

Heirloom Beads and Bronze Plates of the Burmese Chin

**Their links to the ancient Qiang people and Proto-Indo-Europeans
originating in Anatolia/The Levant spreading West and East via the cultures
of Yarmukian, Vinca, Cucuteni, LBK, Greece, Ur, Bactria, Hongshan, Daxi,
Majiayao, Qijia, Shang, Zhou, Qin and Han Dynasties**

6000 BC to the present day

**By Stephen Moxey
with the assistance of Rachada Moxey**



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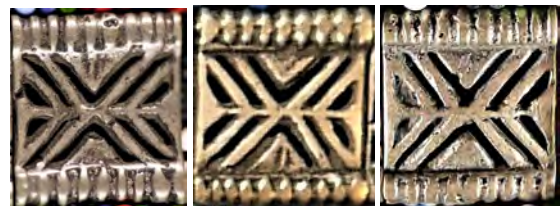
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The Levant spreading West and East via the cultures of Yarmukian, Vinca, Cucuteni, LBK,
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London, England 2021

PART 1 OF 10

Fortunately, political trends and disciplinary fashions wax and wane, but hard evidence remains. While the dedicated researcher who focuses on material, biological, and linguistic data may be ignored or even scorned for his or her findings because of reigning political and intellectual prejudices, the best remedy is simply to go on gathering data. Eventually, one will accumulate so much evidence that only a fool would deny its existence and implications.

Victor Mair, Contact and Exchange in the Ancient World, 2006



Han Dynasty funeral brick 205 BC–220 AD, Three Gorges Area 东汉“建初九年”双面装饰砖,
<https://bbs.artron.net/thread-1676422-1-1339.html>

Shown alongside are three Chin bronze belt pieces from the authors' collection.

Abstract

We propose a direct link from Upper Palaeolithic Ukraine to Proto-Indo-Europeans — one group becoming the Qiang and thence the Burmese Haka Chin — via complex symbols present on mammoth ivory carvings. By using Flinders Petrie's observations on origin of symbols, we find support for Colin Renfrew's PIE Anatolian Homeland theory (these complex symbols are found in Anatolia on artifacts c. 10,000 BC), with the first PIE waves commencing before or just after the collapse of Çatalhöyük c. 5950 BC. The patterns are found in mammoth tusk Schreger lines and are present throughout history in many cultures; the most common being lozenge, lozenge-within-lozenge, and cross/chevrons. In 1991 we bought 40 necklaces and 57 bronze belts directly from the Burmese Haka Chin. In 2012 we found Chinese websites referencing 3000-year-old 'first-generation' beads (第一代邦提克珠) — called 'pumtek' in the West — made by the ancient Qiang, thus being heirlooms of the Jiang clan (姜姓 宗亲) and their 100+ family branches. The Qiang and the Han share common ancestors. We place the most ancient beads to the Machang phase of the Majiayao Culture c. 2300 BC with them possibly passing down through 200 generations. Our investigations found 100+ beads to fluoresce green under 254nm shortwave light. Experts agree that extremely rare genuine pumtek beads fluoresce under SW light. We believe we are the first to publish and show this colour to be green; the first-generation being made from Triassic-age silicified wood of quartz-like state. White silicified wood — rare in China — was almost exclusively used. The Qiang have worshipped white quartz for millennia and have a 'beads goddess' in their folklore. We compared the beads with 225mya *araucarioxylon arizonicum* Arizona Rainbow Wood and *araucarioxylon neimongense wang* from China. Many fluoresced green under shortwave due to minute traces of uranium (checked by Geiger counter). Working backwards from the Chin via Han to Hongshan cultures, the Kunlun Mountains, Mehrgarh (3300 BC), Mesopotamia, PPNA Anatolia/Levant, Upper Paleolithic Ukraine, we traced the symbols on the Chin beads/bronze pieces to those found on hundreds of examples of pottery, bone, ivory, jade, oracle bone inscriptions, seal stamps etc. To Germany, Hungary, Italy by the fifth millennium BC., reaching the British Isles and China by 3000 BC — possibly brought by way of body/clothing tattoos on PIE migrations — indicating a central source of origin. They are found on ancient petroglyphs in the Americas. Fu Hao artifacts bear these symbols; we link her to the Qiang, and therefore the PIE. DNA strongly associates the Chin with the Levant via the M84 marker, circa 7300 ybp.

This study into pumtek beads is dedicated to Sir Tim Berners-Lee, inventor of the World Wide Web. Without this marvelous invention it would not have been possible to obtain the vast amount of information that we were able to during our odyssey.

We (my wife Rachada and I) are also very grateful for all the articles placed on the internet by individuals and institutions for free use. Having no academic backgrounds, without these good-spirited efforts it would make our type of investigation impossible to present in this format.

We consider our work to fall under the 'transformative' area of fair use of Section 107 of the Copyright Act, and to the best of our abilities have credited all sources. Humbly, we propose that the study will add new areas to the Proto-Indo-European debate as well as other disciplines.

"Pumtek are thus the oldest heirloom beads in Southeast Asia and perhaps the purest example anywhere of curating a closed bead collection" - *Asia's Maritime Bead Trade: 300 B.C. to the Present*, by Peter Francis, University of Hawai'i Press, 2002

"Although "thinking outside of the box" is often invoked as a criterion for genuine creativity, few people are actually able to do it, inasmuch as they are fearful of venturing beyond what is comfortable and familiar."

Victor H. Mair; SINO-PLATONIC PAPERS Number 192 September 2009

It was the second quote above that encouraged us to approach Victor Mair. It speaks to the fact that even the layperson, should they be convinced of their findings - however far-fetched they may at first seem - can feel confident that they may be put to such learned people and not fear ridicule. For this reason, special thanks go to Victor Mair. How lucky his students must have been to have benefited from his knowledge.

The quote from Victor Mair on the preceding page is one which we consider invaluable advice for any student – perseverance. Collect as much information and evidence as possible to the point of overkill. We have tried to adhere to these principles in our study.

We would like to thank Emeritus Professor Elizabeth H Moore (SOAS) and Sara Chiesura, Lead Curator Chinese Collections at the British Library, for their encouragement during the early stages of our investigations.

Notes for the Reader

Due to its length (1000 pages) and very large number of images (2000+), our study has been prepared in ten parts. This should facilitate the downloading process.

We had hoped to publish in Victor Mair's Sino-Platonic-Papers, but after preparing the work as requested in Microsoft Word (our original tome was prepared as a PDF), it became an impossible task for us to arrange the vast number of images in-line as required by the publishers. We are not from the academic world — call us amateur enthusiasts — and have had to learn manuscript preparation from scratch. Therefore, we decided to convert the work back into PDF and publish wherever we could. Nevertheless, we remain very grateful for Victor Mair's encouragement and guidance. We must point out that he has not seen, nor had a final say, on the quality of our work which we present here. We followed his advice to compile as much evidence as possible, almost to the point of overkill, in that we produce multiple photographic examples of everything from different sources.

We propose a direct link from Upper Paleolithic Ukraine to Proto-Indo-Europeans — one group becoming the Qiang and thence the Burmese Haka Chin — via symbols present on mammoth ivory carvings. These, in turn, originated from patterns found in mammoth tusk Schreger lines. The symbols are found throughout history in all cultures and are prominent in our everyday lives; the most common being lozenge, lozenge-within-lozenge, and cross/chevrons which are found in mammoth tusk dentin.

Central to this study is the importance of beads to the Qiang along with white quartz, both of which are worshipped throughout Qiang history. They have a 'beads goddess' — Mujizhu (木姐珠) — in their folklore and tell age-old stories of defeating their ancient enemies using 'whitestone weapons' on their migratory route (into China). We produce many experts' links between the Burmese Chin and the ancient Qiang. The Chin beads, being made from Triassic-age 225mya silicified wood which had reached a quartz-like state — very difficult to work with — could be one reason why they chose this material. They could also have identified the petrified logs similar to the legends of Native Americans in that they were used as 'dinosaur slayers' i.e. arrows of the gods. Our study details this, but as a foretaste we quote the following:

Referring to the Beads Goddess Mujizhu:

木姐珠神话乃是羌族的创世神话，而由该神话发源而来的木姐珠崇拜广泛存在于民间。本文主要从女神崇拜，生殖观念等多重视域并结合羌族的社会文化语境探讨了木姐珠崇拜的广泛存在，进而对木姐珠崇拜得出了自己的理解。。羌族聚居的大部分地区，木姐珠与斗安珠被视作男女祖先神并受到普遍崇拜……我们可以从另一则羌族神话《羌戈大战》中找到佐证。羌戈大战讲述了羌人与戈基人作战的故事，羌人原本生活在西北大草原，但因为战争及自然灾害，逼使羌人向西迁徙。

其中一支在首领白苟的带领下向南迁移，多亏了羌人始祖木姐珠的帮助，用白石变成了大雪山，才挡住了追兵，羌人继续南下……

(Google translation: The myth of Mujizhu is the creation myth of the Qiang people, and the worship of Mujizhu, which originated from this myth, is widespread among the people. This article mainly discusses the widespread existence of Mujizhu worship from the perspective of goddess worship and the concept of reproduction, combined with the social and cultural context of the Qiang people, and then draws my own understanding of Mujizhu worship.....We can find evidence from another Qiang myth "The Great War of Qiang Ge". The Battle of Qiang and Ge tells the story of the battle between the Qiang and the Goki. The Qiang originally lived in the northwestern prairie, but due to war and natural disasters, the Qiang was forced to migrate west. One group of them moved south under the leadership of the leader Bai Gou. Thanks to the help of Mu Jiezhu, the ancestor of the Qiang people, it turned into a snowy mountain with a white stone and blocked the chasing troops. The Qiang people continued to move south... In most areas of the Qiang people, Muzhu and Duan Anzhu are regarded as the ancestor gods of both men and women and are generally worshiped.)

Source: <http://www.xuehuile.com/thesis/a428090d763d467b86c9463b1c026c0f.htm>

木姐珠与斗安珠：很早以前，天爷的幺女木姐珠看到凡间人斗安珠老实…(Wood Sister Beads and Du Anzhu) ‘ Long ago, God’s youngest daughter Mu Jiezhu saw mortal, honest Dou Anzhu ...’

<https://baike.baidu.com/item/木姐珠与斗安珠/12007149>

Referring to the ‘Whitestone Weapons’(indicating prior to any bronze weapons in use):

‘At the legendary time when the Qiang people moved into Sichuan from Tibet, they placed white stones on every hilltop and crossroads, for they did not want to forget the route leading back to their original homeland. These piles of white stones also act as a token of their affection for their homeland and the people they left behind at the same time. Upon arriving at the territory of the local Geji people, the Qiang fought a losing battle. Jirpol, witnessing the condition that they were in, instructed the Qiang to find a strong white stone and attach it to rattan sticks and fight with this weapon, tying some sheep wool to the neck of the stick as well. Victory was on their side, and the Qiangs began to look upon the white stones as gods to be worshipped.’

羌戈大战 Gorkey Qiang Wars (geji): Legend of the WhiteStones

<http://www.statemaster.com/encyclopedia/Qiang>

'Luo Jinyong, director of the Hanchuan Museum in Aba and a Qiang culture expert, says:

"When compared with the government cultural protection project, the Dasi model is more sustainable and effective. The Qiang have the same ancestors as the Han, who later became the largest ethnic group in China. So, for most Han tourists, visiting an ancient Qiang village is like calling on their ancestral brothers, who have maintained some semblance of an ancient lifestyle. The Qiang believe that everything in nature has a soul. They worship white quartz stones and place the snow-white stones on their houses to protect the family. Luo says there are two explanations for the white-stone worship - one is that their ancestors made fire using it; and the other is that the ethnic group won a life-and death struggle with it when the enemy mistook the white stone for snowballs.'

Source: http://usa.chinadaily.com.cn/epaper/2016-06/09/content_25659613.htm

The same material and favoured colour (white quartz — n.b. white silicified wood is rare in China, so the beads are made from the rarest form) for the bead manufacture thousands of years ago. Possibly they used razor-sharp petrified wood as arrow heads/spear points (similar to Native Americans in Arizona). The authors' collection of arrowheads is depicted later.

We provide a large amount of evidence of the importance of the beads to the Haka Chin. As a foretaste one example is this quote:

'Pum" tek is a bead that a Chin values more than anything else he possesses...These beads seem to be made of some hard substance like petrified wood or flint. They are very heavy and firm in texture and sparks can be struck from them with a steel; in fact this is one of the tests of a good bead. A knife makes no impression on the surface, so hard is it. They are white inside and seem to be covered with a hard, black enamel outside, through which appear a series of white lines running round the bead. In the course of time as the enamel gets worn away the white substance of the bead shows itself. This may be seen in all old beads. The strange part is that the composition of these beads has baffled all the beadmakers of Europe. Samples have at various times been sent to Europe, but all the leading bead-makers have declared their inability to imitate them or to even say what they were made of.'

Surgeon-major A.G.E. Newland, attached to 10th Madras Infantry, Indian Army, Burma, in his book entitled 'A Practical Hand-book of the Language of the Lais as Spoken by the Hakas and Other Allied Tribes of the Chin Hills (commonly the Baungshe Dialect)', published Rangoon 1897.

As we have discovered since late 2012, this is a subject that just keeps giving. Early during the Covid-19 pandemic, we realised that there was more to the Upper Paleolithic mammoth carving symbols and their link with Schreger lines. Subsequently, we revised the study to include most of our

mammoth ivory theory regarding the symbols. We placed this in Part One. Many images were added, and it would have been too monumental for us to renumber the thousands of photos already included in the work. Therefore, most of the images in this section are unnumbered; the rest of them commencing with the number sequence in due course.

In early 2013, when we first came across the importance of the beads to the Chinese due to their links to the Qiang, and thence directly to the Jiang clan and their associated 100+ branch family names, we joined Chinese bead forums. 羌姓: 炎帝后代中的百家姓 translates as ‘Qiang surname: the hundreds surnames of descendants of Emperor Yan’. Dealers were quoting vast sums for single pumtek beads, which were being sold as ‘first-generation’ i.e., from the very first batch made more than 3000 years ago. We include some examples of these in Appendix C. Using Google Chrome translation, which proved a blessing for text, we uploaded a series of images of our beads shown under 254nm shortwave ultraviolet light. However, the quality of the translation left a lot to be desired. One memorable comment made about us was that they thought we were Mongolian trying to write in Chinese and giving them a headache! At the time we had no knowledge of the quality of the beads in the hands of the dealers showing their wares on these forums and taobao.com (the Chinese eBay) but were wary of the hole wear which appeared fresh — nowhere near replicating that of our beads. To get such groove wear from string on such a very hard material (Mohs 7) would require an extreme amount of time. The absence of any images showing any green fluorescence under ultraviolet light anywhere made us suspicious; albeit we prove that not all first-generation beads fluoresce green. We came under attack from several bead dealers claiming our beads were fake, or 1920s copies — this would mean they were made from Burmese petrified palm wood — totally different in wood structure from *araucarioxylon* (we compared with *dipterocarpaceae shorea* and other petrified palm wood specimens). This, despite them claiming that the beads should fluoresce under shortwave ultraviolet light, which would prove the bead to be a genuine first-generation one! In fact, one prominent Chinese ‘expert’ showed images of pumtek beads which glowed purple. This was the colour that every one of our beads fluoresced when we first examined them with a longwave ultraviolet light! Our posts received more than 5,000 views on the now defunct enjoybead.com; thus spreading the news that the colour of a genuine first-generation bead should glow green. The dealers were not best pleased; being unable to produce one image of a bead fluorescing green under shortwave!

One minor detail: in preparation for publishing in Sino-Platonic-Papers, we changed our original manuscript from UK English to American English. When it became apparent that we would not be able to fulfil SPP publishers’ image requirements, perhaps 100 more pages were added by us using UK English. A word of advice for students. If we, as complete novices, can compile such a vast amount of information, mainly from the internet, then anybody can do it. Victor Mair’s advice to acquire as much evidence as possible (quoted by us in the acknowledgements) will stand the test of time. Since commencing our

journey of discovery in 2012, we approached many authorities on different subjects. Most of our emails were simply ignored. Other replies we did receive, varied from instant dismissal of our theories to kinder replies such as being involved in other projects. One outstanding example was our approach to all the professors and associates listed under the CASS archaeology section. Not one reply! However, we did receive great encouragement from other sources, some of which we mention elsewhere.

Perhaps the most encouragement we received in the early stages, which pushed us on in our endeavors, was from Elizabeth Moore (Emeritus Professor SOAS) in her emails of 14th/15th May 2016 with the words: 'The information is much - you should publish or go to a conference and talk about them to spread the word' and 'For sure the Chin ones have auspicious designs but reading them is another question. Their survival today is also noteworthy.' This, despite the fact that we had only laid out the bare facts of our argument and directed her to our website which we had uploaded with many detailed images of our beads!

According to Jean-Pierre Bocquet-Appel; et al. (2005) in "Estimates of Upper Palaeolithic meta-population size in Europe from archaeological data", between 38,000 and 14,000 BC, the population of Europe averaged a mere 4,000–6,000 individuals. We propose that, from this very small group, symbols evolved that embedded deep in the human psyche and continue through to the present day.

Important note regarding copyright

Whilst we make our work free to all, use of images should comply with any copyright and the permission of the owners sought should it be necessary. Images of photos taken by us may be used without restriction as our intention is to add to the vast amount of knowledge freely available on the internet. The 'transformative' area of fair use of Section 107 of the Copyright Act, as well as those Acts of other countries which cover the 'fair use' or 'fair dealing' copyright areas, are those that we consider cover the contents of this study.

Final note: whilst confident we have many hundreds of ancient Chin beads, it is highly improbable that all are from the 'first-generation', noting inferior work on some, and although referring to the Chin belt pieces as 'bronze' they are probably a mixture of materials. We would welcome our collection being examined by any respected institution.

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OF PUMTEK BEADS IN MODERN DAY CHINA.....	1000

'Beads from the Indus that have been studied at sites in Oman or Mesopotamia have been used for many generations and in some cases even for thousands of years.'

Stone Beads of the Indus Tradition: New Perspectives on Harappan Bead Typology, Technology and Documentation by Jonathan Mark Kenoyer 2017

Lón keng, v. ... **Lozenge-shaped Chin beads, greatly valued by Chins. The other two varieties also of equal value are *púm tek* (round beads) and *ké me* (cylindrical beads); all of which are supposed to have dropped from the skies, being the petrified dung of celestial goats**

Oi, v. ... **To wear.
Púm" ték, oi = To wear Chin beads.
Htí, oi = To wear beads.
Pwen, oi = To wear a cloth.**

these pieces being called *shwe* or *chwé kat*. *Pum ték* beads are too scarce and valuable to be measured in any way but counting them singly. *Kwon thun* and ordinary glass and other beads are counted by the thread, called *tawk kat*; so many *tawk kats* forming a skein or *bórr kat*. The metal waist girdles, *sowng*

The above quotations are from:

Surgeon-major A.G.E. Newland, attached to 10th Madras Infantry, Indian Army, Burma: A Practical Hand-book of the Language of the Lais as Spoken by the Hakas and Other Allied Tribes of the Chin Hills (commonly the Baungshe Dialect), written in 1894, published Rangoon 1897.



Pumtek beads similar to those described by Newland. L-R: Lozenge; Round; Cylindrical.



This Haka Chin Chief's wife wears many pumtek necklaces which indicates he would have been a very important and powerful Chief. Photo from page 57 of *THE IMAGE OF WAR., OR SERVICE ON THE CHIN HILLS* by Surgeon-Captain (later to become Surgeon-Major) A. G. E. Newland, /M.S., 2nd Burma Battalion. With an Introductory Historical Note by J. D. MacNabb Esq., Political Officer, S. Chin Hills. 1894.

To establish at the outset the authenticity of the beads: the majority are made from silicified wood which has reached a quartz-like state. We date the material to the Triassic Age 225mya. The images below (all 11mm dia.) represent the ancient drilling techniques used, as well as string wear which would take thousands of years to give these results. Due to the hardness of the material (Mohs 7), of our 1543 beads, we only have three broken ones. The bottom image shows our one broken round bead and the irregular drilling which would have been undertaken with rudimentary tools (fully investigated in our study).



Background

My interest in antiquities developed at an early age. Joining the Merchant Marine service as a Radio Officer and, having traveled to many countries, I became a collector of curios. On retiring from the service, I continued my interest in antiques.

In 1991 I was browsing an off-street market in Chiangmai, Thailand where I chanced upon a friendly family displaying colorful hill-tribe wares. The workmanship was excellent, and in my rudimentary Thai I ascertained that they were from Burma, describing themselves as from Haka (at first, I thought they were saying Akha, which is a different hill-tribe).

Amongst their wares were many strings of unusually marked beads, which appeared to be made from stone. Returning to their stall on several occasions I bought 40 strings of necklaces and 57 richly decorated belts as well as shoulder bags with very high-level stitch-work. The family helped me to choose the necklaces, even producing some from their personal bags. On return to the UK, some of the items were displayed in my home, the others were stored away.

The rest of the story is explained later, including meeting my wife Rachada in Thailand, and her assisting me on my investigations. For now, I would like to say that by working backwards from this family, identified as Burmese Haka Chin, through the ancient Qiang and Proto-Indo-Europeans, the conclusion of this inquiry is that Homo Sapiens, on his long trek from the depths of Southern Africa, brought with him certain symbols in a mental register. Symbols which had special meaning. One symbol in particular appears to have moved from the Blombos Cave c 77,000 BC and made its way via the Levant and taken an eastward and westward direction. The Ukraine c. 18000 BC would appear to have given rise to another symbol that also spread east and west across the World. We speculate the Venus of Hohle Fels c. 35000 BC has the earliest known form of this symbol carved on it.

After studying mammoth ivory dentin we propose that the cross/chevron/lozenge symbol derived from this material when paleolithic artisans observed the patterns in the striations and carved them on mammoth ivory objects. Migrating clans at the end of the Ice-Age would have brought the symbols with them via tattoos/clothing and eventually passed to the Proto-Indo-Europeans, thence being spread worldwide. As for threefold competence, as enthusiasts we can only cover the archaeological symbols we came across. We leave linguistics and PIE DNA to others qualified to speak on these subjects.

Although we purchased the beads directly from the Haka Chin in 1991, it was not until December 2012 that we came across the importance of the beads to the Chinese and their claim to them as heirlooms of the ancient Qiang; thence learning everything in our study from scratch.

They are known in the Chinese community as 'First Generation Bangtike Beads' 第一代邦提克珠. They are called 'Pumtek' beads in the West and first reports of them were made by the British in Burma in the 1880s. The Chinese accept that the beads originated with the ancient Qiang and were taken with them

when they migrated into Burma c. 221 BC. To help explain this we present evidence obtained directly from Chinese sources.

As we will show, there is a dearth of information as to what color genuine ancient pumtek beads should fluoresce. Our first attempt showed all beads glowing purple. Either we had 1543 beads fluorescing the correct color or we had used the incorrect light source. We subsequently purchased a shortwave light of 254nm and were awestruck when more than one hundred of the beads glowed green, though rarely with 100% area coverage. It transpired that this was the color agreed by experts for silicified wood to glow due to traces of uranium absorbed during volcanic activity hundreds of millions of years ago. This was our 'eureka' moment!

Our study into the heirloom beads (pumtek) of the Burmese Haka Chin hill tribe has been undertaken to show the symbols depicted on the beads and bronze belts evolved in Southeast Anatolia and Northern Levant PPNA/PPNB periods. These symbols spread in all directions across Europe, Anatolia, Greece, the Levant, Mesopotamia, Bactria, China as well as many other countries. The front page shows a few examples of the beads, some of which have been taken under shortwave ultraviolet light at 254nm. The fluorescence derives from trace elements of uranium which were absorbed by the Triassic age trees during the silicification process. The beads were made from petrified wood which had reached a quartz-like state.

Arizona and Chinese Triassic age araucarioxylon silicified wood was obtained for comparison and was identified as the most likely type of petrified wood used to manufacture the beads. Typology places them c. 2300 BC with the Machang phase of the Majiayao culture vessels bearing the same symbols. Radiation tests for traces of uranium were carried out.

The uranium element to their composition more or less excluded Myanmar from being a source of supply (uranium being very difficult to place in Myanmar - see later for gold deposits and uranium by-products section), further compounded by the only araucarioxylon species so far discovered in Myanmar that we have been able to find reported, was from the Tertiary.

The beads seem to be made exclusively from white silicified wood. This fits in well with the legends of the Qiang (or Ch'iang) where the 'white stone' saved them from their enemies. A 'Bead Goddess' is also well represented in Qiang folklore, and even today's Qiang population in Sichuan, China, place white quartz stones in and around their houses for protection. All these subjects are explored in this study.

The Chin kept the beads as heirlooms, migrating from China c. 221 BC where they were known as the ancient Qiang, only parting with them in the 1980s and 1990s when they could no longer be relied on for trading. This may be the reason why so few have been excavated, and so little known about them. London's SOAS Emeritus Professor Elizabeth H. Moore's 'Beads of Myanmar' catalogs the Burma finds in her 1993 work. We refer to this work for comparison with our beads.

Our beads were purchased directly from the Haka Chin in 1991. A total of 1543 beads originally strung on 40 necklaces were available for the study. Only 18 necklaces are still intact due to string wear. The beads were drilled from both ends, and mostly have a sharp edge where the two ends meet, with a tiny gap left to thread the string through. Excitingly, many necklaces appear to be original configurations, with the largest beads at the bottom decreasing in size towards the neck. Fifty-seven bronze belts were also purchased comprising more than one thousand pieces. The very delicate work involved in manufacturing the beads meant that highly skilled artisans were employed. The time-consuming process, attention to minute detail and the material used, led us to search for possible sources of a factory or workshop in ancient China, capable of carrying out the work. Most importantly, inscribing the beads with images familiar to the people.

"It is clear that Pumtek beads belong to another category of decorated stone beads, distinct from the, generally earlier, alkaline-etched semiprecious beads" is a quote taken from 'Alkaline Etched Beads in Southeast Asia' by Ian C. Glover, University College London, Institute of Archaeology, Emeritus and Berenice Bellina, Senior Researcher at the French National Centre for Scientific Research. Glover speculated that there was a yet undiscovered center of manufacturing etched beads (footnote 69, Ian C. Glover, *The Southern Silk Road, The Silk Roads. Highways of Culture and Commerce.* ed. Vadim Elisseff.)

We believe that we have identified such a center which has been splendidly described by the work of Zhouyong Sun in his 'Reconstructing Manufacturing Technology and Technological Organisation at the Qijia Jue Earring Workshop in Western Zhou (1046–771 BC)' China, *Indo-Pacific Prehistory Association Bulletin* 27, 2007. As will be examined later, the Qiang people are considered to be the Qijia, and of Indo-European origin.

However, we propose the beads to be perhaps one thousand years older than the discovered workshop. This would not be impossible because the technology to manufacture beads in this style dates to 2750 BC and earlier (see Horace Beck later). The motifs on the beads are ancient and when compared with, for example, Yangshao and Chifeng designs, possibly indicate that the motifs were imported into Neolithic China by Indo-Europeans much earlier than previously thought.

The Silk Road was probably already ancient by the first millennium BC. Jade artifacts have been found from the Xinglongwa culture 興隆洼文化 6200–5400 BC. A local source for the jade has not yet been found and we are left with Khotan supplying the material.

Strengthening our case for the original symbols' source being Anatolia/Levant are the Chin bronze belts purchased in 1991, again, directly from the Haka Chin. Some of the pieces are identical to the mammoth

ivory carvings, pottery, bronze, stamp seals etc. from 18000 BC to 200 AD through to modern day use of the symbols.

The inference is that Proto-Indo-Europeans took the designs with them, migrating to ancient China via the long-established jade route from Khotan, South of the Tarim Basin to Liaoning, becoming the ancient Qiang and exerting widespread influence on the cultures of Daxi, Majiayao, Qijia, (Xia), Shang, Zhou and Han.

Our intention was to establish the feasibility that the so-called 'Heirloom' beads of the Burmese Haka Chin, and their bronze belts, are based on designs which evolved tens of thousands of years ago in Africa, Ukraine and then the Levant/SE Anatolia. We followed the symbol designs from the Blombos Cave c. 77000 BC, Ukraine c. 18000 BC, through Southeast Anatolia and the Levant, Mesopotamia, Luristan, the Indus Valley, and Bactria until we reached the Tarim Basin and thence into China via the Neolithic cultures to the Warring States and the Han. Final destination: the Chin Hills of Myanmar where the symbols are still prominently portrayed on buildings, clothing, jewelry etc. Westward we traced the symbols through Hungarian and Danube civilizations, Italy and Greece to the British Isles. The symbols were already prominent in the British Isles by 3000 BC. Evidence of the symbols' journey southward via Egypt along North Africa to the Berbers of today was also documented.

In our investigations we encounter early long-distance trade, such as the rock crystals imported from the Alps to Stonehenge c. 3000 BC, showing the importance of this type of material being different from the quartz available locally, thus indicating discernibility.

Whilst we rely heavily on visual depictions, our study is also fully referenced with scientific and historical evidence. We have endeavored referencing each image/study, but due to use of Chinese search engines such as baidu.com searching 马场类型彩陶 or 马家窑文化 for example, it was not always possible to do so.

We are intrigued by the possible links, supported by DNA evidence, of a connection between the Chin people and the Semitic people of the Levant. An interesting link is the emergence of strong data linking the M84 haplogroup, which originated in the Levant, MRCA dated c. 7300 ybp, with today's Burmese Chin and Southwest Chinese populations. This link was raised when people hailed as 'The Lost Tribe of Israel' made the news at the turn of the millennium.

We bring the investigation into the modern era by linking the Chinese Jiang clan, and the hundred plus branches of surnames claiming ancestry of the clan, to the ancient Qiang and the Yellow Emperor (see Appendix A). As we will show, the Burmese Chin are considered direct ancestors of the Qiang and therefore may also be descendants of the Proto-Indo-Europeans.

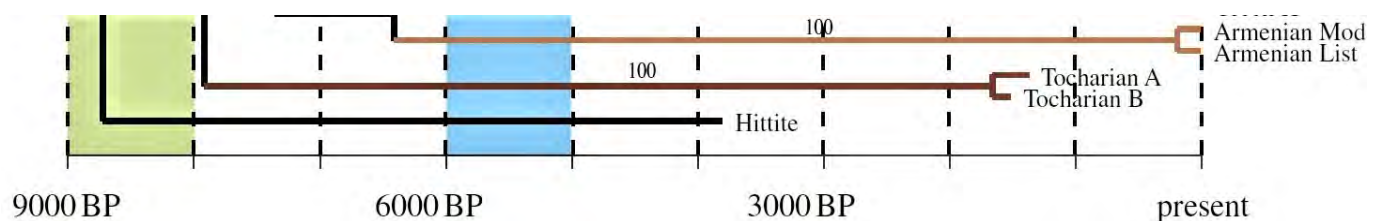
The link between the PIE and the Qiang may be disputed by some scholars. What does seem to be beyond dispute is the fact that the heirloom beads and bronze belts of the Burmese Chin must be considered by association as also heirlooms of the modern Chinese. We know that many Han believe the Qiang to be their ancestors and perhaps, as an indication of their origins in the West, are described as "white men" in Oracle Bone Inscriptions which were deciphered by Wang Tao of the School of Oriental and African Studies, University of London in his 2007 paper 'Shang ritual animals: colour and meaning (Part 1).

