

*Eighteenth-century visions of the Stone Age:
Stone artefacts and the concept of the furthest
past in theses published at the Academy of
Turku in 1700–1828*

Liisa Kunnas-Pusa, University of Helsinki

Abstract: Archaeological concepts of prehistory and the Stone Age are rooted in nineteenth-century scientific discoveries, which extended the human past much further back in time than was previously thought. Without this deep past, the disciplines of archaeology and history would not be what they are today. However, when the division of prehistory into the ages of stone, bronze, and iron was introduced in 1836, it was already an old idea. Stone Age artefacts and the initial phase of human history were discussed in the eighteenth-century academic world, even though the periodisation of history was constructed differently. In the philosophy of the Enlightenment several ideas surfaced which were essential to the formation of archaeology as a scientific practice, and which still affect the way the prehistoric past is imagined. This article examines the concept of a prehistoric, furthest past in Finnish scientific texts, within the framework of eighteenth-century Swedish traditions of science and historiography. How did the scholars in the Academy of Turku view Stone Age artefacts that had a multi-faceted nature in the antiquarian tradition? In what way did their visions of the earliest phase of the Nordic past set up later nationalistic narratives about prehistory?

Keywords: Historiography; History of archaeology; Stone Age; Enlightenment; History of science; Finnish history; Conceptual history.

Recommended citation: Kunnas-Pusa, Liisa, 'Eighteenth-century visions of the Stone Age: Stone artefacts and the concept of the furthest past in theses published at the Academy of Turku in 1700–1828', *1700-tal: Nordic Journal for Eighteenth-Century Studies*, 18 (2021). 11–27. <https://doi.org/10.7557/4.5905>

Copyright: © 2021 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Introduction

Archaeological concepts, like the Stone Age or prehistory, were coined in the nineteenth century. During the latter half of the nineteenth century, the vast scope of the past unreachable through textual sources was uncovered, attributing to the concept of prehistory its chronological depth.¹ Earlier concepts for the furthest past existed, but the temporal scope of human history was perceived as significantly shorter than in our current understanding. The three-age system dividing the prehistoric past into successive periods of stone, bronze, and iron was presented in 1836 by C. J. Thomsen. Before this, similar division of the past already existed in Classical Greek and Roman texts as a philosophical concept, illustrating mankind's progress from primitivity towards civilization.² However, the discovery of the geological “deep time” was essential in transforming the foggy and vague concept of the furthest past into defined successive periods of human history set on a chronological timeline.

Reinhart Koselleck's conceptual history employs the classic key concept of *Sattelzeit*: a conceptual threshold spanning the years 1750–1850. Before the notion of *Sattelzeit*, the conceptual meanings of terminology used to describe historical and social phenomena differed from contemporary meanings so much that we cannot fully understand or compare them to their present counterparts.³ The *Sattelzeit*-

¹ E.g. Daniel L. Smail, *On Deep History and the Brain* (Berkeley & Los Angeles: University of California Press, 2007), pp. 46–7. [Crossref](#); Andrew Shryock & Daniel L. Smail, *Deep History: The Architecture of Past and Present* (Berkeley & Los Angeles: University of California Press, 2011), p. 20. [Crossref](#); Clive Gamble & Theodora Moutsiou, ‘The Time Revolution of 1859 and the Stratification of the Primeval Mind’, *Notes and Records of the Royal Society*, 65:1 (2011), 43–63. [Crossref](#); Laurent Olivier, ‘The Business of Archaeology is the Present’, in *Reclaiming Archaeology: Beyond the Tropes of Modernity*, ed. by Alfredo González-Ruibal (London & New York: Routledge, 2013), pp. 117–29 (p. 117). [Crossref](#)

² For more about Thomsen and the three-age system and the development of archaeological terminology, see Bo Gräslund, *The Birth of Prehistoric Chronology: Dating Methods and Dating Systems in Nineteenth-century Scandinavian Archaeology* (Cambridge, New York: Cambridge University Press, 1987); Peter Rowley-Conwy, *From Genesis to Prehistory: The Archaeological Three Age System and Its Contested Reception in Denmark, Britain and Ireland* (Oxford: Oxford University Press, 2007). [Crossref](#); Liisa Kunnas-Pusa, ‘Function Follows Form? The Role of Analogies in Discovering the Stone Age’, in *Archaeology and Analogy: Papers from the Eighth Theoretical Seminar of the Baltic Archaeologists (BASE)*, ed. by Marko Marila, Marja Ahola, Kristiina Mannermaa & Mika Lavento, *Interarchaeologia*, 6 (Helsinki: University of Helsinki, 2020), pp. 119–34.

