

## **An interpretation of the Finnish Kalevala**

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Abstract: Kalevala may not be a so current topic, but some questions about it were never answered in a fully satisfactory way. What was Sampo, was it really a world pillar as Uno Harva explained, and if so, how can a world pillar have a handle, fall to the sea, and produce Bronze Age trade goods such as grain, salt and money (gold and silver). The article applies the following method to Kalevala: The starting points are, 1) Archeology has shown that Baltic Finns came to the Baltic shores during the Seima-Turbino phenomenon. 2) Many researchers suggest that Kalevala describes the Kaali meteorite. 3) Marjatta poems are from the time when Christianity came to Finland. It follows that Baltic Finns were creating poems during the whole time of their stay in the Baltic area. Considering that Elias Lönnrot and others gathered all poems they could find, the collected poems should contain poems from all of the times since the Nordic Bronze Age to the arrival of Christianity. By identifying which poems originate from which period, we can construct a history of Baltic Finns. The result agrees in much with the accepted view of the history of Baltic Finns, but it also changes the picture that has so far been obtained by other methods. Notably, Sampo is explained as a trade-agreement in the form of a written disc and the method interprets Kullervo poems as describing a stage when Baltic Finns were a marginalized people pressed by Baltic peoples.

### **1. Introduction**

In the preface of the first version of Kalevala Elias Lönnrot expressed his opinion that the poems were composed over a very long time, centuries or millenniums, by illiterate village singers, there was no Finnish Homeros composing a whole epic. This view is verified by the poem of Marjatta, which is from the era when Christianity came to Finland, and tulikipuna (sparkle of fire) which many researchers connect to the Kaali meteorite in the Bronze Age. Lönnrot collected all poems he and others could find, in the raw material there are 36 volumes of poems. There cannot exist a millennium with no poems having been created during its time and describing events of the situation of that time. Consequently, we can construct a history for Baltic Finns from Kalevala poems. As it will be seen, this method finds something new.

Lönnrot did not know what we know today: Baltic Finns (most probably) came to Europe in the Seima-Turbino phenomenon (1800-1600 BC) when initial trade routes for copper for Europe had temporarily been broken by the 2000 BC collapse and the source of bronze in Europe moved to Asia, Finno-Ugric people were a part of the Seima-Turbino network of arsenic bronze trade. This Eastern bronze trade created the Nordic Bronze Age, a prosperous time when Scandinavia was trading with Mycenae Greece and Crete. Baltic Finns settled in Latvia and Estonia and for some time they were an elite knowing the secrets

of metalworking, but as will be seen, the poems of Kalevala show that Baltic Finns lost this position and were for centuries a marginalized people sold to slavery, occasionally making violent raids on the dominant population of Baltic and Germanic people. Around 600 BC-300 BC Baltic Finns regained some of their lands and many of them moved over the sea to Finland. In the Roman Iron Age there were events remembered by the poems, like the year without sun 536 AD, and bloodshed caused by wide spread use of iron weapons in the area. From the Viking era there are also some remembered events, such as an early smallpox epidemic. We will walk through this in the article.

## 2. Astrological myths

Many of the individual themes in poems of Kalevala belong to international myths. The bleeding hair brush in Lemminkäinen's death has a parallel, bubbling beer, in the New Kingdom Egyptian story "The Tale of Two Brothers". It has been suggested that Medieval travelling Russian storytellers (skomorokhi) could have brought these themes to the Baltic Finns. There are many similarities, like Lemminkäinen's death and the Osiris myth. It is likely that these themes did circulate, and likely it happened also much earlier than the Middle Ages, yet transmission of individual themes cannot explain all similarities: some similarities are so strong that they indicate a direct transfer of myths.

There is a clear similarity between the labors of Heracles and the labors of Ilmarinen and Lemminkäinen in Kalevala. It means that the labors in Kalevala derive from Mycenaen myths (at that time the name Heracles was not yet used, but there was the Master of Animals, Potnios Theron). The labors of Heracles fit a Mycenaean setting, though they were written down much later. The only time this transfer of myths could have taken place is during the Nordic Bronze Age: at that time Scandinavia had trade connections with Mycenaen Greece and Minoan Crete, later these trade routes vanished in the Late Bronze Age collapse.

In poems of Kalevala the Milky Way is the stream of Tuonela (the underworld), Väinämöinen is associated with Orion: the belt of Orion is the sword of Väinämöinen, or the belt is the belt of Väinämöinen and the sword or scythe of Väinämöinen refers to the stars in Orion that are vertical to the belt. Notice also that Pleiadaes (Seulaset) close to Taurus are the shoes of Väinämöinen and Väinämöinen advices to learn from Ursa Major (Otava) confirming the astrological connection in Kalevala.

Ilmarinen can be identified as Boötes and his furnace is Arctus, the brightest star of Ursa Major. The wet hat shepherd (Märkähattu karjapaimen) who shoots at Lemminkäinen is either Boötes or Scorpius, or possibly Sagrattius. The moose of Hiisi that Lemminkäinen hunts is Ursa Major, and Ursa Major and Ursa Minor are often the beasts in these labors. The Swan of Tuonela is Cygnus. One may disagree with these exact identifications, but clearly there is an astrological explanation to these labors in Kalevala and there is a connection to Aegean myths. An alternative explanation that this connection could be from

the PIE (Proto-Indo-European) time is refuted by similar myths missing from other Finno-Ugrian peoples, only Baltic Finns have them suggesting that they came from Scandinavian neighbors during the Nordic Bronze Age.