Of special interest to mathematicians may be the evidence of two dodecahedron spherical beads, each 13mm diameter. Twelve pentagons have been painstakingly decorated on these beads and as we have no reason to think that they are not contemporary with the Machang phase c. 2300 BC., they may well be the earliest representation of this complicated structure on a sphere. We have examined the evidence for platonic solids being represented by the Pictish carved balls of 5300 ybp and are unable to ascertain the facts behind the image of five of these balls one of which shows a dodecahedron. These can be viewed online by searching 'platonic solids stone balls'.

The conclusion is that the beads and bronze belts are directly linked to the ancestors of today's Chinese population, with special links to the Jiang clan and their many branches.

Further, we propose that some of the beads were used for Feng Shui purposes and influenced some designs of the Mawangdui 'Penalty B' texts (figure 1221). Also, compare for example the 'shi' instrument c. 173 BC from the tomb of Marquis Ruyan, Fuyang (figure 1222) with the Chin beads (figure 1224).

N.b. Whilst we cannot get into linguistics we do note that, according to a dated phylogenetic tree of 87 Indo-European languages by Russell Gray et al., *Language Evolution and Human History*, 2011, (modified graph below) Tocharian A and B would appear to have broken away from the Indo-European branch, becoming isolated at a very early stage, c. 6000 BC., which is much earlier than the Tarim Basin caucasian mummies of c. 1800 BC. This indicates a migration thousands of years previously. Latest DNA studies indicate that the earliest Tarim Basin cultures appear to have arisen from a genetically isolated local population. See: Zhang, F., Ning, C., Scott, A. et al. *The genomic origins of the Bronze Age Tarim Basin mummies*. *Nature* (2021). Tracing the symbols, our findings suggest the Qiang by-passed the Taklamakan by travelling southward through the Altun and Qilian Moutains into Qinghai and western Gansu.



The Chinese describe the beads such:

'在国内，收藏者普遍认为邦提克珠子分为1，2，3三代，其中又以一代木珠最为珍贵。第一代邦提克木珠是由千年前的羌族人民制作，并视为传家宝代代相传至今，是真正意义上的邦提克'

(Google translation) 'In China, collectors generally believe that Bangtike beads are divided into 1, 2, and 3 generations, among which the first generation of wooden beads is the most precious. The first generation of Bangtike Muzhu was made by the Yi people of the millennium, and it is regarded as a family heirloom passed down from generation to generation. It is a true Bangtike.'

Source: http://www.sohu.com/a/190244149_653083

'一九九四年時期，木珠因為有輕重及光澤木紋的不同，於是人們將它分為第一、第二、第三、不同年代的木珠等級，以便區分其價值！

第一代(原生代)木珠：是由珍貴的蛋白木化石材質(期間是一百至三百萬年前中生代地質所形成)及另一種棕櫚樹化石材質製造的木珠，是為古老的原始串項珠子，最早約在公元三千年前由中國製造！

第二代(中生代)木珠：則以蛋白光棕櫚樹化石及純棕櫚樹木化石所製造的木珠為主，而硬木化石也同樣在同時期有被製造，只是樹種材質不同，最早約從公元兩千五百年前至公元兩千年前左右由緬甸驃人及欽人製造！

第三代(近代、新生代)木珠：則依然是緬甸當地各類硬木化石製造的木珠，最早約在六十年前開始製造至今！' 发表于 2009-11-9 11:21

(Google translation): In the 1994 period, because of the difference in light weight and lustrous wood grain, people divided it into the first, second, third, and different ages of wood beads to distinguish their value!

The first generation (the original generation) Muzhu: is a wooden bead made of precious protein wood fossil material (formed by the Mesozoic geology of one hundred to three hundred million years ago) and another palm tree fossil material. It is an ancient original string of beads. It was first made in China about 3,000 years ago!

The second generation (Mesozoic) Muzhu: mainly made of protein-light palm tree fossils and pure palm tree fossils, while hardwood fossils are also manufactured at the same time. It is only the different species of trees. It was originally made by Burmese monks and monks from about 2,500 years ago to around 2,000 AD! The third generation (modern generation) is still the local variety of Myanmar. The wooden beads made of hardwood fossils were first manufactured about 60 years ago!' published on 2009-11-9 11:21. Source: <http://bbs.hl365.net/thread-548090-4-1.html>

The bead community in China now accept that original so-called first-generation beads are not on the market. Any such bead was sold by the Chin in the 1980s and the most valuable were not sold by them until the early 1990s. An idea of their value to the Chinese is in Appendix C. There is a great deal in print concerning the beads and can be found by searching www.baidu.com.

We quote from the 2013 Beijing Zhuyou Conference on Muzhus Speech 帮主在2013北京珠友会上关于木珠的发言稿:

’古羌族人在秦朝以后饱受战争威胁，由酋长的带领下，逃离世代居住的家园，之后落根于缅甸，他们主要分布在缅甸的北部山区，与我国云南接壤。现在在缅甸，他们被称之为钦族（钦族，羌族发音很相似）。他们还依然保留着古羌族人的很多文化传统。至今为止还有佩戴木珠的习惯。当古代羌族人逃难时，身上能携带的也只有珍贵的木珠项链，对他们而言邦提克木珠不但是他们的护身符，也是他们家族荣耀的象征。因为木珠为古羌族人的传家宝，所以呢，多为传世，传世品孔道磨损一定非常到位。且带有明显风化。台湾早期仿制珠也无法达到把孔道仿制的非常自然的效果。另外我发现这些仿制品一定可以找到机械加工痕迹。’

(via Google translation)

'The ancient Yi people were threatened by war after the Qin Dynasty. They were led by the chiefs and fled from their homes for generations. They were later buried in Myanmar. They were mainly distributed in the northern mountainous areas of Myanmar and bordered by Yunnan, China. Now in Myanmar, they are called Chin (Chin, the Yi people are very similar). They still retain many of the

cultural traditions of the ancient Yi people. There is still a habit of wearing wooden beads. When the ancient Yi people fled, only the precious wooden bead necklaces were carried. For them, the Bangtike beads are not only their amulets, but also a symbol of their family glory. Because the wooden beads are the heirloom of the ancient Yi people, so it is mostly handed down to the world, and the wear and tear of the handed down products must be in place. And with obvious weathering. Taiwan's early imitation beads could not achieve the very natural effect of copying the holes. In addition, I found that these imitations showed traces of machining.'

Source: <http://tieba.baidu.com/p/2572516840>

Note: sometimes the translation for ancient Qiang is given as 'Yi'.

'邦主

帮主在2013北京珠友会上关于木珠的发言稿

大家好，我叫赵迪，一个普通的邦提克木珠收藏爱好者，有些认识我的朋友给我起了个外号叫老邦，老邦提克珠嘛，收藏木珠已经有4、5年的时间了，这些年为了更加了解邦提克木珠，我先后多次去过台湾，缅甸，泰国等国家，今天有幸在这里将这些年自己的经验跟看法与大家分享一下。

邦提克木珠作为我们中华民族的文化遗产，其实已经受到很多国际收藏者的青睐，比如美国，英国，法国，台湾，小日本。等等。他们收藏邦提克木珠的时间都可以追溯到20到30年前，在十年前小日本就经常跟我们台湾同胞抢珠子嘛！

而我们中国才刚刚开始，之所以我个人非常专一的收藏木珠，就是因为他有很多未解之谜吸引我。而且我认为我们不能输给那些老外，我们本身玩儿珠子就晚，等我们认知了，我们又没有好珠子可以收了，那会价格也高了，好珠子没有了。想得到好珠子只能付出更大的财富给那些外国人。这个是我本人跟诸位都是不愿意看到的吧。

发表于 2013-6-2 18:40:32 |只看该作者'

Source: <http://tieba.baidu.com/p/2572516840>

Note: Google translation is not always correct. Original text is quoted for accuracy. It is also apparent from this speech that the Chinese are very indignant that the beads they consider as their own via historical links and ancestry, have gone to western collectors.

(Google translation):

'Helper at the 2013 Beijing Zhuyou Conference on Muzhu's Speech Maharaja
Hello everyone, my name is Zhao Di, an ordinary Bangtike wood bead collector.
Some friends who know me have given me a nickname called Laobang, Laobang
Tikezhu, and there are already 4 collections of wooden beads. In the past five
years, I have been to Taiwan, Myanmar, Thailand and other countries for the
purpose of learning more about Bangtike Muzhu. I am fortunate to share my
experience and opinions with you today. As the cultural heritage of our Chinese
nation, Bontimuzhu has been favored by many international collectors, such as
the United States, Britain, France, Taiwan, and Japan. and many more. Their
collection of Bangtike wood beads can be traced back to 20 to 30 years ago. Ten
years ago, Japan often robbed our Taiwan compatriots!
And China has just begun, the reason why I personally collect the wooden beads
very uniquely, because he has many unsolved mysteries to attract me. And I think
we can't lose to those foreigners. We play the beads late, and when we know, we
don't have good beads to collect, and the price will be high, and the good beads
are gone. Wanting to get good beads can only give greater wealth to those
foreigners. This is what I personally do not want to see with you.'

Published on 2013-6-2 18:40:32 |Just look at the author

<http://tieba.baidu.com/p/2572516840>

Note: the word translated as 'bangtike' is the way the Chinese pronounce 'pumtek' which is the word given to the beads by the Chin and adopted by westerners.

We must also say that of the many hundreds of beads viewed by us on the internet, and the hundreds of articles available, at no time have we seen any photos showing the correct color when under shortwave light at 254nm. As experts agree, the uranium element would make silicified wood glow dull to bright green, and by inference any item made from similar material would also fluoresce green. The brighter the color, the more the uranium content.

We have tested the beads with a Geiger counter and confirmed that they do show very low levels of radiation which is commensurate with perceived wisdom that the uranium content is only of trace element level.

A combination of factors must be used when deciding the age of a pumtek bead. The importance of hole wear is one aspect, and the amount of wear visible will change according to the position of the bead in the necklace, with less tension being felt by the beads arranged on the sides. Other things to take into consideration include examination under stereo microscope and Dinolite to determine weathering and any modern machine marks; typology; fluorescence of any bead in a necklace; configuration of the necklace and any provenance.

The following quotes are from the Chinese website where collectors express their views. It can still be viewed at: <http://bbs.hl365.net/thread-548090-1-1.html>. Via Google translation, published in 2009, we came across it in 2013 and it helped us on our way to understanding the Chin links via the Qiang to modern China. We reproduce more of this article later in the study.

2000多年的邦提克（pumtek）木化石天珠

用亿万年前形成的木头化石在远古羌族人制作而成的护身宝珠！

For more than 2,000 years, wood fossils have been used to make pumtek; fossils formed hundreds of millions of years ago to make the body beads of the ancient Yi people!

珍貴的地方是珠子主體材料，取自千年已矽化（fossilized）或蛋白化（opalized）的棕櫚木（palm wood）之木化石（fossilized wood），透過紫外線可以觀察辨識。

The place has the precious beads host material and has been taken from the millennium silicide (fossilized) or protein of (opalized) palm wood (palm wood) of wood fossils (fossilized wood) and can be observed through UV identification.

酋長是羌族中輩分最高的領導者,擁有最好

The chieftain is the highest leader of the Yi nationality. He had the best and most wooden bead necklaces

Note: Professor Elizabeth H Moore, in her book 'Early Landscapes of Myanmar' 2007 (p115) states that ancient and newer beads were valued by the Chin, and as heirlooms, were removed from family vaults and passed on to younger members, and were it not for the fact that they had been found in mortuary contexts (inhumations and urns) dating from 200 BC they would have to be considered archaeologically unviable.

隨著時代變遷, 羌族人民在秦朝以後飽受戰爭的威脅, 逃離世代居住的家園之後落根於緬甸, 所幸一些受酋長領導的羌民才保留住自己傳統的習俗, 事實上, 當羌民逃難時身上所能攜帶的也僅有珍貴的木珠(邦提克珠)項鍊, 對他們而言木珠也是其家族榮耀的象徵, 所以其代表的意義也格外重要!

With the changes of the times, the Yi* people were threatened by the war after the Qin Dynasty. After fleeing from their homes for generations, they put down roots in Myanmar. Fortunately, some of the monks* led by the chiefs kept their traditional customs. In fact, when the people fled only the precious wooden beads (Bangtike beads) necklaces could be carried on their bodies. For them, the wooden beads are also a symbol of their family glory, so the meaning of their representatives is also very important!

*Authors' note: Qiang sometimes translates as 'monks' or 'Yi'.

A chief with a large necklace of these beads is the most envied person in the village -or even tribe....As they were never made in Chinland, it is evident they must have found their way here from Lushailand and Chittagong; so it is strange that they are not met with elsewhere. It is only the Lai tribes and their off-shoots who possess these beads in any large quantities, and it is an extremely interesting question to ascertain how they originally became possessed of them; of course, their own tradition must be put aside as absurd. At present one can only conclude that they were made by one particular tribe or even one individual and that the art of making them was lost when that particular man, he having not divulged the secret of their manufacture to anyone else; and it must have been a long time ago, as all the specimens met with are of considerable antiquity. Besides the Lais and their descendants, these beads are rarely found among the other tribes of the Chin Hills.

Surgeon-major A.G.E. Newland, attached to 10th Madras Infantry, Indian Army, Burma: A Practical Hand-book of the Language of the Lais as Spoken by the Hakas and Other Allied Tribes of the Chin Hills (commonly the Baungshe Dialect), written in 1894, published Rangoon 1897.

The Ancient Qiang

We detail much concerning the ancient Qiang throughout this study, including their links to the Burmese Haka Chin and the Chinese Jiang clan. Some of the foremost authorities on this subject are quoted. The following excerpts are from Rafe de Crespigny's 1984 work 'Northern Frontier':

The most important early source on the Qiang under the Han dynasty is Hou Han shu 87 (liejuan 77), the Account of the Western Qiang, which gives a summary of their history from legendary times and a more detailed record of the first 150 years of the Christian era.

The name Qiang is related to the ancient clan-name Jiang and the history of these tribes is identified with that of the Rong and Di barbarians of the west during the time of Zhou and Qin. The early histories describe conquest and pressure by the Chinese against the western frontier peoples, and Hou Han shu 87/77 states that in the time of Qin and Han the territory of the Qiang lay west of the region of modern Lanzhou.

On the clan-name Jiang and its association with the Qiang people, see, for example, Todo, "Some notes on the Ch'iang Tribes", 40-43. According to SJ 32, 1477; Chavannes, MH IV, 35, Jiang was the surname of the hereditary house of the rulers of the state of Qi ~ under the Zhou dynasty, and according to the tradition recorded by Sima Zhen, in his supplementary chapter of the Annals of the Three Sovereigns (San huang benji), Jiang was also the surname of the mythical ruler Shennong (Sima Zhen's work is printed at the beginning of the Bona edition of SJ, and is translated by Chavannes, MH I, 3- 22)

HHS 87/77, 2876 and 2898-99 refers to the emigration of various Qiang groups southwards to the frontier territory of present-day Sichuan, and the Account of the Western Barbarians (Xirong zhuan) of the Wei lue by Yu Huan of the third century, preserved in the commentary to SGZ 30, 858-59) describes the culture of the Di people of this region.

Could it be that the Proto-Indo-Europeans PIE separated, with one branch going on to Liaoning and the others down the Hexi Corridor into Gansu? This may account for the Hongshan Ceramic (see fig. 41(a)) which at the latest date is c. 2750 BC bearing, according to our proposals, a PIE symbol which originated c. 18000 BC in the Ukraine, possibly depicting a solar event such as a supernova, but much more likely to be based on mammoth ivory Schreger lines. We present a case for oracle bone inscriptions representing supernova on at least two separate pieces. This may also be the image on the Fu Hao jade belt. Could the splitting of groups account for the different Qiang groups which appear in ancient Chinese texts?

We also reference Rachel Meakin's excellent website for translations of HHS 87/77 aka Chapter 117 and other chapters. Her very informative site is to be found at: <http://www.qianghistory.co.uk/> Her work is available to all. Some of her suppositions with which we agree are the following:

The presence of Qiang to the west beyond today's Qinghai and Gansu is sometimes overlooked in histories of the Xinjiang region.³⁶ However, this chapter has fifteen Qiang references and indicates a 'Qiang route' from west of the Karakoram range over to the Kunlun, Altun and Qilian ranges and into Qinghai and western Gansu. Source: QIANG 羌 References in the Book of Han 汉书 Part 2 (Chapter 79 to Chapter 99) by Rachel Meakin, 'Chapter 96: The Biography of the Western Regions (西域传第六十六)

It is clear here that the migrants and the locals had different customs. Archaeological finds in the Qiang area of Maoxian in Aba prefecture, have revealed "the most startlingly heterogeneous archaeological assemblage in East Asia to date." Von Falkenhausen (1996:29). HHS Ch 116 (Biography of the Southern Man and Southwestern Yi) also mentions a mix of locals and nomadic migrants in the Ran-Mang area and makes a broad comment that there are six Yi, seven Qiang and nine Di in the mountains, each with their own tribes.

Rachel Meakin Part 2 'Chapter 99'

'The people of Xiye are different from the Hu. They are of the same kind¹¹⁷ as the nomadic Qiang (and) Di states,¹¹⁸ following their animals in search of water and pasture and coming and going. There is jade in Zihe.'

¹¹⁸ Qiang Di (羌氏): the use of two characters together to indicate a broad region of non-Chinese was a common occurrence, e.g. 蛮夷 (Man Yi) in the southwest and 戎狄 (Rong Di) in the north and northwest. Qiang Di generally indicated a type of people to the west of China. there the Di (氏) is used independent of the Qiang (e.g. Ch 2U (Part 1) and Ch 95 above) it generally refers to a people in today's northern Sichuan southern dansu border region. Ch 30 of the Wei Shu in the three kingdoms Annals lists the Di and Qiang as separate groups and says of the Di, "their customs and language are not like those of the Middle Kingdom, but similar to those of the Qiang and several Hu peoples." (Hill, 2004:15) 'Hu' here would be a loose term for various Central Asians. Meakin footnote Chapter 96

⁹³ 卑湍种羌: earlier in this chapter the Beinan were referred to with the Xianlian but not specifically as Qiang. This intermittent use of ‘Qiang’ for various groups perhaps highlights its use as a generic term for various nomadic groups on the west of China at this time.

⁹⁴ The Wuliang here has the same characters as Dianwu and Dianliang so Wuliang was probably a relative or descendant of these two tribal clans.

Meakin: Footnotes Chapter 117

We don’t know when the Qiang entered the southern Tarim or which direction they came from, although the fact that Qiang are always noted as foreigners west of the Chinese suggests a west to east trajectory is more likely. They were China’s ‘westerners.’ With Qiang being used as an umbrella term for a ‘type’ to the west which was clearly different from the Chinese and the Xiongnu, although possibly with similarities to the Yuezhi, it is also not known if all the tribes known as Qiang had close ethnic affinities with each other or not. Their lack of unity and the fact that they never seem to have formed a strong confederation like the Xiongnu, suggests they were perhaps various groups of a similar type but without strong enough bonds to unite for long. There are few clues as to what appellation any neighbours further west would have used for them, although see n.80 below regarding pronunciation of the ‘Er’ of Er Qiang.

Meakin: notes in Chapter 96

⁸⁶ 后有弓、矛、服刀、剑、甲. The Kunlun range is rich in high-grade iron ore and the Er Qiang clearly knew how to extract and use it. Qiemo has mining remains from roughly the Han era, as does the Khotan region which had Qiang to the south. Rhie points out that Lopu, just east of Khotan, was “a centre of iron ore and iron making, a factor which undoubtedly contributed to the prosperity of the region and to international trade.” (1999:273, n.57.) If the Er Qiang were particularly skilled in the use of iron, this would have been a key trading element in their relationship with neighbouring peoples and settlements. In ‘The Earliest Use of Iron in China’ Wagner (1999) points to the use of iron by the northern nomadic neighbours of Zhou, while the Zhou were still using bronze. “Available evidence now shows that smelted iron was used in northwest China long before it was used in the south. A direct implication is that the technique of iron smelting came to northwest China from the West through Scythian intermediaries connected with Siberia.” Guo also suggests that “the appearance of iron in Xinjiang around the 9th-8th century BC could have resulted from cultural interaction between Xinjiang and western Asia.” (2009:107)

Meakin: footnote Chapter 96

The main thrust of our investigations into the movement eastwards by the Proto-Indo-Europeans following the demise of Çatalhöyük c. 5950 BC is a route east of the Karakoram mountains and via the Western Kunlun. Many eminent authorities adhere to the Steppe theory saying that they do not see any route for the PIE from Anatolia to China. Rachel Meakin has documented several works detailing ancient routes via the Karakoram and, being no authorities on the subject ourselves, we make no bones about quoting her verbatim (note 129, Chapter 96):

Depending on glacial conditions there were also more direct routes than via the Karakoram Pass. Rizvi (1995) describes ancient routes that linked Baltistan with the Shaksgam-Aghil region (see n. 113) and Yarkand (Shache). Younghusband managed to cross the Mustagh Pass between the Sarpo Laggo and Baltoro glaciers in 1887. His journey took him from Yarkand to Raskam, along the Surakwat valley to the Shaksgam valley via the Aghil and Mustagh passes to Skardu in Baltistan and eventually on to Kashmir. Vohra also describes the westward route over the Mustagh Pass from eastern Xinjiang to Skardu and Khaplu and adds, “It is evident that the local inhabitants who used these shortcuts over difficult passes knew of quite a few alternatives... used according to the time of year and after consideration of the effects of climatic changes upon them.” (1999:13, n.3) The route from the Sanju Pass over the Mustagh Pass to Skardu could be accomplished in about 20 days.

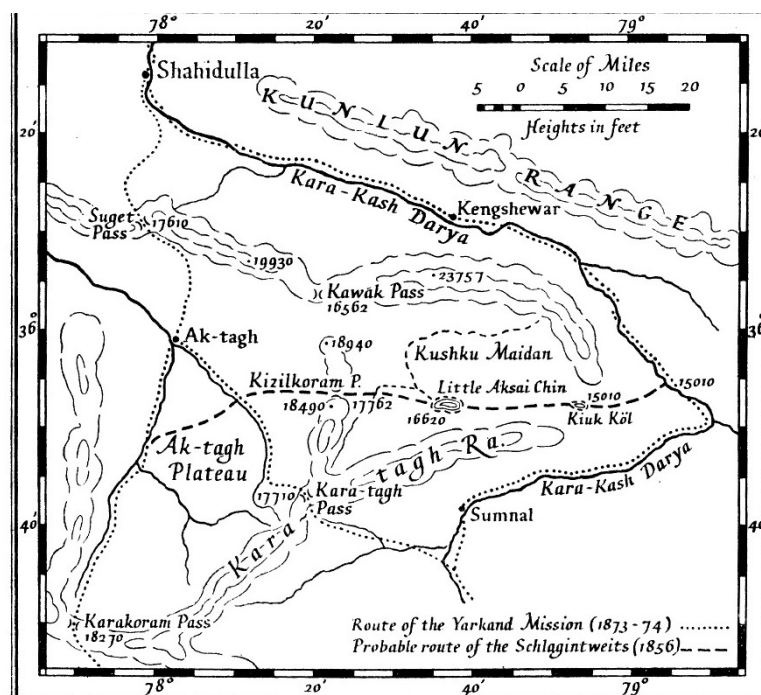
Although the Karakoram might seem to serve as a formidable barrier, Neolithic archaeological finds in Kashmir and Swat and on the Tibetan plateau as well as in northern China, show that “Mountain chains have often integrated rather than isolated peoples.”

(Neelis, 2007:55, citing Stacul 1993:712). This seems to have been particularly true of the Qiang who were associated with the Karakoram, the Kunlun, the Altun and Qilian mountains, probably also the Anyemachen range, and nowadays with the Min mountains of western Sichuan. Later connections across the Karakoram between Baltistan and southwestern Xinjiang are also affirmed in Tibetan texts, “Even the ruling dynasty at Skardu whose genealogical records are available from the early centuries of the 2nd millennium A.D. mention their dynastic name as ‘Amaccha’ (<Skt.: Amatya) which was also the ruling house at Khotan. ‘The Inquiry of Vimalabrabha’ (Thomas:1935) provides us some historical information with regards to the marital ties between the ruling houses of Skardu and Khotan and how the rulers were involved in defending the latter place against the Tibetan invasion during the 8th century A.D.” (Vohra 1987:127, n.1, citing Thomas 1935:164, 226-228).

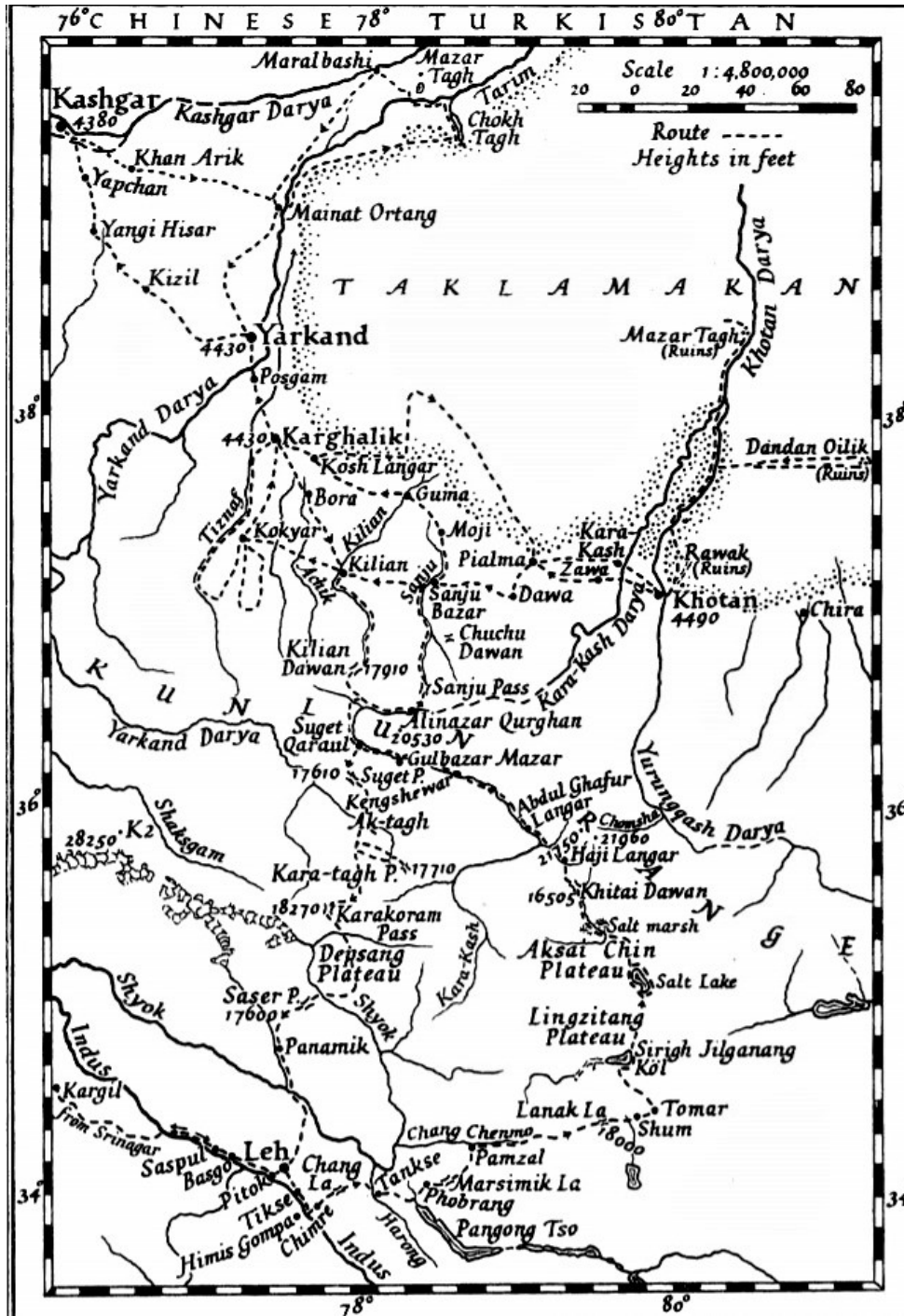
There is an ancient association between the Qiang and sheep. Once again, Rachel Meakin points us towards additional views on this subject:

The Gilgit region and the area south of Khotan were regions where the ancient tribal confederation of Zhangzhung (Žaṅžun) converged with territory more familiar to the Han, i.e. Khotan and northern Gilgit. In the Sui and Tang periods the Zhangzhung area was known as Yangtong to the Chinese and associated with the Qiang. The name Yangtong (羊同: sheep + together/same) suggests sheep played a central role in their culture. (See Zeisler, 2010, for a detailed discussion).

We also followed her references to Emil Trinkler's 1927 expedition in the Eastern Karakoram and the Western Kunlun, where the experience was that all but one Yak died, whilst the sheep seemed to thrive. He took 31 Yaks and 70 sheep, and had this to say: "I knew that sheep could be extremely valuable as transport animals. ... it was probable that sheep could stand the hardships of such a journey at least much better than horses could do. The Tibetans also use sheep as transport animals, loading them with salt and wool. ... I think none of us anticipated that our sheep would eventually save our lives, and that only one yak would [survive]." Emil Trinkler, *Explorations in the Eastern Karakoram and in the Western Kunlun*. The Geographical Journal of the Royal Geographical Society. Vol 75, Jan-June, 1930, pp. 505-517. (see map below detailing earlier 19th Century expeditions)



Sketch-map showing probable route of the Schlagintweits, with names inserted from their reports



Above is shown the route taken by Trinkler's 1927 expedition. Source: Emil Trinkler, *Explorations in the Eastern Karakoram and in the Western Kunlun*. The Geographical Journal of the Royal Geographical Society. Vol 75, Jan-June, 1930, pp. 505-517.

The origins of the Proto-Indo-Europeans is greatly disputed, and there are many with opinions stating that there is no possible way the PIE could have travelled a route from Anatolia to China. They propose a different route - from the Steppe. Trinkler's clearly laid out routes show that it was indeed possible long before horse-riders could have reached China by a different route. We cover these points in greater detail later. Here we show some photos from Trinkler's 'Explorations' where the sheep ended up carrying as much as 30lbs in weight (follow by referring to preceding map):



Above: Large Salt Lake on the Aksai Chin from the southern shore with Kunlun in the distance



Above: Peak 21,750, Kunlun, from ridge above Haji Langar



Peak, probably 20,530 of Indian Survey Sheet 51 (Yarkand) in Kunlun, north of Gulbazar Mazar



Looking up at the Kara-Kash at great bend above Abdul Ghafur Langar

There are also some who say that Tocharians could not possibly have migrated from southern Turkey to northwest China (see Rival Theories page 318). We believe that we have shown there is a well-travelled ancient route - as laid out in this section - from southwest Anatolia to northwest China.

The Universally-Recognized Symbols: their Conception and Evolution

Throughout our investigations, one symbol in particular stood out. We believe this symbol has its origins in the Ukraine from at least 18000 BC and is based on mammoth carved artifacts - themselves based on mammoth ivory dentin - recovered from a stone-age settlement in Mezin. We shall expand on this later. Here, we present images and some text from an article by B.A. Rybakov: '3. Problems of folk decorative art: The origin and semantics of the rhombic ornament' (3. Проблемы народно-декоративного искусства Б. А. Рыбаков. Происхождение и семантика ромбического орнамента), which can be found at: <http://artyx.ru/books/item/f00/s00/z0000059/st011.shtml>.

