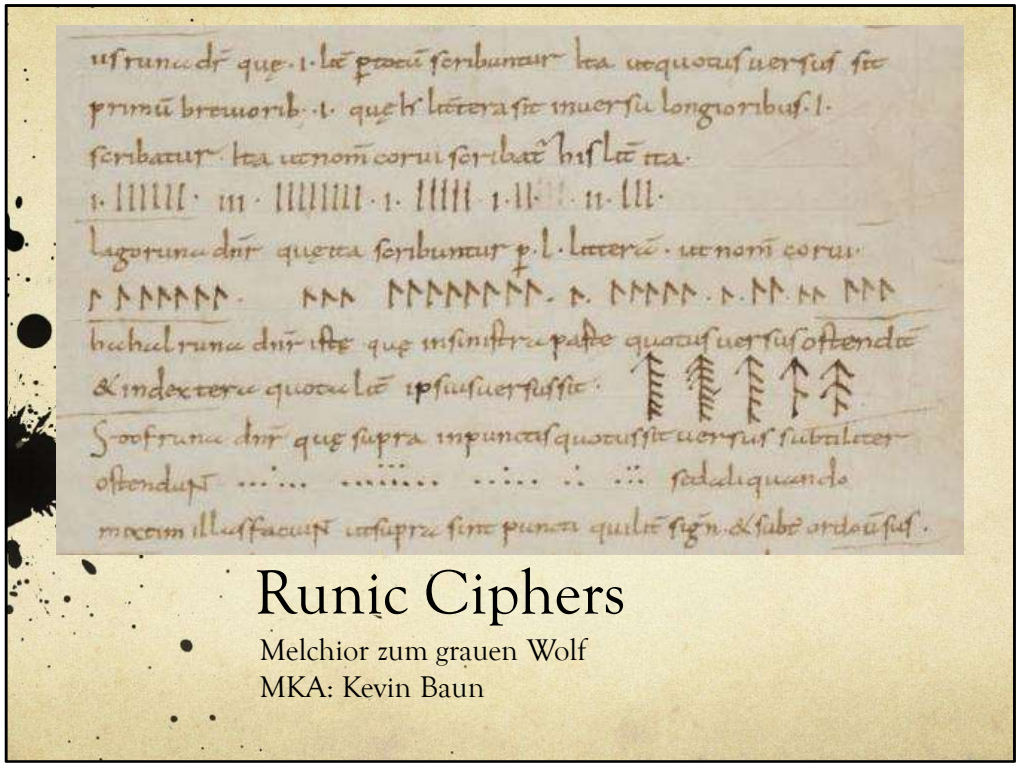


Runic Ciphers

Melchior zum grauen Wolf
MKA: Kevin Baun

Thank you for your interest in learning more about the Runic Ciphers. I may be reached at melchior@houseblueheron.com if you have any questions, comments, or generalized plans for global domination.

At the end of this class you will be able to explain what runes are, what a substitution cipher is, and identify common cipher runes in period.

How I got started researching this: 'let me document that for you' on FB/
Why I think it's so cool: there's a really interesting case to be made for a connection between an ancient Greek writing system and the origins of the runic ones. When you throw in that the root or 'rune' is the Norse 'run', secret/mystery, and the nearly identical approach to substitution found in the polyibus cipher and the 'runa' ciphers, it's just a fascinating topic.

OK, so that's what got us here. I originally thought this would be a short 30 minute class so I signed up for an hour. I ended up with something that could easily be 3 hours compressed into 1 so some stuff was thrown off the boat. I'll be reading from my script a good bit to ensure that folks reading this as a paper are getting the same information. The discussion we have here may turn into a research paper.

Agenda

- Introductions
- Brief history of runes
- Brief history of cryptography
- Survey of runic cryptography
- Discussion

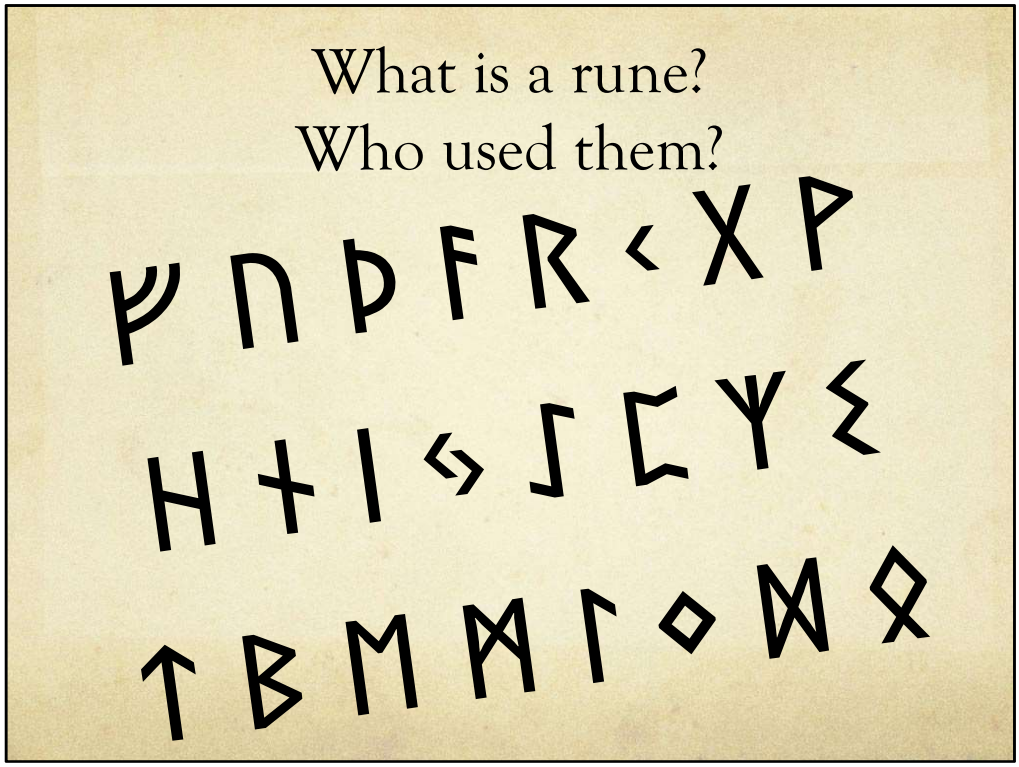
About You

- I do stuff. I'll only take 30 seconds of your time on this.

https://www.qr-code-generator.com/

This is the first time that I'm teaching this class so I'd like to learn a little about what you're interested in. What brought you to this class?

go around the room



Before we dive in too deep there are some items to ‘level set’.

First, this class is a discussion on runic cryptography. To gain an understanding of that topic you must first have a basic introduction to both runes and cryptography. This is not intended to be exhaustive, we only have about 45 minutes after all, but we will hit on the key areas. I have divided this session into three parts: runes, cryptography, and then the confluence of ‘runic cryptography’. This should provide enough framework to convey the subject matter to give you some background on what runic cryptography is and how it was used in period.

Secondly, some terms are overloaded. Teutonic here, for example, is using something of a dated definition. In this context Teutonic refers to the collective Germanic people and not to any particular Germanic tribe.

Finally, the purpose of this class is to examine runes as used in covert communications. There is much about rune and runic history that we will not be exploring here. I am, for example, NOT a linguist, I do not claim to

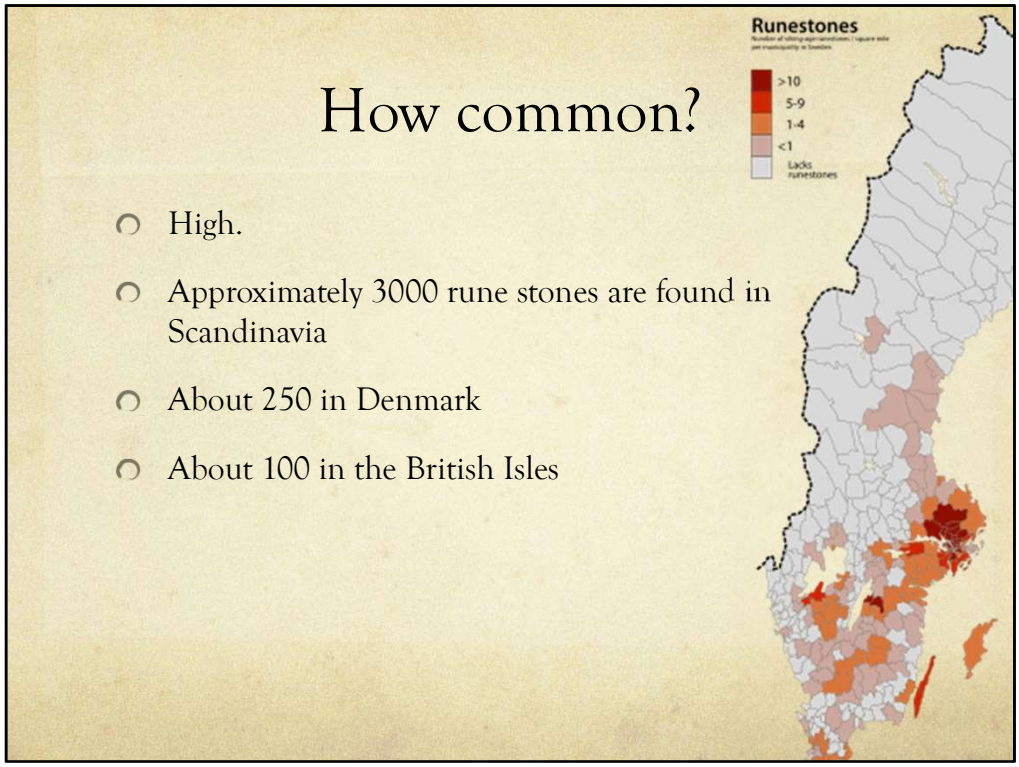
be and so I leave those noble endeavors to the qualified. I encourage you to examine the resources section at the end of this presentation for more information. It is a fascinating topic.

At this point I would like to take a moment to address an aspect of runic modern history that will not be referenced here again. The appropriation of runic characters and symbols, staffs and bind runes for example, by modern social movements. While that is a topic for some thoughtful discussion it is not a topic germane to the history of runes or of cryptography and will therefor not be discussed any further.

Now, Let's kick off with a brief introduction to what a rune is.