### 3. Sampo poems

The story of Sampo in my opinion is not a myth of a world pillar as Harva and Setälä claimed. I suggest that Sampo was a trade agreement with Gotland and Mycenaean/Minoan palace cultures about amber trade and that this trade agreement was written in pictograms on a disc resembling the Phaistos disc. A study from 2026 identified the Phaistos disc as a maritime trade document. It is written in spiral form by using stamps. It is not easy to add text to a continuous line of symbols written in a spiral form and standard stamps make modifying the text also very hard. The form of the Phaistos disc is that of a document that cannot be altered. Mycenae and Cretans did make such trade agreements: they controlled how much amber and metals could be traded. The Phaistos disc is written in Linear A and has resisted efforts to decrypt the language. I think it is because the text is not in real language, it is pictograms that with little common agreement how to understand the pictograms can be read without knowing the language. This would make pictograms ideal for expressing a trade agreement with people who are illiterate and do not know any Cretan language. If the symbols are pictograms, they are read as they appear: ship, grain, soldiers and so on, with the common understanding of how to read a meaning to the sequence of symbols.

Sampo is called kirjokansi. This word is composed of kirjo, which can come from kirjava (colorful) or kirjailtu/kirjoitettu (decorated or filled with small patterns), and kansi, which can refer to a lid, like lid of a pot (padan kansi), lid of the sky (taivaankansi), but it can also be something to stand on, like deck of a ship (laivankansi). A Phaistos disc with a spiral form text in pictograms is a decorated disc on which the trade stands, it can be called kirjokansi. If Sampo is a world pillar, it supports taivaankansi, but it is not taivaankansi, and it does not have a handle that Sampo had. A Phaistos disc could be kept in a jar and the jar most likely had a handle. Ilmarinen boasted having forged taivaankansi, but that does not imply that Sampo would be taivaankansi or a pillar supporting taivaankansi. Taivaankansi cannot fall to the sea while a Phaistos disc can. Stealing the world pillar is also not easily understood: the Pole star does move over very long times, but during the Nordic Bronze Age it did not move much. A Phaistos disc could be physically stolen and to prevent it, it would be kept behind locks.

Related to spiral form text in the Phaistos disc there is the Troy labyrinth. It is not a spiral, but it is also one-directional: one can write text between the walls and text fills all space continuously. Only in the cross of two lines in the labyrinth design there would be some empty space. This labyrinth design is from Minoan Crete and text in linear B adjacent to the labyrinth says To the Lady of the Labyrinth. The labyrinth hardly can be a play to find a woman placed

in the labyrinth as there is only one direction to go and the woman would be surely found. I think Lady is the cross, it is a place for a stamp and the design is an artistic and decorative expression of a trade agreement or the type of the Phaistos disc and an expression of the labyrinth-like complexity of the palace of Knossos. As such it is expressing Minoan power as a trade empire. There is a Minoan building in Crete with a Troy labyrinth design used for rituals and administrative meetings. The city of Troy of the Troy War did not have a labyrinth design, the name comes from Roman war exercises and Troy refers to turns. Troy is a one-directional spiral-like form where text makes sharp turns.

What is interesting is that in Scandinavia (and also in Ireland) there are many Trojaborgs, labyrinths made with this design out of stones. Most of them were made by fishermen in the 18th and 19th centuries, but the oldest in Gotland is from the Nordic Bronze Age. It may symbolize that this city had a trade agreement with Mycenaen Greece/Minoan Crete. Nordic Bronze Age was prosperous time for Scandinavia and this prosperity derived from trade with Mycenae and Crete. This trade brought typical trade goods: grain, salt, gold and silver to Scandinavia and was paid with amber. The agreement was a Sampo literally producing grain, salt and money. The trade was paid with amber from the amber coasts, which are not in Scandinavia, they are mainly in the coasts of Latvia, Lithuania, Kaliningrad and Poland, some also in Germany and Estonia. Gotland had to control a large part of these amber coast and we see Nordic DNA in graves in Estonia from this time and a bit later also.

The main amber route leading to the Aegean empires of Mycenae and Crete started from the Daugava river, today in Latvia, but in the past there were Baltic Finns, Livonians. Daugava has the old name Väinöjoki reminding of Väinämöinen. Above Daugava in the sea there is Estonian island Saaremaa.

In c. 1500-1400 BC a meteor hit Saaremaa and left a large round hole that immediately filled into a lake. This Kaali meteor is believed to be the origin of Kalevala's poem tulikipuna (sparkle of fire). Interestingly, a Greek myth tells of Phaethon, the sun god's son, falling down at the Eridanos river, later identified as the Po River in Northern Italy, the myth was referred to eg. by Hesiod in the 7th century. The connection to the amber trade is that the Bronze Age amber route went through the Po River Valley and in the myth tears turn to amber. No meteor fell to the Po River, or anywhere in Italy, in a time fitting the myth, but there was the Kaali meteor and Saaremaa sits at the beginning of the amber route, on the other side of the Bay of Riga.