V.I. Bibikova 'On the origin of the Mezinsky Paleolithic ornament .- "Soviet Archeology", 1965, No. 1' (В. И. Бибикина. О происхождении мезинского палеолитического орнамента.- "Советская археология", 1965, № 1.) concentrated on the meandering pattern being derived from mammoth dentin patterns. Unlike Bibikova and Rybakov, we concentrate on mammoth dentin being the inspiration for the cross/chevron/lozenge symbol that has followed mankind through millennia and still found everywhere today. We propose the stamp seal from Mezin (below left) was the origin of the idea that the symbol could be presented in some type of belt-form. Using the stamp, tattoos - probably using red ochre - could be formed on skin, or clothing, accounting for the breaks between the symbols shown in our study, thus being retained in the memory by this visual medium.



B.A Rybakov has some very interesting views on this symbol, which we believe supports our arguments regarding the importance of the image. Chin beads are shown for comparison which could account for the different styles i.e. single lozenge or double lozenge, with centre dots.

Neolithic clay images of female deities and priestesses are very often covered with rhombic or meander patterns, and among the finds from the settlements there are seals of pintaders that allowed Neolithic women to put this spell-painting on their bodies during magical festivities.

It is almost certain that such a ritual of tattooing could arise only in the Paleolithic time, when all the bone images of female deities were completely covered with a natural pattern of rhombuses inscribed into each other. We do not know on which category of objects this ornament was preserved in the Mesolithic (maybe weaving?), But it occupies a prominent place in the agricultural cultures of the Neolithic and Aeneolithic; they are covered with vessels, altars, bowls for sacred water, statues of goddesses, thrones of goddesses or priestesses, and just vessels for water.

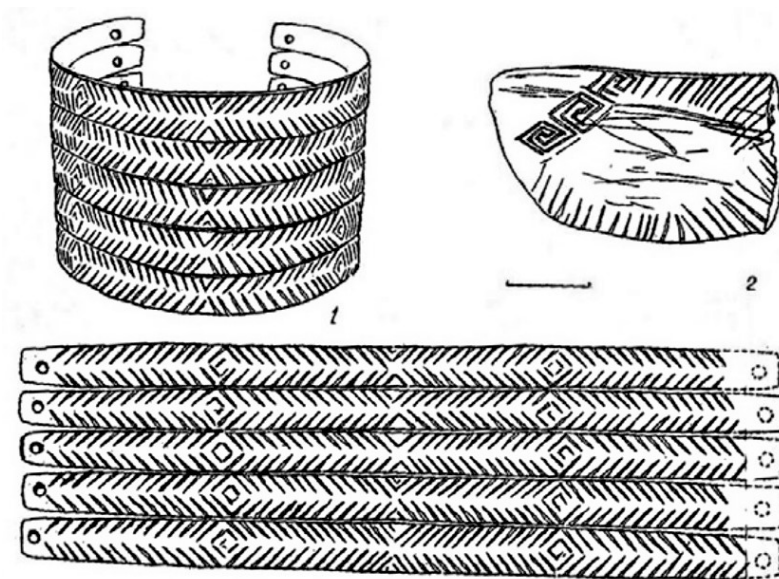
B.A. Rybakov: '3. Problems of folk decorative art: The origin and semantics of the rhombic ornament'



Shown above are some carved mammoth artifacts excavated from Mezin (Артефакты с Мезинской стоянки.) Ukraine, claimed to date back some 20,000 years. By shifting the stamp a fraction to the right, a meandering pattern is formed, thus allowing more complex patterns to be made than the original rhombic one on the stamp (pinterdera) - fig.4 in the above image. A Cro-Magnon female would therefore be able to cover her body with tattoos as seen on many neolithic figurines - in a carpet rhombo-meander pattern. Later we fully explore reasons why the symbols moved with migrations retreating southward from the melting ice-caps, probably following the mammoths. They then eventually proceeded to be spread in all directions by the Proto-Indo-Europeans. Image: www.pikabu.ru

Another famous find from Mezin c. 20,000 BC and its possible association with astronomy is explored by Iryna B. Vavilova and Tetyna G. Artemenko in *The ancient cultural framework of astronomy in Ukraine, The Role of Astronomy in Society and Culture*, E7,1 of 6 Proceedings IAU Symposium No. 260, 2009 D. Valls-Gabaud & A. Boksenberg, eds.

The central theme of the bracelet appears similar to the Mezin stamp, and the meander pattern is revealed as the pattern progresses around the bracelet. Later, we speculate the original theme was inspired by a supernova. However, Vavilova, Artemenko and others have plausible explanations for the layout. We only came to our conclusion as to the symbol's original inspiration by studying all the similar images shown in our study, and consider mammoth dentin to be the most plausible.



Above: Explanation of this ornament as a possible ancient lunar calendar by B. A. Frolov. *Priroda*, 1971, Vavilova and Artemenko, *op. cit.*



Above: images of composite Mezin bracelet. Upper Paleolithic “Sounding Artifacts” from Mesin, Ukraine: Modification Marks by L.V. Lbova, P.V. Volkov, D.V. Kozhevnikova, and L.V. Kulakovskaya. *Archaeology Ethnology & Anthropology of Eurasia* 41/3 (2013) 22–32

Two more images of this important artifact, with features highlighted. Chevrons and cross lozenge arrangements on the bracelet mirror those found on mammoth tusk dentin.



Above: Mezin bracelet showing cross/chevrons. www.artukraine.com.ua



Above: another angle of the Mezin bracelet clearly showing lozenge in different position than image on the preceding page. Археологічний музей ІА НАНУ / Archaeological Museum IA NASU. <https://www.facebook.com/pg/museumarchia/photos/>

It can be seen from the suggested use of the Mezin stamp, that lozenges, or 'eyes' can be formed. We shall spend a great deal of time on this subject, but for now would just like to point out a few facts. Flinders Petrie in 'Decorative Patterns of the Ancient World' (1930) indicates that historic connections of a design, that can be traced to a particular period and place, would tend to strongly link the designers. Possibly due to descent, racial movement or trade links. In selection of the symbols, the earliest are taken and thence variants and widely spread examples.

Ralph S. Solecki, in 'Art Motifs and Prehistory in the Middle East' Theory and Practice: Essays presented to Gene Weltfish', ed. by Stanley Diamond, 1980, referring to Sherwood Washburn, notes that the origin of zigzag or chevron represents an advanced stage of design art. He also has this to say about the lozenge (or rhomb):

While the geometric design elements can be explained as possibly originating from the designs formed in twilled weaving or plaiting, several elements obviously cannot find support in this hypothesis. These are the lozenge elements, and the bandy wave line elements. There appears to be nothing preserved in the prehistory of the Middle East which will provide a good analog to use as a model for the lozenge. Other curvilinear design elements like the lozenge, do not seem to have any specific analogs either in nature or man-made objects in prehistory that we know of. We are simply not able to read the minds of these prehistoric artisans.

We disagree with Solecki that the lozenge is not present on man-made objects in prehistory. The Mezin artifacts and mammoth tusk dentin are good examples of this; it may be that Solecki may have been unaware of these items (we have the benefit of the internet!). The chevron is also present on extremely old artifacts such as the Hohle Fels 'Venus' which is at least 35,000 years old. We explore this in the next few pages.

Many scholars note the use of lozenges on ancient artifacts. Marija Gimbutas, for example, emphasized their use on figurines depicting, which she and others suggest, are portrayals of ancient goddesses. In line with Petrie's thoughts, the earliest example which we have come across is the Mezin stamp, and until another earlier example is found we must assume that this takes precedence in the timeline. However, should experts agree with our interpretation of the engravings on the 35,000 year old 'Venus' of Hohle Fels, Germany, (shown later) then the Mezin stamp's symbol would concede precedence by at least 15,000 years. Of course, this is not exact science, but the best we have to go on.

Whilst we suggest that the cross/chevron/lozenge symbol is a representation of a solar event, we have to consider the more likely possibility that it could have come from a much closer source. It is taken as a given fact by most authorities that from Paleolithic times man revered the mammoth.

Russian researchers consider the mammoth tusk to have produced images of the rhombus. Notable amongst them was paleontologist V. I. Bibikova (В. И. Бибикова) 'The Origin of the Mezinian Paleolithic Ornament' 1965 (О происхождении мезинского палеолитического орнамента. – СА, 1965, № 1, с. 3-8). The following reference to Bibikova's work was obtained from:

<https://vladimirkrym.livejournal.com/5263684.html>:

A cross section, or oblique, section of mammoth bone forms on the surface of any product a kind of carpet pattern composed of diamonds of natural origin contacting and advancing on each other. The main, primary dentin diamonds are small - 0.5-0.8 mm along a large diagonal, but still well distinguishable with the naked eye. Diamonds are grouped into large, also rhombic or zigzag systems reaching 10 mm. These systems are less geometric, not as correct as primary diamonds, but they create the impression of a carpet pattern on the surface of a bone product. V. I. Bibikova, with the help of her discovery, explained the origin of the rhombic ornament, clearly engraved on bone products from the Mezynsky late Paleolithic site in Chernihiv region.

The Russian paleontologists' observations concerning lozenges or rhombi had been preceded by others many years before; notably by Professor Owen, P. L. Simmonds, A. Coleman, E. G. Squier, S. W. Woodhouse, Geo. Wyld and Dugald Campbell, who in 'The Ivory and Teeth of Commerce', The Journal of the Society of Arts Vol. 5, No. 213 (December 19, 1856), pp. 65-76 wrote a much-referenced work:

The tusks of the elephant, like those of the mastodon, consist chiefly of that modification of dentine which is called "ivory," and which shows, on transverse fractures or sections, striae proceeding in the arc of a circle from the centre to the circumference in opposite directions, and forming by their decussations curvilinear lozenges. This character is peculiar to the tusks of the proboscidian pachyderms, and is characteristic of true ivory...Formerly, the name ivory was given to the main substance of the teeth of all animals; but it is now by the best anatomists and physiologists, restricted to that modification of dentine or tooth-substance which, in transverse sections or fractures, shows lines of different colours or striae proceeding

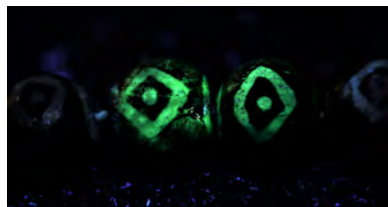
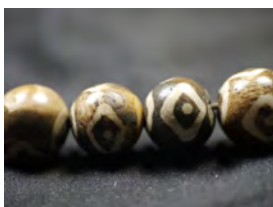
in the arc of a circle, and forming by their decussations minute curvilinear lozenge-shaped spaces. By this character, which is presented by even the smallest portion of an elephant's tusk in transverse section or fracture, true ivory may be distinguished from every other kind of tooth-substance, and from every counterfeit, whether derived from tooth or bone.

The topic of mammoth ivory was already extant in the early 1800s. The earliest reference to lozenges found in mammoth ivory context we have been able to find was in the 1819 edition of 'Rees's Cyclopædia', the full title of which was: 'The Cyclopædia; or, Universal Dictionary of Arts, Sciences, and Literature'. This was an important 19th century British encyclopaedia edited by Rev. Abraham Rees (1743–1825), a Presbyterian minister and scholar who had edited previous editions of Chambers's Cyclopædia. This excerpt is from the IVORY section:

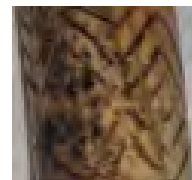
The following observations, relative to the nature of the tusks of elephants, are extracted from Cuvier's excellent memoir "On living and fossil Elephants," in the *Annales du Museum*, and translated in the *Philosophical Magazine*, vols. xvii. xxviii. and xxix. to which, especially as our article ELEPHANT was written previous to the publication of that elaborate memoir, we refer our readers for a more complete natural history of that remarkable animal. Cuvier, in examining the varieties of tusks, and the differences remarked in this respect among elephants, observes, that their texture exhibits no important difference. It always presents, upon its transverse section, those breaks which proceed like an arc of a circle from the centre to the circumference, and form, in growing, curvilinear lozenges which occupy the whole disk, and which- are more or less broad, and more or less perceptible to the eye. This character, common to all elephant ivory, and depending immediately on the pores of their pulpy nucleus, is not to be found in the tusks of any other animal. It is to be seen in all fossil tusks, and it refutes the opinion of Leibnitz, adopted by some other writers, and even by Linnaeus, that the mammoth horns might have belonged to the *Trichechus rosmarus*. The tusks of these animals, however, seem wholly composed of final, round accumulated grains.

(Note: *Trichechus Rosmarus* = walrus)

In order to see what type of lozenges were being referred to in the previous literature, we searched for studies with clear images of transverse sections of mammoth ivory. Excellent research was carried out by Pfeifer, S.J., Hartrampf, W.L., Kahlke, R.D. et al. in 'Mammoth ivory was the most suitable osseous raw material for the production of Late Pleistocene big game projectile points.' *Sci Rep* 9, 2303 (2019). <https://doi.org/10.1038/s41598-019-38779-1> (adapted images follow - Chin 'eye' beads shown for comparison)



The lozenges and cross/chevrons stretch across the tusk, similar to the lintels below from the important megalithic tomb at Fourknocks, Co. Meath, Ireland c. 3000 BC., indicating this symbol was well established before the Beaker people arrived some 500 years later. We expand on similar artwork of this period in the British Isles in greater detail in due course. Note that mammoth ivory lozenges sometimes appear dark, others appear white. Source: <https://www.youtube.com/watch?v=tGI8FWWTbTU>

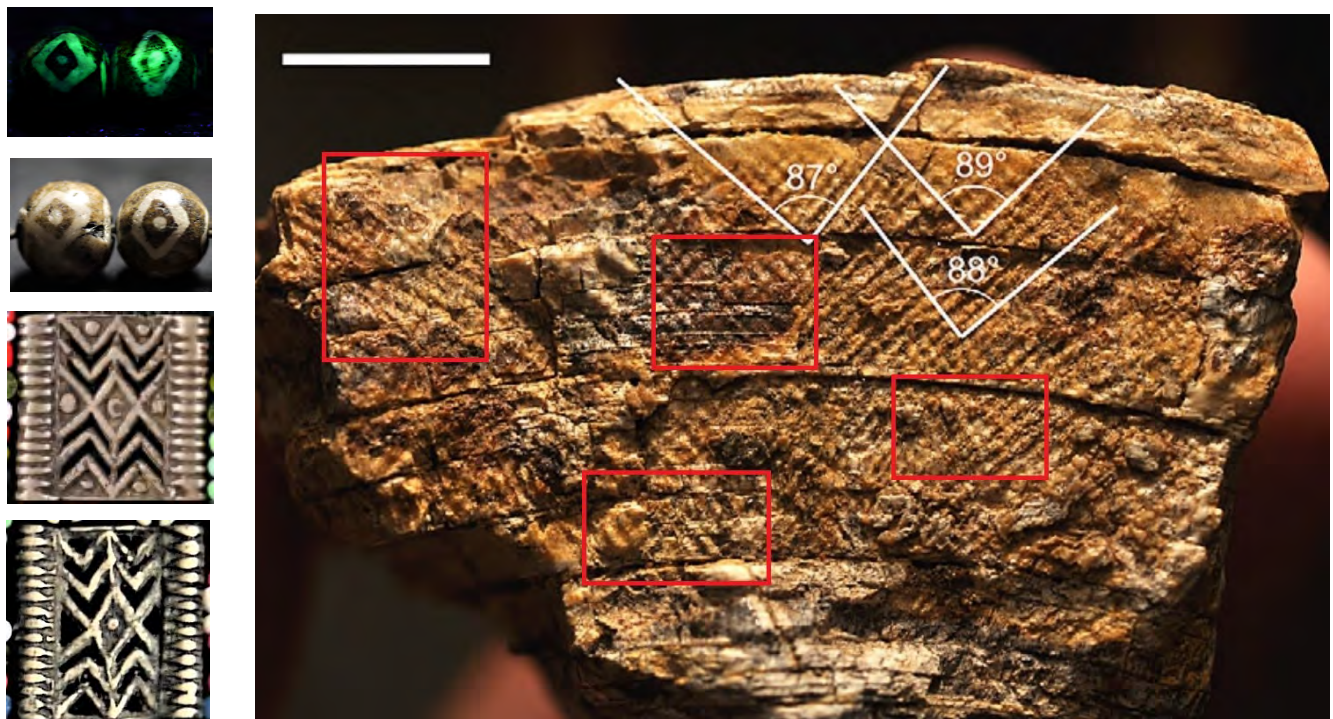


The patterns on the lintels could be representative of the Upper Paleolithic Mezin ivory carvings above. More on these artifacts shortly. Notably, chevron angles also appear to replicate Schreger angles on the ivory.

The central point of our theory is that Proto-Indo-Europeans took a set of symbols with them on their expansive migrations. That the Qiang chose to use Triassic-age 225mya silicified wood - a very difficult material to work with - to make their beads bearing these symbols, lead us to consider the possibility that they may have come across mammoth ivory in the China area. This cannot be discounted as it is known that mammoths were living in China in ancient times. *Mammuthus meridionalis*, is the oldest record of the species known from China, at around 1.8-2 mya in age from the Nihewan Formation near Majuangou, Hebei. See: Evolution and dispersal of mammoths across the northern hemisphere by A.M. Lister and A.V. Sher, 2015. We give an example of Shang Dynasty carved mammoth ivory later.

Below we show a section of Mid-Pleistocene (1.25–0.7 mya) *Mammuthus trogontherii* (Steppe mammoth) tusk, whose ancestor is the aforementioned *Mammuthus meridionalis*. The image is from an important study from 'A skeleton of *Mammuthus trogontherii* (Proboscidea, Elephantidae) from NW Peloponnese, Greece' by Athanassios Athanassiou Hellenic Ministry of Culture, 2011.

Should the Ancient Qiang have come across mammoth tusks, which could have been found near the silicified wood used for the beads, then they may have triggered a reinforced memory of the Cro-Magnons who manipulated mammoth ivory in Northern Europe tens of thousands of years previously. This would be in addition to the images of the symbols being carried from Anatolia, perhaps in tattoo or clothing form.



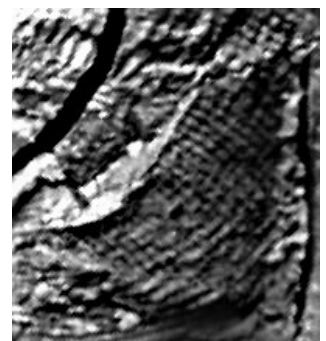
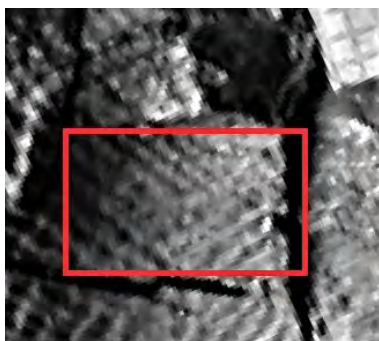
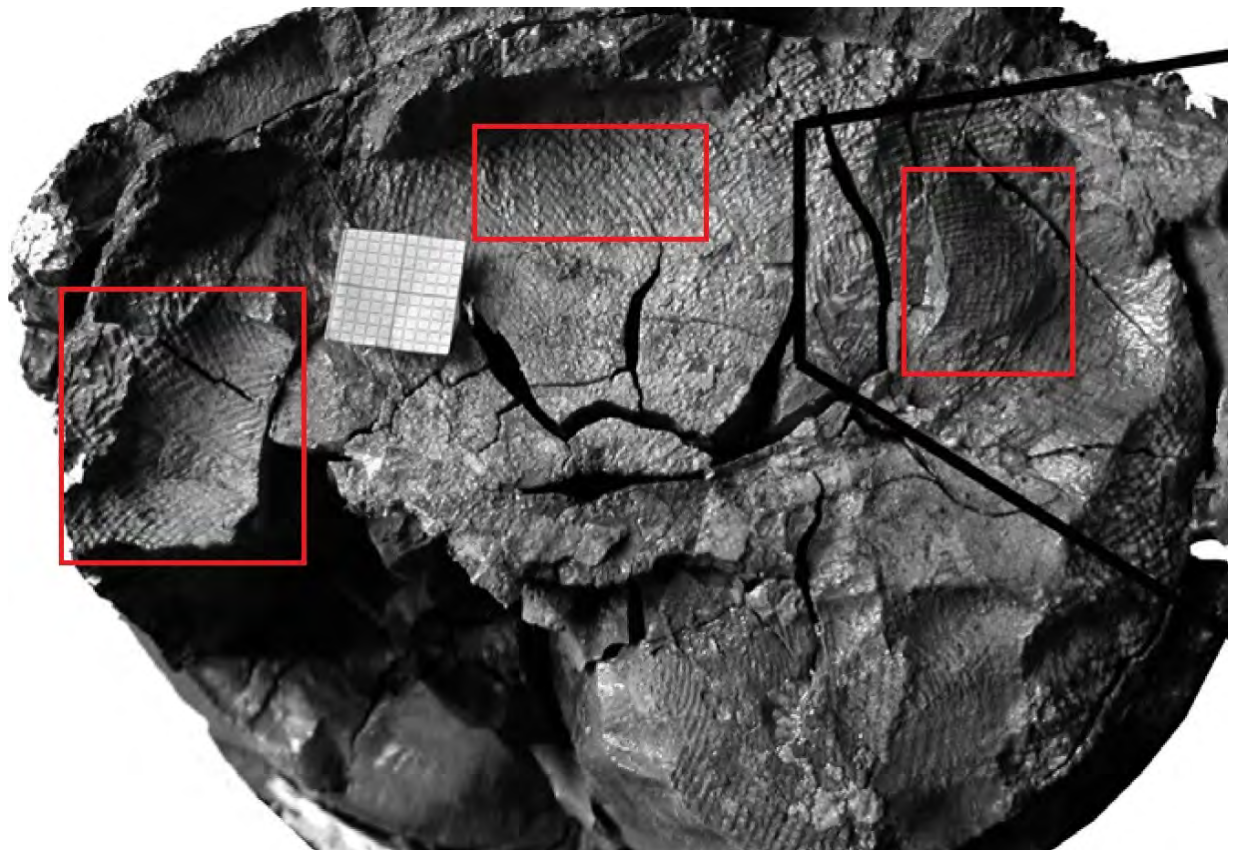
Another image of the *M.trogontherii* tusk, this time without the Schreger angle illustrations, showing more examples of lozenge within lozenge and lozenge/cross/chevron combinations. Unfortunately, this image is not as sharp as the previous one. Source: 'An elephant skeleton from NW Peloponnese, Greece' by Athanassios Athanassiou, *The World of Mammoths: Vth International Conference on Mammoths and their relatives* (Le Puy-en-Velay, 2010)



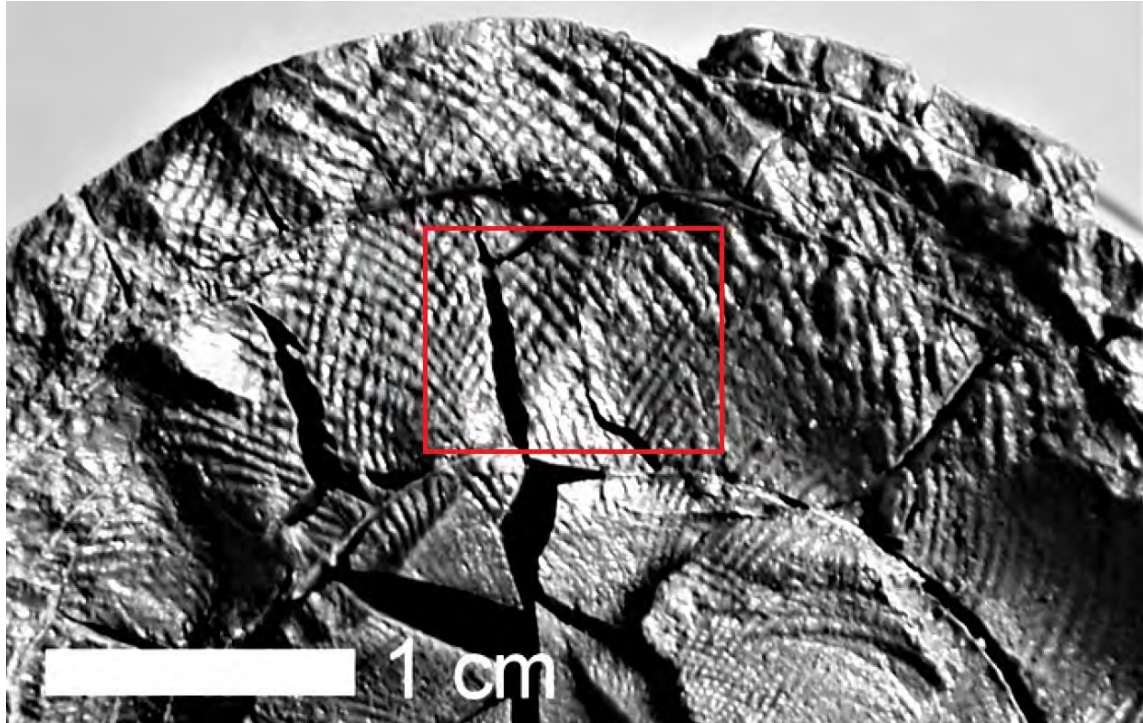
Schreger Lines: We believe these to have influenced our most important symbols, and quote from 'Physical Characteristics of Mammoth Ivory and their Implications for Ivory Work in the Upper Paleolithic' by Claire Heckel 2009, which neatly sums up the structure:

Ivory's strength and resilience exceeds that of many other rigid biological composites because of its unique structure. Locke (2008) has aptly described the internal structure of ivory as a "complex three-dimensional architecture." This description adequately captures the system of interlocking structural features that lend the material its notable tenacity. Structural formations on the macroscopic and microscopic levels interweave on multiple planes (transverse, radial, and axial) to reinforce the tusk (Locke 2008; Heckel 2009). The most clearly visible manifestation of this complex architecture is the Schreger pattern, visible to the unaided eye in transverse sections of the tusk (Fig. 1). The Schreger pattern is unique to proboscidean tusks, and the angles of the pattern differ among proboscidean taxa to the extent that one can often distinguish between mammoth, mastodont and modern elephant tusks on its basis alone (Espinoza and Mann 1993; Trapani and Fisher 2003)

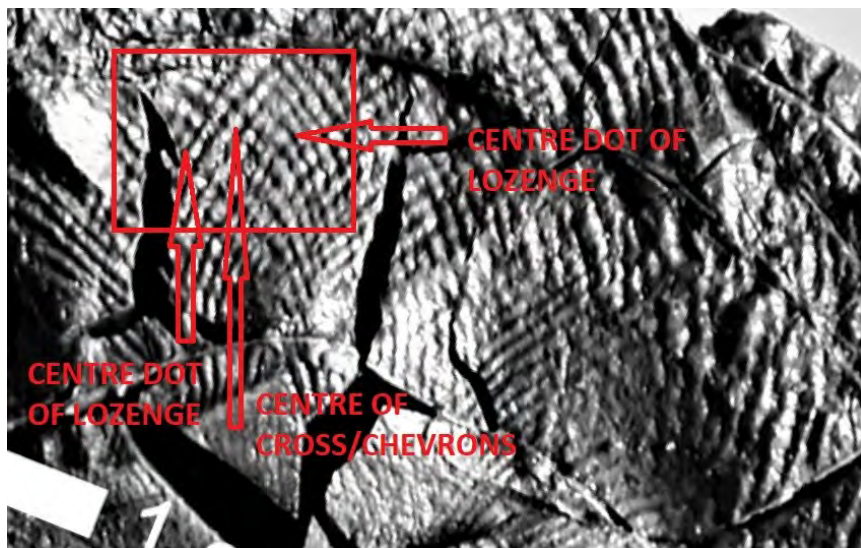
The images here are from Martina Ábelová's 2006 study: *Analýza mikroštruktúr klov druhu Mammuthus primigenius* (Blumenbach, 1803) *Acta Musei Moraviae, Sci. geol.*, 91, 227–233. This species postdates by some hundreds of thousands of years the *M. trogontherii* shown on the previous pages. The lozenge and lozenge within lozenge/cross/chevrons pattern is well represented. We have highlighted three areas.



Does the pattern, shown above left, not resemble a pair of eyes? In general, does not the myriad of lozenge/lozenge within lozenge/cross chevron Schreger line arrangement show how the Mezin 'tattoo' stamp may have been used to transfer possible magical/spiritual representation of the all-important mammoth onto humans? See page 85 for another possible Paleolithic tatto stamp made from mammoth ivory.

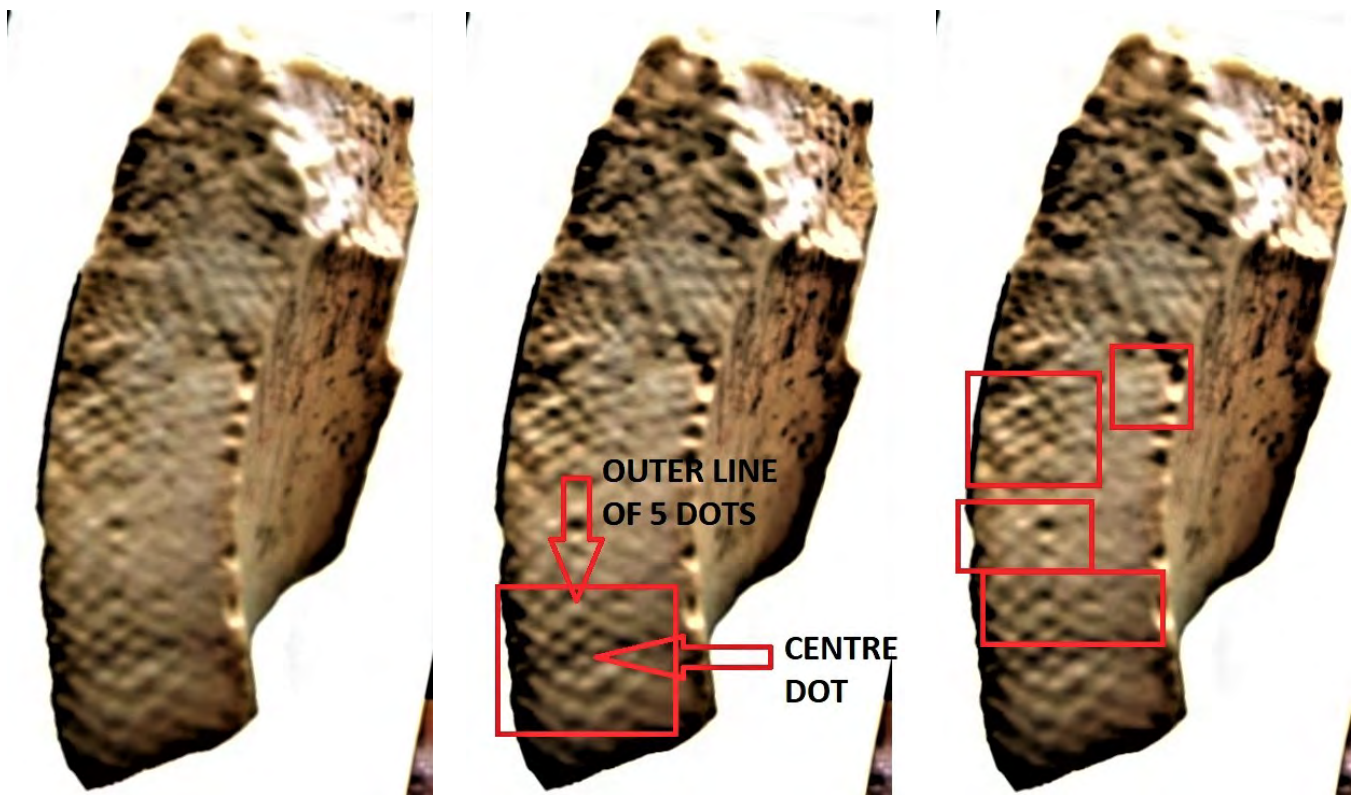


Another image from Abelova's work is shown above. The 'pair of eyes' arrangement, consisting of multiple lozenge-within-lozenge Schreger lines with the central dot is highlighted.