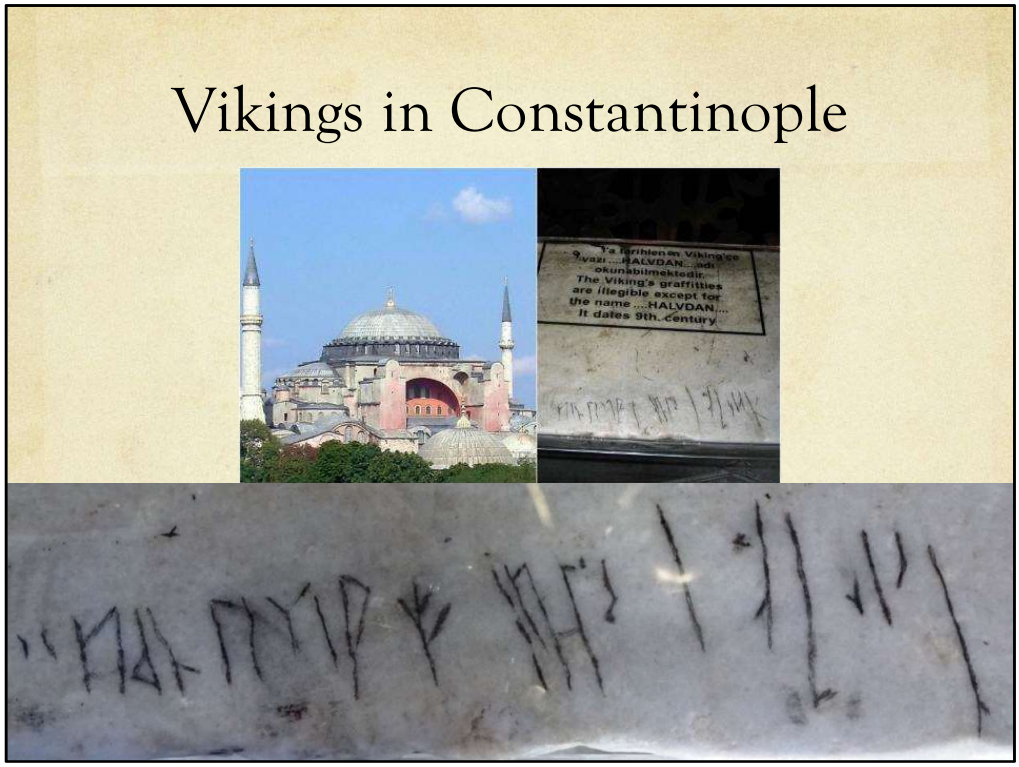
RUNES are the characters used to comprise the earliest alphabets in use among the Teutonic, Scandinavian, and Gothic nations of Northern Europe. Runes represent the phonetic and symbolic writing system (script), not necessarily a spoken language, although there are variations such as 'Old Norse Runes' or Runic Norse language. We know a good deal about how runes where used throughout period but their origins remain largely unknown. Scandinavian and Anglo-Saxon mythology agrees on Odin discovering the runes, but that myth requires a little examination as well.

The English word 'rune' is derived from the Teutonic *rûn.* This is also where the root of words like *runa*, a whisper, and *helrûn*, divination, originate. You may notice a theme across these words, hidden knowledge. Indeed, the general consensus among runeologists seems to be that "original use of these characters seems to have been for purposes of secrecy and divination"[1] or, similar to the Egyptians, to add a mystical quality to existing script. More on that in the section on cryptography. This class will be focusing on the secrecy aspect.



Having a general feeling for the concept of the rune, or runic writing, it is beneficial to establish the general relevance of the writing system. Just how common was it to find runic writing? Was it a part of everyday life? Are they historically common or rare and truly esoteric? Well, there are thousands of examples of runes being used throughout period and throughout Europe. The predominance of these examples come from the Scandinavian countries, British Isles, and those lands settled by the Germanic peoples. Those examples range from mystical amulets, to legal documents, to simple inscriptions for the purpose of identification. Of particular interest is the diversity of utility. The broad spectrum of uses implies general acceptance and utilization of runic as a common script. While literacy in general remained a barrier to reading and comprehension there is a reasonable expectation that runes were a known quantity throughout the medieval period, and in the Scandinavian region in particular.

Runic inscriptions are found throughout northern Europe. The casual observer will commonly associate runes with the Scandinavian countries, and this is not unreasonable, due to concentration and cultural association, but runic inscriptions are found from Iceland to the British Isles, from Finland to Italy, and occasionally beyond. Inscriptions range from a simple note of ownership (This toy sword belongs to 'bob' – such as the toy sword found in Bergen), coins & jewelry (found extensively in the British Isles) , the great standing stone monuments (predominantly found in Sweden, Norway and Denmark), and even legal documents (such as the Codex Runicus & Stockholm magistrate's register). Following this conventional wisdom we can follow the historic finds from Denmark into Sweden and Norway and then into the British Isles by the Angelo Saxons. Indeed, runes are found throughout central Europe, as far south as Italy and Romania, as far east as Kovel, Volyyia, Russia (both thanks to the Gothic March) and Constantinople (thanks to the far roaming Vikings).



Here we have an example of runes found in the Hagia Sophia, modern day Istanbul, Turkey. This is one of two known inscriptions in the Hagia Sophia made by Viking mercenaries during their occupation of the city during the 9th century. The inscription reads, plainly enough, 'Halfdan was here'. While the message itself is not of great historic significance, no disrespect to Halfdan, this example shows just how far spread the runic script was in period. Other rune rows (lines) and rune stones (monuments) of dubious historic authenticity have been found as far away as Kensington in Minnesota. The Kensington stone being initially dated to the mid 14th century. Even as a 19th century hoax, when it was purported to be discovered, this stone shows how runes have retained their significance over millennia as well as miles..

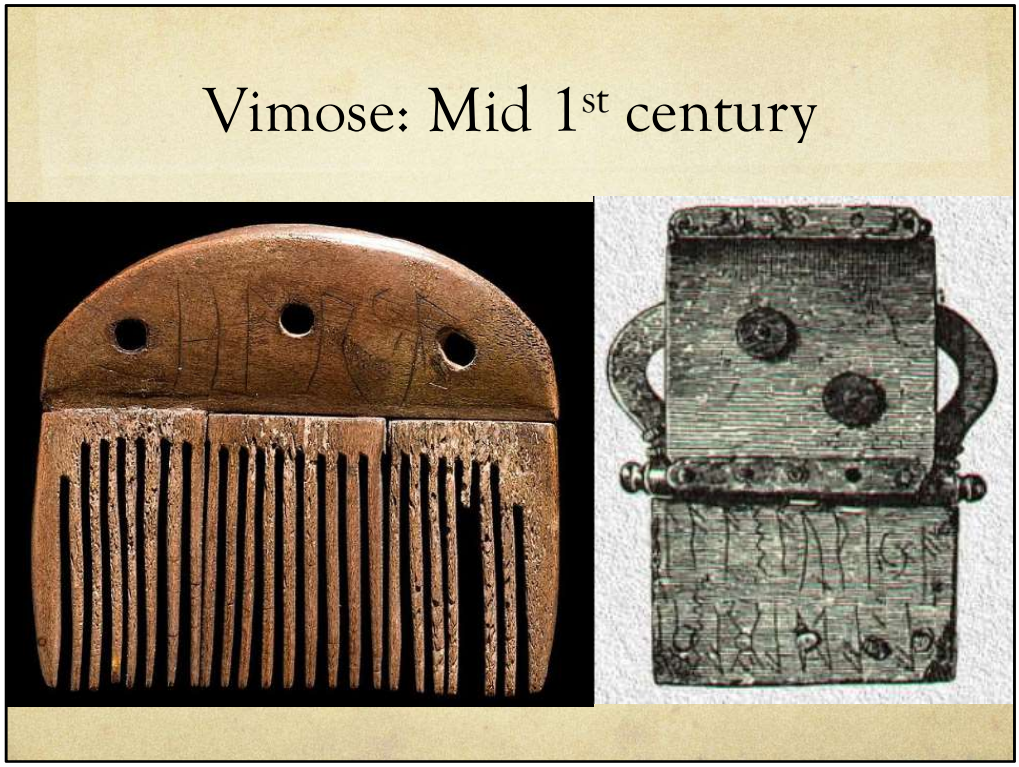
https://www.atlasobscura.com/places/viking-runes-at-hagia-sophia
https://www.thevintagenews.com/2016/10/20/there-are-runic-inscriptions-in-the-hagia-sophia-in-istanbul-left-there-by-vikings/

History of runes (when)

Knowing that runes were not uncommon, depending on the place, we must now turn our attention to the time. Pictured here is the “Meldorf fibula” (Schleswig-Holstein) which is ‘probably’ the first known runic inscription. However, there is some academic debate as to whether the inscription is old Norse, proto-runic, or runic and so whether it is the oldest extent runic use is unclear. The fibula dates to the early 1st century, from northern Germany, and would then predate the earliest finds in Sweden and Norway (200-300AD) by approximately 100 years. The inscription is made using the tremolo technique and can be interpreted as ‘for Ida’ (Roman) or ‘spouse’ (Runic).

Rendition of the inscription from the Meldorf fibula. (cf. Düwel (1981), p.160)

https://www.rug.nl/research/portal/files/3230056/c7.pdf



The Vimose Comb (c. 160) is considered the oldest known datable runic inscription, as there is debate about the Meldorf fibula, and bears the name of the presumed owner, **harja** (ᚺᚨᚱᛃᚨ). This artifact was found on the island of Funen, Denmark. This, along with other items found on Funen include some of the oldest runic inscriptions in early Proto-Norse or late Proto-Germanic. Other items found include buckles (next figure) a scabbard fitting (chape), and various other small items. These finds are significant for their age but also for the context they provide. These items show runes to be in usage for common items as early as 2nd century.

Both are 14th century (1300s)

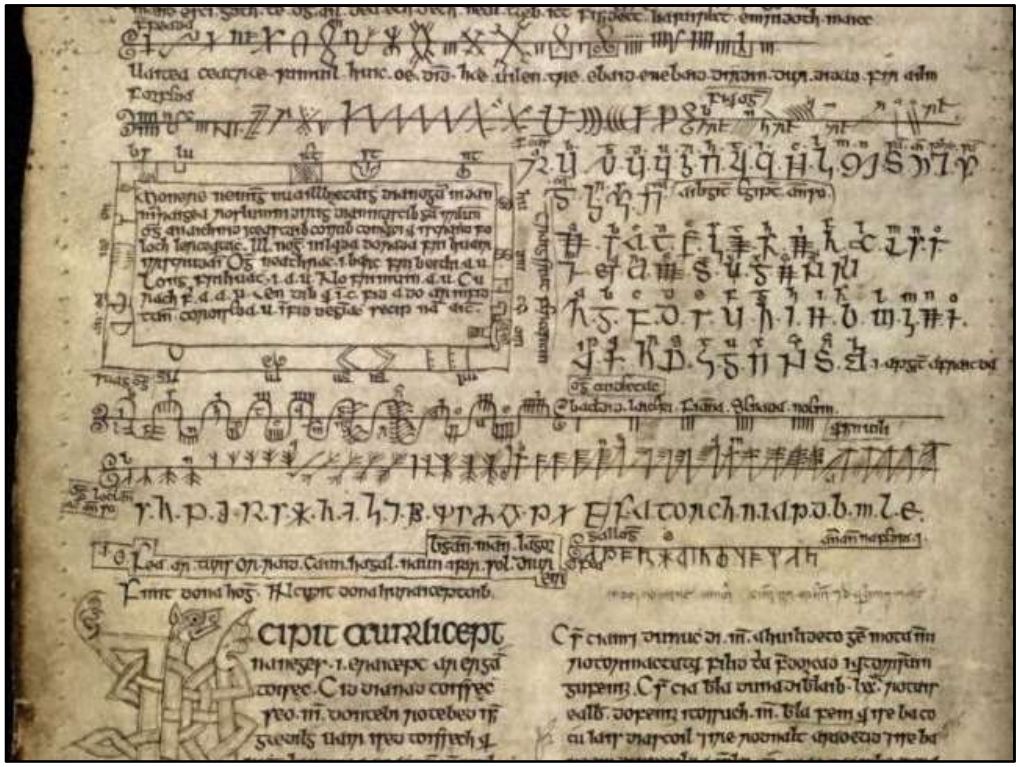
The Codex Runicus, a law code written in runes

https://ogham.co/primitive-irish-language/book_of_ballymote/
- Multiple Irish treatises on a number of subjects from religion to ethnic history of the Jewish people to the sagas of Finn and Brian Boru, as well as Ogham and language.

