78r stands out among the text. In the new part of the *Psalterium Sinaiticum*, the three occurrences are very similar to each other – and a bit different from the ones in the first part. Here, all four arms pont in a clockwise direction.

Because the 'spidery kh' occurs in some of the oldest manuscripts, some – but ot all – slavists assume that it was part of the original Glagolitic alphabet devised by Konstantin, representing the numerical value '6000'.

3. The 'spidery kh' in Abecedaria

The 'spidery kh' is present in two Abecedaria, both presumably written in the 12th century (or maybe earlier):

a) the so-called *Abecenarium Bulgaricum*,
b) the so-called *Munich Abecedarium*.

For more information on the occurrence of the glyph in the Cyrillic and the Glagolitic alphabet in the *Munich Abecedarium*, see KEMPGEN (2007).[7] In it, the letters look like this in context (**Fig. 6**):

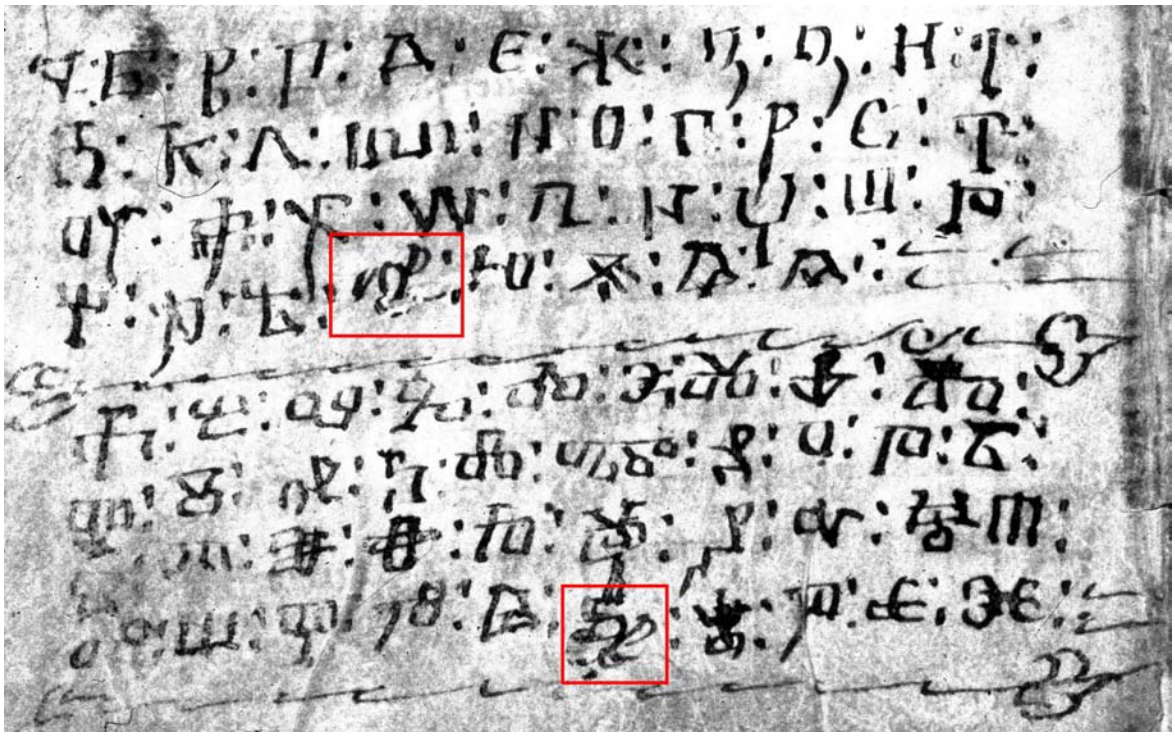


Fig. 6: The *Munich Abecedarium* with the 'spidery kh'

The *Paris Abecenarium* in its corrected sequence (see KEMPGEN 2015, vol. 2, p. 190 on KOPITAR 1836) looks like this (**Fig. 7**):

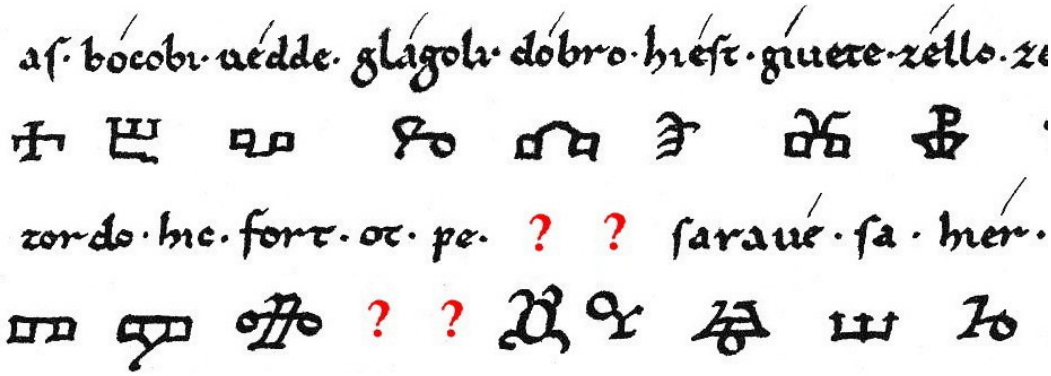


Fig. 7: Paris Abecenarium (corrected by S.K.)