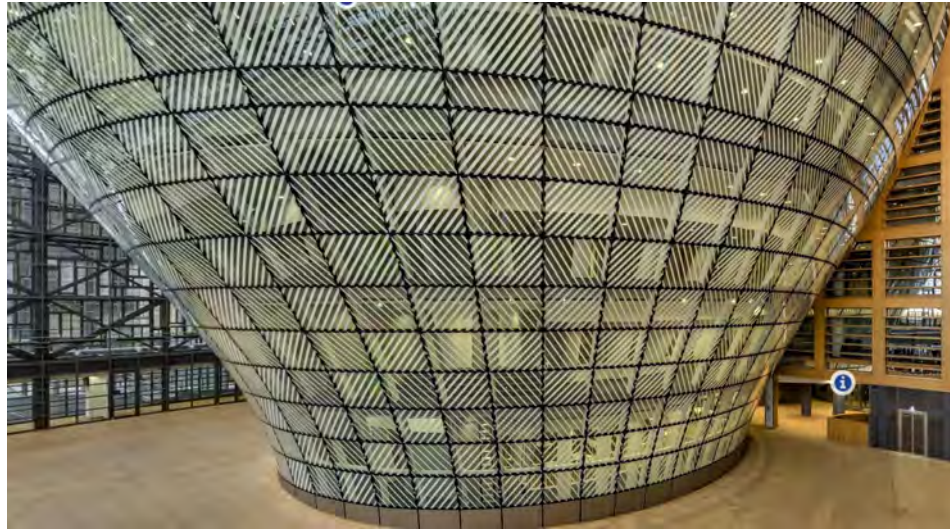
The image above is taken from the previous photo (with the angle altered) which shows an alternative lozenge/cross/chevron arrangement. We find it helpful to locate central dots as it is quite possible to find the same arrangement on all sides of the chosen one - a quite mesmerizing, magical effect!

Presented below are images of mammoth ivory, modified by us to highlight the Schreger patterns which we believe are behind the original ideas conceived to represent (a) the lozenge and (b) lozenge within lozenge symbol, an image which has persisted through the millennia, becoming a dominant design in our lives. Chin beads with similar designs are shown; normal and shortwave 254nm fluorescent lighting. Source of unmodified image: <https://shareslide.ru/istoriya/byli-i-nebylitsy-ob-ohotnikah-na>



Tip: first locate a centre dot on a piece of ivory, then follow the next set of dots surrounding the centre dot. Subsequently the pattern should fall into place as your eyes tune into the array of dots.

A good example of the persistence of the cross/chevron pattern today is the European Union's Europa Building forum shown here. Source: www.consilium.europa.eu



Above L: Section of tusk, *Mammuthus columbi* any time from 1.5m - 9000 BC, South Carolina USA. www.carousell.sg
Above R: The Mezin bracelet c. 18,000 BC which was shown previously. Інститут археології НАН України - Institute of Archaeology of the NASU. https://pt-br.facebook.com/pg/iarchaeology/posts/?ref=page_internal

The image of a Mezin mammoth ivory carving (below left) shows a pattern similar to the Schreger lines which we portray in this section. Source: Shydlovskiy P.S., Lysenko S.D., Kurylenko O.S., Sorokun A.A., Pichkur Ye.V. Prehistoric Archaeology of the Lower Desna Region. Kyiv, 344 p. 2016, Vita Antiqua Library. The lozenge is once again notable. The caption reads: Вироби палеолітичного мистецтва з стоянок Подесення: 6, 8 – орнаментовані бивні(1-7 – Мізин, за Шовкоплясом (Google translation = Products of Paleolithic art from the parking lots of Podesen: 6, 8 - ornamented tusks (1-7 - Mizyn, behind Shovkoplyas).

From the same publication (below right) is a Neolithic Ukraine vessel showing that this pattern may have persisted in the region even though it had passed with migrations southward as shown on the PPNA/PPNB artifacts on the following pages. The caption reads: Микільська Слобідка II, 1949. Реконструкція неолітичної посудини (за: Сорокун, 2012). (Mykilska Slobidka II, 1949. Reconstruction of a Neolithic vessel (by: Sorokun, 2012).

An alternative theory could be that the Neolithic vessel pattern is a result of reverse migration from the Anatolian region - the pot is probably many thousands of years younger than the PPNA/PPNB vessels we present in the next few pages.

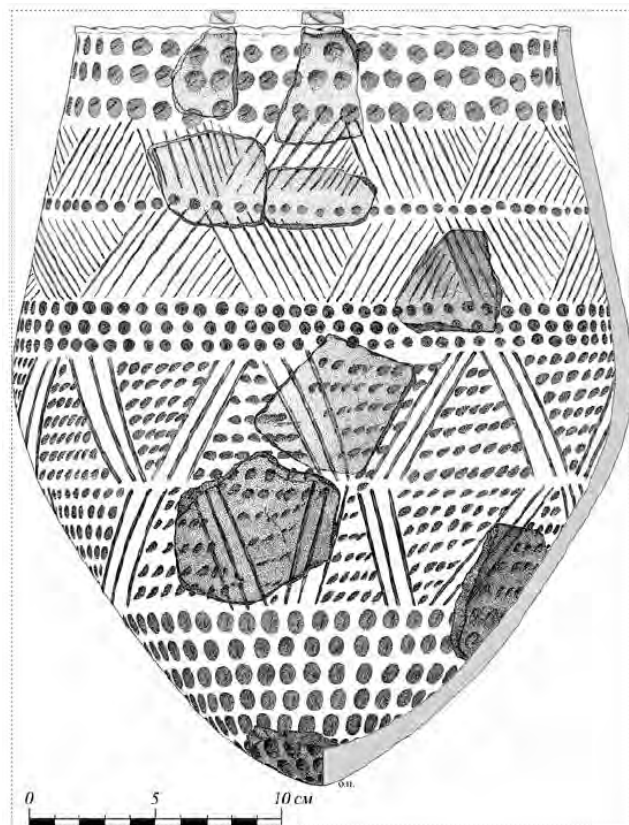
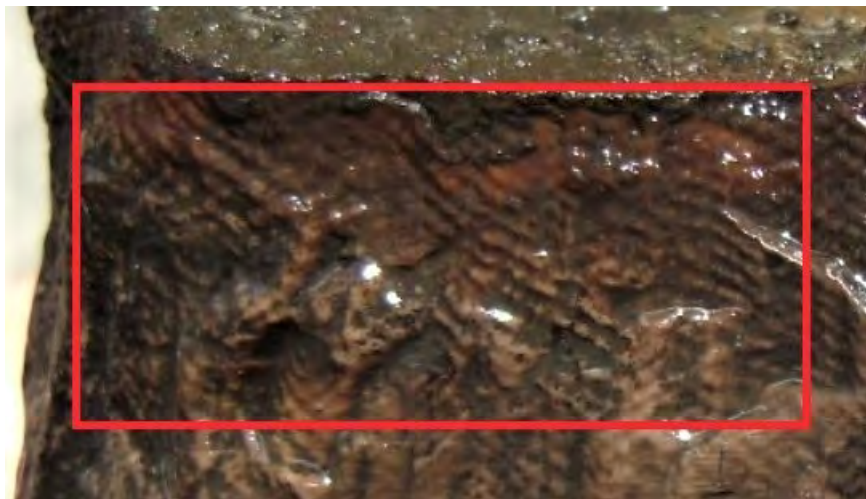
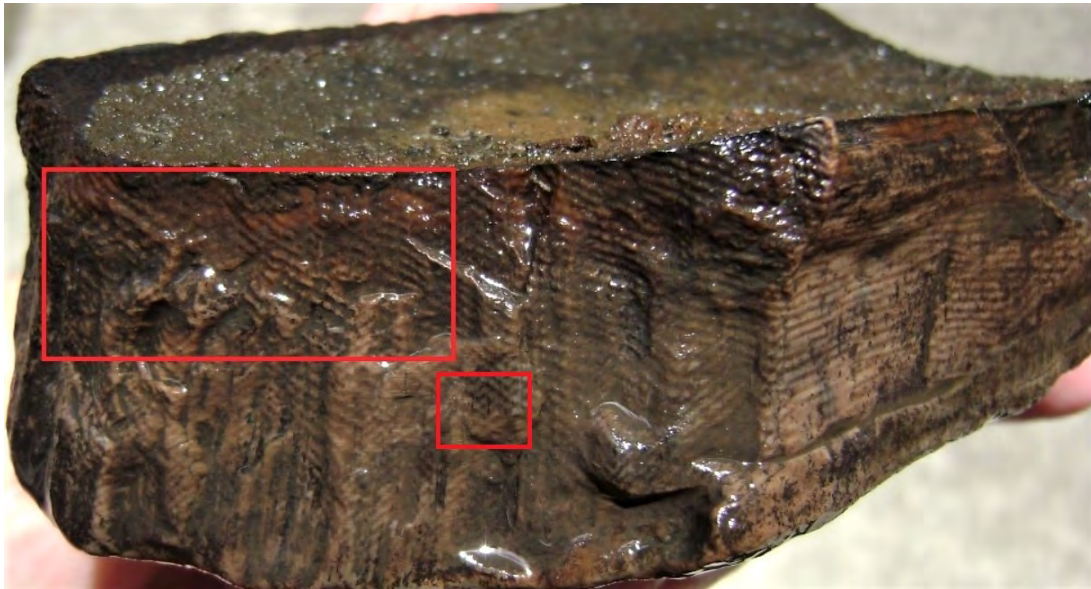


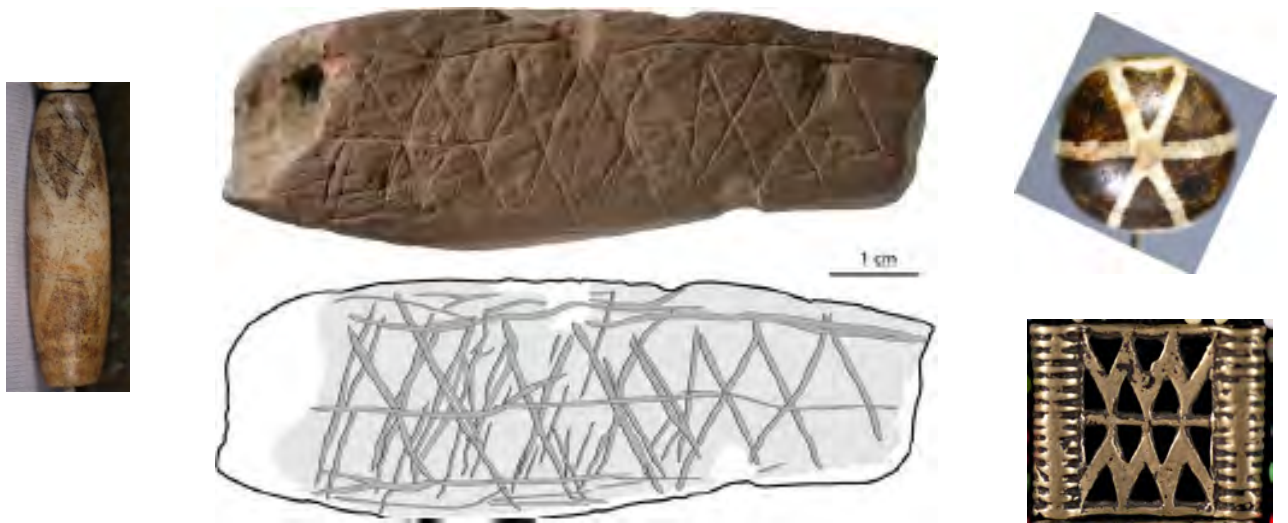
Рис. 36. Микільська Слобідка II, 1949. Реконструкція неолітичної посудини (за: Сорокун, 2012).

A nice example of the 'eyes' arrangement is shown on the stabilized piece of mammoth or mastodon ivory below. It is described by the author as: 'photos of the cross-grain view of a piece of fossil ivory showing the distinctive schreger line pattern that makes it easy to tell that it's ivory instead of fossil wood or some other thing'. Source: <http://www.thefossilforum.com/index.php?/gallery/image/11755-piece-of-mammoth-or-mastodon-tusk/>

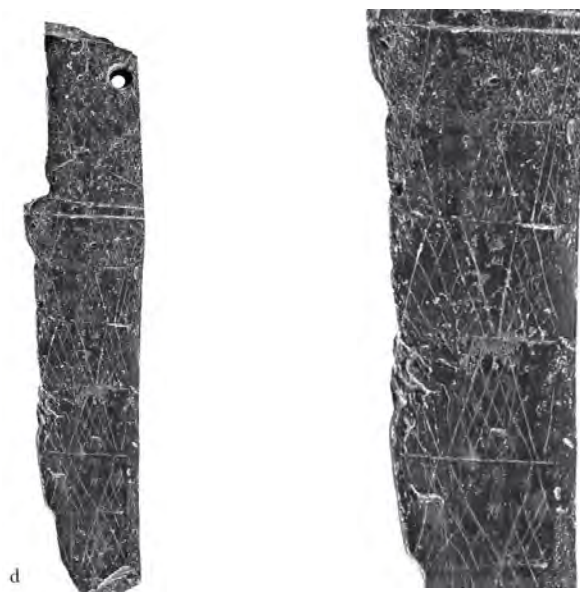


Above left gives the perception of two adjacent multiple lozenges-within-lozenges, whilst the one on the right shows a clearer image of a single lozenge-within-lozenge arrangement - which probably comprised multiple similar Schreger lines, but are not clear due to the degradation of the material. Chin bronze piece shown for comparison.

Leading us into the PPNA/PPNB of Anatolia, we touch briefly on the earliest symbol we came across in Africa. The engraved ochre from the Blombos Cave, South Africa, c. 77,000 BC. This will be explored at greater length later where we give many examples of ancient uses of this symbol. The next earliest similar array of this symbol we found was from the Late Natufian c. 11,640-9540 BC (according to dating by Leore Grosman, 'The Natufian Chronology Scheme – New Insights and their implications' 2013.) Alongside are some China beads and bronze artifacts with almost identical designs.



Above main image source: Engraved ochres from the Middle Stone Age levels at Blombos Cave, South Africa by Christopher S. Henshilwood, Francesco d’Errico and Ian Watts, 2009



Above: Final Natufian 11,640-9540 BC. d. Decorated bone tool with a running pattern of registered triangles filled with crisscross net, NEGII, Area B, rib bone, 7.5x1.5x0.3cm (photo by Gabi Laron), Source: Engraved stones from Nahal Ein Gev II —portraying a local style, forming cultural links by Dana Shaham and Leore Grosman 2019

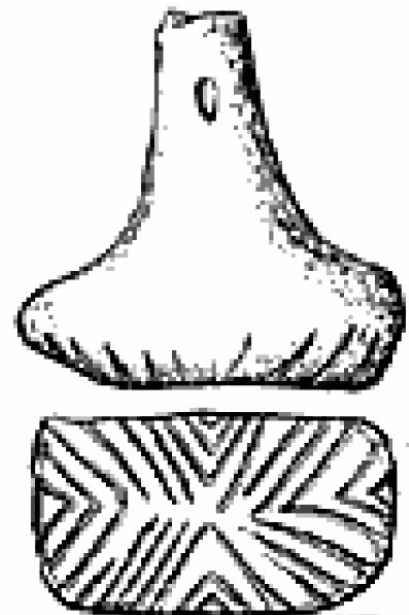
As a foretaste of artifacts that could have been influenced by memories of mammoth ivory Schreger patterns, we give two examples. The first is from the PPNA/PPNB at Kortik Tepe, a decorated bone item, taken from the work: Coşkun, Aytaç & Benz, Marion & Erdal, Yılmaz & M.M, Koroyuko & Deckers, Katleen & Riehl, Simone & Münster, Angelina & Alt, Kurt & Özkaya, Vecihi. (2010). Living by the water - Boon and Bane for the People of Körtik Tepe. *Neo-Lithics*. 2. 60-71.



Fig. 9 Decorated bone item with representations of scorpions, some kind of insect and possible representations of (cat-) fish found in Grave M13, A87.



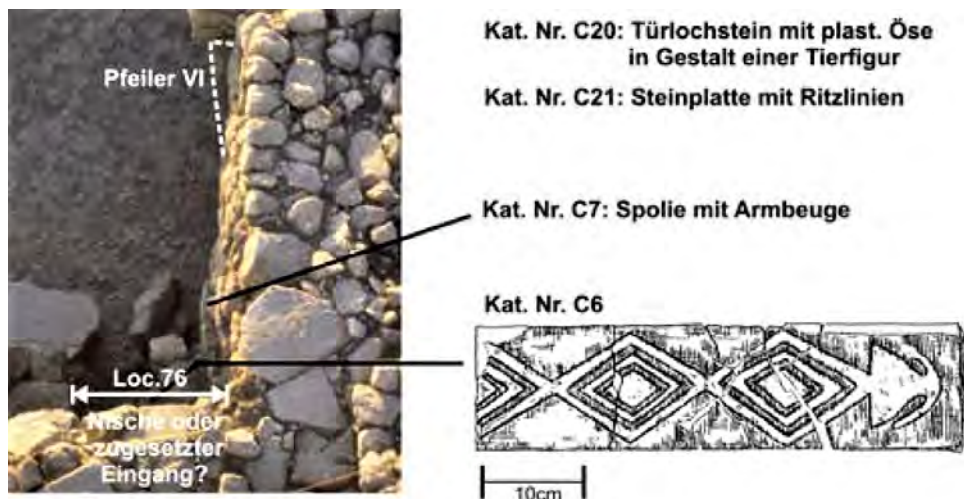
Another image of the bone object is shown below and is taken from: 'Local trend of symbolism at the dawn of the Neolithic: The painted bone plaquettes from PPNA Körtiktepe, Southeast Turkey' by Siddiq et al 2021. The similarity to the Mezin stamp from five to ten thousand years earlier is remarkable. The cross/chevrons image appears to have been originally replicated at the top part of the object (now broken).



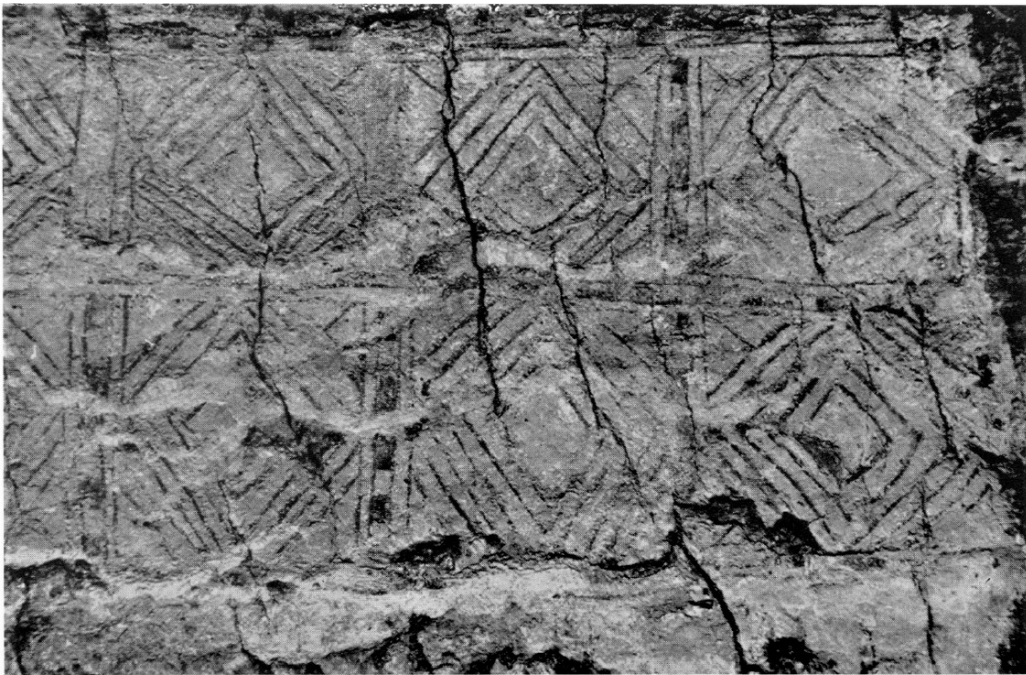
The next example is from the Bactria Margiana Complex c. 2500-1800 BC. This would have been a high value item and has every appearance of replicating the *M. trogontherii* Schreger pattern shown previously. The following description is given: 'This statuette of a seated woman, often called a Bactrian goddess or princess, is an outstanding example of stone carving. ..The surface relief of the body is a reference to the distinctive layered wool textile, known as kaunakes in Central Asia, which is commonly associated with the garment of deities and princess in the ancient civilizations of Elam and Sumer'. Source: <https://store.barakatgallery.com/product/bactria-margiana-composite-stone-idol-4/>



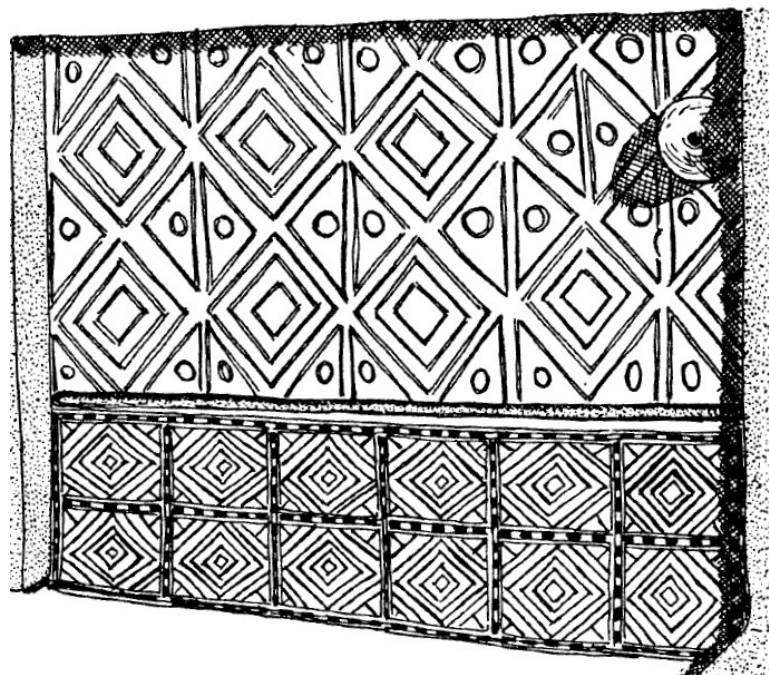
Regarding symbols from the PPNA of Anatolia, we note the appearance of squared-off lozenges within lozenges at Göbekli Tepe dated 9600-8800 BC. Image below from: 'Göbekli Tepe, Anlage H. Ein Vorbericht beim Ausgrabungsstand von 2014' by Oliver Dietrich, Jens Notroff, Lee Clare, Christian Hübner, Çiğdem Köksal-Schmidt, Klaus Schmidt in *Anatolian Metal VII* 2016. They are found in the Lion pillar building from Layer II of Göbekli Tepe (Löwenpfeilergebäude aus Schicht II des Göbekli Tepe).



Illustrating continuity of the lozenge within lozenge pattern, we show images from 'Excavations at Çatal Hüyük, 1963, Third Preliminary Report' by James Mellaart, *Anatolian Studies*, 1964, Vol. 14 (1964), pp. 39-119. They are from the East wall of Shrine VII and dated 6720-6610 BC. Mellaart was of the opinion that they represented kilims - a subject which later brought controversy.



(b) Detail of painting of a kilim on east wall of Shrine VII, 1.



The following images are taken from the recent work: Gündem, C.Y ve Dağlı. M. (2018), 'Three early neolithic stone vessels from the Mardin museum', Hitit University Journal of Social Sciences Institute, 11(3), 1837-1845. doi: 10.17218/hititsosbil.403269. The vessels can be dated to the PPNA/PPNB contemporary with Körtik Tepe 10,400 BC to 8,800 BC and appear to show a further development/continuation of the Mezin artifacts shown on previous and future pages - forerunners of the Çatalhöyük Shrine VII patterns. Note: we draw attention to the 'arrow-like' patterns on two of the outer quadrants.



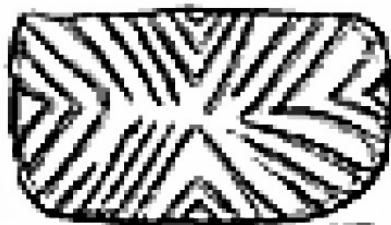
Above: The stone vessel with the nested diamond motif. A - Decorated body. B – Decorated base (Height: 8.1 cm / Rim diameter: 6.4 cm / Body diameter: 9.1 cm / Base diameter: 5 cm.) (Photo, Mardin Museum Archive).



Above L: Body drawing of MMSV-2
Above R: Base drawing of MMSV-2.

Two figurines (representing goddesses?) from Hacilar 5250-5000 BC (left image) and 5100-4900 BC (right image) are shown below. They are roughly equi-distant in time between the PPNA/PPNB and Bactria Margiana artifacts shown earlier, yet still present images with a similar symbol. We have many more examples of such artifacts stretching across the globe which will be shown in due course.

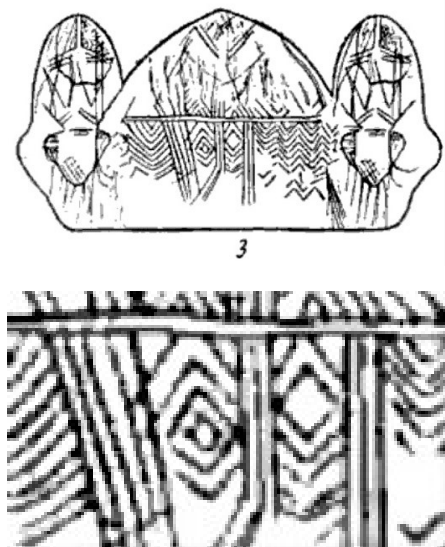
The main point to take from this is that the symbol must have been so powerful that it was represented by many cultures on their journeys from the Ukraine area to southeast Anatolia, and thence in all directions most likely after the demise of Çatalhöyük c. 5950 BC (more on this subject later). Shown bottom are examples of Mezin Upper Paleolithic mammoth ivory carvings, details of which are published elsewhere in this work. Far right is an Anatolian Neolithic Double Spherical Idol 6000-4000 BC. Compare the arrow-like symbols with the Chin bronze piece. Source of both figurines: www.wikipedia.com. Source of Idol: www.auctionzip.com



Although we investigate in great depth the symbols from the Upper Paleolithic Ukraine to Anatolia and thence all directions across the globe, a few more examples of artifacts can be shown here, which give a brief idea of what is to come. Below we present a continuation of the symbol on what may be called 'goddess' figures from Anatolia c. 2500 BC. Source of both images: Musées Royaux d'Art et d'Histoire www.omnia.ie

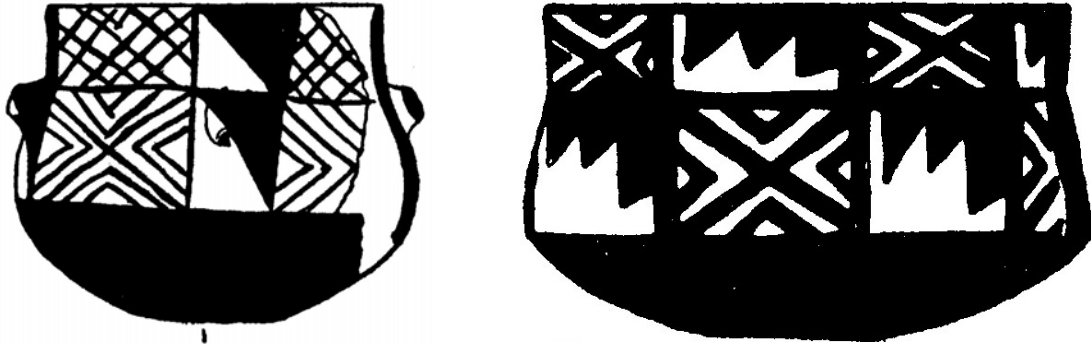


Below we compare a Mezinian mammoth ivory carving 20,000-15,000 BC (E A Golomshtok 'The Old Stone Age in European Russia, Transactions of the American Philosophical Society, New Series, Vol. XXIX', Philadelphia 1938) with an Anatolian jar from 6900-6400 BC - the final PPNB EKII West Çatalhöyük ('Bati Çatalhöyük insan ve hayvan betimlemeli çanak çömlekleri' by Gülay Yilankaya, 2010). There seems to be a clear continuation of the pattern which we propose derived from mammoth ivory Schreger lines.

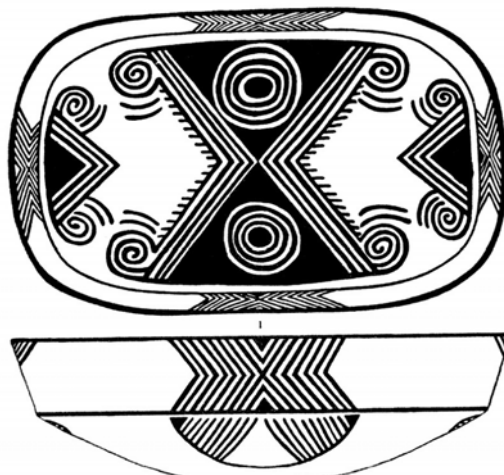
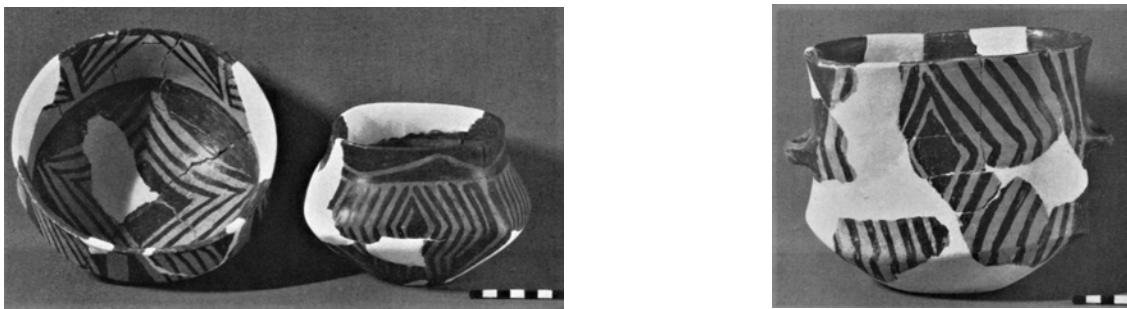


The following images are taken from: Excavations at Hacilar. First Preliminary Report by James Mellaart, *Anatolian Studies*, 1958, Vol. 8. The continuity of the symbols on pottery at this time is evident.