³ Reinhart Koselleck, ‘Social History and Begriffsgeschichte’, in *History of Concepts: Comparative Perspectives*, ed. by Iain Hampsher-Monk, Karin Tilmans & Frank van Vree (Amsterdam: Amsterdam University Press, 1998), pp. 23–36; Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time* (New York: Columbia University Press, 2004), p. xii, xxiv, 6, 32, 56, 241.

type threshold for archaeological concepts could be located during the latter half of the nineteenth century.⁴

According to archaeologist Peter Rowley-Conwy, there is an imminent danger in researching the history of archaeology beyond its nineteenth-century scientific beginnings. Our present-day concept of prehistory is so entwined with the deep past that we cannot fully grasp a concept of the past predating the discovery of geological time. Therefore, any attempt to interpret earlier concepts of the furthest past as being similar to the concept of prehistory is anachronistic.⁵

I do not intend to treat the eighteenth-century view on prehistory as a direct precursor to the present concepts, or to consider them equivalent. While being aware of the variation in temporal scope, I suggest that tracing the conceptual change and continuity beyond the mid-nineteenth-century threshold could bring forth something new about implications still attached to the concepts of Stone Age and prehistory.⁶

My first research question is related to the use of prehistory in the narratives of the national past, from which the Stone Age has often been omitted.⁷ Is this tendency already visible in the eighteenth-century discussion about the early history of the Nordic peoples? My other question considers Stone Age artefacts and their appearances in the sources: there was a lot of scientific discussion about their origin and classification during the eighteenth century. To what extent were these artefacts associated with prehistoric past in the Academy of Turku?

⁴ See e.g. Bruce Trigger, *A History of Archaeological Thought* (New York: Cambridge University Press, 2006), p. 121, 138–41, 146–7. [Crossref](#)

⁵ Rowley-Conwy, *From Genesis to Prehistory*, pp. 3–4.

⁶ Prehistory is obviously more than just the Stone Age. Encompassing all human history before written sources, it lasted in Northern Europe until the first centuries of the second millennium. However, the early concept of prehistory, still during the nineteenth century, was more interchangeable with the Stone Age. Without a clear understanding of the chronology of the human past, the Bronze Age and the Iron Age were thought to have lasted for only a short time before the advent of writing. Still, for example in English the term ‘prehistory’ is more affiliated to the Stone Age, since historical sources reach much further back than in Northern Europe. According to the current view, the Stone Age in Finland and Sweden began with the first human settlements after the last glaciation period, c. 11 000 years ago, and ended in c. 1700 BC.

⁷ See Derek Fewster, ‘The Invention of the Finnish Stone Age: Politics, Ethnicity and Archaeology’, in *Dig it all: Papers dedicated to Ari Siiriäinen*, ed. by Matti Huurre. Helsinki: The Finnish Antiquarian Society, 1999), pp. 13–20; Derek Fewster, *Visions of Past Glory: Nationalism and the Construction of Early Finnish History* (Helsinki: SKS, 2006); Liisa Kunnas-Pusa, ‘Kivikauden kuvia: Kaukaisimman menneisyyden representaatiot Suomi-kuvaa rakentamassa’, *Ennen ja nyt – Historian tietosanomat* 3 (2018), <https://journal.fi/ennenjanyt/article/view/108878/63873>.



Fig. 1. The artefact collections at the Academy of Turku were almost entirely destroyed in the city fire of Turku in 1827. Fire-damaged and molten hinges and clasps from cupboards, where some of the collections were kept. Collections of Coin Cabinet in The National Museum of Finland, photograph by L. Kunnas-Pusa.

The source material for this article includes academic theses published at the Academy of Turku (*Kungliga Akademien i Åbo, Turun kuninkaallinen akatemia*), founded in 1640, and articles in Finnish newspapers during the years 1700–1828. When Finland became a Grand Duchy of the Russian Empire in 1809, the academy was renamed the Imperial Academy and then moved from Turku to Helsinki in 1828 (Fig. 1).⁸

⁸ In 1712–21, the Academy was evacuated to Stockholm and essentially shut down because of the Russian occupation of Finland during the Great Northern War. A similar break occurred in 1742–3, also due to Russian occupation. For more on the Academy, see e.g. Matti Klinge, Rainer Knapas, Anto Leikola & John Strömberg, *Kuninkaallinen Turun Akatemia 1640–1808: Helsingin yliopisto 1640–1990*, 3 vols. (Helsinki: Helsingin yliopisto, 1987–90), I–II; Jussi

The surviving corpus of the Academy's theses is available in digital form in a database managed by the National Library of Finland.⁹ I used a bibliography of the theses for shortlisting my source material, and then supplemented that list using the results of a query performed in the Doria database by searching for theses from the years 1700 to 1828 with key words that could indicate any texts mentioning stone artefacts or prehistoric structures, for example *historia* (history), *kivilajit* (types of rock), and *mineralogia* (mineralogy). After excluding the ones that were irrelevant based on their title or topic, approximately 200 theses comprise my source material. On these, additional searches were performed using search words related to stone artefacts, for example *ceraunia* and *lapid** or *sten*.¹⁰ Similar searches were performed on the newspaper material (*sten*, *kivi*, *åsk(e)wig**, etc.) using the tools available in the digital archive database of the National Library of Finland.¹¹