This version of the glyph resembles the first occurrence in the *Psalterium Sinaiticum* the closest (cf. Fig. 2). Anyway, it it these two glyph shapes that JAGIĆ

[7] In the given context, we will not discuss the character in the Cyrillic alphabet further. Besides being an ad-libbed addition to have a one-to-one correspondence between the particular sections in the Cyrillic and the Glagolitic alphabet, other, less convincing interpretations have been put forth.

chose to present in his overview of the Glagolitic alphabet (1911, 203), see **Fig. 8**[8]:

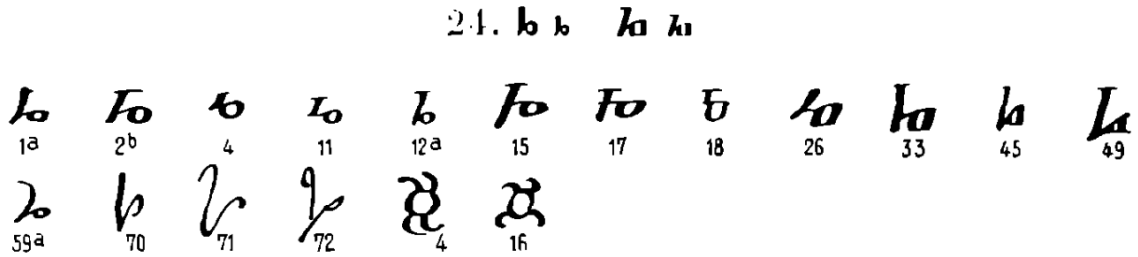


Fig. 8: Glagolitic <x> (Jagić 1911, 203)

It seems to have been Jagić who first pointed out the presence of the 'spidery kh' in the *Abecenarium bulgaricum* as such, although it is incorrectly labeled there as 'ot' (JAGIĆ 1911, 204). By the way: this is the same mistake which occurs in the *Psalterium Sinaiticum* in fol. 88v – see above, Fig. 4. This seems hardly a pure coincidence to us.

4. The letter and its structure

In the following table (**Fig. 9**) we are presenting a synopsis of the original letters as well as their reproductions in works on OCS.[9] As one can see, JAGIĆ (1911, 203) reproduces the original letters the best by far, but even he is not completely precise. TRUBETZKOY uses the shape from the *Codex Assemanianus* to represent the allograph (cf. 1968, 28–30), i.e. shape no. 4 in JAGIĆ (1911, see Fig. 7). For the sake of completeness, we are also adding the representation of these glyphs in two fonts, *Bukyvede* and *Kirill* (*Pro*) which realise allographs from different manuscripts.

KOCH (2004, 442) reproduces the letter as an <o> with dieresis above and a dieresis below: <o̤>. This does indeed achieve a certain degree of similarity, but does not capture the essence of the 'arms' attached to the circle. VELČEVA (1971) uses quotation marks instead of dots, but their distance to the circle is too large to achieve the same degree of similarity (or a higher one).

[8] The reproductions given by VAJS (1932, 94) are nearly identical.

[9] From the original, in the first step, a high-resolution greyscale or black-and-white bitmap has been derived; then we have vectorized this bitmap, smoothing the character's contour, and finally exported a tiff file from this vector file.

	Codex Assemanianus	*Psalterium Sinaiticum (old)*	*Abecenarium bulgaricum*	*Psalterium Sinaiticum (new)*
Original				
Rački 1865				
Geitler 1883				
Jagić 1911				
Sever'janov 1922				
Bukyvede font				
Kirill Pro font				

Fig. 9: Shapes of the 'spidery kh' in OCS texts, editions and OCS fonts

5. The transliteration of the 'spidery kh'

In the introductory paragraph we mentioned that the Cyrillic alphabet has no counterpart for the Glagolitic 'spidery kh'. As Glagolitic texts are usually transliterated into Cyrillic in learned editions of OCS texts, the question arises as to how the Glagolitic 'spidery kh' should be represented in such a context.

Some authors chose not to transliterate the sign at all but to leave it in Glagolitic. See for example the treatment given by GEITLER (1883b, pages 132 and 254; **Fig. 10**)[10]. MAREŠ (1997) follows the same path (cf. **Fig. 11**)[11]. In both cases, the typography is amateurish. Some reproduce the Glagolitic letter in Latin

[10] The somewhat unusual and not very faithful design of the glyph is possibly due to the fact that Geitler had only a limited time to inspect the original. – We indeed consider this to be a Glagolitic letter in a Cyrillic contexts, so in our view no question arises whether it should be added to the *Cyrillic* Unicode blocks, too.