Left image: 6500-5800 BC (Level V). Right image: 6300-5800 BC (Level II)

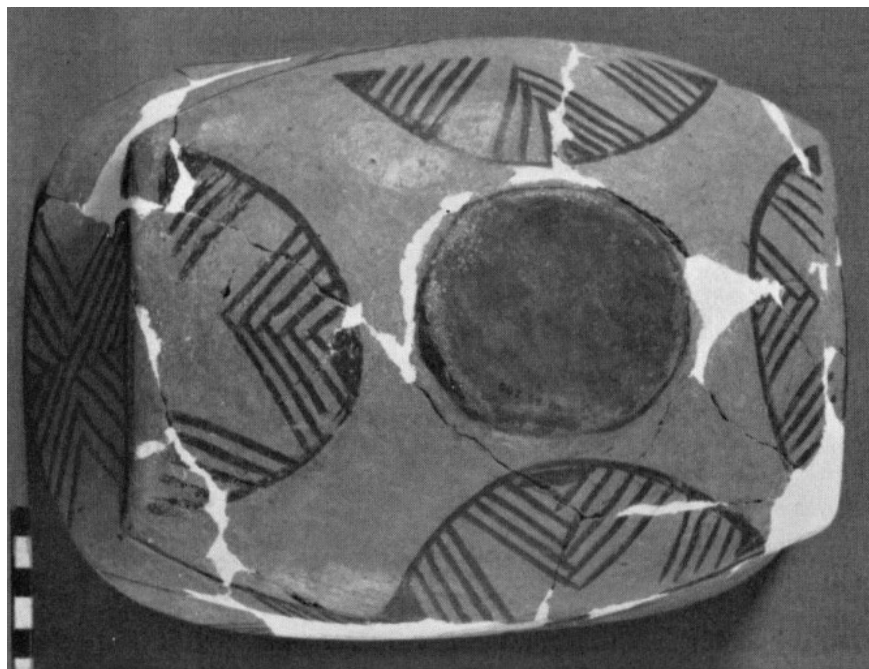


The next images (below) are from: Excavations at Hacilar: Second Preliminary Report, 1958 by James Mellaart, *Anatolian Studies*, 1959, Vol. 9. The pottery is from Level 1 and dated 6000-5500 (The Neolithic–Chalcolithic sequence in the SW Anatolian Lakes Region by Laurens Thissen, *Documenta Praehistorica* XXXVII (2010). The lozenge within lozenge symbol was clearly an important design.





Above: Level I dish, Hacilar, 6000-5500 BC. <https://www.uludagsozluk.com/e/13868351/>



Above: a view of the bottom of the dish. Note the cross/chevrons on the sides (inside and outside); the same design as the dish on the previous page. Source: Excavations at Hacilar: Second Preliminary Report, 1958 by James Mellaart, *Anatolian Studies*, 1959, Vol. 9.

We deal with the appearance of the symbols as our work continues, and for now would like to point out that they show up on LBK pottery from Germany 5500-4500 BC. We give many examples later, but for now present two different styles; the cross/chevron/lozenge (top images) and the lozenge within lozenge (bottom L image). Compare with the Pottery Neolithic c. 6000 BC seal from Sha'ar Hagolan shown bottom right. The spread of the symbols, time-wise, could be accounted for allowing for PIE migrations from SW Anatolia.



Above L: LBK (Linear Beaker Culture) pot c.4500 BC.

Above R: another angle of the pot.

Source of images: <https://roemisch-germanisches-museum.de/Staendige-Sammlung>

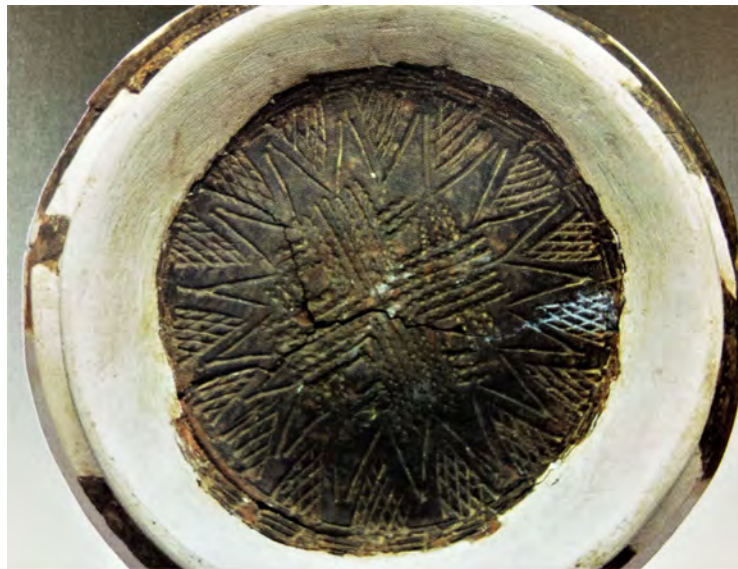


Above L: LBK pot 5500-4950 BC. Source: www.musseenkoeln.de

Above R: Seal, Sha'ar Hagolan c. 6000 BC, Yarmukian Culture Museum in kibbutz Shaar Hagolan, Israel.

Described as: 'A seal-like artefact incised with concentric rhomboids'. See: 'Chapter 13: Incised pebbles and seals' in 'Sha'ar Hagolan Vol. 4. Ground-Stone Industry: Stone Working at the Dawn of Pottery Production in the Southern Levant' by Danny Rosenberg and Yosef Garfinkel 2014. Source image: www.alchetron.com

The main thrust of our hypothesis is that the Proto-Indo-Europeans migrated eastwards and westwards at the same time. Their symbols reached the British Isles by 3000 BC and China by the same time. However, there are anomalies to this, one of which are the Tangjiagang Culture 汤家岗文化 c. 4400 BC pots shown below. The symbol at the centre of the sixteen-pointed star is almost exactly as the ones portrayed so far in this section. If the dating is correct then we have to wonder: did the PIE arrive in China much earlier than previously thought? We will show artifacts from the Hongshan Culture with PIE symbols which leads us to state that PIE influence was already present in China by 3000 BC.



Above: The sixteen-pointed star pattern on the outsole of the M103 unearthed in the first phase of the pre-Daxi Tangjiagang site c. 4400 BC 汤家岗遗址第一期M103出土碗外底十六角星纹. http://www.hnkgs.com/show_news.aspx?id=1839
Note the centre comprising cross/chevron pattern.



Above: Gaomiao white pottery bowl, clay red pottery, unearthed from Tangjiagang site in Anxiang. Image source: Hunan Provincial Institute of Cultural Relics and Archaeology 高庙白陶 陶钵, 泥质红陶, 安乡汤家岗遗址出土。图片来源: 湖南省文物考古研究所 <https://new.qq.com/omn/20200607/20200607A04GNG00.html>

Here we present some ideas of how clothing could be used to portray the symbols, using the examples of stelae from the Neolithic site of Sion, Petit-Chasseur in Switzerland. Dated from 2900-2200 BC. The following quote is from the Musées cantonaux du Valais:

More than thirty funerary steles have been uncovered. They include clan leaders and high-ranking women richly dressed, who formed the elite of the community established at that time in the Rhone Valley. These steles were originally designed to be erected near tombs, but most were ritually broken and sometimes used as building material for tombs. They are an extraordinary witness to the prehistoric art of the Neolithic period. With the help of stone punchers and chisels, the prehistoric craftsmen managed to engrave with remarkable finesse, bows, arrows, daggers, belts, jewelry and details of the characters' clothing.

The lozenge with squared-off and lozenge within lozenge forms are evident on Stele 15 shown below:

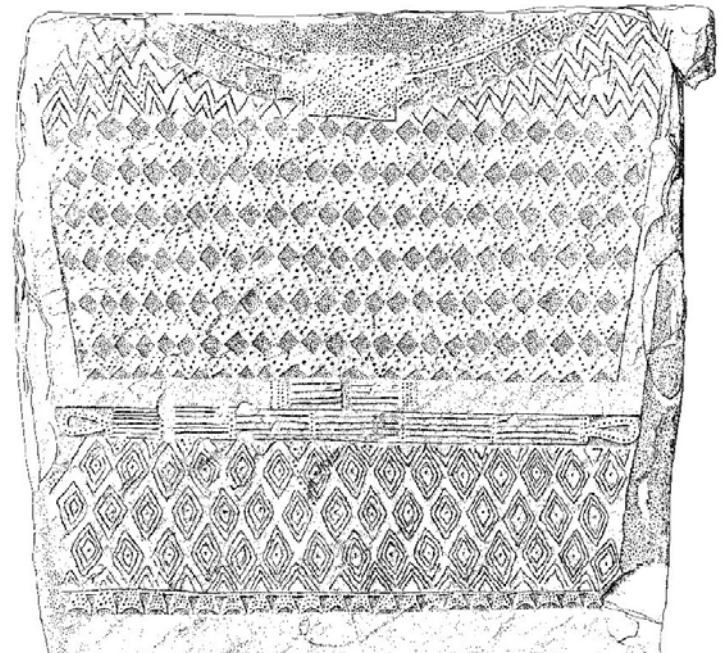


Above L: Stele 15: Sion, Petit-Chasseur: un goût d'Europe et au-delà by Alain Gallay 2011
Above R: drawing of Stele 15: Les stèles anthropomorphes de la nécropole néolithique du Petit-Chasseur à Sion (Valais, Suisse) by Alain Gallay 2009

A close-up of Stele 15 reveals the remarkable likeness to images seen on the fossilized tusk shown from *M. trogontherii*. As the clothing represents that worn by clan leaders and important people, it is clear that the symbols would have had special significance.

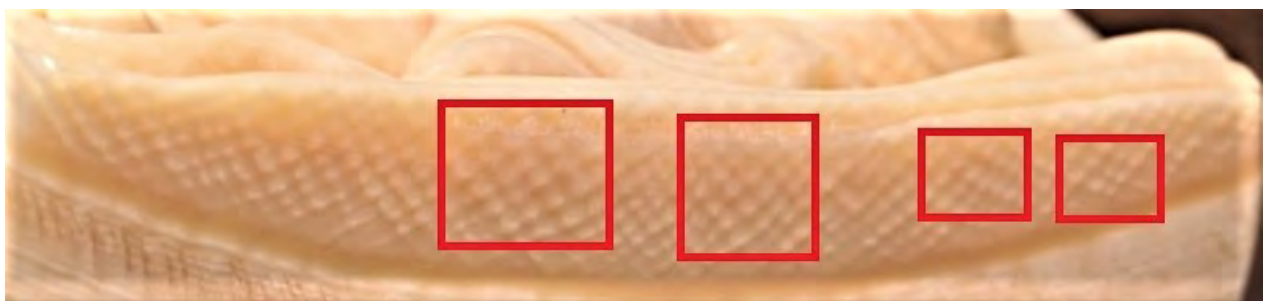
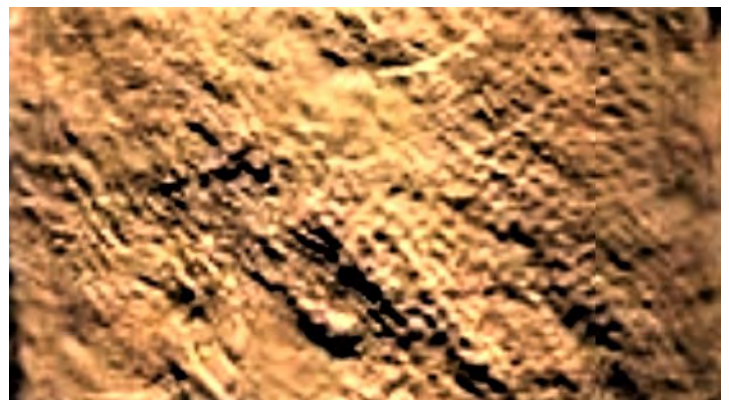
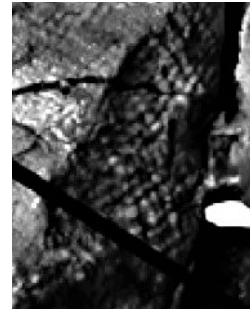


Below: more lozenges, this time on Stele 20, also from Gally 2009 *op. cit.*



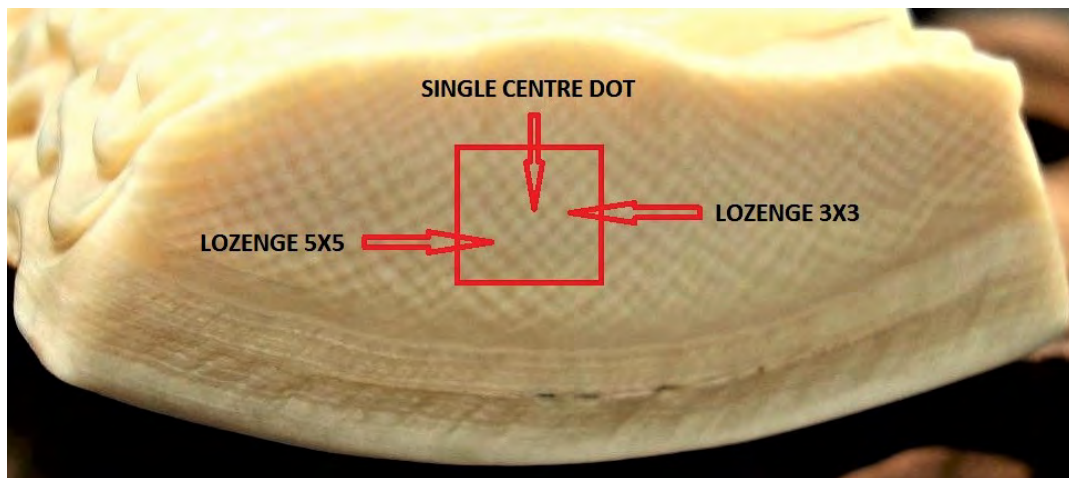
Probably the closest resemblance to fossilized mammoth lozenges comes from a Stele displayed at Musée d'Histoire du Valais, Sion, Switzerland, known as Stele 10. However, other experts describe them as decorated squares - we may be deceived by the lighting. Alongside is a detail from Abelova's 'Analýza mikroštruktúr klov druhu Mammuthus primigenius (Blumenbach, 1803)' (shown previously).

Main images: <https://www.flickr.com/photos/92947703@N02/8600816076/in/album-72157633026919500/>



Shown above is a modern carving from mammoth ivory which is promoted to replace elephant ivory on the Chinese market. To obtain this fresh-looking piece a vast amount of tusks would have been discarded - the Chinese consumer desiring as pure white as possible. It is notable that the squared-off lozenges appear as 3x3 dots with a centre dot, or 4x4 dots with 2x2 dots inside forming a lozenge within lozenge. This would be the image seen by Paleolithic ivory carvers - a bewildering sea of eyes - and at a much later date appears to have been adopted by their Neolithic descendants. Image: www.taobao.com

By referring to the image below, it is possible to see how the squared-off lozenge within lozenge perception may be expanded, this time from a single centre dot, then 3x3 inner lozenge and 5x5 outer lozenge. In fact, almost any dot taken as a reference could be the basis for a building block of multiple lozenges within lozenges. It is also evident that the two lozenge effect (eyes), separated by a cross can be formed. This effect would be greatly enhanced on fossilized ivory such as *M. trogontherii* or *M. meridionalis*; examples of which clear, concise images have been difficult for us to obtain. Adapted photo below, of mammoth ivory carving for the Chinese market is from: www.detail.1688.com



Natalia Akchmetgaleeva in 'Каменный век Посеймья: верхнепалеолитическая стоянка Быки-7' 2015 which roughly translates to 'Stone Age of Poseimya: Upper Paralympic Settlement Bulls-7' covers a large-scale archaeological excavation near Kursk, Russia, during which a very skilful work of mammoth ivory carving was recovered. Important facts were deduced from this dig, including the conclusion that 'using old tusks, the ancient master could be familiar with the properties of drying raw materials and how to use longitudinal splitting of mammoth tusks, by taking into account its natural structure (presence of growth cones) on the initial stage of its stratification (используя старые бивни, древний мастер мог быть знаком со свойствами высыхающего сырья и применять приём продольного разламывания бивня мамонта с учётом его естественной структуры (наличия конусов роста) на начальной стадии его расслоения.)

Referencing the Schreger lines, Akchmetgaleeva notes: 'On the preserved peeling surfaces "Schreger lines" are visible, intersecting with each other at an acute angle and creating a diamond-shaped pattern (Fig. 40: B).' (На сохранившейся поверхности отслоения видны «линии Шрегера», пересекающиеся друг с другом под острым углом и создающие ромбовидный рисунок (рис. 40: B) and when using

mammoth ivory 'when extracting blanks, it was taken into account the tusk property of "Schreger line structure" on a number of cone-shaped structures.' (При извлечении заготовок было учтено свойство бивня расслоения по «линиям шрегера» на ряд конусовидных структур.)

This is our first indication that ancient artisans took account of the layout of the Schreger lines on mammoth ivory when considering how to shape the object. It is inconceivable that they did not recognize the lozenge/cross/chevron patterns, and subsequently replicated the designs on carvings, body tattoos and clothing.

Akchmetgaleeva indicates that further, general analysis of available material leads to the conclusion that mammoth tusks were a rare and valuable material and most likely first appeared (with Cro-Magnons) as a result of business (trade) rather than hunting.

Below, we show the mammoth ivory carving (referred to as Fig. 40B) recovered from the dig. It is estimated the ivory block used was originally 13cm x 9cm x 1.5-2cm.

Doubtless there are other examples of Paleolithic ivory carvings with visible Schreger lines, but this is the first example we have come across with the archaeologist in charge of a dig mentioning them in conjunction with a 'diamond-shaped pattern' (создающие ромбовидный рисунок) i.e. lozenges.



Our proposal is that old tusks present Schreger patterns of cross/chevron/lozenges as stand-out images. This theory that old tusks would have been used by artisans is supported by investigations such as those carried out by Gennady Khlopachev for his PhD in 2004 'Mammoth tusk processing technology in the Upper Paleolithic era: According to the materials of the settlements of the Russian plain topic' (Технология обработки бивня мамонта в эпоху верхнего палеолита: По материалам стоянок центра Русской равнины тема диссертации и автореферата по ВАК РФ 07.00.06, кандидат исторических наук Хлопачев, Хлопачев, Геннадий Адольфович) via Google translation:

The technology of splitting the tusk serves as a criterion for assessing the chronological position of the Upper Paleolithic settlements of the Russian Plain. It allows us to confidently distinguish the tusks of the late - middle pores of the Upper Paleolithic from the later industries. Distinguishing Sungir, Kitten, Khotylev, Gagarin technology from Eliseev, Suponevskaya, Yudinskaya and Mezinskaya. Differences between them are significant and relate to the quality of the treated tusk, the features of the fission technique, as well as the overall strategy of obtaining tusks.

The end of the early- middle stage of the Upper Paleolithic is characterized by the use of tusks of cracked quality. Numerous techniques built on combinations of bundles and rocking, bundles and breaking played an important role in the technologies of this time, and the technological principle of splitting almost completely excluded the practice of one-time receipt of a series of similar tusks from one base.

Towards the end of the Upper Paleolithic is characterized by a different approach to splitting the tusk. At this time, the priority was given to whole, "fresh" raw materials. The layering, as a technique for handling the tusk, was not used. The main ways of splitting were a variety of techniques of transverse and longitudinal rocking. The strategy of splitting technology was aimed at getting from one base a large number of identical tusks.

Further examples of old or fossilized tusks being worked in the Upper Paleolithic are:

(1) Referring to a culturally modified mammoth tusk from Alaska dated to 31,150 ybp, Carol Gelvin-Reymiller et al (Technical aspects of a worked proboscidean tusk from Inmachuk River, Seward Peninsula, Alaska 2005) state:

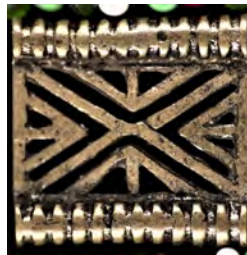
‘The latest mammoth remains in mainland Alaska are dated to around 11,400 BP [12,13]. Since the age of this tusk places it beyond the range of initial human habitation in the New World, as currently understood, we posit that the tusk was worked by later inhabitants of the area.’

(2) Referring to the Aurignacian (an archaeological tradition of the Upper Paleolithic associated with European early modern humans (EEMH) lasting from 43,000 to 26,000 ybp), Ahmed Achrati writes in ‘How the ice in the Ice Age led to the rise of sculptures’ (CLOTTE J. (dir.) 2012. — L’art pléistocène dans le monde / Pleistocene art of the world / Arte pleistoceno en el mundo Actes du Congrès IFRAO, Tarascon-sur-Ariège, Septembre 2010 – Symposium « Datation et taphonomie de l’art pléistocène » (Note the importance stated of the Schreger lines):

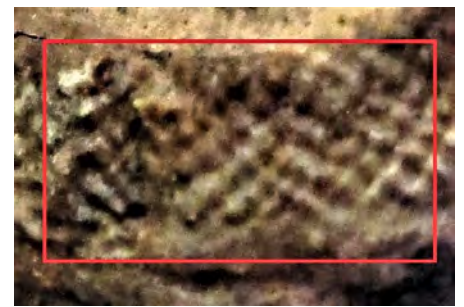
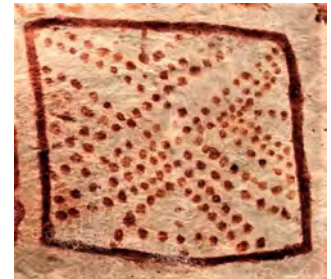
The ivory supply for these artefacts came mainly from mammoth tusk, either fresh or fossil. Reconstruction of climate, based on the evidence of sedimentology and environment, suggests that ivory-working took place there during a period of extreme cold (Hahn 1993: Fig. 1).

Carving ivory is limited by the internal structure of the tusk and the growth patterns of its enamel and dentine (Schreger lines). Often, to make a figurine, the tusk’s natural shape is utilized and corrected rather than totally transformed (Gelvin-Reymiller et al. 2006: 1093). First, a piece of ivory is cut to the desired proportion using transverse incisions consisting of shallow notches around the circumference of the tusk and penetrating one or two layers of ivory. The ivory is then broken by applying pressure. For a longitudinal splitting of ivory, grooves are applied (Semenov 1967; White 1997; Knecht et al. 1997).

We investigate the Americas and the lozenge/cross/chevron symbol at length later. Remarkably, a mural recently discovered in the Chiribiquete National Park, Colombia, dated at least to 10,500 BC shows a complex geometric work which is very similar to the one which we have been exploring. Examples of Chin artifacts are shown alongside. Image source: <https://www.youtube.com/watch?v=1DCQMvV7GgY>



We note the similarity of mammoth ivory Schreger lines to the mural example from Chiribiquete National Park which we give on the previous page i.e. the perceived dot formations.



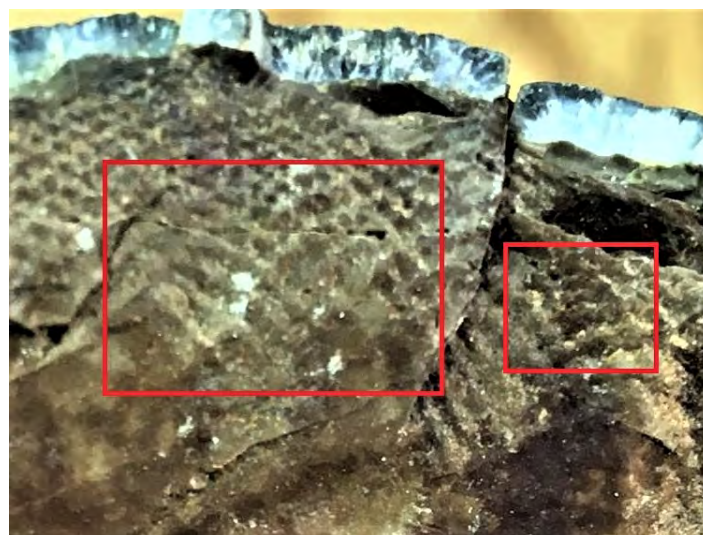
Above: mammoth tusk showing the dot formation, easily interpreted as lozenge/cross/chevrons. Source: <https://imgur.com/a/8ak2R>

Another section of the Colombia mural, shown below, could also be interpreted as depictions of mammoth ivory markings i.e. lozenge inside lozenge and multiple lozenges. Many more examples of these symbols will be given under the 'Americas' section later.

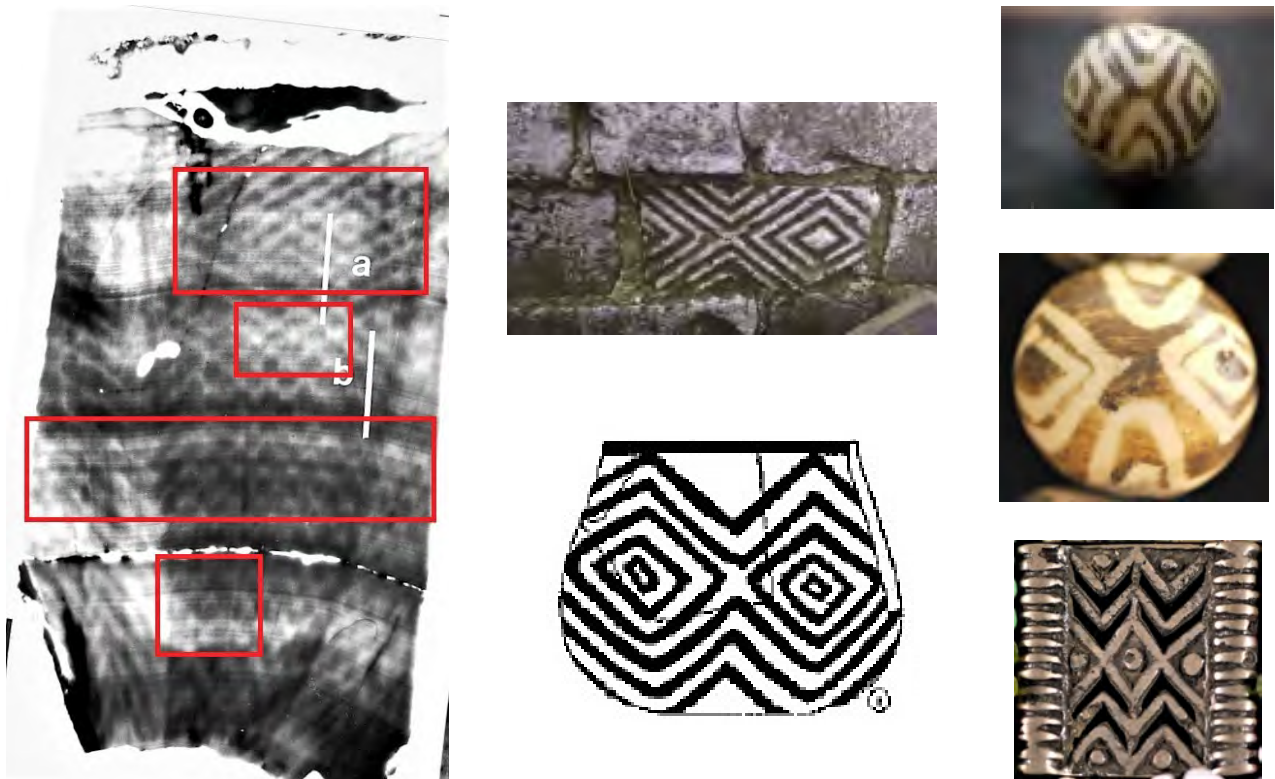
Source: <http://www.rupestreweb.info/serranialindosa.html>



As can be seen from the mammoth evolutionary tree on the previous page, a common ancestor is the gomphothere. The 'pair of eyes' arrangement is highlighted below. The images on this page are from the Calvert Museum Fossil Club, Maryland, USA., with the accompanying caption: 'Cross section of a tusk from *Gomphotherium calvertensis*, a Miocene elephant relative. Found along Calvert Cliffs. The cross hatched pattern near the top of the image and thin layer of enamel are characteristic of Gomphothere tusks. This is most likely an upper tusk.' Source: <https://www.facebook.com/CMMFossilClub/photos/cross-section-of-a-tusk-from-gomphotherium-calvertensis-a-miocene-elephant-relat/916420501806548/>



The development of the lozenge/cross/chevron patterns in Proboscidean tusks can be traced back millions of years earlier than *M. primigenius*, *M. trogontherii* and *M. meridionalis* - to at least the late Hemphillian NALMA (9–4 Mya) and can be seen from the image (below left) of a Gomphotherium tusk. Source: 'Growth increments in Gomphotherium tusks and implications for late Miocene climate change in North America' by David L. Fox, 1999.



Above top right is a Han funeral brick which has been incorporated into a modern building. Source: <http://jsnews2.jschina.com.cn/system/2015/12/09/027285767.shtml>

Bottom right we show a drawing of pot symbol from Çatalhöyük "Squat jars also occur (Fig. I2 : 11, 12), the first bearing a decoration of concentric lozenges resembling a pair of eyes." Description by James Mellaart, *Anatolian Studies*. Vol. 11. 1961. Alongside are Chin 'eye' beads for comparison (13mm dia).

It is notable that the squared-off lozenges portrayed throughout history do mimic the mammoth tusk lozenge structure rather than a natural portrayal of an eye.

On the next page we show an ivory artifact recovered from Jamestown, Virginia with Schreger markings almost identical to the ones shown in the main image above.

Important note: the vast amount of items we have seen for sale described as 'mammoth ivory' have no identifiable schreger lines and could easily be elephant ivory passed off as mammoth ivory! Mammoth ivory appears to be rarely pure white - the colour most desired by the Chinese since the Shang Dynasty. This fascination with white is further explored later with examples from oracle bone inscriptions.

An interesting artifact we came across on the internet is the following piece from the Virginia Department of Historic Resources: Spotlight on DHR Collections: Tenacity: Women in Jamestown and Early Virginia: A Needle Case & Schreger Lines. The description is given:

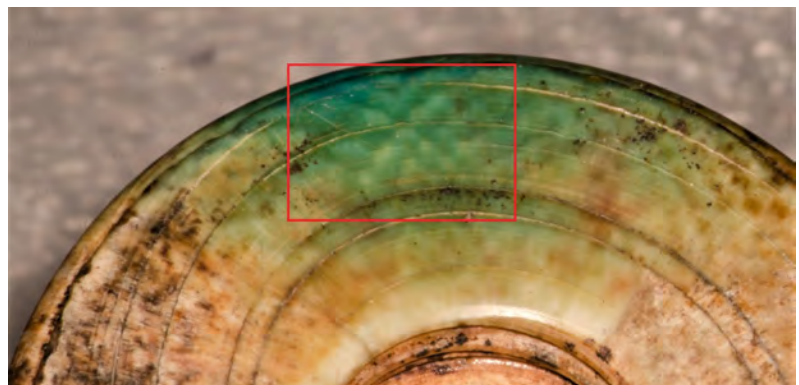
Dating to the early 1600s and recovered from a site called Causeys Care (44CC0178) in Charles City County, the needle case helps tell the story of women in early Virginia, and it is now on display at Jamestown Settlement Museum, along with other DHR artifacts, as a part of the exhibit Tenacity: Women in Jamestown and Early Virginia.

Previously, the needle case was identified as being made of bone. Something about the cracks and the smoothness of the surface, however, made me think that this identification wasn't quite right. Then, while examining an area of green staining caused by copper corrosion on the base, I saw them—Schreger lines! They can be hard to see in artifacts that have been recovered archaeologically, but the copper staining on the base helped to accentuate them. They can be seen in the cross section of a tusk when it is cut. The lines confirmed the needle case was fabricated from ivory.

Typically Schreger lines appear as cross-hatches and they form as the tusk of an elephant (or other tusked animal) grows.