Both are 14th century (1300s)

The Codex Runicus, a law code written in runes

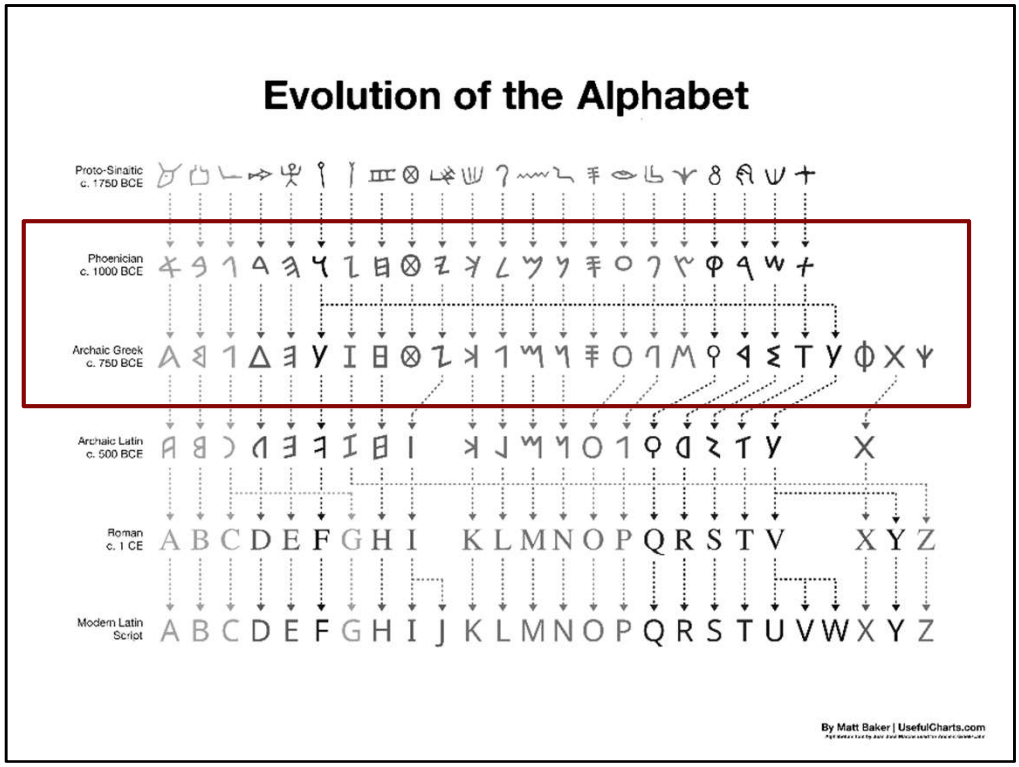
Written around 1300 this is 200 pages of provincial Danish law, monarchs, borders. This uses the 'medieval runic' script.



Both are 14th century (1300s)

https://ogham.co/primitive-irish-language/book_of_ballymote/
- Multiple Irish treatises on a number of subjects from religion to ethnic history of the Jewish people to the sagas of Finn and Brian Boru, as well as Ogham and language.

Now that we have discussed where runes were found in period, when they first appeared, and some examples of how they were used, we are left with what is perhaps the most obvious of questions: where did the rune scripts originate? Where did they come from? There is a well established myth of Odin finding the runes while hanging from the world tree. Snorri Sturluson's Poetic Edda (early 13th century, c 1220~), stanzas 138-139, describe Odin hanging from a windswept tree for 9 nights while wounded by a spear. On the last night he looked down and discovered the runes which he took up and then fell from the tree. Snorri also describes a historic Odin as an ancient chieftain of Scandinavia. Odin is said to have traveled Asia Minor, visiting the Greek city of Troy in particular. Several centuries later, early 17th century, Ole Worm published a number of works on runology and runic monuments. Among them was *Literatura Runica*. The first half of which is dedicated to runology, in which Worm builds on Snorri's assertions and makes a case for the runic writing system to have originated in a Greek or Hebrew Script. The slide above shows examples of Phonetian, Greek, and runic alphabets. Even a casual examination of which show apparent commonalities.



The chart shown above traces the evolution of the modern Latin script. Using this as a guide we can see how the writing systems developed and can imagine a progression into the elder futhark, which we will examine in a moment. Notice the reoccurring strong central line, the 'staff' of a rune, persists through each permutation of the alphabet. Also notice that the most significant changes to the systems occurs between archaic Greek and Latin. Something that is not shown in this diagram, however, is (as Dr. Crawford describes) the vast number of variants to the Greek alphabet that existed prior to the standardization of the alphabet around 400 BCE. It is important to stop here and clarify that, as Crawford does, that the Greek etymology theory refers to "A Greek alphabet. Not THE Greek alphabet" This is not significantly different than how we know the Roman alphabet to be derived from a Western Greek variation.

----------Notes----------
Runes and Roman: Germanic literacy

"Each engraving of a rune stone was followed by a transcription of the inscribed runes, a transliteration into roman letters, and a translation into Latin. "
Danicorum monumentorum (1643)
Ole Worm

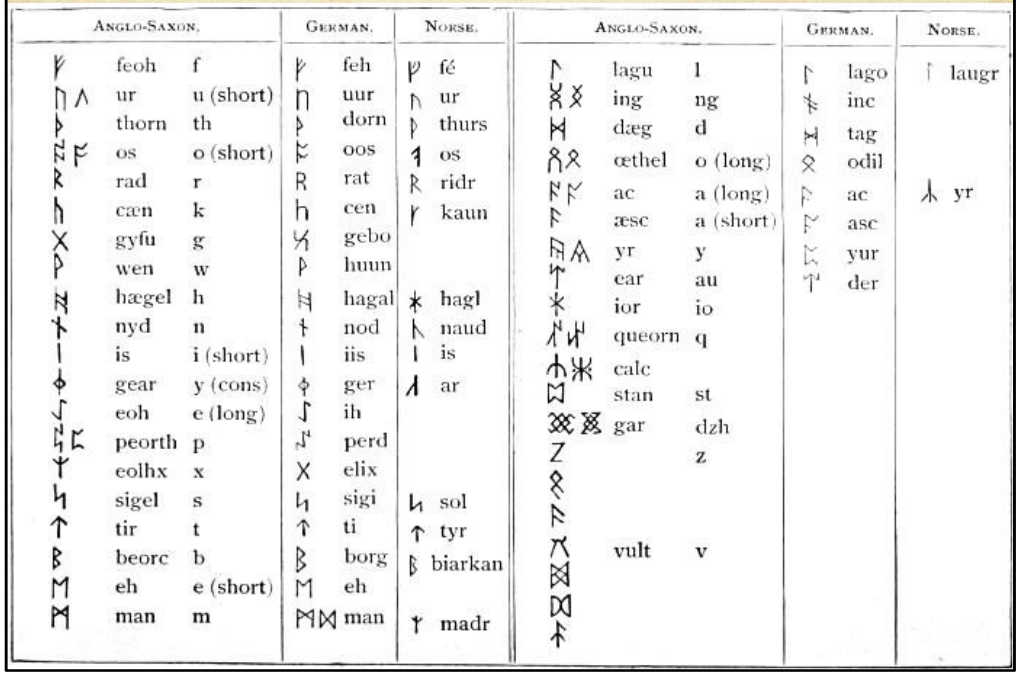
This book, usually known as *Literatura Runica*, is divided into two sections. The main body (pp. 1–174) is a treatise on runology, while an appendix (pp. 175–249) examines Old Icelandic poetry through many examples, all translated into Latin.

----------Notes----------
The thirteenth-century Icelandic scholar Snorre Sturluson had explained that Odin was not a god but an ancient chieftain who had been deified by the primitive Scandinavians, a euhemerist interpretation of Norse mythology that had been prevalent among scholars. In the *Prose Edda*, Snorre provided a narrative of how Odin had traveled from Asia Minor — more specifically from Troy — to Scandinavia. Relying on this narrative, Worm could trace runic signs back to the eastern hemisphere and its advanced systems of ancient writing. He believed runes had an origin in Hebrew script, a theory that allowed him to link the runes with ideas current at the time that Hebrew was the original and "perfect" language.4 Worm claimed that the runes constituted a unique "harmony of names, forms and things".5 Each rune had multiple meanings: it possessed 1) a sound value, 2) a name that began with that sound, and 3) a Danish word referring to everyday things. Each rune was believed to visualize its name abstractly, so that we see, for example, in H a snowflake, in a a ploughshare, in t the god Tyr having lost his one hand to the wolf Fefnir, and in M a man accepting the creation with his arms outstretched.

800-700 BC
700-400 BC Many Greek Alphabets
400 BC Greeks standardized the Greek alphabet
https://www.gutenberg.org/files/56817/56817-h/56817-h.htm

https://cdn.shopify.com/s/files/1/1835/6621/files/alphabet-bw_be19cb7a-4aed-4407-9d53-b73230415443.png

Common Runic Alphabets



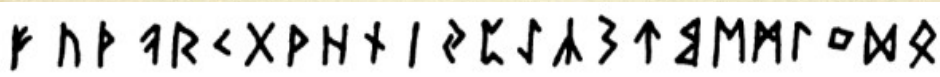
Anglo-Saxon.		German.	Norse.
feoh	f	feh	fé
ur	u (short)	uur	ur
thorn	th	dorn	thurs
os	o (short)	oos	os
rad	r	rat	ridr
cæn	k	cen	kaun
gyfu	g	gebo	
wen	w	huun	
hægel	h	hagal	hagl
nyd	n	nod	naud
is	i (short)	iis	is
gear	y (cons)	ger	ar
eoh	e (long)	ih	
peorth	p	perd	
eolhx	x	elix	
sigel	s	sigi	sol
tir	t	ti	tyr
beorc	b	borg	biarkan
eh	e (short)	eh	
man	m	man	madr

Anglo-Saxon.		German.	Norse.
lagu	l	lago	laugr
ing	ng	inc	
dæg	d	tag	
œthel	o (long)	odil	
ac	a (long)	ac	yr
æsc	a (short)	asc	
yr	y	yur	
ear	au	der	
ior	io		
queorn	q		
calc			
stan	st		
gar	dzh		
	z		
vult	v		

Here we see a comparison of three different runic scripts: Anglo-Saxon, Germanic, and Norse. You will notice that, much like the evolution of the Roman alphabet that we just reviewed, there are some consistent threads across these alphabets. For example: ‘f’, ‘u’, ‘th’, ‘r’, ‘k’ and ‘i’ are nearly identical in both the glyph and phonetic representation. ‘o’ also follows this pattern with the minor difference of the character being “reversed” in the Norse alphabet. Examination of the rune sets presented here reveal a number of other commonalities as well. These regional variants or dialects seem to point to a common proto-runic root alphabet from where they are derived.