[11] The edition uses a font with some particularly bad character designs – see for example the letter 'r' in the sample which can hardly be recognized as such – it looks more like a 'nasal o'.

as 'x_2', while others simply use the standard Cyrillic letter <x>, thus not distinguishing between the two Glagolitic letters at all – see for example SEVER'JANOV (1922, fol. 78a = p. 78 and fol. 149b = p. 149) in his edition of the *Sinajskaja psaltyr'* and KURZ (1955, 278). Sever'janov does show the special Glagolitic sign in footnotes, however – they are included in the overview given above. In his Latin transliteration of the *Codex Assemanianus*, ČRNČIĆ (1878, 154) simply uses '<h> for both characters.

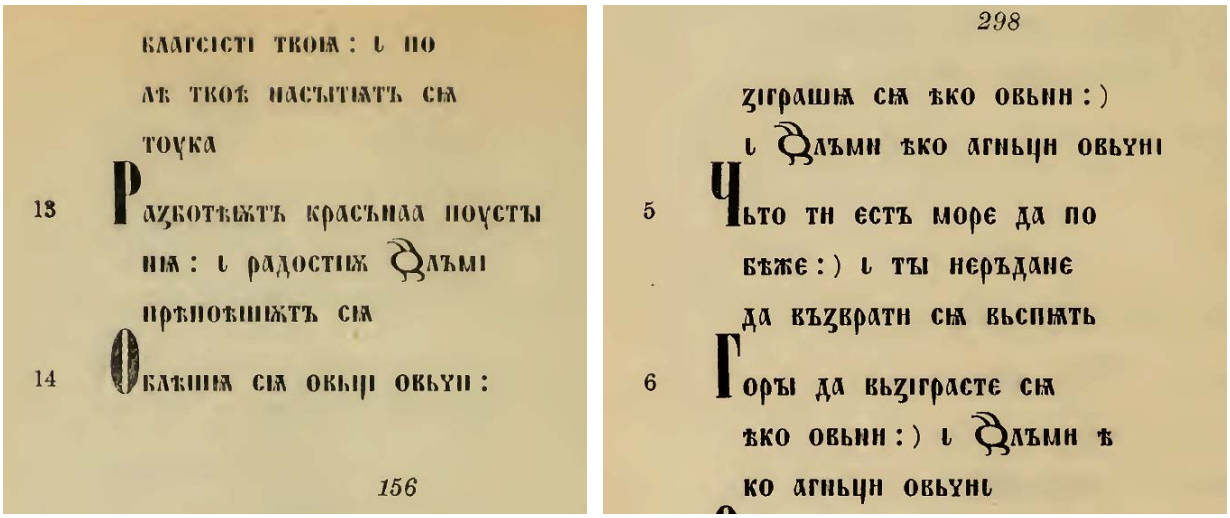


Fig. 10: Non-transliteration of the 'spidery kh' in Geitler's edition (1883b)

ГОѮЫ І ВЬСИ ѮЛЪМИ

Fig. 11: Non-transliteration in Mareš's edition (1997)

Again, just for the record, we would like to mention that we have devised a unique Cyrillic representation for this Glagolitic letter that is very simple to understand: a long <X> with a hole or circle in its middle: <Ӿ>. Thus, the sign is direction-neutral whereas the original signs have arms that point to the left or to the right, as noted above. At the same time, this makes the 'spidery kh' look as if it was based on Greek chi <χ>, which is in accordance with the assumptions of TRUBETZKOY (1968, 30, Fn. 2). We don't think that he is right in this respect, but for the Cyrillic transliteration this is still probably the best solution anyway because it indicates its phonetic value, too. We have implemented this transliteration in our – free – fonts 'RomanCyrillic Std' and 'Kliment Std'.[12]

6. The function of the 'spidery kh'

The function of two Glagolitic glyphs for Cyrillic <x> is similar to the complementary distribution of the [x] and [ç] sounds in German which are considered

[12] As always, the newest version of the fonts can be downloaded from our 'Kodeks' server at: http://kodeks.uni-bamberg.de/AKSL/Schrift/RomanCyrillicStd.htm.

allophones of /x/. In German, [x] occurs *after* [a, o, u], while [ç] occurs after the front vowels [i, e]. Slavic has neither the same sounds nor the same dependencies: in Russian, for example, one finds [x] *before* [a, o, u], while a palatalized [x'] occurs before [i, e]. In modern Greek, <χ> 'chi' represents the same sounds as in German, but with a distribution like in Russian, i.e. it depends on the *following* vowel, cf. ἔχω [x], ἔχεις [ç]. Because of its complimentary distribution, none of these languages find it necessary to represent these sounds with more than one glyph. Thus it has been correctly pointed out that having two Glagolitic glyphs was a luxury anyway and could sometimes lead to confusion with an omega in the same word (GEITLER 1883, 126).[13] For OCS, the [ç] sound was unusual: any [x] before a front vowel would originally have been subject to an alternation anyway (i.e. /x ~ s, x ~ š/), and later, positional (automatic) softening became possible, i.e. [x']. But Greek had the [ç] sound, so along with borrowed words it found its way into OCS. Samples include the word *xerouvim'* which occurs in Slavic acrostics and may have been the original sample accompanying the 'spidery kh'.