Katherine Ridgway, DHR Conservator

Source: <https://www.dhr.virginia.gov/spotlight-on-dhr-collections/spotlight-on-dhr-collections-tenacity-women-in-jamestown-and-early-virginia/>

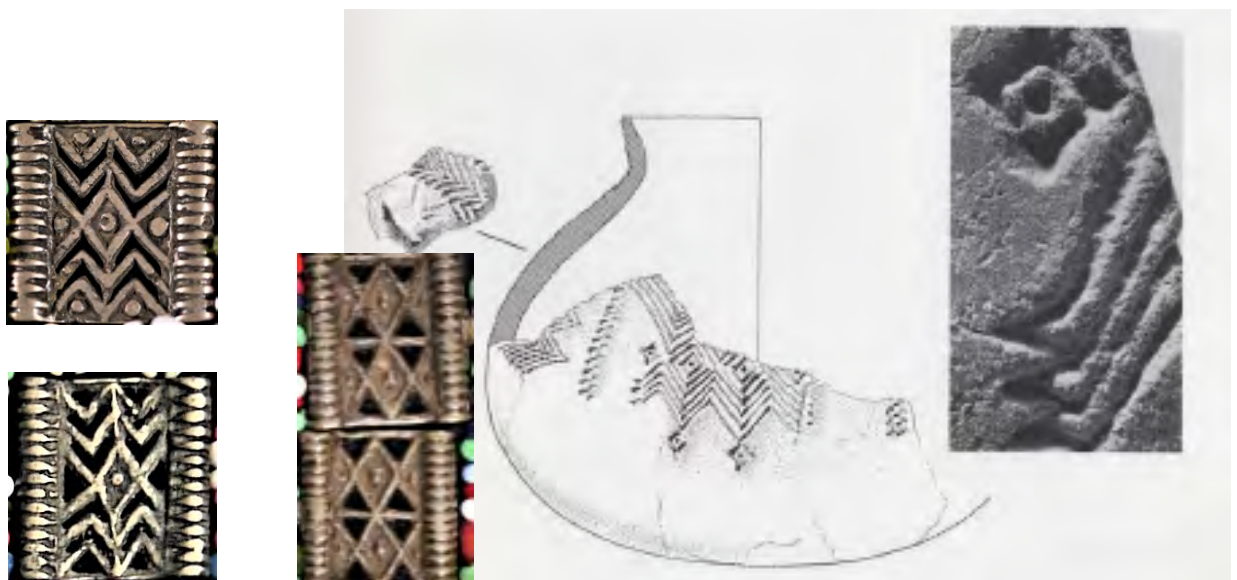


We believe the item is made from elephant ivory, but the sharp Schreger angles could indicate mammoth ivory (unlikely). Even experienced conservators have difficulty identifying carved polished ivory archaeologically excavated objects. More detail is required, however given the fact that proboscideans have similar Schreger patterns, the lozenge/cross/chevrons arrangement is evident on the small item shown.

Another example of a much later worked piece of mammoth ivory is shown below. The lozenge/rhomboid patterns are highlighted. Source: Natural methods of conservation of mammoth tusks (Mammuthus primigenius Blumenbach, 1799) by Plotnikov Valerii Valerievich et al., Academy of Sciences of the Republic of Sakha (Yakutia), Северные Архивы и Экспедиции 4 / 3 (2020 09) 9-20.



Once again, the mammoth lozenges bear a remarkable resemblance to the Chin artifacts designs and the sixth millennium BC Stentinello pottery shown below right. Source: J. Ammerman, „Albert "Early Italian Pottery", Expedition Magazine. Penn Museum, 1983.



A stele from the South of France, dated 3000-2500 BC depicts a belt comprising converging chevrons which bears a remarkable similarity to the Mezin bracelet which is probably 15,000 years older.



Above L: Stele, S. France, 3000-2500 BC. <https://blogostelle.blog/2013/01/02/le-neolithique-civilisation-de-la-pierre-polie/>
Above R: Detail from the Mezin bracelet showing cross/chevrons. www.artukraine.com.ua

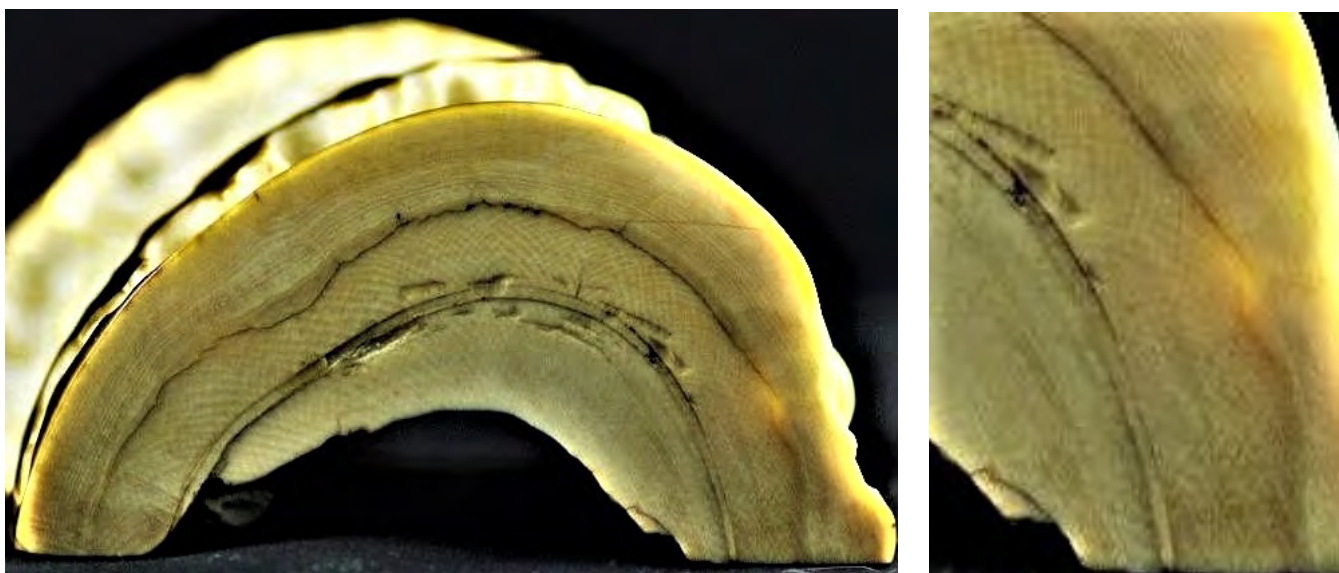


Above L: Neolithic stele, Provence, France. www.wikipedia.org

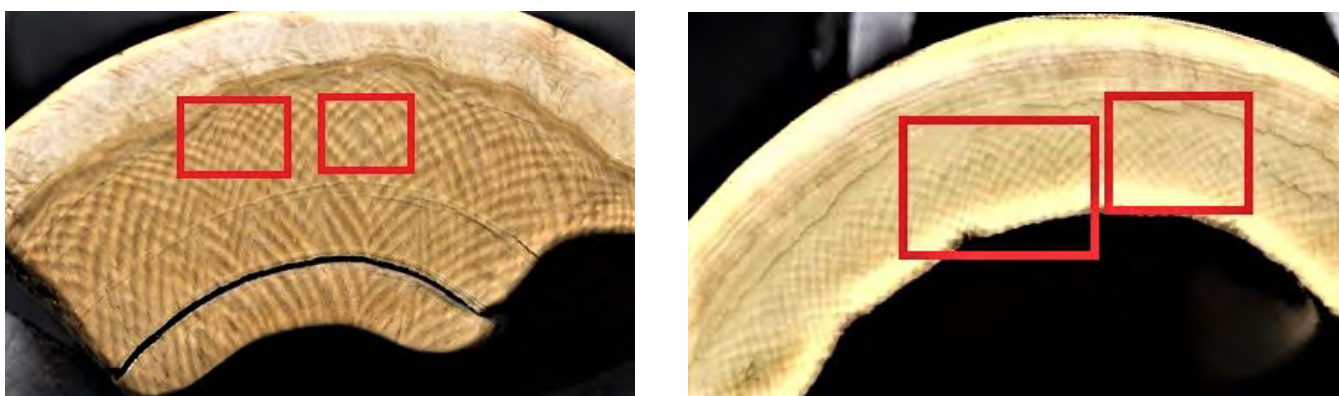
Centre: Neolithic stele, France. www.musee-calvet.org

R: French Neolithic stela pieces 3900-3600 BC from: *Les stèles anthropomorphes de la Bastidonne (Trets, Bouches-du-Rhône) et leur contexte du Néolithique moyen* by Jules Masson Mourey et al., 2020, who describe the stelae as: 'Engravings of complex geometric shapes (chevrons, "fishbone" motifs, triangles and rhombuses)'

Whilst we believe Ice-Age humans were greatly influenced by the patterns seen on mammoth ivory, we are not at all certain that these were from ancient tusks and/or contemporary ones. The piece of ivory from *Mammuthus trogontherii* shown on previous pages was already ancient (by at least 670,000 years) at the time ivory was being worked in the Upper Paleolithic. However, the lozenges on this, being more prominent due to the fossilization, are the ones we most see on later artifacts, including the Qiang/Chin ones. It is clear from today's mammoth ivory carving quality that *M. primigenius* provides the best material. This species became extinct 10,000 years ago. This does open up the prospect of the PIE/Qiang coming across this type of very ancient tusk of *M. trogontherii* on their travels. Compare the images of lozenges that can be seen on the relatively newer mammoth ivory (below), with fresher cuts, and ivory carvings done in the Paleolithic (also *M. primigenius*). Even on these, the cross/chevron/lozenges are visible.



Above: mammoth ivory piece. www.gucn.com



Above: two sections of mammoth ivory. <http://www.palaeoshop-fossil.com/catalogue/teeth/Mammothtusk001.html>

It would have been quite probable for the Qiang to have encountered mammoth ivory on their travels in the area we now call China. To support this, an example of worked mammoth ivory from the Shang Dynasty is given from a piece sold at Christie's New York auction on 22 March 2013. The description was:

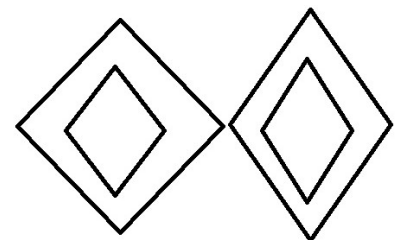
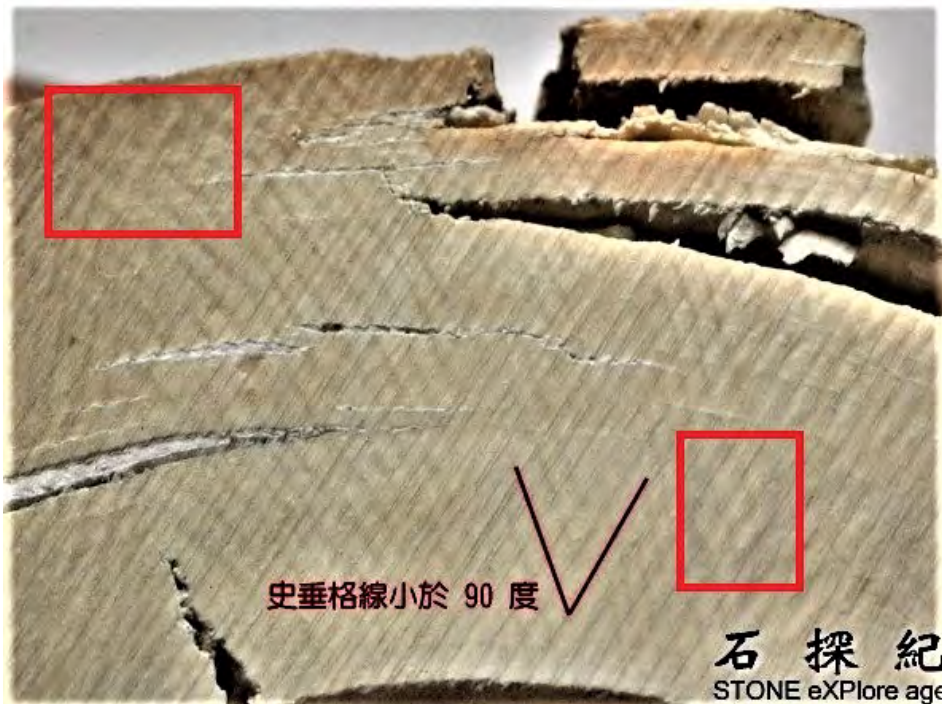
'Two rare early mammoth tusk and bone carvings Shang Dynasty (circa 1600-1100 BC). One is a fitting carved from a woolly mammoth tusk in the shape of a dragon shown in profile. The body is deeply carved on both sides with shield-shaped scales and the neck arches over so that the head faces downwards above a rectangular cavity carved into the front edge below the head.'

Source: <https://www.christies.com/en/lot/lot-5661884>

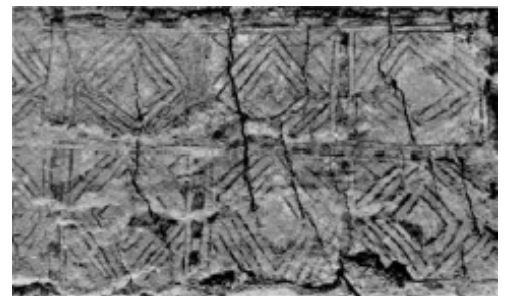


The Schreger lines forming cross/chevron/lozenges may be interpreted in different ways. Here we show possible cross/lozenges which may present as even larger multiple lozenges in the lower example. Images are from the Jiang Chiaofeng Clan, Jiang Shengzhi faction, China. Differences between images seen of lozenges on very ancient (at least 700,000 ybp) ivory and newer carved ivory originating from mammoths probably up to 50,000 years old.

Adapted images from: www.nicecasio.pixnet.net/blog/post/456775826

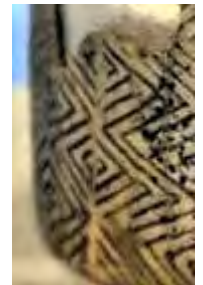
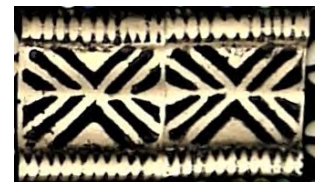


Perhaps an even clearer indication of what Paleolithic man (and possibly the Ancient Qiang) would have observed on ancient mammoth ivory can be seen from the fossilized remains of a tusk from *Mammuthus meridionalis*, or the southern mammoth, native to Europe and Central Asia from the Gelasian stage of the Early Pleistocene, which lived 2.5–0.8 mya. Found in Pest County, Hungary. The cross/chevron/lozenge arrangement is evident. Image: <https://faopalfossils.com/Mammuthus-meridionalis-partial-tusk-626-grams>



Above top: Vessel from Borsod, Northeastern Hungary, end of Sixth millennium BC, from *The Goddesses and Gods of Old Europe: Myths and Cult Images* by M Gimbutas 1974
Centre: Chifeng Hongshan ceramic detail, 4700–2900 BC, Chifeng Hongshan Culture Research Association.
Bottom: Detail from Çatalhöyük, Shrine VII, 6720–6610 BC, *Anatolian Studies*, Vol 14, James Mellaart.

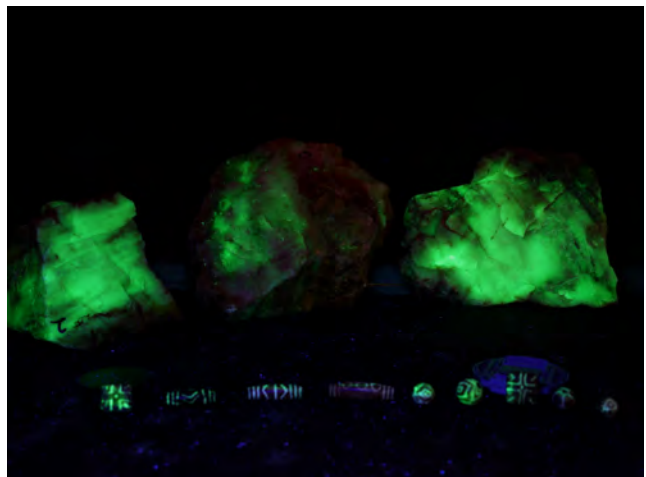
Another image of *M. meridionalis* highlighting a grouping of lozenge/cross/chevrons. Shown alongside are details from artifacts which are *op.cit.* We have always noted the special bead arrangement on the Chin necklaces of 'eye' (lozenge)-cross- eye, which can be identified from the example of Schreger lines below. Source of main images: <https://faopalfossils.com/Mammuthus-meridionalis-Tusk-393-kg>



Here we show an example of a Chin necklace with the eye (lozenge) - cross arrangement alongside some beads that show fluorescence under shortwave 254nm. The hit-and-miss distribution of the uranium mix which occurred during the probable volcanic eruption in the Triassic age, enveloping the araucarioxylon trees at the time, is shown by the uneven coverage and strength of the green fluorescence.



Later in our study we go into much greater detail regarding silicification and fluorescence. For now, we give a few examples of the beads properties. The first two images represent the necklace on the previous page. Note that the silicified wood used shows why some parts of beads may fluoresce and others do not.



For further information on mammoth remains found in China, we referenced the work 'Pliocene and Early Pleistocene Primitive Mammoths of Northern China : Their revised taxonomy, biostratigraphy and evolution' by Wei G. B., Taruno, H., Kawamura, Y. and Jin C. Z. Osaka Museum of Natural History (2006). They list three species: *Mammuthus rumanus*, *M. meridionalis* and *M. trogontherii*, which raises the chances of the Ancient Qiang coming across mammoth tusks which could have inspired further symbol designs. Below we show a map from the study indicating places where mammoth remains have been found in China.

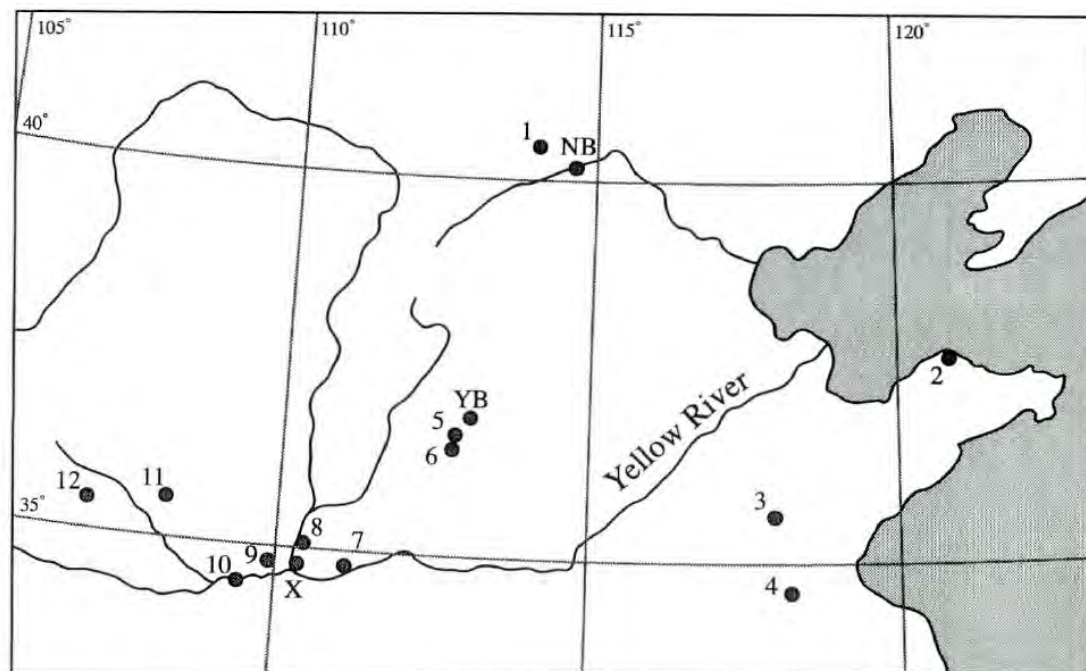
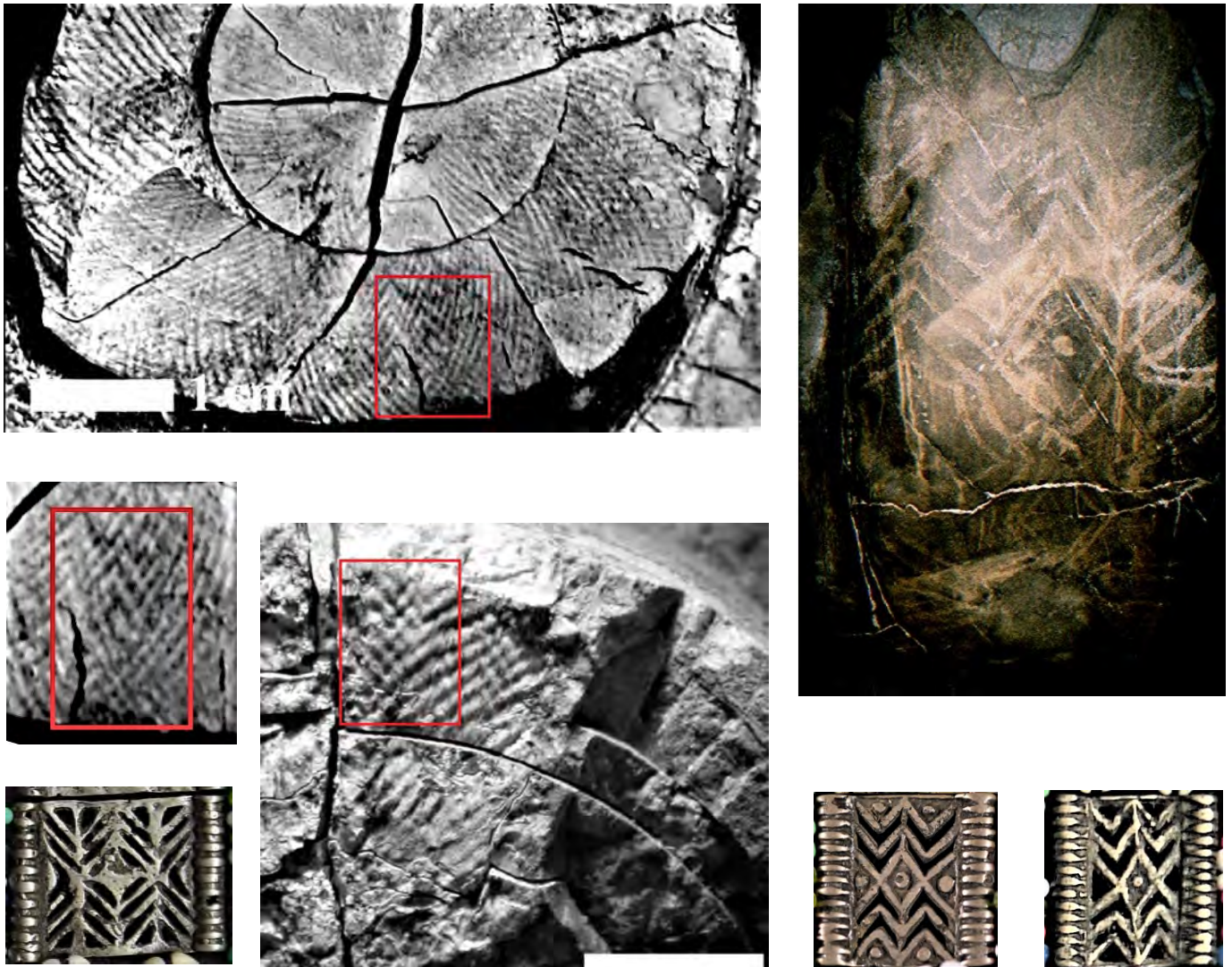


Fig. 1 Fossil localities yielding the mammoth remains described or discussed in the present paper. NB: Nihewan Basin, X: Xihoudu, YB: Yushe Basin. 1: Tianzhen, 2: Penglai, 3: Mengyin, 4: Tanchen, 5: Qinxian, 6: Tunliu, 7: Pinglu, 8: Linyi, 9: Dali, 10: Weinan, 11: Heshui, 12: Pingliang.

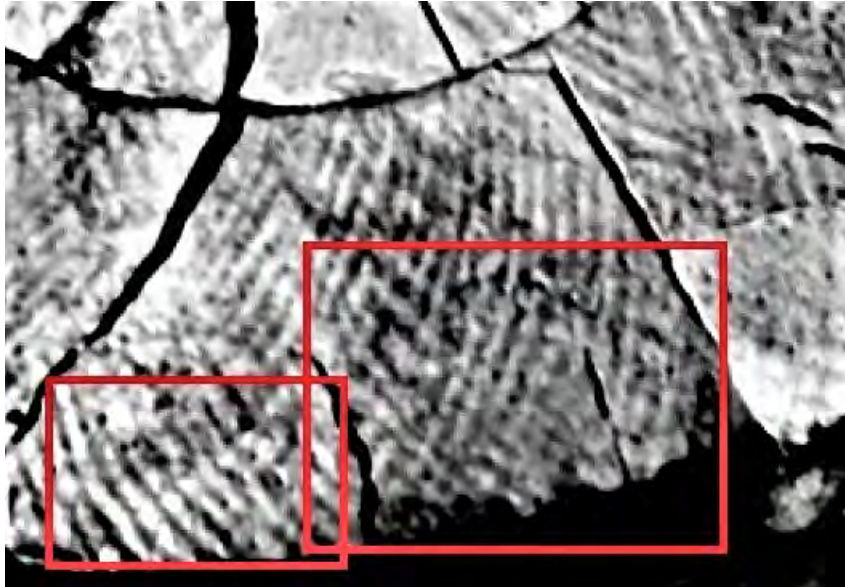
Another interesting paper on mammoths in China is: 'Skeleton of a Late Pleistocene steppe mammoth (*Mammuthus trogontherii*) from Zhalainuoer, Inner Mongolian Autonomous Region, China' by Asier Larramendi, 2014, in which he states: 'In the early 1980s, some spectacular mammoth fossils were recovered in northern China, but they have received little attention from the broader scientific community.' Radiocarbon dating places them c. 32,000 BC.

Whilst studying the image below, we possibly identified some mysterious Chin bronze symbols that could appear to have been inspired by mammoth dentin patterns. The photo is from Martina Ábelová's 2006 study: *Analýza mikroštruktúr klov druhu Mammuthus primigenius (Blumenbach, 1803) Acta Musei Moraviae, Sci. geol., 91, 227–233*. We are limited in our scope to study such images and it is only after much investigation via the internet that we have been able to locate these. Compare with the megalith c. 2600 BC from Barclodiad-y-Gawres, Anglesey, Wales, shown right. Image: www.themodernantiquarian.com



Above centre we show a detail of *M. cf. meridionalis* tusk which resembles the other images on this page. Source: 'Reghinio, a new mammal locality from the Plio-Pleistocene of Central Greece' by Athanassios Athanassiou, 2006. The symbols above are not ones which we have come across other than in the form Marija Gimbutas referred to as a 'Frog Goddess'. We expand on this subject with examples later in our study.

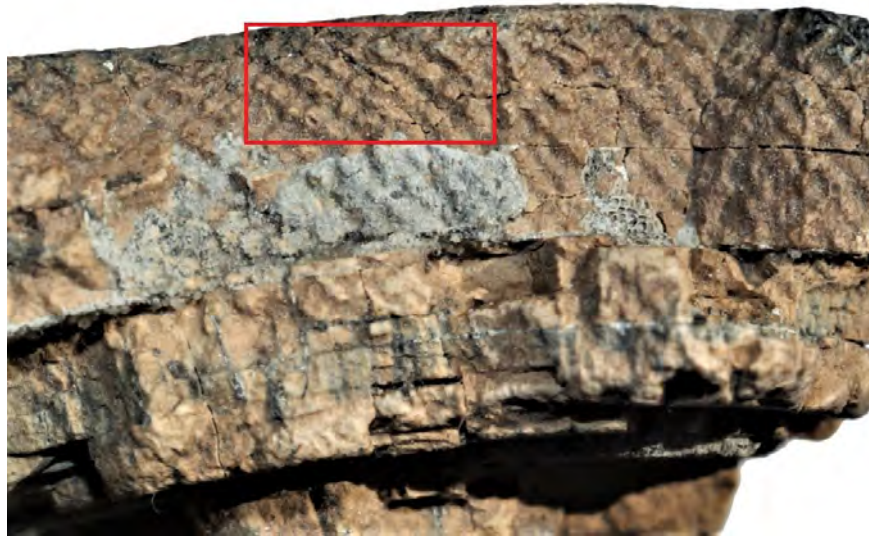
The highlighted boxes in the enlarged image below (from the previous Abelova photo), provides us with multiple examples of the eye/cross/chevron symbol portrayed on pottery, bronze ware, clothing etc., throughout the millennia. This would have been observed by paleolithic humans. A few examples are shown below the main image.



Above L: Predynastic Egyptian pot, El Amrah and Abydos, 1899–1901, by D. Randall-Maciver, M. A., and A. C. Mace, 1902, pl XIV

Centre: Pottery from the Great Hungarian Plain c 5000 BC, <http://expeditions.fieldmuseum.org/neolithic-archaeology/great-hungarian-plain>

Right: Machang phase jar, China, 2300 BC. <https://bbs.artron.net/thread-615703-1-1471.html>



Shown above are two pieces of fossilized mammoth ivory, one highlighting two lozenges with centre dots. Images: <https://brilmans.tumblr.com/page/8>



Above: the three lozenges on the bronze is similar to the fossilized ivory. It is notable that the Chin 'eye' beads have three lozenge decorations (three sides of a single bead shown). Image: www.reddit.com

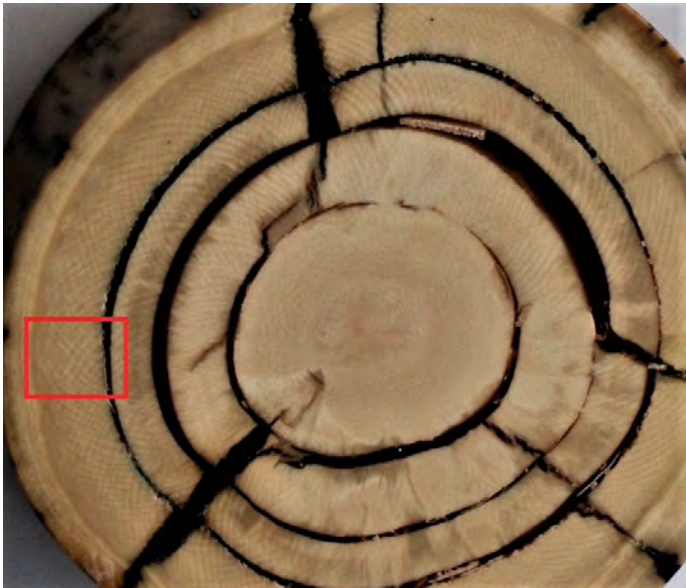


Above: a cross section of *M. primigenius* with lozenge/chevron/cross which have not fossilized, so do not present as shown in the previous images (top of page). Image: www.siber-siber.ch

Although we considered the possibility that the cross/chevron symbol could represent a solar event, the more examples of images of mammoth ivory that we were able to study, the clearer it became that the favorite for the origin of the symbol was indeed mammoth ivory. In our study we will show many examples of artifacts with symbols based on the images shown on this page, particularly, the middle right photo with ivory cross/chevrons. Note the similarity of this image with the Mezin stamp shown towards the bottom of the page. The adapted ivory images below are from www.reddit.com.