A trade agreement would have given Gotland a monopoly to the amber trade. But this monopoly would be tied to the possession of the disc containing the agreement. The disc would have been kept behind locks, as Sampo was behind many locks in Kalevala, but it still could be stolen, and it could fall to the sea. A stone or clay disc like the Phaistos disc was probably kept in a jar which had a handle and this handle could be broken and remain in the defenders hands when they tried to stop the robbers. All elements of the poem of the theft of Sampo in Kalevala fit into this scenario, unlike is the case if Sampo is a world

pillar. After the trade agreement was lost, Gotland lost its monopoly allowing Baltic Finns to sell amber to the Mediterranean. For some time Baltic Finns would have controlled some of the amber trade and gained some wealth.

#### 4. How Ilmarinen forged Sampo

The explanation is not yet complete since Ilmarinen is the one who forged Sampo in Kalevala. A stone or clay disc for a trade agreement would have been written by Mycenaeans or Cretans with their stamps. What Ilmarinen could do is that he could hammer fragments of the Kaali meteorite. This would be natural: Gotland controlled Saaremaa at that time, a stone fell to Saaremaa from the sky, Baltic Finns had a smith who claimed that he derived from a divine smith who had forged the vault of heaven. He would be the correct person to forge something from brittle pieces of nickel-rich iron, an unknown and heavenly substance, pieces of the meteorite found from the lake. These pieces were collected, forged into weapons or tools and traded internationally: in Switzerland there is a Bronze Age Möringer arrowhead that was identified as containing meteoritic iron from the Kaali meteorite. Such items were absolute luxury: for instance, in Tutankhamon's tomb there was a famous iron dagger. It can be that Scandinavians had to offer iron items in order to get the trade deal. If so, Ilmarinen was essential in the trade deal, in other words: Ilmarinen forged Sampo and earned the daughter of Louhi, Matron of the North. As the daughter was killed by wolves and the second daughter of Louhi was too unwilling and Ilmarinen left her to cry on a rock, it makes sense that he felt freed from the agreement and could steal Sampo that in reality was his achievement. This repossession may reflect the legalistic framework of Bronze Age elite gift-exchange networks.

In tulikipuna (sparkle of fire) poem, the star (Kaali meteor) comes from the new house of Tuuri (Tuurin uudesta tuvasta). Linguistics have derived Tuuri (in Estonian forms Toori/Taari) from the Viking era storm god Thor. However, as the poem relates to an event in the Bronze Age, it would not refer to a Viking era god. The old Indo-European name of this storm god is Thunraz, but Indo-Europeans do not have a story of the Kaali meteor and there is no reason to assume that this name is a borrowing from Scandinavians. There is an old Finno-Ugric storm god with the name Tura and its variants. This name appears in Khanty, Mansi, Sami, showing that it derives from the time before Finno-Ugric peoples migrated to the Baltic shores. It probably is a borrowing from Indo-European Thunraz, but from the Sintashta culture in Southern Ural. From that culture Finnish has borrowed many words, including words that directly relate to gods: Ilma (air), a short form of Ilmarinen, may come from Indra, the original sky god or Aryans; vasara (hammer), the tool of a storm god, is borrowed from Sintashta and is the same as vajra in Rigveda/Avesta. The word orja (slave) is Aryan, showing that there were deep contacts between Aryans and Finno-Ugric peoples, where the ethonym Arya was adapted into the Finnish word for slave. I find it most probable that Tuuri was a name of Baltic Finnish storm god, not a form of Thor, and Estonian Tarapitha is also not originally

from Thor, but later, in the Viking age, these gods were equated.

Odin's charm for healing: flesh to flesh, bone to bone, veins to veins appears in Kalevala in the polven haava poem. This charm is much older than the Viking age. It appears already in Atharvaveda (Paippalada or Saunaka Sakha) in Hinduism, written in 1200 BC- 1000 BC. This healing spell has Indo-European origins to the PIE time (4500-2500 BC). Finno-Ugric peoples may have adopted it in the Ural area during the Sintashta period, or any time later.

Having established that Tuuri/Taara derives from pre-Baltic Finno-Ugric substrate rather than from Old Norse Thor, it can be argued that Viking-era dieties are absent from Kalevala. Though Thor hammer pendants have been found in Western Finland, they may have belonged to the Swedish speaking population. Vikings raided the coast of Finland, but there was little exchange of myths. Yet, there are similarities in some myths, though not in the names of gods.