7. Greek chi as a source

Because of its sound value, it could seem tempting to derive the 'spidery kh' glyph from the Greek chi, i.e. <χ>, as some indeed assume – for example, as noted, above, TRUBETZKOY (1968, 30, Fn. 2). However, a closer inspection of the classical work by GARDTHAUSEN (1913, Tables 3 and 6) does not lend any credibility to this hypothesis – see **Figs. 12** and **13**[14]. In effect, the Greek <χ> has essentially always looked the same and never had a circle in the middle.[15] (The circles in the minuscule table are neighbouring letters, not part of the <χ>!) So, in effect, we have to look elsewhere for an explanation of the character's origin.

[13] On the most plausible sound values for both x-letters, see MARTI (2004, 405f. and 407ff.): originally we had ѧ = [ç] and ѫ = [x]. From these two letters, the one designating the 'stranger' sound (i.e. ѧ = [ç]) 'survived' and took on the function of both, so that their phonetic value later became ѧ = [ç, x], ѫ = [x], before the 'second x' was eliminated altogether and only ѧ = [ç, x] remained.

[14] Note the misspelling of 'Unciale' in Table 3.

[15] The Phoenician script, by the way, did not include a prototype for the Greek chi. It has developed by splitting up the Greek kappa into two letters – the similarity between the sounds they represent seems to reflect this.