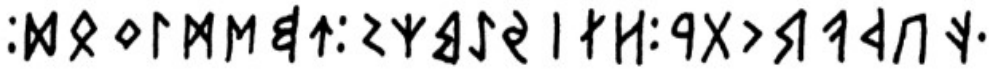
https://www.gutenberg.org/files/56817/56817-h/56817-h.htm

Variations



f u þ a r k g w h n i j p æ z s t b e m l ŋ d o

Figure 16: Kylver fuþark

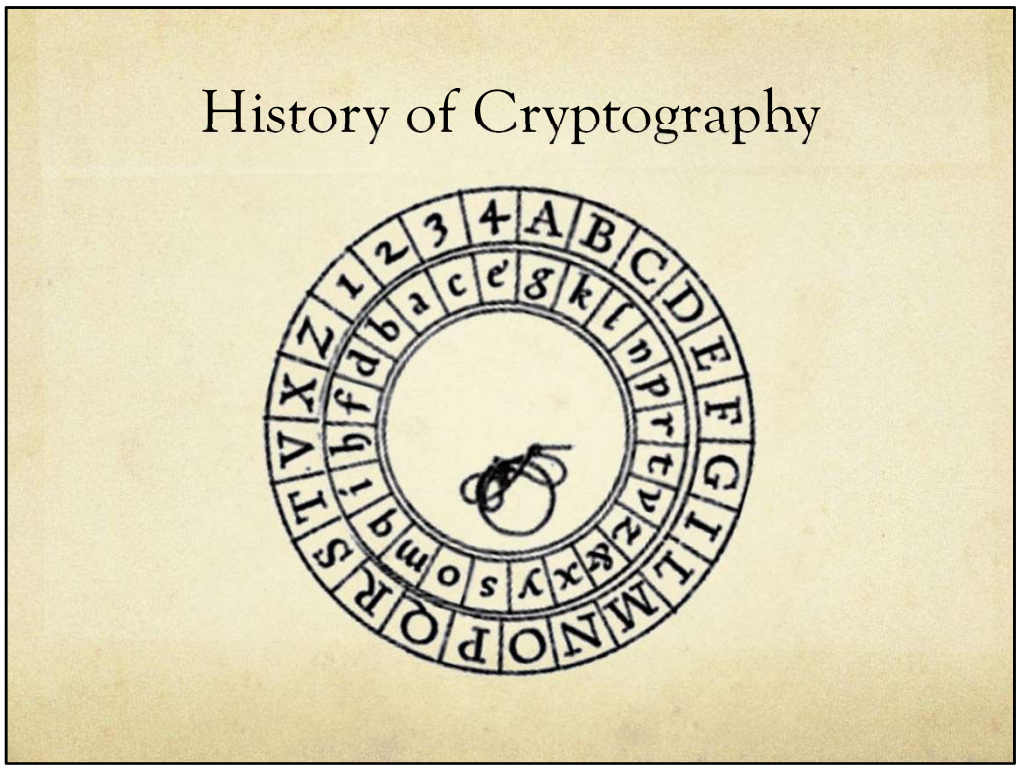


d o ŋ l m e b t s z p æ j i n h w g k r a þ u f

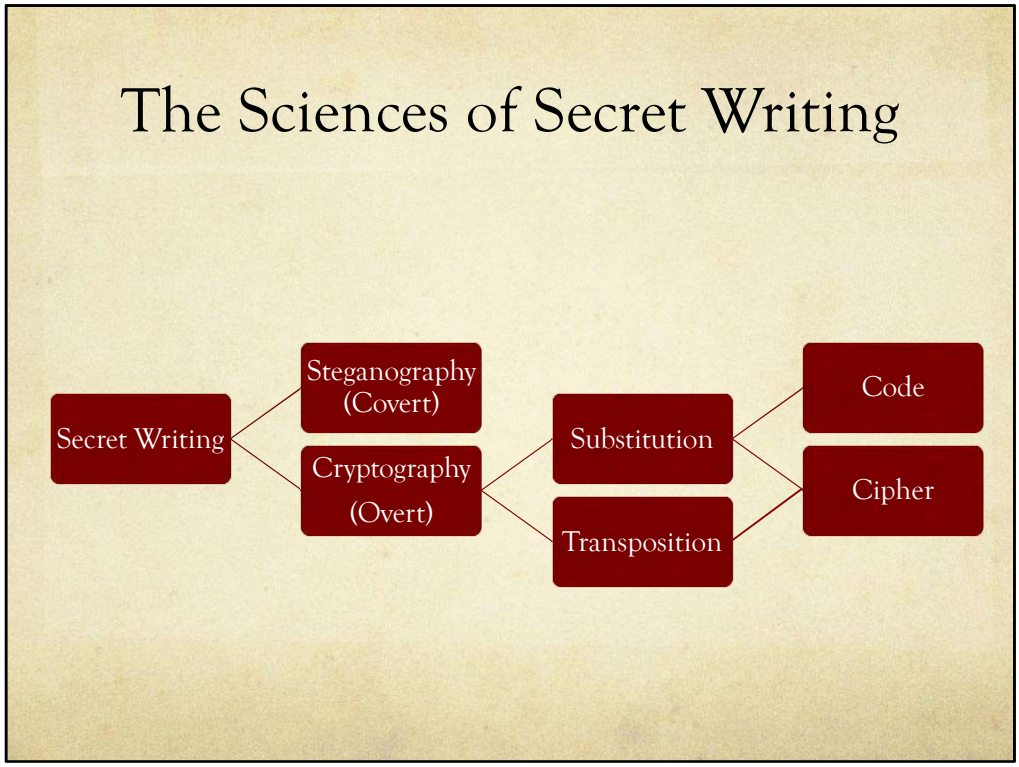
Figure 17: Vadstena fuþark (R-L)

Here we see two similar runic variants but with one very stark difference, the Kylver runes are ordered left to right while the Vadstena runes are ordered right to left. Runes were found moving right to left, left to right, and 'boustrophedon'. Boustrophedon is the "snaking" of the characters back and forth, as is sometimes seen on runic monuments, often with the characters being reversed in the rune row itself. Notice how most of the runes in figure 17 are reversed in both the ordering as well as the individual depiction. The 'r' is backwards, for example.

See Runic and Mediterranean Epigraphy
By Richard Lee Morris



Now that we've discussed the what, where, when, and how of runes it's time to speak briefly about the history of cryptography. The origins of cryptography reach back until at least 1900 BCE and a strong case could be made for keeping secrets being a practice as old as language itself. In this brief introduction to the history of cryptography I will be focusing on the historical elements with the most relevance to runic cryptographic implementations. The history of cryptography is a vast and fascinating subject which could never be captured in the 10 to 15 minutes that we will have to discuss it here. I encourage you to check out some of the extended resources on my website: http://crypto.houseblueheron.com/ to learn more.

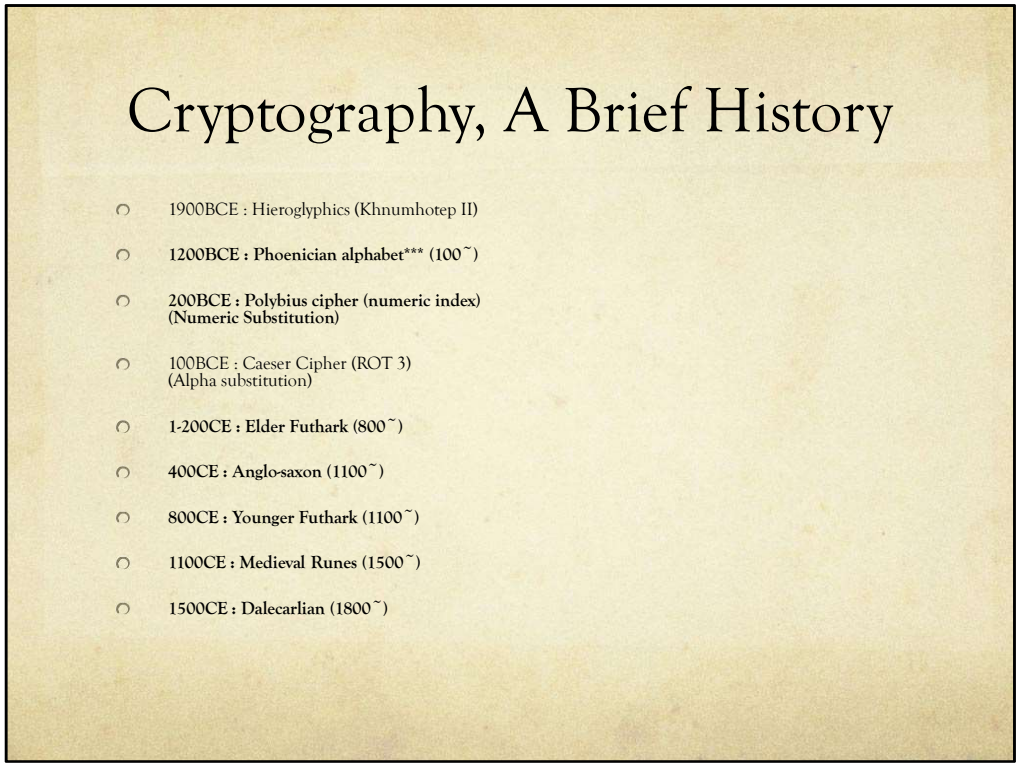


Here we see a VERY abbreviated family tree of cryptography. This taxonomic approach is not a novel creation of my own. Porta's '*De Occultis*' (1593) contains an EXTENSIVE decomposition of cryptographic systems that occupies 10 full pages. I have not included it here but I encourage you to seek it out as it is a fascinating view of the science of cryptography as it was known prior to 1600. We start here with 'secret writing'. There are many methods and mechanisms for secret communication that do not involve writing, however, since our focus is on runic alphabets and their use in secret communications we will start here. Secret writing is broadly broken down into Steganography and Cryptography. The former being a covert method of secrecy and the latter being an overt one. When we say that one is overt while the other is covert we are referring to the outward perception of the hidden message. Steganographic methods of secret writing hide the message in such a way that the uninitiated observer would never suspect that a message was concealed within. One example of this method would be the (Girolamo) Cardano Grill (described in 1550). This approach uses a grill, or mask, to reveal words of a disguised message from within another, innocuous, one. With straight up overt cryptography the message is encrypted and even a casual observer can surmise that what they are looking at may contain a hidden message. A modern example of this can be found, most likely, in your pocket, backpack, or satchel right now. Any modern device connected to the internet uses overt cryptography for all (https/ssl/tls/etc) encrypted traffic.

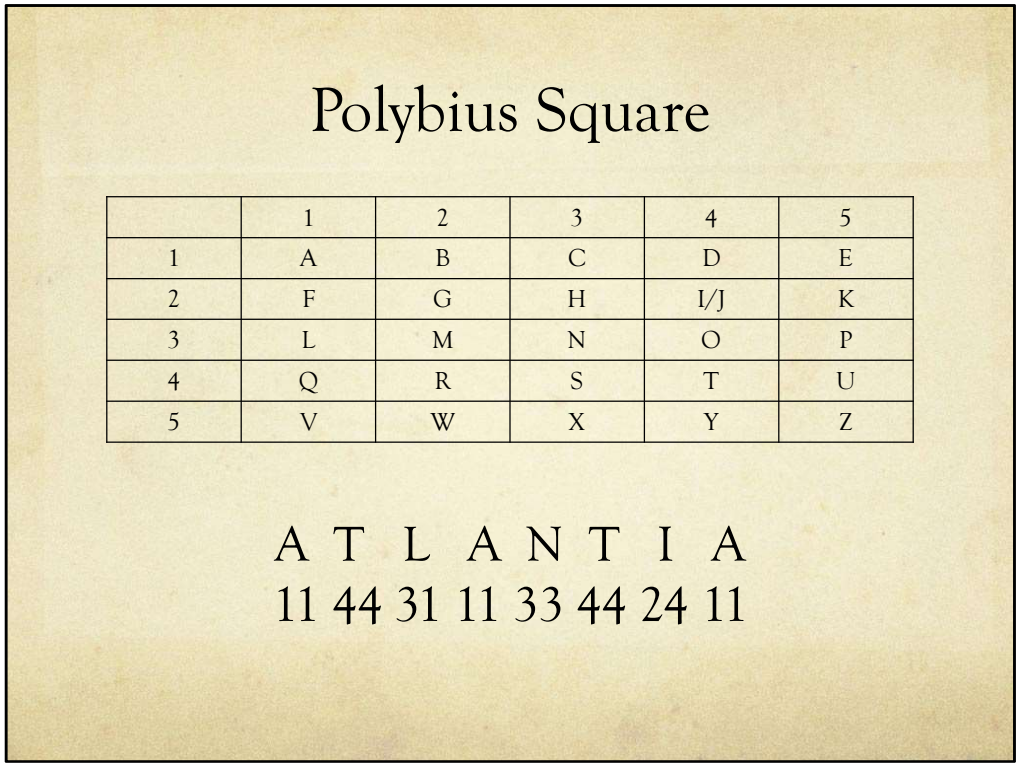
In its historical form cryptography falls into one of two general families, transposition or substation. Transposition ciphers re-order elements of the message so as to disguise the original content (plain text) with a seemingly random jumble (cipher text). Period examples

of this include the Spartan ‘Skytale’ (skitaly) or rail fence ciphers. Substitution ciphers replace each element, usually an individual character of the message (this is known as a stream cipher), with some other element. Simple examples of this type of cipher include the Caesar Cipher, where A is replaced with D, B with E, and so on. This is also known as a ‘shift’ cipher. Codes are shown here as a type of substitution but are largely outside of the scope of the discussion of runic ciphers as we have a focus on writing systems and codes involve the wholesale replacement of the meaning of a given set of elements.