The myths in Edda that clearly resemble Sampo myths must be from the Nordic Bronze Age, even though in Edda they are placed to much later times. These myths are the mill of Grotti that falls to the sea and produces salt eternally explaining why the sea water is salty. This myth resembles the theft of Sampo. The arguments against Sampo being a world pillar apply against Grotti's mill being a world pillar. In another myth in Edda a giant proposes to Åsgård gods that he can build a wall to protect the gods from giants in an impossibly short time. He is promised Freyja. He does build the wall but is refused the payment, finally he is killed. This myth resembles the labors of Ilmarinen, who is proposed the Maiden of North, but also does not get her (yet, he gets her later, and Ilmarinen is not killed). The wall that protects against giants who control some of the amber coast, and a wall that can be built in an impossibly short time, may be a trade agreement that gives Gotland a monopoly on the amber trade. A third myth in Edda that resembles Kalevala is the death of Baldr. Baldr is shot with an arrow from mistletoe, the only plant that did not make an oath not to harm Baldr. Lemminkäinen is shot with a watersnake, or more probably with an arrow poisoned with *Cicuta Virosa* (myrkkykeiso). Also this astrological myth must be from the Nordic Bronze Age and was inherited by Vikings. All of these similarities can be explained by a common root in the Nordic Bronze Age.

We may ask why there are no traces of Baltic-Finnic Y-DNA Hg. N1a in Estonian burials from the Nordic Bronze Age time or shortly after if Baltic Finns were there. This question must be considered in the light of the poem of the Kaali meteorite, the Sampo poems, and the timing of the Seima-Turbino phenomenon: Baltic Finns were there, so why the DNA samples only show R1a. This can be explained: all people were not buried in the same way. In Edda some people go to Odin's Valhalla, some go to Freyja's house, some other go to other places after death. As Freyja was a fertility goddess, it could be that the buried people went to her house. In order to get to Odin's Valhalla, maybe it was necessary to send the body on a ship and burn it. A similar difference could have existed in the Nordic Bronze Age: different ways of death led to different underworlds. A famous singer Antero Vipunen is buried in Kalevala, he is not in Manala because

just before Väinämöinen goes to ask for words from Vipunen, he tells not to go to Manala. Baltic Finnish Y-DNA is not in the buried graves in Estonia in the Nordic Bronze Age time because they were not buried to the ground. Possibly they had waterburials, or cremation, or open air burials.

There are some other poems in Kalevala that fit to the Bronze Age, or even before that time. Or what one can say of the Kaleva people losing fire and having to go to fetch it from a forest fire started by lightning. This would not have been the case in the iron age when making a sparkle only needed hitting a rock with iron, even if flint was scarce. Though in Kalevala the characters always have iron weapons, the content of some poems point to the Bronze Age. Another one of these places in Kalevala that date to the Bronze Age is the small man with vaski axe coming to fell a huge oak. Vaski means copper today, but in more ancient times it meant arsenic bronze: smiths of Seima Turbino did not have tin, they mixed arsenic to copper to make bronze. Ilmarinen was one of them and this is why he can be grouped in mythologies with Hephaestus and Wayland the Smith, who were also arsenic bronze smiths as their blindness and lameness shows.

Arsenic bronze smiths worked with a deadly substance and used protective spells. It seems that they were believed to have magical powers to set protective spells. Edda has a story of giant builder who promised to set up a wall that would protect Åsgård against giants. He can be identified with Ilmarinen of Kalevala, an arsenic bronze smith. In 1 Chronicles 11:4-9, and 2 Samuel 5:6 (YLT) there is a related story: David tries to take Jerusalem, but Jebusites say that "Thou dost come in hither, except thou turn aside the blind and the lame". The Judah scribe does not understand the meaning and adds: "saying, David doth not come hither". This is said to be an insult, but a more reasonable explanation is that David's time was Iron Age, yet Jerusalem walls were protected by a spell cast in the Bronze Age by an arsenic bronze smith, the blind and the lame. David could enter only if he could remove the protective spell. David tells his men to go through the waterway, he does not challenge the walls protected by a spell.

## **5. After the Nordic Bronze Age, before the Roman Iron Age**

We see that poems of labors of Ilmarinen and Lemminkäinen have an astrological meaning and fit to the Nordic Bronze Age transfer of Aegean myths and poems of Sampo also fit to the Nordic Bronze Age and trade with Aegean. We move to the time 1100 BC-600 BC after the Nordic Bronze Age collapsed. The Tollense Battle belongs to the end of this time. It was either a battle or an ambush of an amber trade caravan. In both cases it fits to the time of the robbery of Sampo: local people rised up against Gotland's monopoly of amber trade. The amber monopoly was broken and for some time Baltic Finns were prosperous, but what happened then?

There is a total lack of bones that can give DNA in the period 1800 BC-1100 BC in Estonian findings. From the era after this era Estonian researchers found

only 15 individuals that had preserved DNA. These bodies were Scandinavians, showing that there was a small Nordic elite in Estonia. The majority of the population used cremation, we cannot tell from DNA studies if there were Baltic Finns. But in 600 BC people shifted again to burying the dead and the findings show dominance of Y-DNA haplogroup N1a, a Baltic Finnic marker. Archeology cannot tell what happened to Baltic Finns, we must turn to Kalevala. As said before: there should not be a thousand year gap in poems, the next poems after the Nordic Bronze Age cannot be from Roman Iron Age. There must be poems from the time 1200-0 BC.