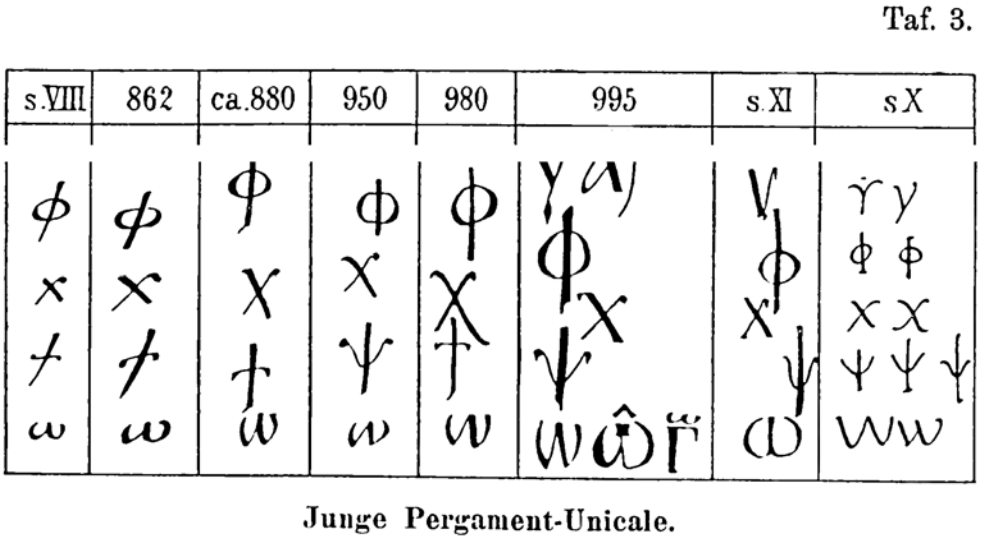


Fig. 12: Gardthausen (1913): Greek Uncial, 9th to 11th centuries

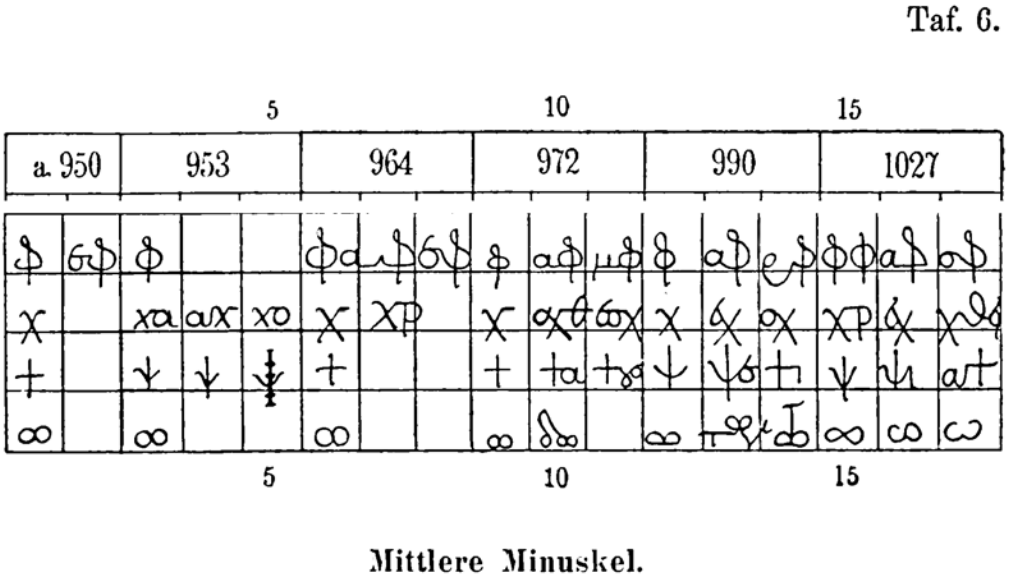


Fig. 13: Gardthausen (1913): Greek Minuscule, 10th to 11th centuries

8. The origin of the letter

In Slavic philology, the usual name of the letter < ѫ > is 'spidery kh' which is also its Unicode name[16]. Obviously, it reminded researchers of a spider, although it has been pointed out correctly that spiders have eight legs, not four, and no spider's legs point clockwise (or anticlockwise). Thus, the traditional name is based on a loose association only. – MIKLAS (2003, 181) speaks of the "iconic character" of the glyph, representing Jesus as "the true sun" (after VYN-

[16] The actual Unicode name is 'spidery ha', using the Slavic name of the letter in combination with an English adjective. In our paper, we will adhere to the common transliteration of that character in English, i.e. 'kh'.

CKE/DETREZ 1992). He also believes that 'Christ' was the original name of the letter (i.e. not *xlm*).

Perceiving <ⰻ> as a 'sun symbol' indeed leads us to the origin of the symbol and its relatives, so to speak. For the sun symbol in general and its various forms see the corresponding Wikipedia entry.[17] It manifests itself differently in various cultures. To the symbols assembled in the Wikipedia article one might also add the 'Glagolitic circle' proudly presented in Croatia today (for example in Vrbnik on the island of Krk, see photo below, **Fig. 14**). Its historicity, however, is presently not known to us.

Fig. 14: Glagolitic circle in Vrbnik, Croatia (Photo © S.K.)

9. Caucasian sun symbol

Below we will show a use of the 'sun symbol' which is identical to its shape in Glagolitic texts. We noticed this symbol in the famous 'Gelati monastery' near Kutaisi, Georgia. The monstery was founded by David "the Builder" (1073–1125), king of Georgia (1089–1125), and served as his own burial place.[18] The monastery is also known as an Academy (whose impressive building has been recently restored).[19] The icons, frescoes and manuscripts of the monastery testify to its close relationship with Byzantine culture.

[17] https://en.wikipedia.org/wiki/Solar_symbol.

[18] See, however, the information in https://en.wikipedia.org/wiki/David_IV_of_Georgia on his burial, that this might be a popular belief only.

[19] At present, there is a German entry for the Academy in the Wikipedia, but not an English one. See https://de.wikipedia.org/wiki/Akademie_von_Gelati.

Fig. 15: Main Church of the Gelati Monastery (Georgia) (Photo © S.K.)

The first picture (**Fig. 15**) shows the main cathedral of the complex which is dedicated to Virgin Mary the blessed. To the right side of the main nave, i.e. in the foreground of the photograph, there is an ambulatory whose wall we will show on the next pictures.

We have not been able to find out how old this wall painting is, so the only time frame that can be given here is to state that the golden era of the monastery was between the 12th and the 17th century.[20] In all fairness, this makes the specific symbol in Gelati younger than the OCS codices the 'spidery kh' occurs in, but the sun symbol itself is, of course, older, and has a longer tradition in Georgia, too.

On the painted curtain (see **Fig. 16**) one can see several *Stars of David* and sun symbols. In **Fig. 17**, we are showing one of the sun symbols closeup – it has a fascinating similarity to the Glagolitic < ⰔⰐ > letter and represents, without a doubt, the same figure – a so-called *tretraskelion*. (There is at least one *triskelion*, i.e. a three-armed figure, among the symbols on the wall, too.) It is interesting to note that three of its four arms indicate an anticlockwise movement, but with its two 'feet', the symbol is also identical to the glyph shape found in the *Abecenarium bulgaricum* (see above).

[20] For more information, see https://en.wikipedia.org/wiki/Gelati_Monastery.