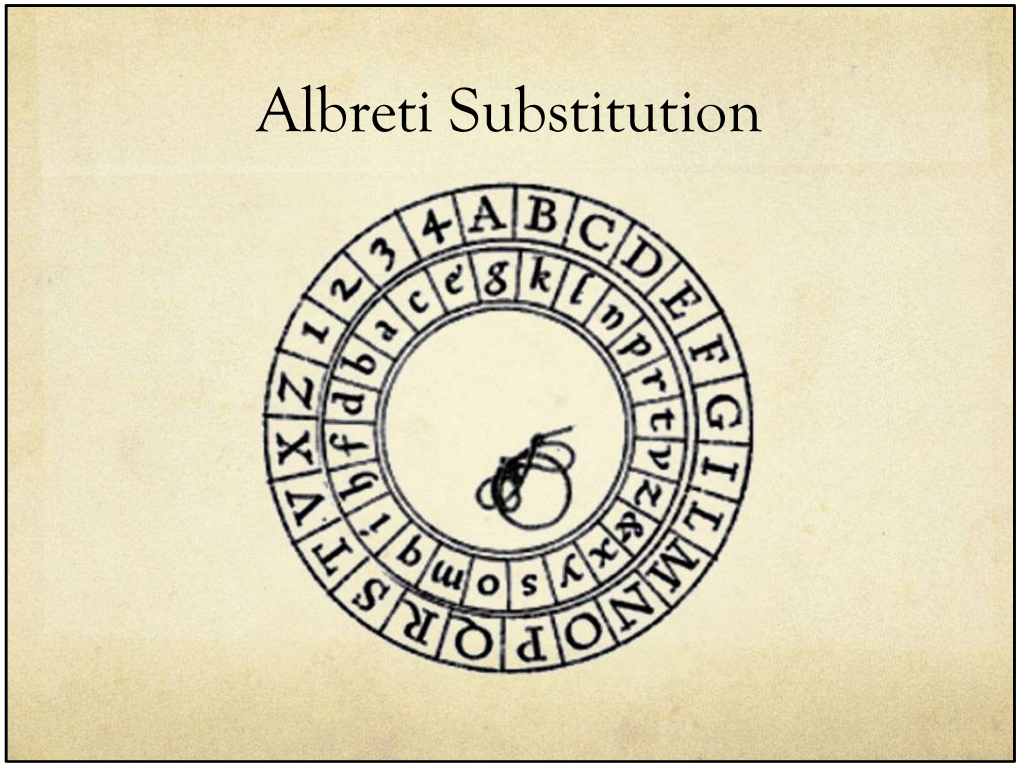
Clear as mud? Excellent. Now let’s look at the timeline with some specific call outs to rune cipher relevant items of interest.



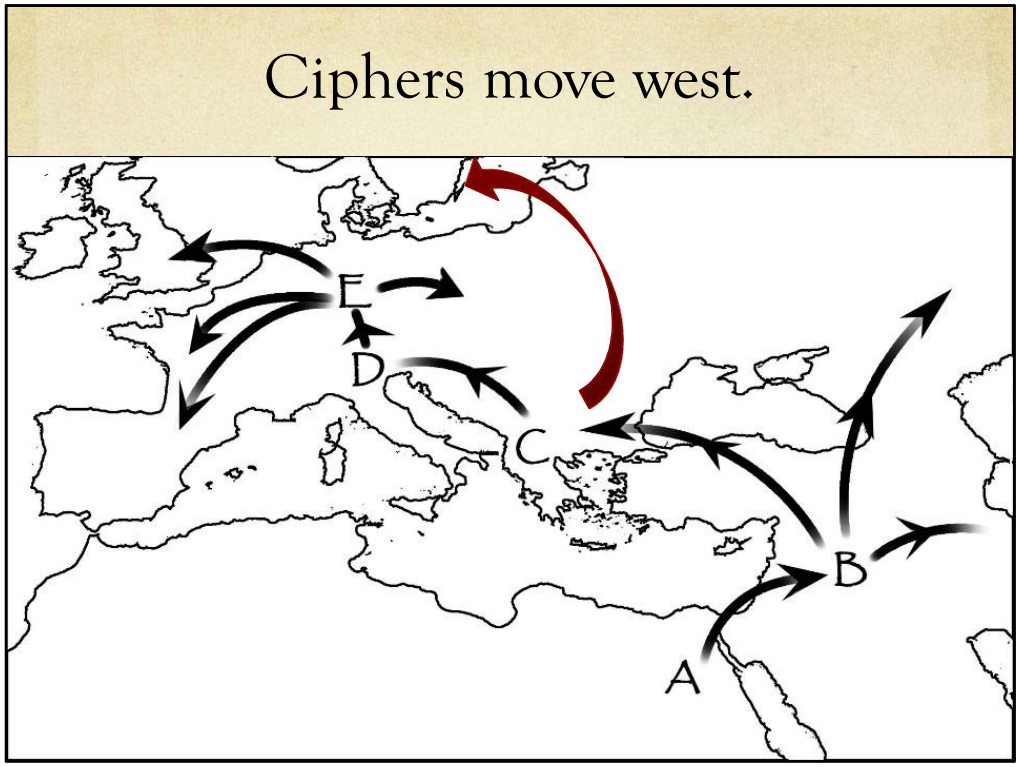
Here we have a VERY abridged timeline of the development of cryptography. The intent of this timeline is not to give historical milestones so much as it is to put the evolution of runic scripts and the techniques employed in their encipherment in context with each other. Of particular note is the proximity between the first description by Polyibus of the numeric substitution grid, around 200BCE, the relatively widespread use of substitution ciphers, as used in the Caesar cipher, and the introduction of the runic writing systems. By the time of the introduction of the oldest 'runic' systems the principles of basic cryptography had already been established and would have been known to those in a position to facilitate the system's migration and evolution. Taking this into account, and expanding on the previously discussed hypothesis of runic scripts having developed from a Greek script variant(s), it becomes clear that it is completely within the realm of possibility that the people responsible for bringing the 'runes' north brought the notions and implements of secrecy with them as well.



The Polyibus square is of particular interest for reasons that will become clear shortly. This device, described by the Greek mathematician Polybius in '*The Histories*' (140BCE~) places letters of the alphabet into a grid pattern that may be used to create a numeric substitution based on the index of the character within the grid. The Greek alphabet used by Polyibus had only 24 characters so the 25th index remained blank and could be used as a null value. The modern Romain alphabet has one too many characters so we use the common convention of merging the I and J into a single index. It is worth noting that expanding the grid to 6x6 will support all 26 characters of the Roman alphabet as well as the numerals 0-9.

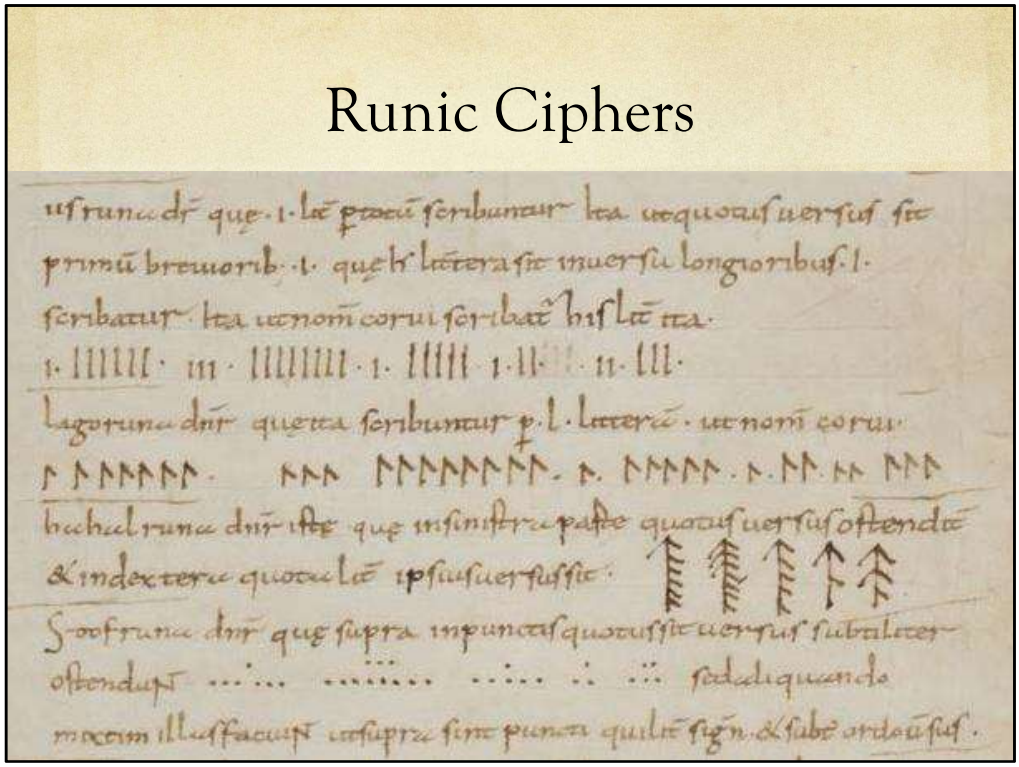


In 1467 Leon Albreti, an architect, mathematician, and accidental cryptographer published *Di Ciphrus* in which he describes a device he refers to as his 'formula'. This device, pictured above, provides a portable mechanism for quickly enciphering or deciphering messages but it's description also provides the first known example of a polyalphabetic cipher. The distinction between mono and poly alphabetic substitution ciphers is evident within their names. A monoalphabetic cipher consists of exactly one replacement alphabet, or symbology, for another. A always equals R, for example. In poly alphabetic ciphers a plain text may be represented by numerous ciphertext letters, and vice versa. For example: A equals R, or B and R equals B or C.. Polyalphabetic ciphers are significantly more resistant to cryptanalysis by way of classical techniques such as frequency analysis and so represented a massive step in the advancement of cryptography in the middle ages.