I think there are: most Lemminkäinen poems and all Kullervo poems. Lönnrot chose the name Kullervo for his hero in the Kullervo poems though it only appears in few original collected poems. But the character of Kullervo appears in every place: Western Finland, Viena Carelia, Estonia and Ingria. The poems tell of Kalevanpoika/Kalevpoeg. The wide distribution and the great difference between Estonian and Ingrian Kalevinpoika poems show that this story dates to early times: Baltic Finns had not yet separated. The main themes in Estonian and Ingrian Kalevinpoika poems are the same: Kalevinpoika is very strong, he spoils his sister and he dies from his own weapon. In both stories Kalevinpoika is associated with Ilmarinen. In Western Finland Kalevanpoijat were known as violent, evil giants.

This seems to describe the following scenario: at the end of the Nordic Bronze Age Baltic Finns were elite, they mastered bronze and iron working. They bought grain with amber, were wealthy, ate well: grain, milk and meat, they practised slash-and-burn agriculture and had large herds of cows. Mainly because of nutritional reasons they were tall, people in the Nordic Bronze Age were tall, some 10-20 cm taller than the later Iron Age people. In later poems they were seen as giants. But this situation did not last long, during 1200-600 BC Baltic peoples, Brjanti-Plāņi and related agricultural cultures, pushed further to the North, to Latvian and central Estonian lands.

Slash-and-burn cultivation gives very good crops for 2-3 years, but then the field must be left to grow new forest. This form of agriculture requires a very wide area. Baltic peoples practised permanent agriculture and they had many cows. With only natural fertilization by cows, this form of agriculture gives much smaller yields. These people did not have as much to eat and they were smaller. These two cultures clashed and permanent agriculturists tried to push slash-and-burn farmers out. This is what the Kullervo poems tell. The settlements of Baltic Finns were burned, they were taken to slavery, brothers and sisters were separated so that incest, a central theme in Kalevinpoika poems, was a real risk. Kaleva people escaped, but they resisted and made raids on the new settlers. This is the origin of Kalevinpoijat as violent, evil giants. In Kullervo poems a slave boy Kullervo sends wolves to eat the cattle and the wife of his master. Later Kullervo kills the whole clan of Untamo, people who had destroyed his family.

Untamo and Kaleva are presented as brothers in Kalevala, but this is not likely.

Untamo, or Unto in the short form, comes from Germanic or Baltic Undo, Undi. There is good reason to think that Untamo, referred to in unedited poems as hostile outsiders and strange newcomers, were not Baltic Finns. The most probably were Baltic people. Later Baltic Finns regained some of their lands and in Estonian Kalevpoeg the hero, Kalevinpoika, is a king and builds hill fortifications to protect his people. This regaining the land would have taken place in 600 BC- 300 BC.

Many Lemminkäinen poems show a similar situation. Lemminkäinen is despised by the ruling population and not invited to a wedding, he goes there anyway and is treated as lower class, he ends up in a fight and kills the master of the house. Then he has to flee. He flees to Saari (Saaremaa), but men on the island accuse him of competing for the women and he again has to flee. Robbing a wife, Kyllikki, also fits to this situation as well or better than it would fit to the Viking era.

There is a theme of Three Houses in unedited poems of Kalevala. Lönnrot did not include it to Kalevala, but it goes like this: a Kaleva warrior comes to the first house and asks is there an opponent for a man (onko talossa miehen vastusta), he gets the answer that there is no, all men are either dead, away or fishing. He goes to the second house, the same happens. In the third house there is a man, there is a battle and Kaleva wins. This fits to the pattern of killing all men of the population but leaving women, boys were saved only as long as they did not grow to men. It is probably in this way that Y-DNA Hg I2 disappeared from Finland but hunter-gatherer genes stayed through maternal lineages. Mesolithic population of hunter-gatherers had Y-DNA Hg. I2. In Estonia and the Baltic countries I2 disappeared before Baltic Finns came, probably Yamnaya people killed men in a similar way. In Finland Corded Ware only reached the coastal areas and wiping out all I2 should be attributed to Finno-Ugrians. Yet, in Levänluhti (c. 800 AD) water burials there was one man with I2. Still at that time small pockets of I2 survived.

## **6. What Kalevala poems tell of the Roman Iron Age?**

Now we have found what happened to Baltic Finns in the period 12000 BC- 0 BC. Let us continue to the Roman Iron Age. The poem named "wound in the knee" is firmly in the Iron Age. It is not a flood myth though a flood of blood pours out of Väinämöinen's knee. The poem includes the words of origin of iron and the wound was caused by an iron axe though iron had promised not to bite a human. This in my opinion addresses the issue that when iron weapons become common in the area where Baltic Finns lived (like Estonia and Latvia), these new weapons caused too much bloodshed. The time would be Roman Iron Age, 50-450 AD. Before that time only warriors, like Kullervo or Lemminkäinen, had iron swords. In Kalevanpoika poems Kalevapoika is associated with smith Ilmarinen, in the Estonian Kalevpoeg Ilmarinen forges the sword to Kalevpoeg. This reminds that Baltic Finns still mastered the task of working metal better than Untamo people.

The words of origin of iron state the heavenly origin of iron, reminding of meteorite iron, and give instructions how to collect iron-rich mud from bogs and apply fire to it, and to quench it in water to harden it. This is a working way to make bog iron, the words of origin contain the recipe, albeit mixed with superstitions like that adding honey would make iron tamer while adding a biting insect would make it angry. But the recipe correctly describes the three types of iron that a bloomery furnace can produce: steel, malleable iron and pig iron. As cast iron is not mentioned, one can conclude that the recipe is from the time before the 14th century.