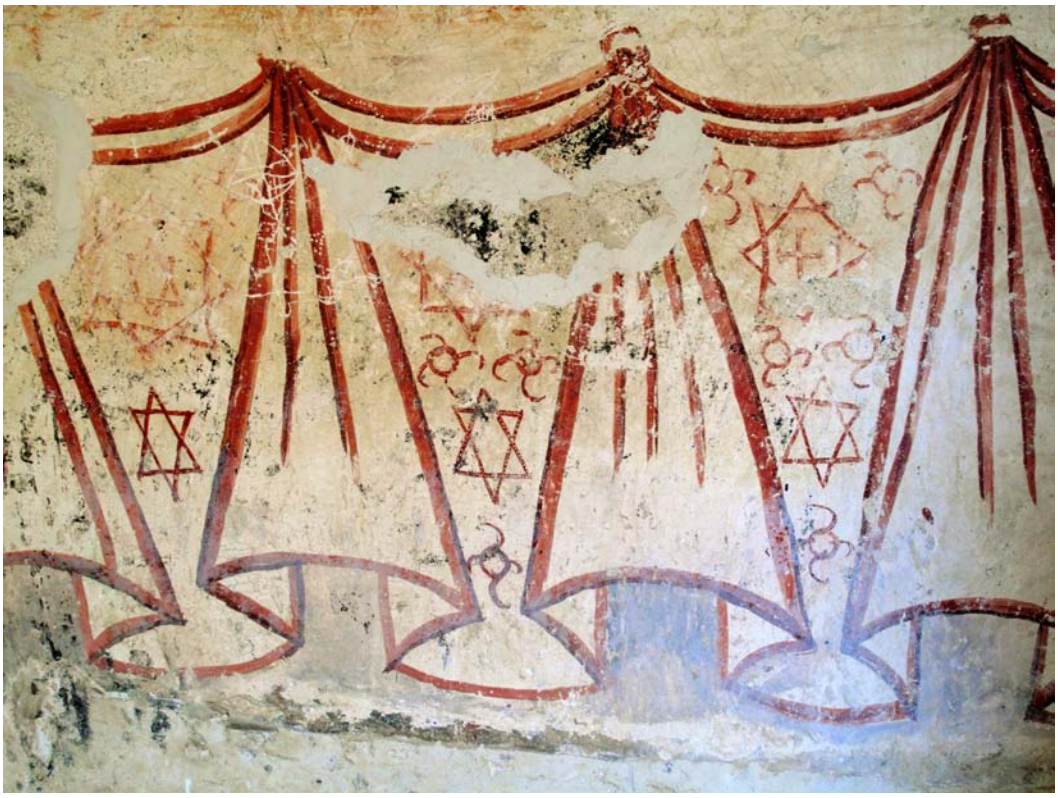


Fig. 16: Wall-painting in the ambulatory (Gelati monastery) (Photo © S.K.)

Fig. 17: Sun symbol (Gelati monastery, ambulatory) (Photo © S.K.)

Another related symbol is an official symbol today: The same sun symbol, also in red, but with three instead of four arms (i.e. a *triskelion*), is the centerpiece of the official flag of Ingushetia – see **Fig. 18**.[21] It may or may not have had a Georgian influence, but is structurally related anyway.

Fig. 18: Flag of Ingushetia

Still another variant of the sun symbol is the Armenian and Georgian eternity sign, a swirl, either left-facing or right-facing, see **Fig. 19** for a sample.[22] For our context, it is important to know that the Armenian eternity symbol has a tradition that goes back to the 5th century and was firmly established before the creation of the Slavic alphabets. The literal translation of its name, *Arevakhach*, means "sun cross" (or "solar cross"). The same sign can also be found Georgia – see the next photo, taken in Kutaisi in 2012 (**Fig. 20**). In Georgia, the sign is called 'Borjgali'[23]; it is understood as a symbol of the sun and described as a variant of the swastika[24]. Georgia uses it on its official documents (coins, passports etc.). Sometimes, it is depicted above the branches of a tree.

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[21] See https://en.wikipedia.org/wiki/Flag_of_Ingushetia for more information. The corresponding Russian page also shows an earlier version of the flag, where the central symbol is not as bold as it is today; see https://ru.wikipedia.org/wiki/Флаг_Ингушетии. See also https://en.wikipedia.org/wiki/Triskelion for information about the symbol.

[22] See https://en.wikipedia.org/wiki/Armenian_eternity_sign for more information. It has been encoded in 2014 in Unicode 7.0 in the slots U+058D and U+058E in its right resp. left turning variant: <֍֎>. The swastika is also part of Armenia's architectural history, see http://www.iatp.am/vahanyan/articles/krest1.htm. 'Indoeuropean' symbols are attested in Armenian petroglyphs as well, i.e. long before our modern nations came into being. See https://narinnamkn.wordpress.com/2012/11/29/armenian-wheel-of-eternity-six-pointed-star-svastika/ for some samples.

[23] See https://en.wikipedia.org/wiki/Borjgali for more information. The etymology of the word may be simpler than the hypotheses noted in the Wikipedia article: *borji* means (among other things) 'root', and *borjgali* 'having branches' (personal communication by W. Boeder).

[24] See the Russian wikipedia entry: https://ru.wikipedia.org/wiki/Борджгали, which in contrast to the English entry mentions the meaning 'root', but then phantasizes about meanings like 'holy' or 'rich harvest' which can be derivative at best.