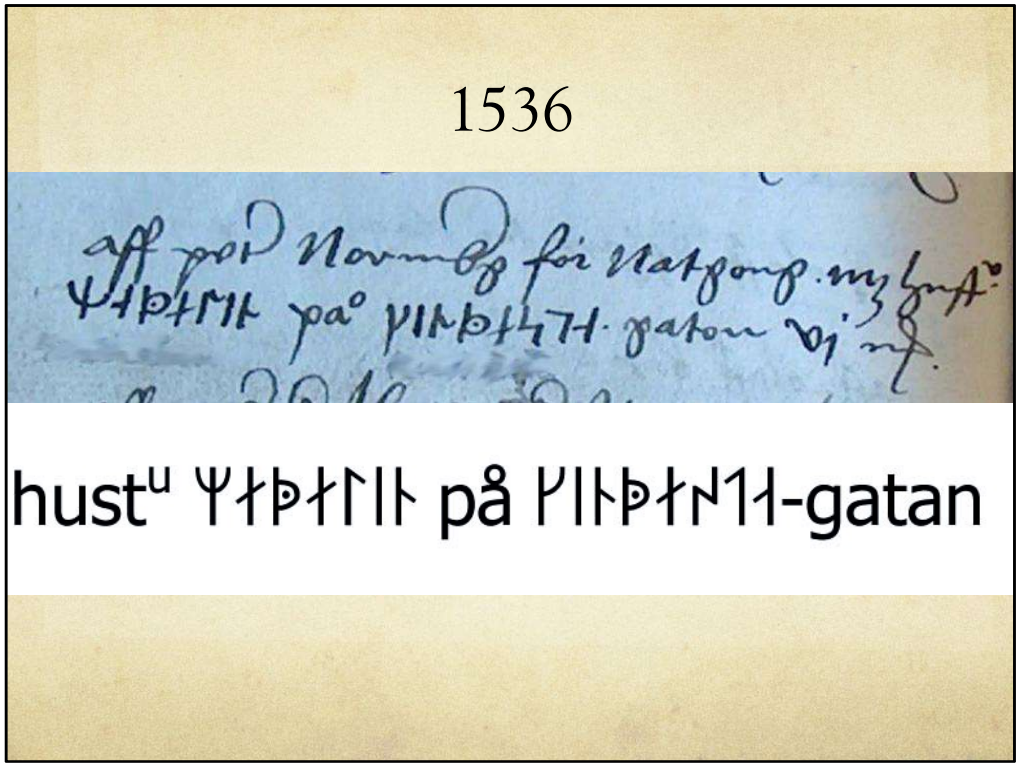
Here we see the general flow of cryptography out of Egypt, dispersed from the middle east, and then spread north and west into Europe. This is, of course, not a complete mapping of the journey that cryptography took as it made its way into the Norse/Germanic areas.

Runic Ciphers



The image above is from St. Gallen, Stiftsbibliothek, Cod. Sang. 270 (Alcuin manuscript) , page 52. (later half of 9th century)
http://www.e-codices.unifr.ch/en/csg/0270/52

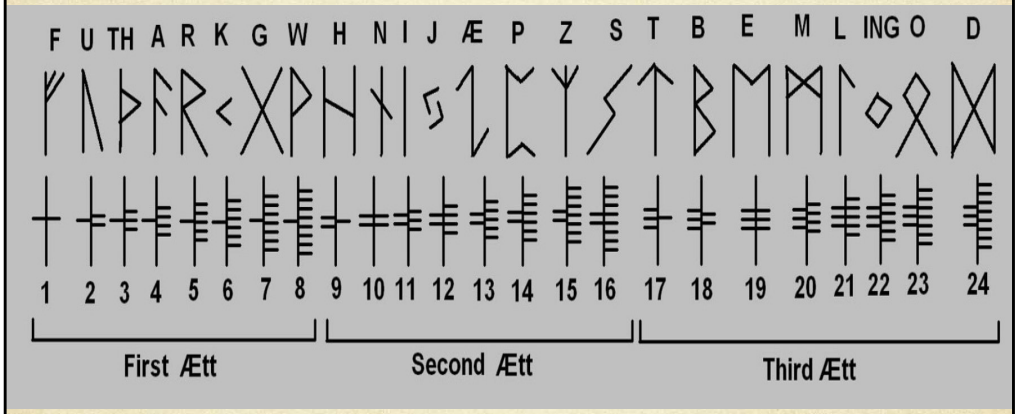
This document is available via my website (http://crypto.houseblueheron.com/). I welcome your comments or questions.



Let's start off with an example from period to show both rune use and utility within period. Here we have a magistrate's record from 1536 Stockholm. The entry documents the charges, fines, name, and address, of an adulterous (but well to do) person. Similar examples are found on following pages (this one just happens to be available by share and share alike rights). That particular document is one of many from period that show continued use of established runic scripts and of their utility. Here runes are used to protect the identity and address of an offender, with regards to a sensitive charge, so in effect, runes are being used in a fashion that is very similar to today's modern cryptographic approaches to protecting PII. This, in conjunction with the works of scholars such as Ole Worm, clearly show that runic scripts were used to maintain secrecy through the use of cryptographic principles, as discussed in the previous section.

https://www.jyu.fi/gammalsvenska/runkunskap.htm
photographed by Marko Lamberg

Cipher Basics



Indexing & Family (aettir) vs Natural Order

Elder

	1st rune	2nd rune	3rd rune	4th rune	5th rune	6th run	7th rune	8th rune
3rd family	f	u	þ	a	r	k	g	w
2nd family	h	n	in	j	p	ë	R (z)	s
1st family	t	b	e	m	l	ng	d	o

Younger

	1st rune	2nd rune	3rd rune	4th rune	5th rune	6th run
3rd family	f	u	þ	a / o	r	k
2nd family	h	n	in	a	s	
1st family	t	b	m	l	R / y *	

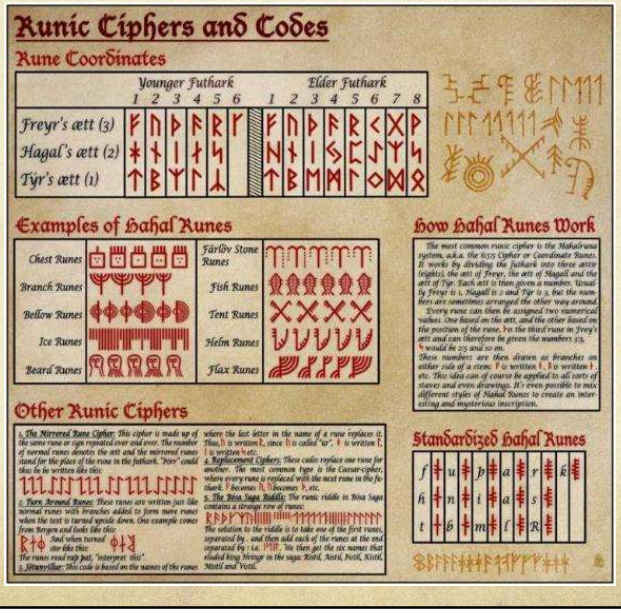
https://www.arild-hauge.com/lonnr.htm

Hahalruna

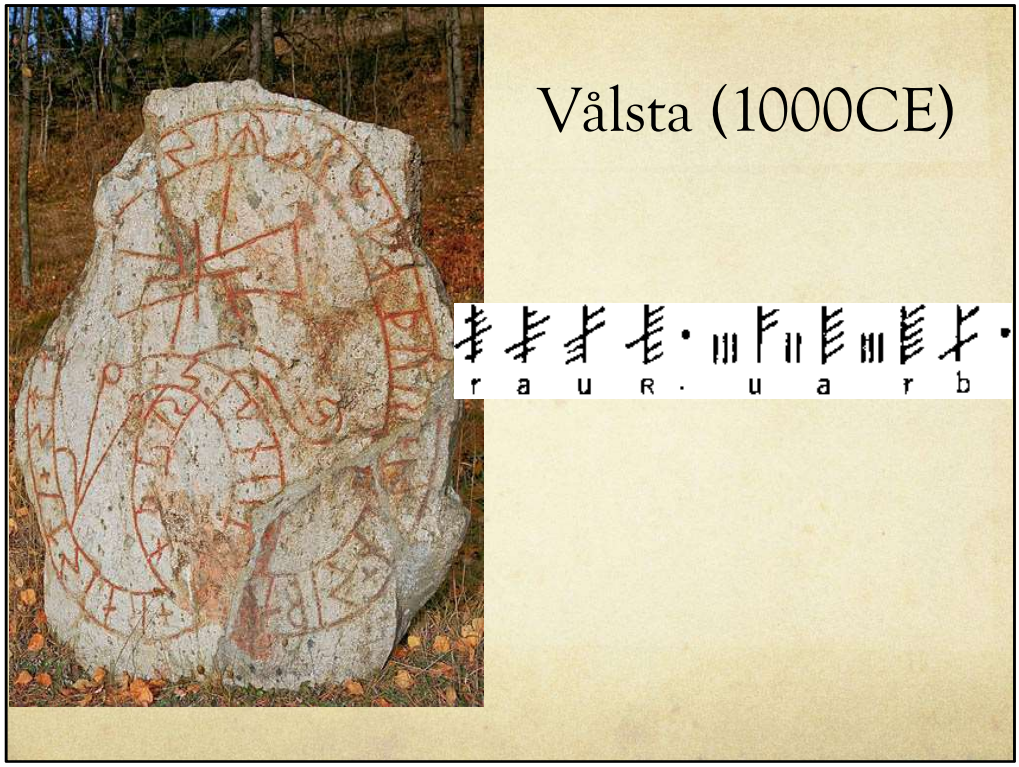
- Diagonal strokes on a vertical mark.
- Strokes to the left indicate group
- Strokes on the right indicate rune

Khan p88
Move up

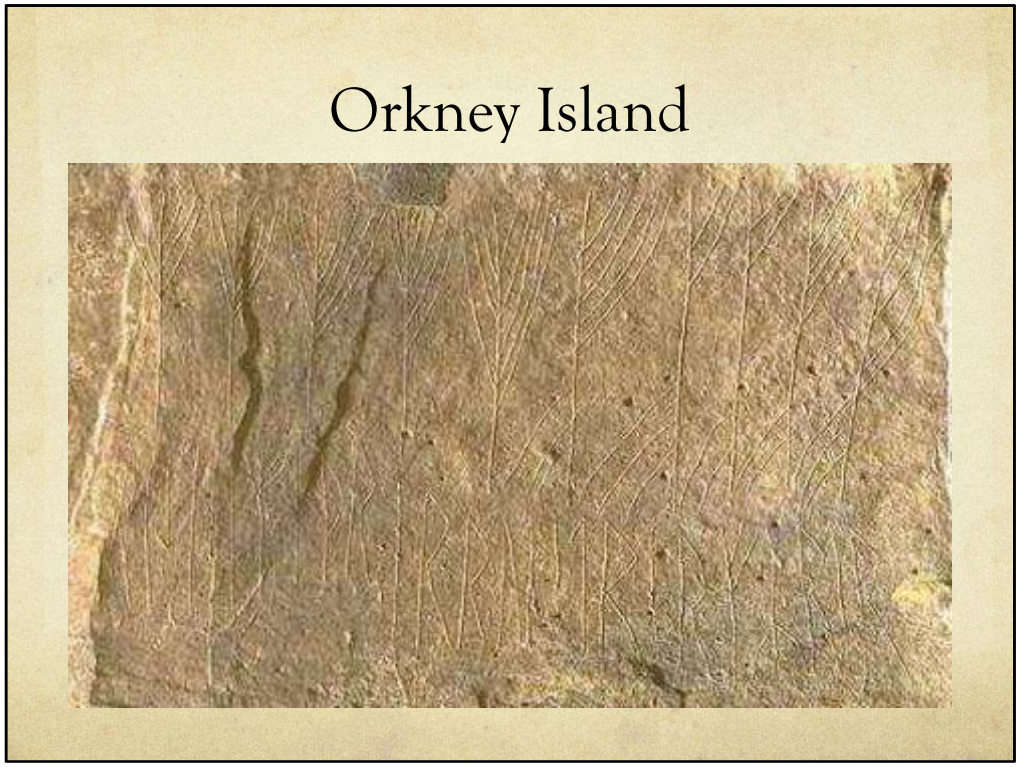
Hahalruna



Khan p88
Diagonal strokes on a vertical mark.
Strokes to the left indicate group
Strokes on the right indicate rune



https://stonecircles.wordpress.com/2010/07/02/deciphering-secretrunes/
https://commons.wikimedia.org/wiki/File:S%C3%B6_273,_Valsta_2007.jpg