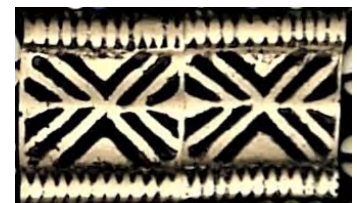
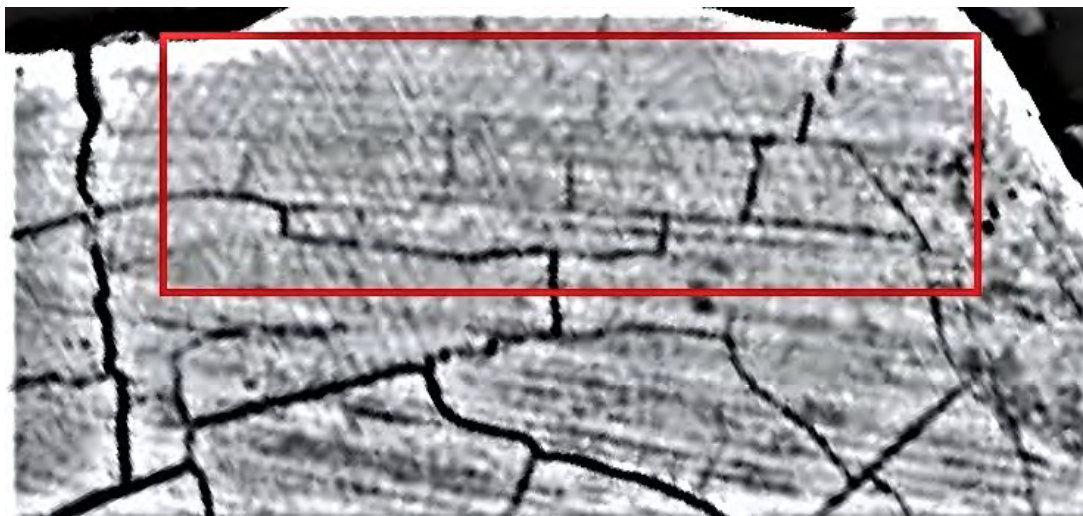
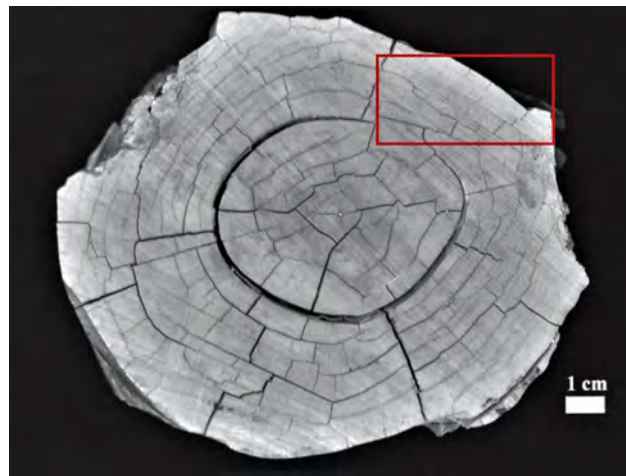
Further indications that the preceding symbols might be observed on mammoth ivory dentin is shown below. This would have been especially evident when the piece was in a fossilized condition and in the state portrayed by the images shown in our study of *M. trogontherii* and *M. meridionalis*, both of which would have preceded the unfossilized *M. primigenius* image below by hundreds of thousands of years. Image (adapted by the authors): <https://guns.allzip.org/topic/189/1001450.html>



An example of how mammoth ivory dentin patterns may have influenced artisans when making artifacts is shown above right. The main body is covered in lozenges with centre dots and the legs by large cross/chevron/lozenge arrangements. The similarity to the images shown by us of mammoth ivory presenting as lozenge patterns cannot be purely coincidental.

The caption for the fifth millennium BC statue reads: 'Venus "from K okendomba. Tisza culture. Hungary.' and is from the work by Ohrimenko Grigorii, 'Spiritual Culture of Prehistoric time/Духовна культура первісності' 2015. The Tisza culture covered the Great Hungarian Plain, Eastern Slovakia and Ukrainian Zakarpattia Oblast in Central Europe.

Another excellent study, was carried out by Claire Heckel at the Dept. of Anthropology NYU 'Physical Characteristics of Mammoth Ivory and Their Implications for Ivory Work In the Upper Paleolithic' 2009. We adapted one of the images of the piece of 28,000 year old mammoth ivory she used for her investigation after 'discovering' images we might possibly identify with cross/chevron/lozenges which may have been adopted by humans of Upper Paleolithic Europe. From the top right corner, these should be visible to the naked eye. We believe we have enough examples of mammoth ivory to form an opinion as to the viability of the pattern, which could be represented by the Chin pieces shown at the bottom.



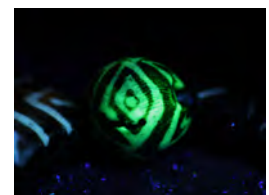
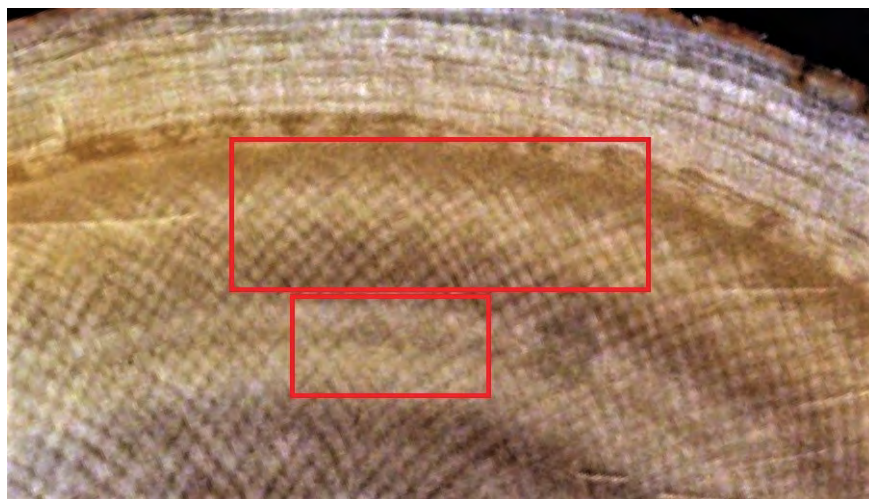
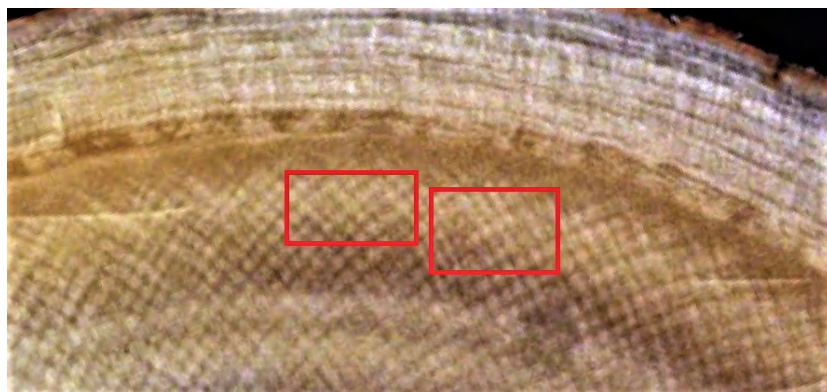
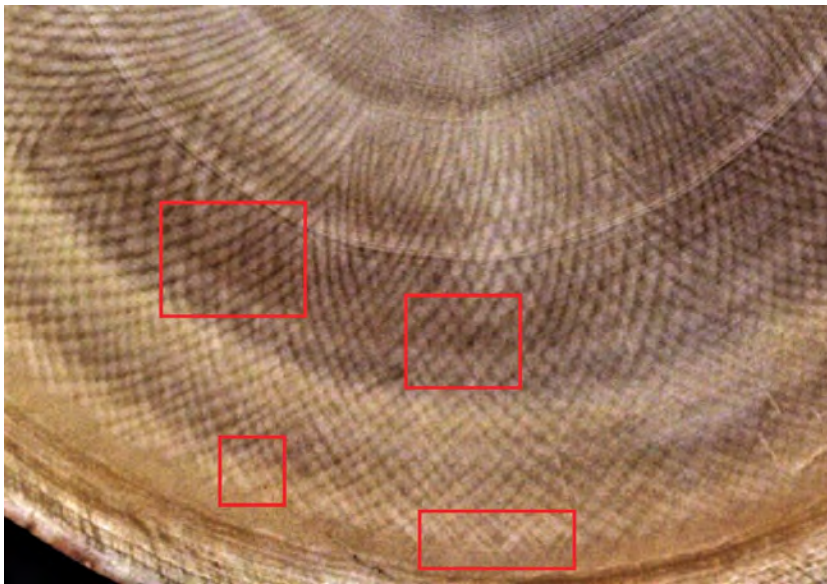
It proved difficult to find articles with clear pictures of transverse sections of mammoth ivory. The images shown below are from an article posted online: 'Chapter 1. Mammoth tusk and reindeer antler: shape and structure' (Глава 1. Бивень мамонта и рог северного оленя: форма и структура). The caption reads: 'Internal structure of a mammoth tusk. 1 - transverse polished cut of a tusk; Внутренняя структура бивня мамонта. 1 — поперечный зашлифованный спил бивня).

By tuning one's eyes, it was not too difficult for us to identify images that may have been interpreted by Paleolithic man as lozenges; individual, side-by-side and also lozenges within lozenges. Symbols which we show stretch from at least the Upper Paleolithic to the present.

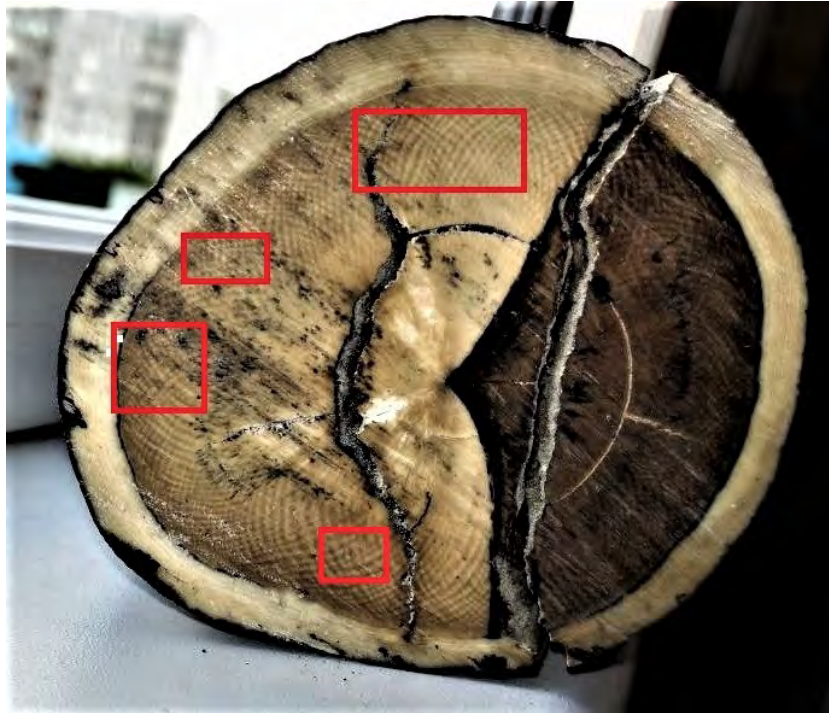
Images: www.archeo.ru › [struktura-1](#) › [girya](#) › [pdf](#) › Khlopache

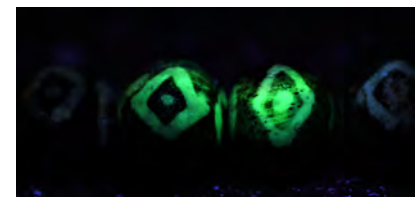
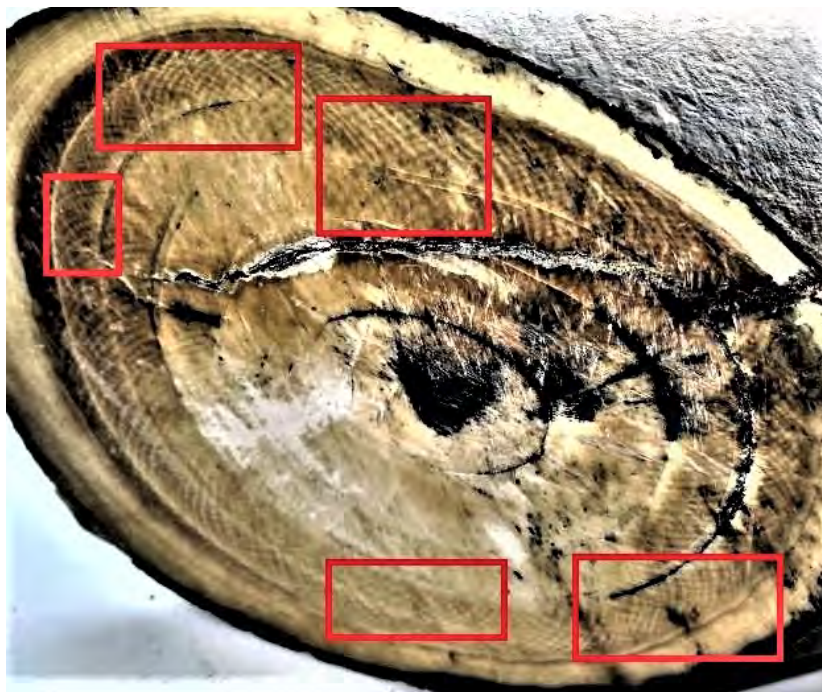


The lozenges would appear to have a centre dot. This symbol is always presented as a diamond on artifacts, and the centre applied either with a white dot or a black diamond. Chin items suggest these patterns could have passed down the millennia with migrations following the end of the ice-age c. 9,500 BC.



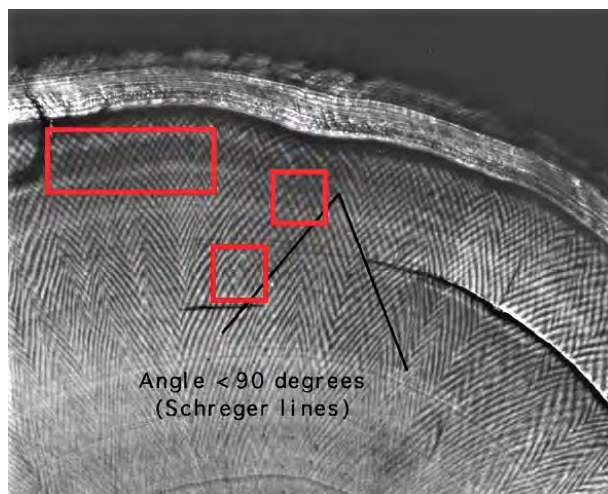
The images on this page were obtained from: Подскажите по бивню мамонта. Сделал спицы | Страница 2 | Форум охотников (hunting.ru). They provide yet further indications that our ancestors could indeed have interpreted the striations as chevron/cross lozenges, which can easily be identified by locating the central white or black dots. The chevrons are readily found on ancient artifacts alongside the lozenge arrangement.



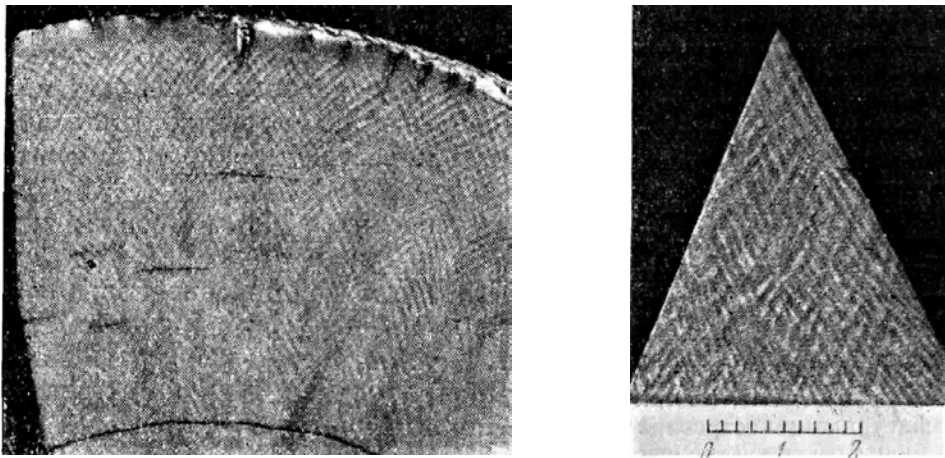


Below we have adapted the widely-available image used to identify mammoth ivory showing Schreger Lines derived from Bernhard Schreger's work 'Beitrag zur geschichte der zihne. Beitrage filr die Zergliederungskunst' 1:1- 7, 1800. Once again, by identifying the white or black dots, the outline of lozenges, and lozenges within lozenges can be made out.

Although we refer to Chin beads with the chevron design as 'mountain' beads, we know that the design must have come from somewhere, and propose that the 'Schreger' lines seen on mammoth dentin (image below) could well have been the original inspiration for this common symbol. Elephant ivory Schreger lines are greater than 115 degrees, thus being used to distinguish between elephant and mammoth ivory with the mammoth's angle measuring less than 90 degrees. Image: wikipedia.org



The pioneering work by Valentyna Bibikova (ВИ Биби́кова) of the National Museum of Natural History, Ukraine (Національний науково-природничий музей НАН України), whose 'On the origin of Mezin Paleolithic ornament [О происхождении мезинского палеолитического орнамента] 1965, helps us to greatly understand the patterns on mammoth ivory carvings of the Upper Paleolithic. The only copy of this work which we were able to access contains less than sharp images, but add to our interpretation of mammoth ivory striations. Some of the images are shown below, followed by the original text from the translated article which mentions rhomboid or diamond shapes on several occasions.



Here we quote from the work (with the original Russian following the translation):

On the cut of the tusk, made at an angle of about 45 ° and somewhat closer to the middle of the tusk, rhomboid and meander-like patterns appear in the dentin structure
 На срезе бивня, сделанном под углом около 45° и несколько ближе к середине зуба, в структуре дентина проступают ромбовидные и меандриобразные узоры

Constantly dealing with the tusks of a mammoth, the messenger bone carver could not fail to notice the clear rhythmic pattern emerging under the incisor. Observing this natural phenomenon, he borrowed it, transferred it to his products and, with his characteristic sense of rhythm and aesthetics, created his own-shaped ornamental system. Taking as a basis the zig pattern most often observed on tusk cuts...

Постоянно имея дело с бивнями мамонта, мезинский резчик по кости не мог не заметить проступающего под резцом четкого ритмичного узора. Наблюдая это естественное явление, он заимствовал его, перенес на свои изделия и со свойственным ему чувством ритма и эстетики создал своеобразную

орнаментальную систему. Взяв за основу наиболее часто наблюдаемый на срезах бивня узор зиг-

We think, however, that both the meander and the zigzag pattern on the mammoth tusk semantically ascended to the ideas of power, strength and luck on the hunt. Thus, the basis of the Mesinian geometric ornamental motifs is the simplest, built by nature, "pattern" of mammoth ivory dentin. However, the ancient artist did not blindly copy what he observed on the tusk cut. Endowed with a sense of rhythm and aesthetics, he skillfully complicated what he saw, he made a zigzag and a meander, built a complex ornamental-mental frieze out of them, thus creating the first example of a genuine classical ornamental motive.

ду-маем, однако, что и меандровый, и зигзагообразный узор на бивне мамонта семантически восходил к представлениям о мощи, силе и удаче на охоте. Таким образом, в основе мезинских геометрических орнаментальных мотивов лежит простейший, построенный природой «узор» дентина бивня мамонта. Однако древний художник не слепо копировал то, что наблюдал на срезе бивня. Будучи наделенным чувством ритма и эстетики, он искусно усложнил виденное, им - зигзаг и меандр, построил из них сложный орнаментальный фриз, создав, таким образом, первый образец подлинного классического орнаментального мотива.

The Mezinian master wedged into it the meander-like structures he had seen on the tusk, organically linking these two main motives of the Mezinian ornament. And not only these observations were used by the ancient master. On the cut of the tusk, drawn almost along the longitudinal axis (at angles of about 5-10 °), a fine diamond-shaped mesh appears in the peripheral zone of dentin. Depending on the angle of the cut, the rhombus along the outlines either approaches a square or becomes more elongated. This mesh is especially clearly visible on large tusks.

мезинский мастер вписал в него виденные им на бивне же меандро-видные построения, органически связав эти два основных мотива мезинского орнамента. И не только этими наблюдениями воспользовался древний мастер. На срезе бивня, проведенном почти по продольной оси (под углам около 5-10°), в периферической зоне дентина проступает мелкая ромбовидная сетка. В зависимости от угла среза ромб по очертаниям то приближается к квадрату, то становится более вытянутым. Особенно четко эта сетка вырисовывается на крупных бивнях.

In 2008 Nicholas Conard discovered a 'Venus' figurine made from mammoth ivory, dating to at least 35,000 years ago. It was found in a cave at Hohle Fels, Swabian Jura, Germany. It predates other 'Venus' figurines by 10,000 years.

We found some images of the 6cm artifact on two websites, which are excellent sources of information: <https://www.donsmaps.com> (run by Don Hitchcock) and <https://storia-controistoria.org> (run by Sabina Marineo). As stated by us earlier, without these good-spirited efforts, the type of study which we have put together could not take place.

That the figurine has definite markings engraved on it is not in dispute. But what could they be? Until we saw the images from the websites quoted, we had no idea that the top part had a similar symbol carved on it resembling, from our point of view, a cross/chevron.

Others have interpreted this symbol. James Harrod in 'The Hohle Fels Female Figurine: Not Pornography but a Representation of the Upper Paleolithic Double Goddess, In Honor of Marija Gimbutas', *Journal of Archaeomythology* 2011, makes a compelling case for protolanguage of geometric signs. He also suggests the multiple horizontal lines are scarification markings.

On the other hand, Gillian Morriss-Kay in 'A new hypothesis on the creation of the Hohle Fels "Venus" figurine' 2010, suggests it depicts a woman who has recently given birth. She also notes that the incised patterns on the right arm 'are notable in that they cannot plausibly be interpreted either as clothing or as a somatosensory description' being organized 'as a pattern of two mirror-imaged pairs of chevrons'. She believes unlikely that they are decorative, but more likely that they have a specific symbolic meaning or are replications of actual decorations on a woman's arms - similar to some African womens' practice today. Scarring is also a possibility. Noting similar cross markings on Aurignacian artifacts c. 30,000 BC, she suggests 'It may be that the pattern of chevrons and simple lines on the arms of the Hohle Fels figurine is the traditional pattern of her community and/or symbolic of her pregnancy.'



Above: images of the Hohle Fels figurine. <https://www.donsmaps.com/hohlefelsvenus.html>



Statuette di donna / venere di Grotta Hohle Fels, Germania. 34.000-38.000 anni fa. Foto: Sabina Marineo

Statuette di donna / venere di Grotta Hohle Fels, Germania. 34.000-38.000 anni fa. Foto: Sabina Marineo

Above: Hohle Fels 'Venus'. <https://storia-controistoria.org/paleolitico/arte-figure-paleolitico/>



Above: top view of the Hohle Fels 'Venus'. <https://www.donsmaps.com/hohlefelsvenus.html>
The exact dimensions are: 59.7 mm long, 34.6 mm wide and 31.3 mm thick

James Harrod's work (*op. cit.*) includes some annotated photos (shown below - originally from www.nature.com), which we feel adds to our interpretation that it depicts an early example of the cross/chevron symbol. Harrod notes that the discoverer of the statue, Conard, observed that a sharp tool had been used to make the incisions and indicated those that appeared to be geometric signs and other important markings. That such skill was used on so small an item at such an early date, suggests to us that as the cross/chevron has no known natural example, something must have triggered this image which has been retained in man's memory for so long. A solar event, for example?

Side and front views of the Venus of Hohle Fels.



Views of the Venus of Hohle Fels and photomicrographs documenting the methods of production.



NJ Conard *Nature* 459, 248-252 (2009) doi:10.1038/nature07995

ANNOTATED VERSION OF
(James B. Harrod)

nature



A very good source of information about Mezin paleolithic artifacts is 'Some Palaeolithic Ivory-Carvings from Mezine: An Essay of Reinterpretation' by Alfred Salmony, *Artibus Asiae*, 1949, Vol. 12, No. 1/2 (1949), pp. 104-118. This contains drawings by George E Weber which unfold the ornaments, greatly adding to our understanding. The images below are from this work and it can be seen that the symbol shown on the Mezin stamp is present in some form on these mammoth ivory carvings.

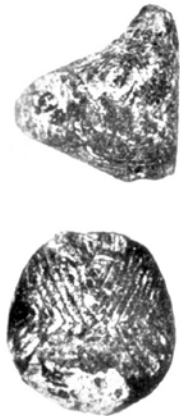


Fig. 4 a
Female Statuette in two parts. Mezine. ca. 3/5
After Rudynsky, *op. cit.*, pl. XVIII, 2



Fig. 4 b



Fig. 6 a
Female Statuette. Mezine. ca. 7/10
After Rudynsky, *op. cit.*, pl. XIX, 2

When the ivories were discovered, most experts believed they represented birds, and many still adhere to this theory. However, Salmony and another contemporary authority, E A Golomshtok who, in 'The Old Stone Age in European Russia, Transactions of the American Philosophical Society, New Series, Vol. XXIX', Philadelphia 1938, equated the carvings with simplified female statuettes. By viewing the profiles, the front and back of the ivories could be determined, with one side representing tattooing (p351).

Salmony admitted that he did not know what the markings represented, but made an attempt at this. he remarked on the 'conspicuous pattern' that covered 'the front of the leg-zone on fig. 6'. Of great interest to us is the fact that he did not discount the possibility that they represented tattoos (which we consider to be replicas of patterns found on mammoth ivory dentin):

...the possibility cannot be eliminated that the chevrons on the upper bodies represent tattooing. This is the meaning given to the pattern on the naked woman from Predmost (fig. 8). In discussing a palaeolithic figure of Moravian origin, Schuster has shown to what extent the v-shaped design survives as a tattoo.

N.b. could it be that Fig. 4 shown above was actually used as a tattoo stamp (in conjunction with red ochre?). The fig. 8 referred to above, plus image from Schuster's work is shown two pages on.

We consider it important to expand on the importance of the Mezin 'bird' artifact with the cross/chevron design, especially regarding its precedence. Golomshtok draws on observations made by V. A. Gorodzov in his work 'Archaeology, The Stone Age' Vol. I, pp.232-239, 1925. Referring to the figures below (taken from Golomshtok 1938) he quotes Gorodzov:

These "birds" are executed in a decadent conventional style, perhaps indicating a very wide distribution and a very long period of existence for this art...the lower part of the abdomen is decorated with four groups of chevrons with the apices pointing to a common center...these Mezine forms are not typically expressed and may be only survivals of ancient forms in later times.

Golomshtok quotes another authority on the subject, H. Obermaier, 'Fossil Man in Spain' Yale University Press 1925, who 'considers Mezine belongs to the end of the Aurignacian and the beginning of the Solutrean period'. Others, such as P. P. Ephimenko, dated Mezine to Solutrean-Magdalenian transition, which Golomshtok points out 'fits into the accepted Russian scheme of unilinear development of culture'.

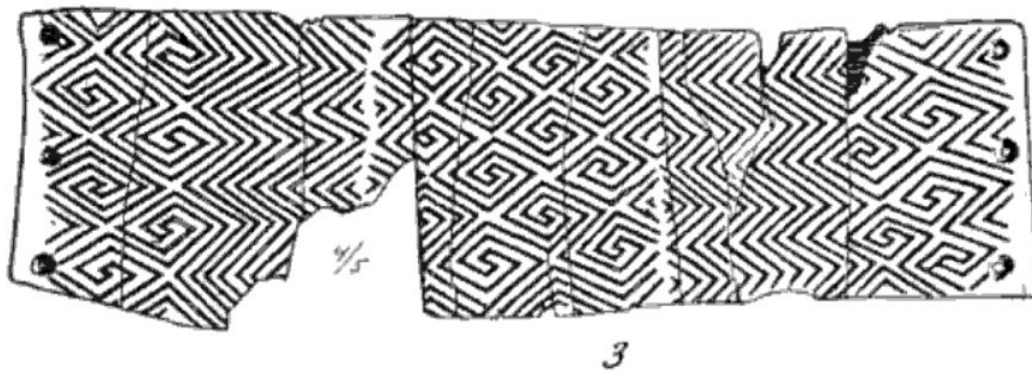
This means that these early experts in the field considered symbols, as portrayed on the artifacts, could well be considerably older than 20,000 years.



Above we show figures from Golomshtok *op.cit* with Chin beads and bronze pieces which we suggest are a linear development of the Mezin symbols, via the PIE, separated by some 16,000 years. Far left are images of another Mezin ivory taken from Alfred Salmony, 1949 *op.cit*.

It is worth taking the time to emphasize just how well crafted the Mezin artifacts are. Once again, we draw on Golomshtok's 1938 work (note the lozenges forming the centre). For example:

There is a bracelet made out of mammoth tusk which reveals an unusual degree of skill in workmanship. This superb example of the art of Mezine man is unparalleled in Western Europe...three perforations on each end, possibly for lacing on the arm...The entire surface is covered with a very finely executed meander, romboid, and zigzag ornaments of unusual accuracy.



Above: Mezin bracelet as referred to by Golomshtok (p350 fig. 3)

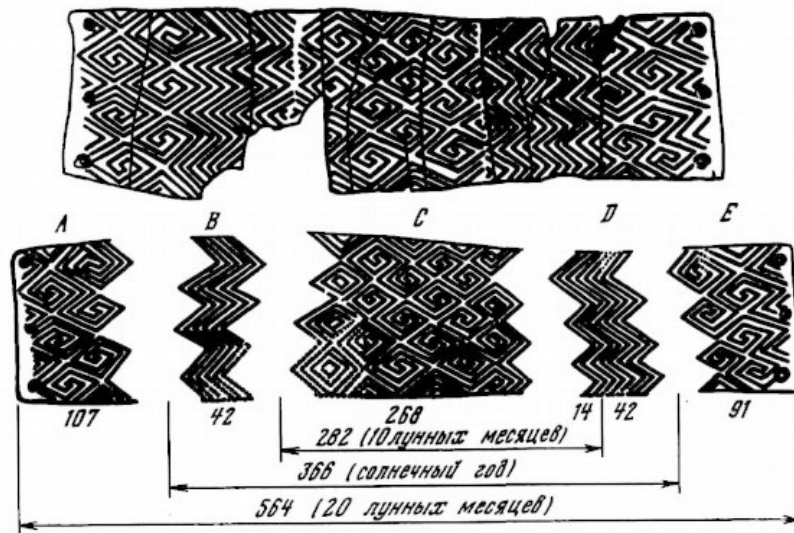


Рис. 20. Браслет (ширина 5, 3 см) из бивня, с резным орнаментом. Стоянка Мезин на Десне (Украина).

Above is a breakdown of the bracelet by B. A. Frolov. Priroda, 1971, in which he suggested the bracelet represented an ancient lunar calendar. Note the lozenge inside lozenges. Image: www.stupedia.org

Here we show a rarely photographed angle of the Mezin bracelet referred to on the previous page (possibly because it is the broken part). Notwithstanding the breakage, for our purposes it depicts the all-important (and mostly ignored) lozenge cross/chevron symbol which then proceeds to unwind into the meandering pattern found on artifacts from the late paleolithic onwards. The National Museum of History of Ukraine describes the bracelet thus: 'Tusk in Misin village, Chernihiv region. The bracelet from the Mizynska settlement is a true masterpiece of Paleolithic art. It is difficult to imagine that the decoration was made only with stone tools, from a solid plate of mammoth tusk no more than 3 mm thick. The amazing pattern of the little bracelet is called meander. The ornament of this type is the oldest not only in Ukraine, but also in the world.' <https://zh-cn.facebook.com/nmiuu/photos/>



Above: Mezin bracelet c. 20,000 BC. National Museum of History, Ukraine. <https://zh-cn.facebook.com/nmiuu/photos/>

In looking for symbol continuity from the paleolithic, there will unavoidably be gaps between the Mezinian artifacts' period until the next one i.e. the PPNA/PPNB c. 10,000 BC., where stoneware portray similar symbols such as on the bracelet shown above. The symbols, which we will show also bear a remarkable likeness to one on a mural in Colombia c. 10,000 BC., were reproduced on pottery by means other than a stamp (such as the Mezin stamp). The likelihood is that stamps continued in use for tattoo purposes, and their use spread rapidly around 6000 BC., finding other uses such as marking of property. Possibly, these 'newer' stamps, with many examples formed by the cross/chevron, were used for body tattooing. Any combination of these stamps could be used to produce the diamond-meander carpet pattern found on many Neolithic figurines. No doubt this would be very desirable designs for tattooing on females from this period.