To sum up, the sun symbol has a long tradition in Southern Caucasus (Armenia, Georgia) and in Northern Caucasus (Ingushetia). It is also present in modern-day popular Slavic mythology, though, again, their historicity in this context should not be taken as given.[25]

Fig. 19: The Armenian eternity symbol as a dot over a letter (Photo © S.K.)

Fig. 20: The Sun symbol in a Georgian context (Photo © S.K.)

[25] See, for example, http://www.slavorum.org/slavic-symbolism-and-its-meaning/.

10. The Swastika (four armed sun symbol)

One well-known branch of the sun symbol family in Indoeuropean tradition, is, like it or not, the swastika.[26] This symbol is well-known from antiquity, being used, for example, on Cretan ceramics, Greek pottery and in Roman mosaics.

We have assembled a few samples from Macedonian territory. Below we are showing a Greek vase from Macedonia (a prominent exhibit in the Archeological Museum in Thessaloniki, **Fig. 21**) a Roman example from the excavation area called 'Plaošnik' in Ohrid, Macedonia (**Fig. 22**)[27], i.e. samples from the area Konstantin in his youth in Thessaloniki of later Kliment during his stay at Ohrid were familiar with. Many other samples are, of course, known to exist.[28]

The swastika consists of four arms (without any belly), all pointing in the same direction (left or right, both forms exist). This certainly connects it to the 'spidery kh'. As far as we know, slavists have not seen the genetic relationship of the Glagolitic 'spidery kh' to the Indoeuropean swastika symbol before.

The swastika is also one of the symbols from antiquity found in Dablagomi, Georgia, see FÄHNRICH (2013, 231) for two instances, one of them even assumed to be a character.

Fig. 21: Swastika on Greek pottery (Saloniki, Arch. Museum) (Photo © S.K.)

[26] See WILSON (1990) and https://en.wikipedia.org/wiki/Swastika for more information about its origin, distribution and use as a letter (in Sanskrit and certain East Asian languages).

[27] It can be seen on the floor of the building left to the main attraction of the area, the re-built church of Sv. Kliment (Pantelejmon).

[28] A very interesting recent finding is among the mosaics discovered at the area called 'Manchevci' in Ohrid, a short distance below the Roman theatre. Here, one complete mosaic consists of swastikas only – see TUTKOVSKI (2015, 355, Fig. 25a, and also Fig. 25b for another sample from Plaoshnik).

Fig. 22: Swastika in Ohrid, Macedonia (Plaošnik) (Photo © S.K.)

The relationship of the Glagolitic letter to the Indoeuropean sun symbol reveals that both components of the Glagolitic letter are important constituents: the 'belly' (or circle) as much as the four 'arms'. The swastika usually does not have a belly at all, only arms, while the Glagolitic letter makes the belly (i.e. the sun) appear more important. In the Caucasus, we find a symbol with a belly and three arms (the *triskelion*; Ingushetia) or four arms (the *tetraskelion*; Georgia). Thus, the Caucasian sun symbol looks like a 'brother' to the Glagolitic letter, while the swastika could be called a 'cousin'. With its four arms, it is, however, more closely related to the Glagolitic tetraskelion than the Caucasian eternity sign with its many arms (and no 'belly').

11. Spidery kh, related letters and sounds

In discussing this letter, TRUBETZKOY (1968, 29) points out various striking similarities between the *function* of χ-letters in the Coptic and Georgian alphabet, all having the numerical value 600 and a phonetic value of [k']. (As mentioned above, in the Glagolitic alphabet the 'spidery kh' stands for 6000 instead.) So, let us have a look at the Georgian *Asomtavruli* alphabet – the oldest one, and the one in use in the 9th century (the younger Georgian alphabets were only just about to develop at that time).

Interestingly enough, Georgian does not have a one-to-one correspondence to the Greek chi on a phonemic level[29]. It has three sounds, each with its own letter:

[29] http://www.caucasusstudies.se/GeoLINK/IntrScr2.html. – For an analysis of the construction mechanisms behind the Georgian letters see BOEDER (1975).

ⴘ	k'ani	20	[k'] (or k)	U+10A9 (kan)
ⴖ	kani (or khan)	600	[k^h]	U+10B5 (khar[30])
ⴚ	khani (or xan)	6000	[χ]	U+10BE (xan)

While the *kan* sign [600] is indeed a cross, we have not been able to find out more about the origin of the *k'an* sign[31]. The cross, in turn, is very similar to the Greek χ [600] – it is just a matter of looking at it from a different angle.