There is another poem that fits to the Roman Iron Age: in one poem Louhi, Matron of the North, closes the sun and the moon inside a mountain. The only time in Kalevala's time spell when the sun and the moon stopped shining with their usual power was the year 536 AD, the year without sun. It probably was caused by a volcano eruption possibly in Iceland (a volcano of Katla, Bardarbunga or Askja, but it could have been in Alaska or in Aleutian Islands), and there was a second eruption in 540 AD of Ilopango in El Salvadore. Such an event, which was strongly felt in far-away Rome, would very possibly have been mentioned in poems of Kalevala. A major volcano eruption can cause a nuclear winter. A very hard winter is remembered in Kalevala poems.

## **6. What Kalevala poems tell of the Viking Age?**

Some poems of Kalevala tell of Viking time. In one poem a disease causing painful blisters is killing Kaleva people. This can be the Viking era (600-1000 AD) smallpox epidemic. This strain of smallpox was different from the strain that later was the main killer in Europe and today exists only in some laboratories, and the mortality may have been different. Väinämöinen applies sauna and ointments to the skin of the sick, which may have helped to prevent the spread of the disease.

In the poem Väinämöinen calls Ukko for help, showing that Ukko had at this time replaced Ilmarinen as the high god and magic had changed to a more religious form. Into this transformation of magic can be added the visit of Väinämöinen in the underworld (Manala). While Väinämöinen is often pictured as a typical shaman, the poem of his visit in Manala ends to the command not to go to the underworld for gaining knowledge, Manala does not give words that it has. This forbids the exact practice that shamans were doing. Väinämöinen was never a Siberian shaman who uses a shaman drum, he is shown as Tietäjä, The Knower, not a shaman, at least after his trip to Manala. But Väinämöinen does go to get words from a deceased Knower, Antero Vipunen. There has to be and is a difference between this trip and a trip to Manala: Vipunen is not in Manala, he is still in his grave as Kalman väki (folk of the grave). Another powerful Knower, Väinämöinen, can still ask him for words, which Vipunen does not want to give, but after some pushing finally gives. This poem exposes some subtiles of Finnish beliefs, especially that not all dead people went to Manala, similarly, not all dead Vikings went to Valhalla.

Though most of the Lemminkäinen poems derive either from the Nordic Bronze Age (the labors) or from the time when newcomers (Untamo, Baltic peoples) pushed Baltic Finns to a marginalized people: violent, evil, gigantic Kalevinpojat (the escapes and battles), some individual elements in the poems of Lemminkäinen are from the Viking age. Lönnrot combined several characters to Lemminkäinen: he is also called Kaukomieli/Kaukomoinen and Anti Saarelainen. Kaukomieli may well be Faravid, the legendary 9th century AD king/chieftain or Kainuulaiset(Kven) and Ahti from the Island (Saaremaa) may also have been an Estonian Viking chief. Lemminkäinen may even have some elements from the Estonian/Livonian Viking chief Lembitu in the 12th century, though this timing seems to me a bit late.

Another poem that may be from the Viking time is the poem where Lenninkäinen makes a wife out of gold and silver. Väinämöinen tells him to destroy it and forbids Kaleva people from making idols of goddesses. 16th century travellers, like Sigismund von Herberstein, told of a Golden Woman idol (Zlata Baba) close to Muscovy, Ural/Siberian frontiers. Finno-Ugric Khanty, Mansi and Komi people made pilgrimages to the idol offering it furs and gold. In Finland there was no such idol worship, people worshipped sacred trees and stones, but many other Finno-Ugric peoples had e.g. sledge dolls, idols representing their ancestors. The idol practice of Finno-Ugric peoples did not start in the 16th century. Permian bronze casts show idol worship even earlier, in the time 300 BC to 1000 AD. Baltic Finnic Ilmarinen could have made his golden idol in the Viking time (300 AD-800 AD) when Sasanian and Byzantine silver trade brought precious metals to the Baltic area.

The words of origin of beer can also be from the Viking time. Early Finnish researchers, noticing that the recipe includes hops, concluded that the poem must be from the Middle Ages as hops was an imported product from Germany. This is incorrect: hops grows naturally in Finland, Carelia and Baltic countries in lake shores and the Middle Ages every house in the Swedish land was obliged to grow a certain number of hops plants. The poem describes searching for hops and it cannot be from the Middle Ages when hops could have been collected from cultivated plants of any house. The timing cannot be before the Viking time since before that time the spice for beer was bog myrtle (suopursu), hops replaced it in the Viking era.