Although the images shown below are not crystal clear, the Schreger lines can be seen on the Löwenmensch Lion Man, made from mammoth ivory and carved 35,000-40,000 years ago. The images are taken from: 'Der Löwenmensch bekommt ein neues Gesicht Auffindung und Restaurierung der Elfenbeinstatuetten aus der Stadel-Höhle im Hohlenstein' by Nicole Ebinger-Rist / Claus-Joachim Kind / Sibylle Wolf / Kurt Wehrberger 2013. Referring to the tusk, the text quotes:

...the intellectual preparatory work of the carver and the design implementation in mammoth ivory 40,000 years ago. Woolly-haired mammoths lived during the Aurignacien on the Swabian Alb and delivered with their tusks the raw material for the manufacture of the lion man... It is unique in the mammoth tusk and always marks the transition between these two tooth components. This is typical of mammoth ivory reticulated grain, which becomes apparent in cross section and can be seen with the naked eye. These intersecting lines are named after its discoverer, Bernhard N. G. Schreger (1766–1825) called "Schreger Lines".

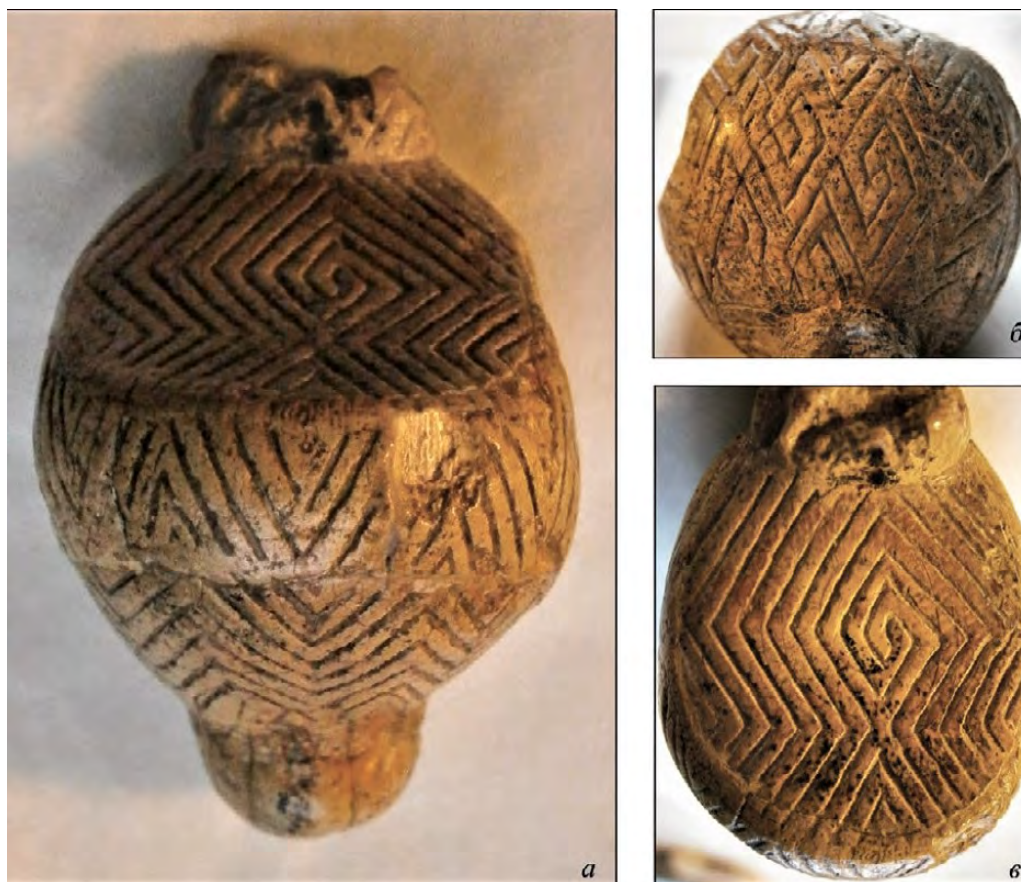


Above right is the underneath view of the Lion Man, 31.1 cm tall, 5.6 cm wide, and 5.9 cm thick. For the latest accurate radiocarbon dating of the Lower Aurignacian and Upper Aurignacian see: 'Testing models for the beginnings of the Aurignacian and the advent of figurative art and music: The radiocarbon chronology of Geißen-klösterle, Journal of Human Evolution' Higham et al., 2012, noting: '...the manufacture of ivory artifacts was part of the cultural repertoire of the local Aurignacian people from the start...the Early Aurignacian beginning around 42,500 cal BP.'

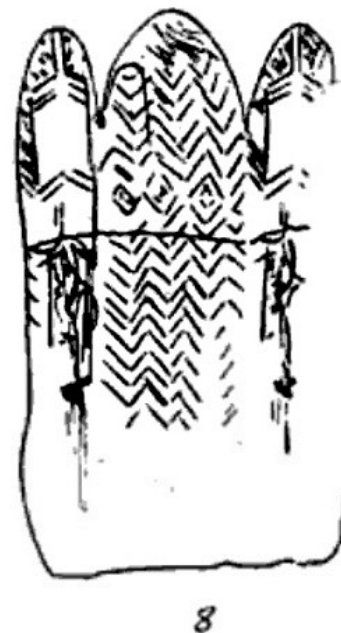
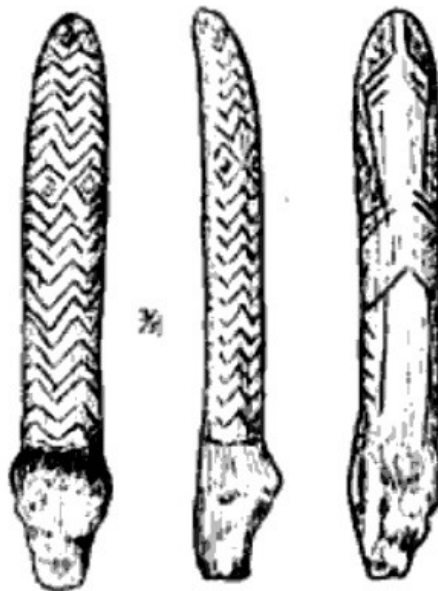
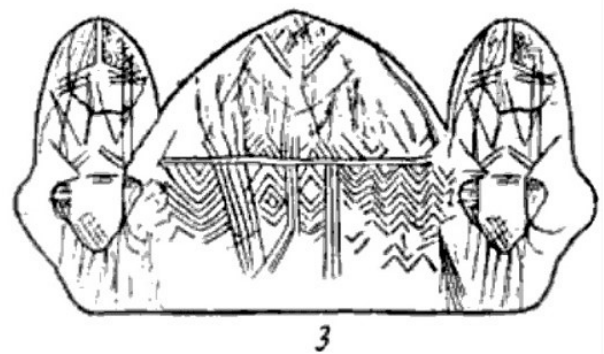
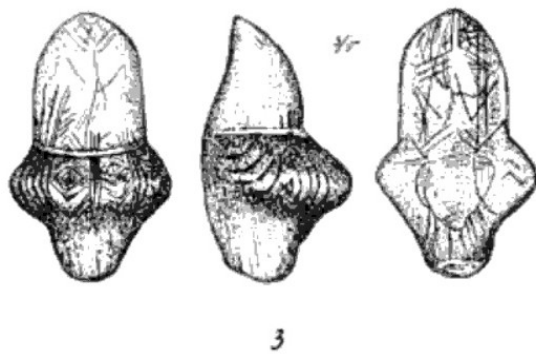
Many exhibits of paleolithic ivory carvings in museums appear to be replicas. This makes it difficult for amateur enthusiasts such as ourselves to identify possible Schreger lines which could definitively identify the work as being from mammoth ivory. For example, the Löwenmensch Lion Man housed at the Ulm Museum states that it is made from mammoth ivory (note the Schreger lines on the previous page) . Other images of artefacts we have been able to obtain may indicate lozenges but we have to be careful because photos can sometimes give false impressions of rhombus-like markings. However, where we discover images of original mammoth ivory carvings from places such as Mezin, we are able to see carved patterns which replicate the mammoth ivory dentin structure of Schreger lines.

The image below of a female stylized statuette (6.0 × 4.0 × 3.9 cm) from Mezin is from 'Geometric Images in the Art of the Upper Paleolithic of Eastern Europe: Chronological and Regional Features' by G. A. Khlopachev, Proceedings of the International Conference 'Signs and Images in the Stone Age Art' (Moscow, 2019).

Once again, the central lozenge with associated chevrons spreads out to develop into a meandering maze like the preceding images of the Mezin bracelet. Is this another example of a tattoo stamp?



Regarding the carved Mezin figures, short for female, long for male (see examples below), Golomshtok references M. Rudinsky's work 'Bone Industry of the Paleolithic Site of Mezine in Interpretation of T. Volkov' 1931 (Мізин = Industrie en os de la station paléolithique de Mizyn interprétée par Fedir Vovk, etc.-Виставка “Мізинська палеолітична стація ...” Провідник.-L'Exposition “La Station paléolithique de Mizyn ...” Catalogue.) Визначніші серії кістяних виробів мізинської палеолітичної стації в освітленні Федора Вовка /. За редакцією М. Рудинського.) in which Rudinsky was 'inclined to see a purely ornamental motive of decoration, suggesting that its uniformity may represent a tribal, family, or artist's mark'. This ties in with our suggestions that a strong clan-based symbol system could well have evolved during the Paleolithic in Central Europe. Once again, lozenges form a central point on the artifacts.



Above L and C: drawings from Golomshtok (ibid) figs 60,61 pp 352-353

Far R: actual mammoth carving. а. в. цьось, н. а. деделюк історія фізичного виховання на теренах україни з найдавніших часів до початку хіх ст. (a.v. tsos, n. a. dedelyuk 'history of physical education on the territory of ukraine from ancient times to the beginning xix century' 2014

Two images of the previously shown mammoth carving. Note the cross/chevron, or two lozenges engravings, with apparently a third lozenge which the angle does not show. This third double lozenge arrangement would appear to follow the Mezin bracelet which also has three double lozenges. Chin 'eye' beads are shown (normal and shortwave 254nm light) for comparison with the symbols on the tusk.



Images: Mammoth carving: <https://www.flickr.com/photos/144631630@N07/29545213830/in/photostream/> alongside Chin beads. Importantly, the beads shown below left have three 'eyes' on each bead of this style.





Fig. 8 a
Engraved Ivory. Predmost. Original size
Museum Brno
Photo: Plaňava, Brno

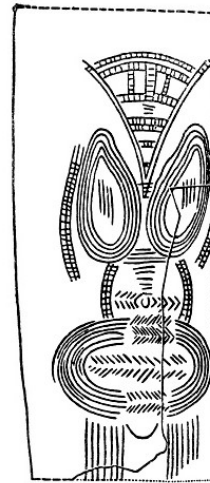


Fig. 8 b
After Efimenko, *op. cit.*, fig. 173

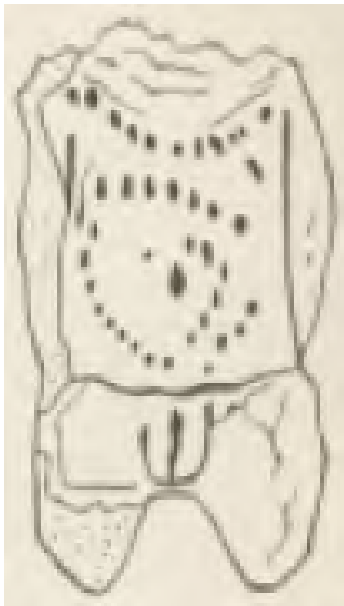
Above: Fig.8, the Predmost carving, referred to in Salmony's work, with a drawing from P.P. Efimenko. *Perwobitnoe Obschestwo*, second edition, Leningrad 1938. Described by Absolon (1949): 'A stylized female figure from P'predmost..... checked with an ethnological parallel from New Guinea'

Supporting the idea of paleolithic tattoos, the following quote is taken from 'Les matières colorantes au début du Paléolithique supérieur: sources, transformations et fonctions' by Hélène Salomon, 2009:

The everyday objects decorated from Mas-d'Azil offer illustrations of characters decked out in headbands decorated which may represent body paintings or decorations on clothing or jewelry (Duhard 1992). The female statuettes (the "Venus shameless" from Laugerie-Basse, the "Lady with the hood" by Brassempouy, for example) demonstrate that the hair was cut and styled, that the body was not naked (Pales & Tassin de Saint-Pereuse 1976, Walter 1995). The female figurine of Hohle Fels which has recently been updated shows series of parallel lines which could claim to evoke partial coverage of the body, to witness clothing, jewelry, tattoos or body paintings (Conard 2009). Thus, the realization of patterns covering certain parts of the body shown or the differential application of pigment lead to consider the possibility that the bodies were painted or tattooed, or covered with decorated clothing. The many testimonials use of coloring matters, in ancient cultures, allow us to design colorful cultures. Body paintings would have been vectors of symbolic-

religious concerns or aesthetics that meet beauty criteria which in all cases aim to transform body and its presentation according to codes of various meanings and make it a "body speaking", signifier, subject to an order and a system of meanings, shaped by culture. (Translated from the French original by Google Translation)

Many archaeologists believe that body-marking reached back to the Paleolithic and below we show one such possibility on the 'Venus IX' discovered by Karel Absolon in 1934 at Dolní Věstonice, Moravia. In his 1949 work, cited below, Absolon refers to 'tattooed' figures from Dolní Věstonice.



Above L: Carving with tattoos, Moravia, Aurignacian from 'Modern Parallels for Ancient Egyptian Tattooing, Carl Schuster and O. H. Myers Sudan Notes and Records', 1948, Vol. 29, No. 1 (1948), pp. 71-77. Schuster commented: '...in Fig. 4, a drawing of the modelled torso so-called " Venus " found in 1934 at Věstonice in Moravia, Czechoslovakia representing an Aurignacian culture of the ice age, some 30,000 years ago. The rows of incisions on the body are described by the discoverer "geometrical dotted lines, resembling tattoo patterns of present-primitive tribes " (K. Absolon in The Illustrated London News , 28th March, 1936, p. 547)

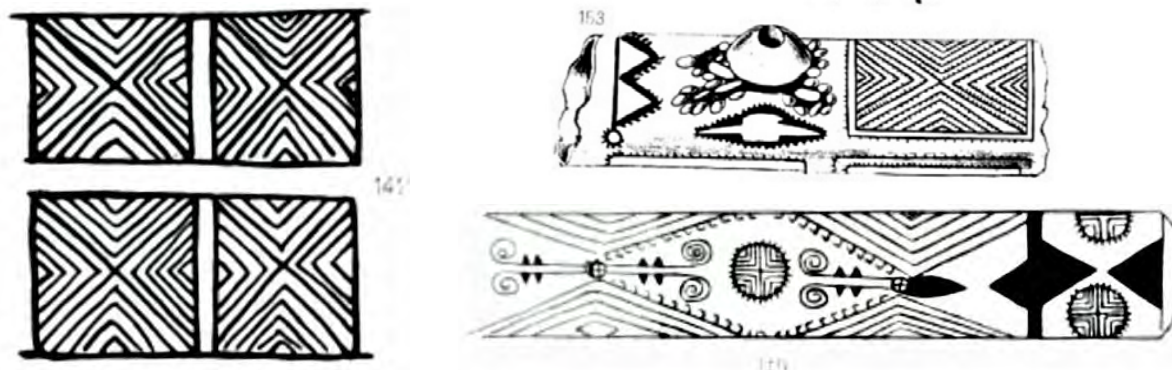
Above Centre: Photo of Venus IX, with the descriptive text: 'very interesting, a smaller, somewhat defective ceramic, the head broken off, obviously showing an ornamental cicatrization resembling one found today among tattooed African natives (cf. the photograph of a girl from the Bageshu tribe in the Mount Elgon territory)'. The Diluvial Anthropomorphic Statuettes and Drawings, Especially the So-Called Venus Statuettes, Discovered in Moravia: A Comparative Study, Karel Absolon, Artibus Asiae , 1949, Vol. 12, No. 3 (1949), pp. 201-220

Above R: Scarification on Bageshu Tribe girl, Mt. Elgon, Uganda. www.br.pinterest.com

We find that primitive tribes presently found in Melanesia and Africa are frequently mentioned by authorities in the context of tattoos. This is an opportunity for us to propose that symbols, which we claim were spread by Proto-Indo-Europeans from c. 6000 BC, may also have been carried to far stretches of the Earth by earlier migrations. The girl in the image below left has 'V' like tattooing. Carl Schuster commented that this form of tattooing was so widely distributed in the Pacific and Africa that it must be rooted in ancient tradition. We believe that the symbols were carried both in mental registers and on the body in the form of tattoos, thus accounting for being found in far-flung lands.



Above L: Tattooed girl, Papua New Guinea. *The Melanesians of British New Guinea* by C. G. Seligman 1910
 Above R: Mekeo tribe, Papua New Guinea. *Tattooing in South Eastern New Guinea*, F. R. Barton, *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, Jan. - Jun., 1918, Vol. 48, pp. 22-79. Note: there are possibly three tattoo patterns that may represent PIE symbols - see Chin artifacts to the right.



Above: Image of symbols found on pipes from Papua New Guinea. *The Decorative Art of British New Guinea: A Study in Papuan Ethnography*. Alfred C. Haddon, 1894. Note the separation of the symbols in the image on the left. We consider this arrangement, repeatedly found across the world, to be more than coincidental.

A recent study into finds of engraved plaquettes from Ein Qashish South, Jezreel Valley, Israel, throws light onto the so-far scarcity of portable art found there pre-dating the Natufian of 12,000 BC. The finds were dated to c. 21,000 BC and 13,500 BC.

Elaborate rock paintings from the Indonesian island of Solawesi—recently dated ca 35–40 ka BP—indicate contemporaneity with the earliest European parallels and imply a much older origin of artistic manifestations. Such possibility suggests that the use of both figurative and non-figurative images and signs comprised an integral part of behavior of modern humans who left the African continent a few tens of millennia earlier. A variety of artefacts with symbolic connotations, including different engraved patterns recovered in Middle Stone Age (MSA) contexts in South Africa, comprise a substantial base for this hypothesis...In this regard the extreme rarity of artistic expressions left by mobile hunters-gatherers in Southwest Asia and particularly in the Levant—the "corridor" passed by groups migrating out of Africa—is puzzling.

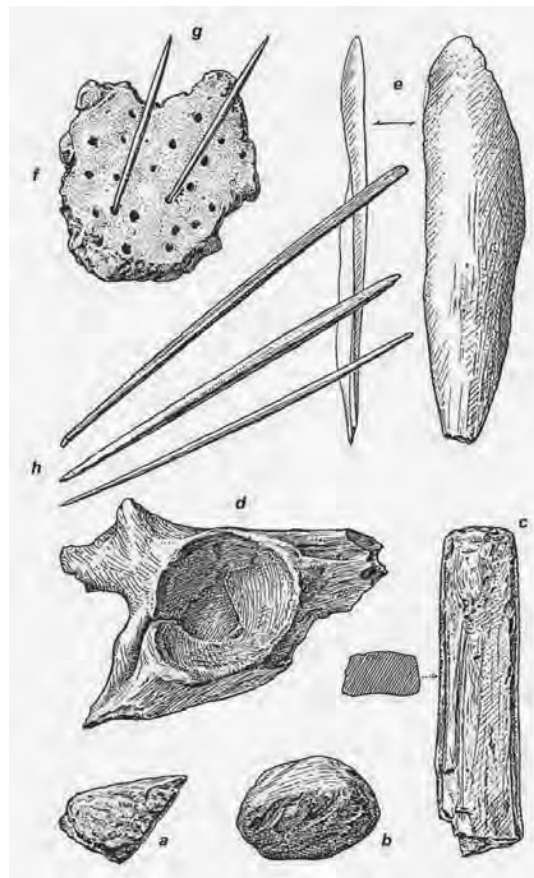
A Unique Assemblage of Engraved Plaquettes from Ein Qashish South, Jezreel Valley, Israel: Figurative and Non-Figurative Symbols of Late Pleistocene Hunters-Gatherers in the Levant, Alla Yaroshevich et al, 2016 (plos.org)



The above images are from the study by Yaroshevich et al. who describe the plaquette thus: 'chevrons or V-shaped incisions are the main component of the composition; second, some of the chevrons cross each other while others create rhombus-like figures; third, in both compositions roughly rectilinear lines are engraved along the plaquette's margin, adjacent to the chevron motif'.

Note the reference to rectilinear lines along the margin, details which are evident on most symbols which we use as examples. Later, we shall show full-blown cross/chevron designs on artifacts dating to the PPNA/PPNB c. 10,000-8,800 BC from Anatolia/Levant. The stone above may well be a forerunner of this design in this area - a pared-down design of the Mezin stamp.

The Magdalenian period (15,000-10,000 BC) caves of Mas d'Azil in France were excavated by Saint-Just and Marthe Péquart during 1937-1943. Thousands of artifacts were found giving clues to the lives of the inhabitants, including the use of decorative body items. Finding no painted figures in the caves, the Péquarts came to the conclusion that the ochre found was used to decorate the body. This tied in with the many finds of bone needles and paraphernalia associated with ochre tattooing.



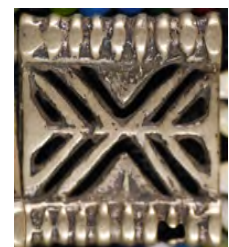
Above: Tattoo kit found in Mas d'Azil by the Péquarts. Marthe Péquart, "Grotte du Mas d'Azil (Ariège), Une nouvelle galerie magdalénienne" in *Annales de Paléontologie*. 48:167-296, pp. 211-214

There is a marked lack of recovered objects from the Upper Paleolithic of northern and central Europe. This may be due to the great mobility of the various clans and therefore not enough time could be devoted to fashion such art as the 'venus' figurines. Either that, or the materials used were easily perishable. That the symbols, such as the cross/chevron persevered, suggests to us that, by methods such as tattooing, they could be moved with the hunter/gatherer groups. As will be shown in the next few pages, they evidently made their way with migrating groups into Melanesia and the Americas at least by 10,500 BC.

In the Slavic languages, the cross/chevron symbol is known as the 'Tausen' sign (знак «таусень»). We believe it necessary to establish the precedence of the original symbol as portrayed on the Mezin stamp artifact, and quote from a report 'The history of the study of the proto-word - * TUL- and its phonetic variants based on the data of modern toponymy and archeology' by E.A. Mironov, pub. Institute of Proto-Slavic Civilization. presented at the Seventh Arkaim Readings "Horizons of Civilization", Arkaim, May 24-27, 2016. <http://www.trinitas.ru/rus/doc/0211/002a/02111179.htm>

The oldest artifact with a similar ornament ("tausen") comes from the Mesolithic settlement of Mezin, about which A. A. Rybakov wrote. This is the oldest discovered artifact to date with an ornament of fertility - "tausen" - 18,000 BC. Obviously, the tradition of placing it on ceramics (dishes and figurines) spread along with the movement of representatives of this ethnic group in time and space. In this case, it becomes necessary to fix the place - the source of the spread of the "tausen" sign as part of the carpet meander, the chronological priority of such an ornament. So, the oldest meander on the planet was discovered at the Mezin Late Paleolithic site in the Chernihiv region with a date of 18,000 BC.

B. A. Rybakov paid much attention to the meander in his fundamental work "Paganism of the Ancient Slavs", in which, nevertheless, the scientist does not emphasize the antiquity and priority of the Mezin meander, but on the drawings of the bracelet from Mezin with a meander pattern and on subsequent drawings of objects with a meander-rhombic carpet pattern - from later eras and from other excavation sites, does not give visual dating that speaks of the antiquity of the Mezin ornament and the derivation from it - all the others. Therefore, we consider it necessary to emphasize here the priority of the Mezin meander and the sign "tausen" derived from it, which subsequently spread along with the migration of the tribes in whose culture both of these signs originated. If later archeology reveals more ancient artifacts with similar signs, then the priority, respectively, will go to the ethnic group / tribe in whose culture such artifacts will be found. (Original Russian text is on the next page).



Above: Tausen sign. <https://xn--80aejvnu5h.xn--80aswg/tausen-znak-boga-avsenia/> alongside Chin bead and bronzes

Here is the original Russian text by E.A. Mironov:

Самый древний артефакт с подобным орнаментом («таусень») происходит из мезолитического поселения Мёзин, о чём писал ещё А. А. Рыбаков [12] (Рис. 5). Пока это самый древний, обнаруженный к настоящему моменту, артефакт с орнаментом плодородия – «таусень» - 18 000 лет до н.э. Очевидно, традиция его размещения на керамике (посуде и статуэтках) распространялась вместе с перемещениями представителей данного этноса во времени и пространстве. В таком случае появляется необходимость фиксации места – источника распространения знака «таусень» как части коврового меандра, хронологической приоритетности такого орнамента. Итак, самый древний меандр на планете был обнаружен на Мезинской позднелеолитической стоянке на Черниговщине с датировкой 18 000 лет до н.э. (Рис. 5а)

Б. А. Рыбаков уделил большое внимание меандру в своём фундаментальном труде «Язычество древних славян», в котором, тем не менее, учёный не ставит акцент на древности и приоритетности именно Мёзинского меандра, а на рисунках браслета из Мёзино с меандровым узором и на последующих рисунках предметов с меандро-ромбическим ковровым рисунком – из более поздних эпох и из других мест раскопок, не приводит наглядных датировок, которые говорят о древности Мёзинского орнамента и производности от него – всех остальных. Поэтому мы считаем необходимым здесь подчеркнуть приоритет Мёзинского меандра и производного от него знака «таусень», которые впоследствии распространились вместе с миграцией племён, в чьей культуре зародились оба этих знака. Если впоследствии археологией обнаружатся более древние артефакты с подобными знаками, тогда приоритет, соответственно, перейдёт к тому этносу/племени, в чьей культуре такие артефакты будут найдены.



Above: Fig. 5 as referred to in the above article from B A Rybakov's book "Paganism of the Ancient Slavs" pp 166-167

Introduction to some of the symbols

We have referred to symbols one of which was of such importance that the 7cm jade 'kneeling man' of Fu Hao's Shang Dynasty tomb has the symbol on the front and back (Figure 1). The National Museum of China comments that the symbol is on a belt. We believe the belt description is correct and that the Chin bronze belt pieces would fit this scenario. Chin bronze pieces, example shown below (figure 1d) measure 22mm x 20mm and are linked to each other by thread. The Chin bead is 20mm square.

"One of the most precious jades of the late Shang period, with very fine engraving, it is a useful source for research into Shang headgear, clothing and ornament. Some scholars believe that this is not a male figure but is Fu Hao herself."

Zhang Runping, National Museum of China website at: <http://en.chnmuseum.cn/tabid/549/Default.aspx?AntiqueLanguageID=3259>

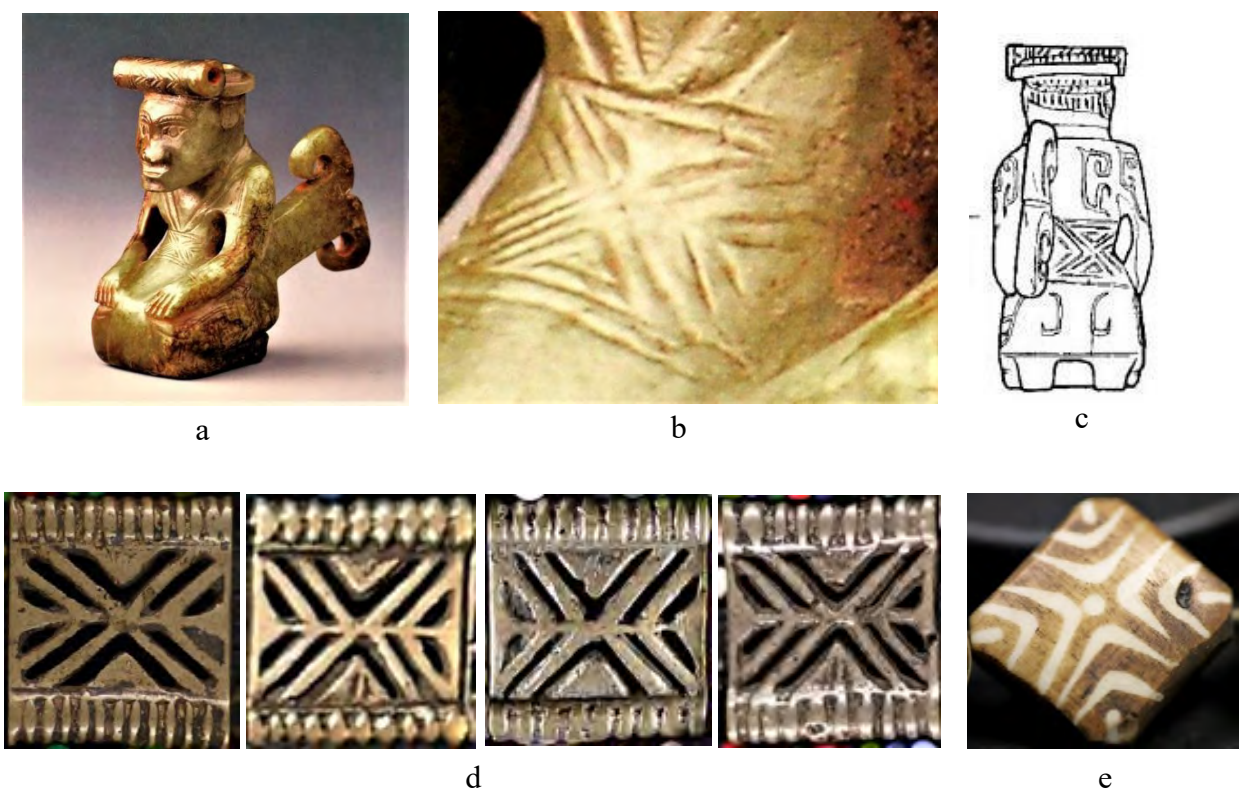


Figure 1. (a) (b) Fu Hao Jade figure. <https://www.duitang.com/people/mblog/223856017/detail/>
 (c) Drawing of the back detail of the Fu Hao Jade: https://www.thepaper.cn/newsDetail_forward_1590314
 (d) (e) Chin 'bronze' belt pieces and square bead



More images of the Fu Hao jade. Source: <http://www.gg-art.com/article/index/read/aid/30871>



Above: Chin belt with all pieces showing similar wear and appear to be cast from the same mould.

We shall show the progression of this symbol as we go along, For example the symbol, portrayed in a similar belt-like style, appears at Mehrgarh c. 3300 BC and is shown on the ceramic below. This pre-dates the Fu Hao jade by some 2000 years. Source of images: The Antecedents of Civilization in the Indus Valley by Jean-François Jarrige and Richard H. Meadow, Scientific American , Vol. 243, No. 2 (August 1980), pp. 122-137