Let us quote two sentences from the Wikipedia article on the Georgian scripts: "Recent historiography focuses on greater similarities with the Greek alphabet than in the other Caucasian writing systems, most notably the order and numeric value of letters. Some scholars have also suggested as a possible inspiration for particular letters certain pre-Christian Georgian cultural symbols or clan markers."[32] Parallel to the assertion by Miklas about the symbolic value of the Glagolitic 'spidery kh' representing Jesus Christ is a remark by SEIBT (2011, 4): "Looking to internal criteria and the systematic order of the Georgian Alphabet we see that it is much nearer to Greek than the other Caucasian alphabets. The numeric value runs parallel to the Greek one, the consonants without a Greek equivalent are organized at the end of the alphabet. To the Christian origin of the Alphabet points the first letter of "Christ", an aspirated K, in the form of a cross." In this respect, there is striking resemblance to the Gothic alphabet, another derivative of the Greek alphabet, which includes the letter <X> but "uses it only in foreign words and especially in the name *Xristus*" (STREITBERG 1920, 42). In the Coptic alphabet, the glyph for the '600' value has the Greek chi shape.[33]

What is certainly astonishing, is that the first sign bears a striking resemblance to sun symbols and to the 'spidery kh'. By doubling its arms one would immediately arrive at the canonical shape of this Glagolitic letter. For these four arms, the Greek chi might have indeed been an inspiration (besides the swastika and other sun symbols), as could have been the cross. Thus, besides the striking similarity to the sun symbol, we are inclined to also see a secondary, supporting

[30] The name of the letter is 'khan', but the Unicode documentation in all of its iteration and proposals strangely uses 'khar' instead. There may have been a confusion here regarding several similar names in the Georgian alphabet.

[31] Its shape is, however, clearly related to the Armenian letter namend 'ken' for the [k] sound, which is կ – it is just the circle that is broken up here.

[32] See https://en.wikipedia.org/wiki/Georgian_scripts.

[33] One might also note that the Greek *koppa* glyph, also originally used to denote the sound [k], has the shape of a large circle (belly) plus one arm.

Georgian influence (possibly combined with an additional Greek one) on the shape of the glyph for the 'spidery kh', which in turn is based on the functional and phonetic similarity of the corresponding letter resp. sound in their alphabets as outlined by Trubetzkoy, i.e. the position in the alphabet, its numerical and sound value. The four arms of the cross (600 sign) plus the belly from the phonetically similar [k']-sign result in a sign that is identical to the Caucasian sun symbol.

12. Influences and cultural context

Showing similarities of a letter to some other letters from a different alphabet or to foreign symbols is in and by itself not an explanation where it came from, and why it was chosen. Indeed, simply relying on a superficial similarity has been one of the basic mistakes made in discussing the sources for Glagolitic letters. It remains to be made plausible in which cultural context Konstantin and Methodios (or later scribes) could have seen the prototype of the 'spidery kh'.

During their stay at the Polychronion monastery at the Bithynian mount Olympus, i.e. near Constantinople on the Asian side of the Bosporus, it is not so far-fetched to assume direct contact with Caucasian languages and their scripts and even natives of the languages themselves. SMITH (2012, 265) calls Glagolitic "a cumbersome but ingenious script based on symbols and signs current in ninth-century Byzantium". A certain degree of influence of the old Christian Caucasian alphabets on the Glagolitic alphabet has long been established, so this aspect of our paper in and by itself is not new.

13. Conclusion

We hope to have successfully demonstrated, that the 'spidery kh' is indeed first and foremost a rendering of the sun symbol as used in the Caucasus (especially Georgia), and as such it is a variation of the *tetraskelion*; at the same time, it is related to the *swastika* as well as to other variations of the same Indoeuropean symbol having exactly four arms. Accordingly, it should not be called the 'spidery kh' any longer, a name which was based on a loose (and false) association anyway. A descriptive name like 'second x' is fine, as would be 'Glagolitic tetraskelion'. What is unusual in the Glagolitic alphabet is that this symbol has been turned into a letter – there is no parallel to that either in Greek or in Latin. Further, we have presented here a suggestion how to transliterate this character into Cyrillic: <Ѯѯ>. The sun symbol has arms that point in one direction only – either clockwise or anticlockwise. As the actual occurrences of the 'spidery kh' do not always conform to this one-directionality, it can be assumed that already in the 11th century, scribes were not aware any longer of the sign's origin.

To us, the Caucasian sun symbol (tetraskelion) had a direct influence on the shape of the glyph, but other, secondary, influences cannot of course not be excluded. They have been discussed at length by others before: why there were

two glyphs for the Greek chi to begin with, which function they had in the alphabet and its structure and numerical values, which influence the name of the letter had in choosing its shape and limiting its use to one word only, etc. But it is here, on the grapheme and inner-linguistic level, that the early Caucasian alphabets (and again: especially Georgian) also seem to play a role because they themselves feature character shapes for [k, k', kh] which exhibit the same structural elements as the Glagolitic sun cross and exhibit similar distributions of phonetic functions which are not in a one-to-one correspondence to Greek. With regard to the glyph for '600' and its sound value, the scripts Greek, Coptic, Armenian, Georgian, and Glagolitic all share very similar traits.

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