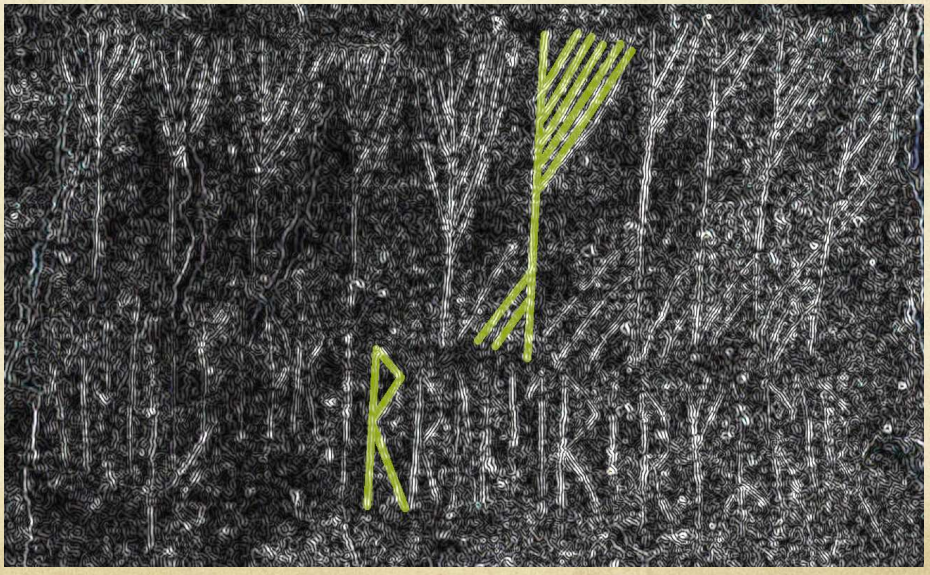


“Written by the most rune-literate man west of the sea.“

“These runes were carved by the most rune-literate man west of the sea,” bragged the author of this text. The inscription is in cipher runes and in regular runes. It was found in a burial chamber from the early Stone Age that Scandinavians broke into in the 1100s on the Orkney Islands. “A typical bunch of male adolescents were fooling around and wrote tall tales about treasures and their own sexual prowess,” says Runologist Jonas Nordby. (Photo: Bengt A. Lundberg/Riksantikvarieämbetet)

https://sciencenorway.no/archaeology-history-forskningno-language/mysterious-code-in-viking-runes-is-cracked/1396525

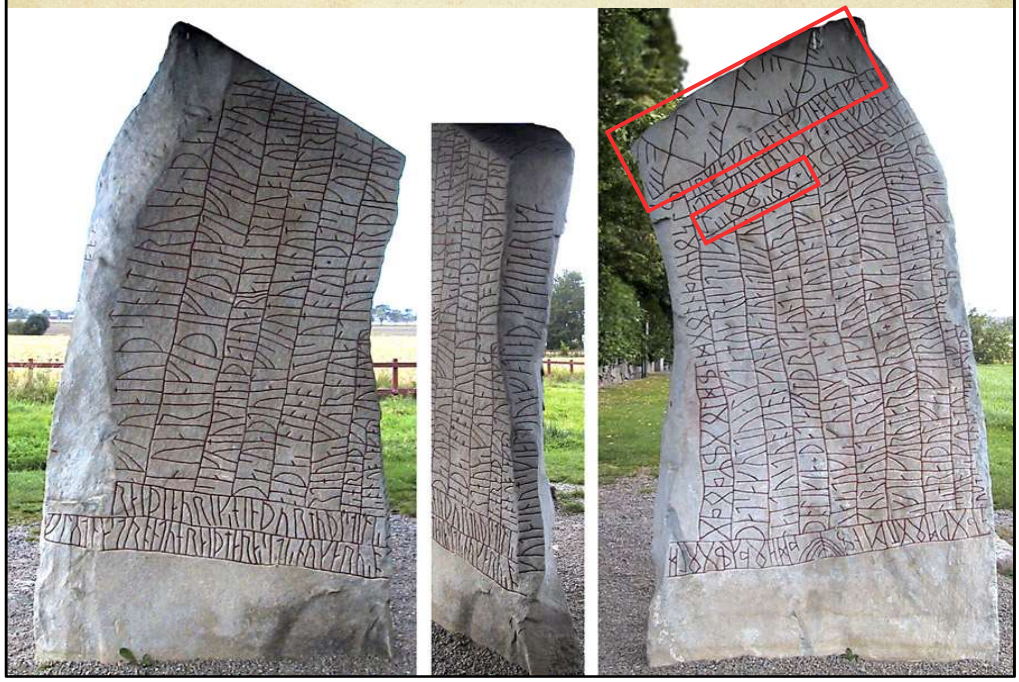
Orkney Island



“Written by the most rune-literate man west of the sea."

Rök Stone

Rök Stone



http://www.avrosys.nu/prints/arkeologi/100314.htm
Rune Stone at Rök Church, Östergötland, Sweden (early 800s)

Nearly 800 runic characters, many cipher runes.

See Rök, Östergötland, Sweden

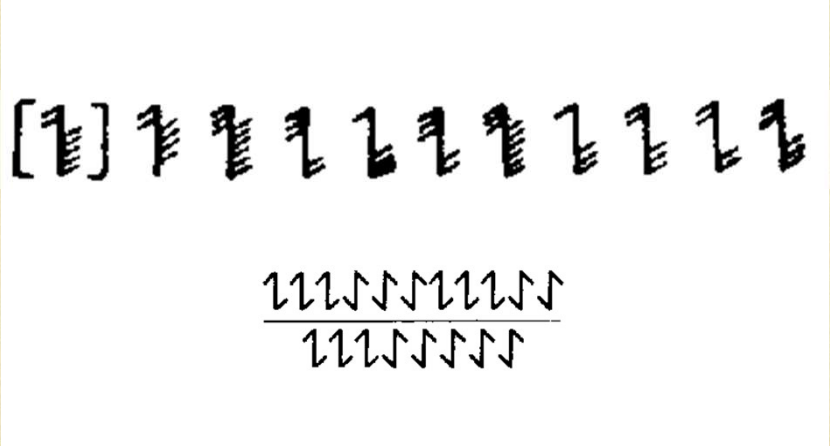
> The inscription is partially encrypted in two ways; by displacement and by using special cipher runes. The inscription is intentionally challenging to read, using kennings in the manner of Old Norse skaldic poetry, and demonstrating the carver's command of different alphabets and writing styles (including code). The obscurity may perhaps even be part of a magic ritual. (wiki - https://en.wikipedia.org/wiki/R%C3%B6k_runestone#Translation)

Rök Stone

The **tent runes** are based on strokes added to the four arms of an X shape: Each X represents two runes and is read clockwise, starting with the top left arm.

https://en.wikipedia.org/wiki/Cipher_runes
http://www.avrosys.nu/prints/arkeologi/100314.htm
Rune Stone at Rök Church, Östergötland, Sweden

Inscriptions



Variations

- Lagoruna (with the L rune)
- Stopruna (dots), clopfruna
- Ship runes
- Pig runes
- Knife runes
- …. And so on

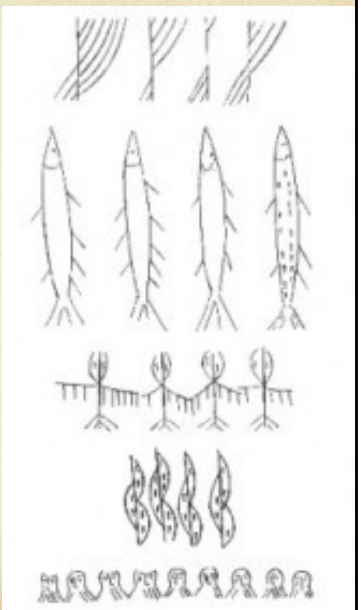
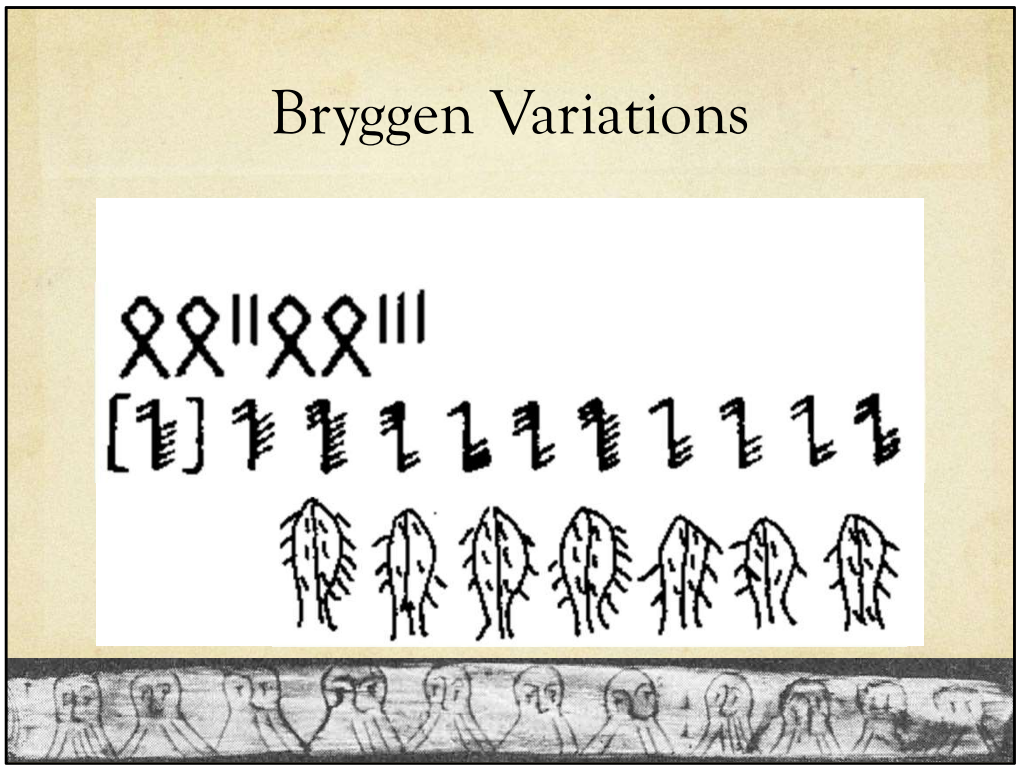


Fig. 21. Norse cryptic rune types from Bergen.