## **7. Other poems in Kalevala**

The poems of Marjatta's son date to the time when Christianity came to Finland. There are two small elements in this poem to mention: Väinämöinen is chosen as the judge whether the child can live, maybe showing that in the pagan time, all newborns were not left alive. Väinämöinen gives two ways to kill the newborn: either bury to the ground or to hit to the head with a log and take to a bog. These two different ways of death may indicate a different place in the underworld: buried souls remained alive, like Väinämöinen's mother and Vipunen, who still can answer to Väinämöinen, while a waterburial maybe took

the soul to Manala. I do not know if this issue has been studied in Finnish burial practices. The second element is more puzzling: Virokannas is invited to baptise the child. Virokannas is in Agricola's list of Finnish pagan gods and the name suggests Estonia (Viro in Finnish). Vikings accepted Christianity in a meeting. Can this Kalevala story tell of a somilar meeting where some pagan religious leaders accepted Christianity and some other left to East. There are elements that suggest it: John the Baptist baphtised Christ and Juhannus, a pagan midsommer festial, is named as the day of John the Baptist.

The poems of Bear festival and wedding practices give real information of old Finno-Ugrian customs.

The Aino poem is mainly a composition by Elias Lönnrot and the poems he used probably were versions of Kalevinpoika poems of spoiling his sister.

Three poems tell of kantele, the Finnish musical instrument: how the first kantele was made, how Väinämöinen charmed people and animals with playing kantele, and how a new kantele was made of wood after the first was lost to the sea. The modern Kantele is a Baltic box zither, considered to be 1000 to 3000 years old, box zithers in East Asia are over 2500 years old, meaning that Baltic Finns, arriving in the Seima-Turbino phenomenon, might have had an early form of the instrument with them. Middle Eastern zithers are younger than East Asian zithers, the oldest being Islamic qanun, and did not come to Europe before the Middle Ages as the instrument named psaltery. Based on this history, and as kantele is a box zither and not a lyra, it probably came from East Asia and if so, it probably came with copper trade from the East, during Seima-Turbino. During the Nordic Bronze Age, Scandinavians and Baltic Finns probably got Greek instruments. Homeric era instruments of this type, kitharis and phorminx, do not resemble a jaw bone of a pike. Kantele more resembles early long zithers, like Chinese guqin and guzheng. Survival of poems from the Nordic Bronze Age suggests that the poems were sung and Baltic Finns must have have a playing instrument. Also rejection of a shaman drum by Baltic Finns points to having an indigenous musical instrument. Sami people have a kantele-type instrument called harpu, but it is not old in Sami musical culture which relied on yoik singing and drum. In Kalevala Väinämöinen made the original Kantele from the jawbone of a pike. This could be a way to say that the instrument came by water ways and was different from the later kantele, maybe made from bone rather than wood.

Finally, what was the magic of Kalevala songs? Lönnrot wrote that local Finnish and Carelian farmers were very good in inventing new verses in Kalevala rythm. It fits to a view that singing competitions were a popular passtime, two singers would compete and the losing one would have to pay something. Kalevala describes two forms of this competition. In the singing competition between Väinämöinen and Joukahainen the task was to remember very old poems. Joukahainen does not know those very old song, he loses his mittens, boots, horse and finally he risks being sunken into a bog. This reminds of Tolkien, who imagined Finland (Suomi, suo-maa) as a land full of bogs where you could at any time sink your

enemy into a bog.

The other form of a song competition is in the dual of Lemminkäinen and the Master of Pohjola. The goal was to very fast invent in Kalevala poem rythm a threat and the answer to it would be to invent, also in Kalevala rythm, a method to counter the threat, like the Master of Pohjola sings of a river that would drown Lemminkäinen and Lemminkäinen responds to this threat by singing of a large bull that drinks all of the water. This competition requires fast wits, not excellent recollection of old poems.

Even more magical songs, like Vainamoinen building a boat with words only, without using tools, may have a fully understandable explanation: it may mean "by not using modern (or that time) tools". A very old poem told how to make the boat in the very old way. Nothing is told of this boat, but as the Maiden of North asked Väinämöinen to make it, it must be a very special boat. In Edda there are very special boats, one of them being the boat that never should be made, the one in Ragnarök. This also may be a concept deriving from the Northern Broize Age. It is a concept of the ages and an end of an age.

## **8. The main findings**

The history of Baltic Finns can be constructed as having had the following stages. Baltic Finns came to the Baltic shores at the late phase of the Seima-Turbino phenomenon. A small group of arsenic bronze smiths came with boats on the rivers from Ural area, they married local women. These copper smiths were instrumental in starting the Nordic Bronze Age, which benefitted from the traditional trade routes of copper and tin having collapsed in the c. 2000 BC collapse of Middle East cultures. During the Nordic Bronze Age, Scandinavians with Gotland as the central town, controlled the amber trade routes to Mycenaen Greece and Crete.

I think meteorite iron weapons were a small but valuable part of this trade and Gotland got a monopole on the amber trade because of them. Working on meteorite iron from the Kaali meteorite was done by Baltic Finnish smiths, explaining the meaning of Ilmarinen forging Sampo, a written trade agreement between Scandinavia and Aegean cultures. At the end of the Nordic Bronze Age there was a local uprising against Gotland's rule, the Tollense battle/massacre being a part of it. The trade agreement was lost to the sea, starting a short wealthier period when Baltic Finns were a local elite and controlled a part of the amber trade.