Introduction to English runes, fig 21, page 82-83



https://www.arild-hauge.com/arild-hauge/bergen-head.jpg

A rune stick from the Wharf in Bergen testifies to a mischievous use of runic writing. The lines in the beards of these men comprise a message, written in cipher runes. (Photo: Aslak Liestøl/ Museum of Cultural History, University of Oslo)

Isrunda (Ice Runes)

- Short vertical group "is" for the group.
- Long "I" for the rune

Figure 5. *The Six Months Ogam. The* G-R-Ng *is at the extreme left of the inscription. The crossed stemline is near the center of the inscription. Near the top of the photo and slightly to the right is the 13 day vernier. Photo by Bill McGlone.*

Khan, page 88
https://www.sacredequinox.com/pdfs/mithras_usa.pdf

‘Kiss Me’

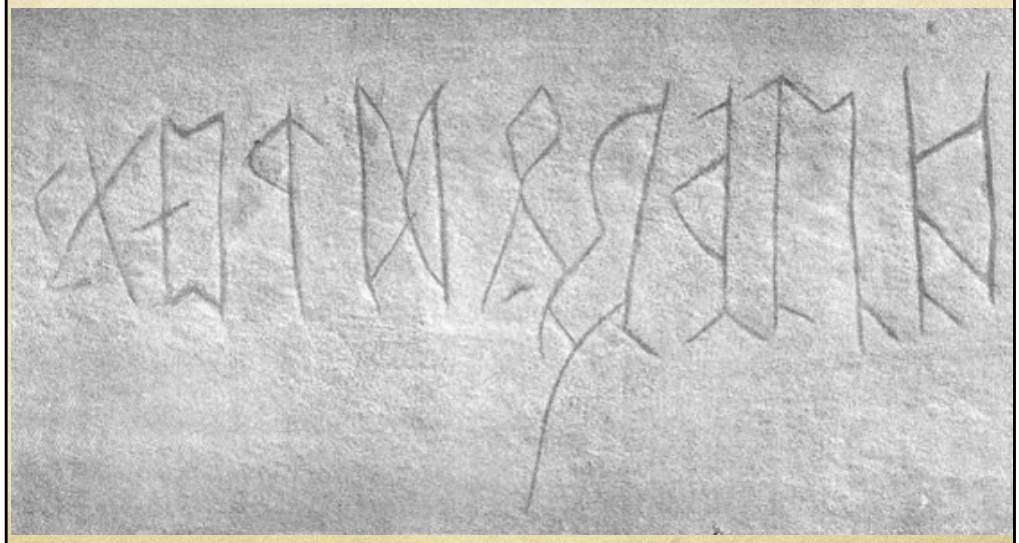
Etched in bone. (Sigtuna, Sweden)

Rotbrunna

- 1000CE The thus coded runes say airikr, which is the name "Eirik". The 4 following runes on the stone say hiuk, which mean "trace, scratch, chop, hew (in stone with chisel)". The runic text can be translated "Eric wrote (these runes)".

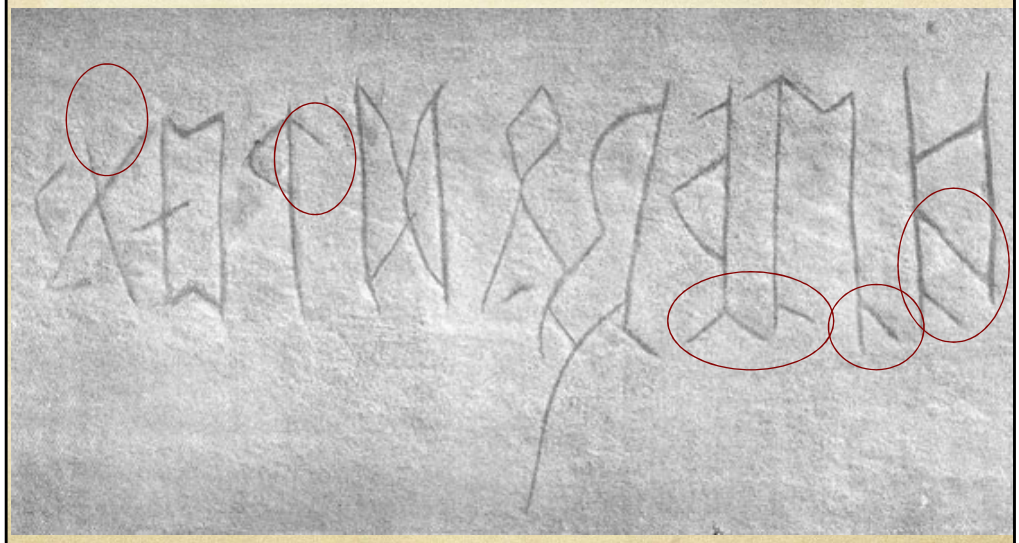
Northwest of Stockholm Sweeden.

lønnruner



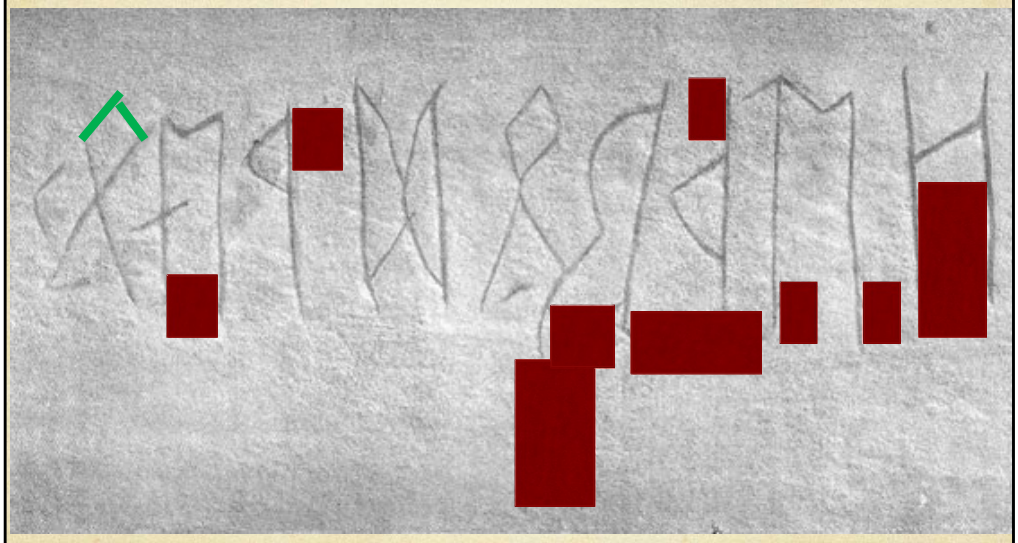
https://www.arild-hauge.com/lonnr.htm
https://lindaursin.net/library/welcome/runes/cypher-runes/
Tørvika A and Tørvika B, were found on the farm Tørvika in Kvam in Hardanger, Hordaland
Lønnruner – secret runes in Norwegian

lønnruner



https://www.arild-hauge.com/lonnr.htm
https://lindaursin.net/library/welcome/runes/cypher-runes/
Tørvika A and Tørvika B, were found on the farm Tørvika in Kvam in Hardanger, Hordaland
Lønnruner – secret runes in Norwegian

Addition & Omission or Bind Runes?



"*away from here (here you should fade away) dvin, kaun*"

https://www.arild-hauge.com/lonnr.htm


And now
for something
completely different...

Jötunvillur

- Maps the trailing sound to a new rune, cracked in 2014. Proposed mapping of Jotunvillur to Latin alphabet
- a Ar — Ar Raeidh
- b Bjarkan — Bjarkan Naudhr
- .....

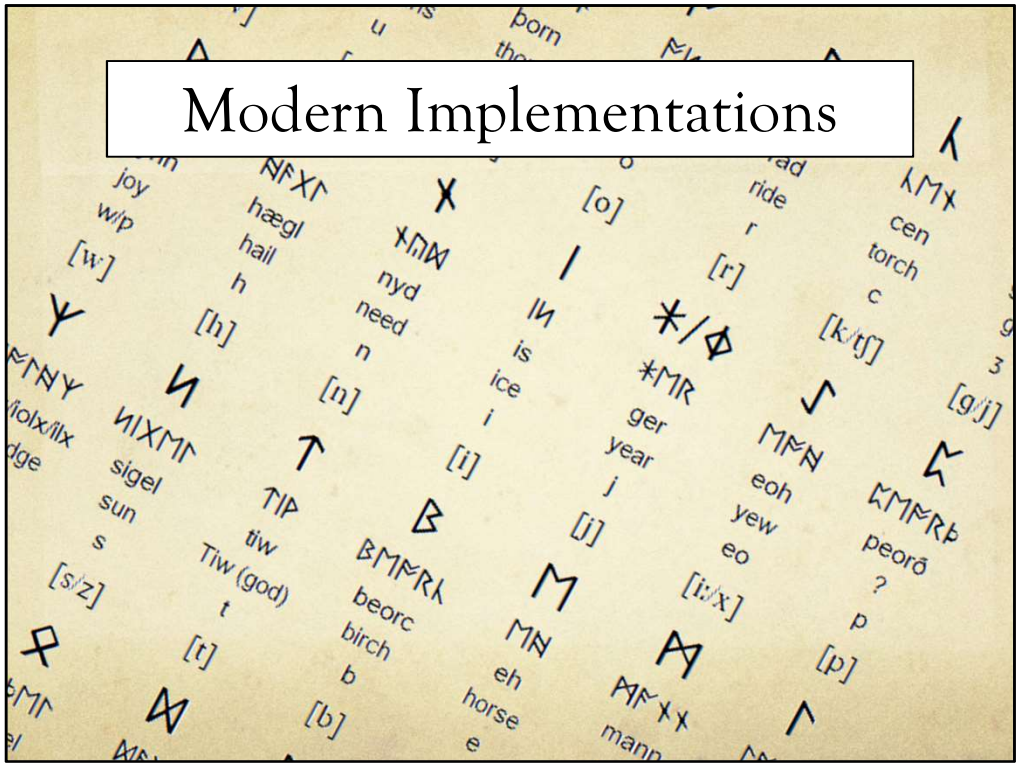
Klartekst:	**f**	**u**	**þ**	**o**	**r**	**k**	**h**	**n**	**i**	**a**	**s**	**t**	**b**	**m**	**l**	**y**
Runenavn:	*fé*	*úrr*	*þurs*	*óss*	*reið*	*kaun*	*hagall*	*nauð*	*íss*	*ár*	*sól*	*týr*	*bjarkan*	*maðr*	*lǫgr*	*ýr*
Jöttunvillur:	**e**	**r**	**s**	**s**	**þ**	**n**	**l**	**þ**	**s**	**r**	**l**	**r**	**n**	**r**	**r**	**r**

http://crypto.houseblueheron.com/jotunvillur.php
https://thornews.com/2014/02/04/the-vikings-jotunvillur-runic-code-is-solved/

Bergen, 1200

On this stick from the 1200s found in Bergen, two men named Sigurd and Lavran have written their names both in code and with regular runes. This helped runologist Jonas Nordby to solve the Jötunvillur code.

https://thornews.com/2014/02/04/the-vikings-jotunvillur-runic-code-is-solved/



Notes

https://www.omniglot.com/writing/futhorc.htm

Transliteration

Olaus Magnus, *Historia de gentibus septentrionalibus* (1555) .

Novel Implementation

BAUER, C. (2019). *Unsolved!: the history and mystery of the worlds greatest ciphers from ancient egypt to online ... secret societies*. Place of publication not identified: PRINCETON University PRES.

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https://www.jyu.fi/gammalsvenska/runkunskap.htm
https://www.arild-hauge.com/
http://www.germanicmythology.com/original/JOTUNVELLIR.html
http://greybookofrunes.blogspot.com/2012/01/hahalruna-and-el-mushajjar.html?m=1
https://www.jyu.fi/gammalsvenska/runkunskap.htm

"This is an interesting historical use of Viking runes as a secret code. Yes, the page is all in Finnish. But scroll to the middle. There's a picture of the Stockholm city police register from 1536, about a married woman who was found with someone who was not her husband. The recording scribe "encrypted" her name and home address using runes."

"**In the fines list kept in the Stockholm City Archives, the runes have been transliteration into the modern alphabet - presumably to have been attentive to later users, but at the same time a source or researcher who did not value the source. From the photo above, the transliteration is almost completely blurred by processing the image."**