Baltic Finns lost the elite position when Baltic peoples pushed Northward. Because of the incompatibility of slash-and-burn cultivation by Finnic peoples with permanent agriculture of Baltic peoples, Baltic Finns were reduced to a second-class status and slavery, causing the situation described in Kullervo poems. Finns raided the settlements of the main population and earned the feared reputation as Kalevanpojat, violent, evil giants that Edda much later remembered having Åsgård gods fight the giants in the East.

Around 600 BC Baltic Finns regained some of their area and started moving to Finland. In Finland they practically exterminated the original hunter-gatherer men with Y-DNA Hg. I2, while in the Southern side of the Bay of Finland Yamnaya people had removed the male I2 lineages earlier.

In the Roman Iron Age, Baltic Finns had fur trade with Rome. Some events of this era are remembered in the poems, notably the year without sun in 536 and a nuclear winter caused by volcano eruptions. The bloodshed caused by a widespread use of iron weapons in the Baltic area is remembered and attributed to iron having broken its oath. The poem of the words of origin of iron give a recipe for bloomery furnace iron.

In the Viking time Finns mostly stayed away of the coastal areas that Vikings raided, but in Estonia and Kvenland there were some Baltic Finnic Vikings. From this era the poems remember the goddess idol, a smallpox epidemic, use of hops in beer, and the poems indicate a change in religious practices from shamanic to asking for Ukko's help. The ban on shamanic trips to the underworld (Manala) may be from this time, it did not ban asking questions from buried people. Manala may have been the destiny of people with a water burial.

After the Viking era, Baltic Finns were baptised and ended up being under some other country. This stage ended only after the World Wars.

Most of this history has been found earlier through other research methods, but the character of Sampo was never solved by these other methods, at least now there is a proposal to what it was. The stage when Baltic Finns were second-class population as an interpretation of Kullervo and some Lemminkäinen poems is also a new proposal.

## **9. A comparison with the Old Testament**

As [1] shows, I consider the minimalistic view in the dating of the Old Testament to be correct: most of the books are from the Persian-Hellenistic era and the only elements in the Old Testament that describe Israelites in the Bronze Age are the short comments of leaving Egypt in Amos and Hosea. The Old Testament was written for a political goal: making a claim by Judah scribes on the area that the Israel King Jeroboam II had once conquered. The poems in Kalevala were composed by illiterate village singers. There never was any political goal, apart in the combination of the poems to Kalevala by Elias Lönnrot, but the original collected material is available and studied.

Descriptions of old customs are very rare e.g. in the Old Testament. In Kalevala there is the bear ritual and wedding practices. There are the words of origin for iron and beer that tell us something. Indeed, Kaali meteorite may have been the single most important event that started the Iron Age.

The Old Testament is in prose, if old tradition was passed down for generations, it would have had to be in a poem form. Even the very few poems, like Deborah's song, in the Old Testament seem like late forgeries, this song mentions the twelve

tribes but there never were twelve tribes [1]. 12 is an astrological concept, in one collected information about Kalevapojat it is stated that their number was 12, but we already know that the heroes of Kalevala were (also) astrological concepts.

The Bible, both Old and New, has text that seems to describe realistic history, but is interlaced with supernatural events. In myths, like Kalevala, the story is in mythical language and always contains supernatural parts, it is stylistic making a better story and good for representing the story in art. In the style of Bible the reader is expected to believe in the miracles, not in myths.

There is a difference in dating poems of Kalevala and books of the Old Testament. The Old Testament states that the book is from a certain time and then after studying it, the reader concludes that it cannot be. Poems of Kalevala state no time, but some events that it tells of fit to some time. It does not feel false like the Old Testament does. There are also moral teachings in Kalevala, not 613 commands like the Mosaic Law (where the last commands are of the type: remember the Amalek, i.e., that the Amalek must be killed) but some commands there are.

I think that more could be learned from Kalevala than from the many times revised Old Testament, if we only could better understand the meaning behind mythical language. I think people too often suggest that the explanation of a myth is a prescientific explanation of some phenomenon that ancient people did not understand, like that the goal of the Edda story of Grotti's mill is to explain why sea water is salty. The part about seas being salty may be a small and late addition, the goal of the original story may have been to explain how the Nordic Bronze ended and not any why. In a similar way, the goal of the Kalevala story where the Matron of the North closes the sun and the moon in a mountain need not be to explain why there was a year without a sun in 536 AD, but simply to record this year and to express it in a poem.

## 10. References

In this article, I refer only to my most recent look at the Old Testament because I make a short comparison of my reading of the Old Testament to my reading of Kalevala.

[1] Jormakka, J., "On the 7000-year prophetic scheme and Jewish messianism", ResearchGate, 2026.

If the reader is interested in any piece of information that I mention without providing a reference, he can very easily find the reference from the Web with the help of Google AI. But as a research article today should contain references because of an outdated style that academic institutions still teach, I will add some references, but in the old style. References should be to the original sources and in this case, the sources are orally transmitted poems, not Lönnrot's later compilation. As in these old times Finns were illiterate, references to poems were

art: paintings in vases, bronze casts, woodcuts and such. Though Kalevala poems are not much referred to, there are many this type of references to Edda poems and to Greek myths. Excuse my poor artistic skills, but I have the necessary ten references to the all-important reference index, and they are exactly in the correct style how orally transmitted myths are referred to.