Archaeology in the Age of Enlightenment

Archaeology in Finland and Sweden during the long eighteenth century has been touched upon in some presentations of the history of archaeology in the Nordic countries¹² as well as outlined by Ola W. Jensen in his essay.¹³ Jensen has also examined the history of the concept of prehistory and the reactions towards archaeological finds in Sweden from the Medieval Period to the Enlightenment.¹⁴ Eighteenth-century interest in prehistoric structures has been featured in several

Välímää, 'The Academy of Turku during the Last Century of Swedish Rule (1720–1809)', in *A History of Finnish Higher Education from the Middle Ages to the 21st Century* (Cham: Springer, 2019), pp. 87–110. [Crossref](#)

⁹ *Turun akatemian väitöskirjat*, <https://www.doria.fi/handle/10024/50699>. There is also a concise bibliography of the theses: Jorma Vallinkoski, *Turun Akatemian väitöskirjat 1642–1828* (Helsinki: Helsingin yliopisto, 1967–9). The theses were usually written by the supervising professor (*præses*) or compiled jointly by the respondent and *præses*. According to the university statutes, all professors needed to produce theses and hold at least one public defense per year. In this article, I refer to theses with both the *præses* and the respondent as authors, their names separated with a slash, except for cases where a thesis has later been published as a book.

¹⁰ The author is in possession of a complete list of the search words used and a table of all the theses catalogued during the research process.

¹¹ <https://digi.kansalliskirjasto.fi/etusivu>.

¹² E.g. Fewster, *Visions of Past Glory*.

¹³ Ola W. Jensen, 'Resenärer i forntiden – fornforskningen i 1700-talets Sverige', in *Från Worm till Welinder: Åtta essäer om arkeologins disciplinhistoriska praxis*, ed. by Joakim Goldhahn (Göteborg: Göteborgs universitet, 2005), pp. 33–62.

¹⁴ Ola W. Jensen, *Forntid i historien: En arkeologihistorisk studie av synen på forntid och forntida lämningar: från medeltiden till och med förupplýsningen* (Göteborg: Göteborgs universitet, 2002).

publications. For example, Joakim Goldhahn has studied how eighteenth-century historians interpreted a Bronze Age cairn and accompanying rock art in Scania, Sweden.¹⁵ Jari Okkonen has utilized also eighteenth-century sources about the prehistoric stone structures of northern Finland.¹⁶

According to historian of archaeology Bruce Trigger, the Enlightenment provided several philosophical concepts that were extremely important for the development of archaeology as a scientific practice, like the ideas of a 'psychic unity' of mankind and cultural progress as the essential force in history.¹⁷ The former idea implied that the differences between nations mainly result from their natural environment, while the latter encompassed the belief that progressive change stemmed from humans striving to improve their condition and acquire greater control over nature. Such continuous cultural change included technological, social, intellectual, and moral progress.

The idea of progress was related to universal stages of human development, from the primitive original state of mankind to the technologically and culturally developed world of eighteenth-century Europe. These ideas affected how prehistoric societies, contemporary indigenous peoples, and their subsistence strategies were perceived. Economists, like Adam Smith (1723–90) and Turgot (1727–81), catalogued all past and present human societies into four stages: hunting, pasturage, farming, and commerce. While hunting and pasturage were present throughout the world, farming had only occurred a few times during human history and the stage of commerce had only been reached in European society.¹⁸

Swedish historiographical tradition at the beginning of the eighteenth century was based on an established canon of written sources that included sagas, historical works written in the sixteenth and seventeenth centuries, the Bible, and the works of Classical Greek and Roman writers. This textual tradition was thought to encompass all human history, spanning approximately 6 000 years. The Gothicist

¹⁵ Joakim Goldhahn, *Bredarör på Kivik – en arkeologisk odysse* (Kalmar: Linnéuniversitetet, 2013); Joakim Goldhahn, 'Att låta stumma stenar tala – om formandet av ett nytt arkeologiskap under 1700-talet', in *Arkeologi och kulturhistorie fra norskekysten til Østersjøen: Festschrift til professor Birgitta Berglund*, ed. by Ragnhild Berge & Merete Moe Henriksen (Trondheim: NTNU Vitenskapsmuseet, Institutt for arkeologi og kulturhistorie og Museumsforlaget, 2019), pp. 40–57.

¹⁶ Jari Okkonen, *Jäättiläisen hautoja ja hirveitä kiviröykkiötä: Pohjanmaan muinaisten kivirakennelmien arkeologiaa* (Oulu: Oulun yliopisto, 2003).

¹⁷ Trigger, pp. 100–1.

¹⁸ Trigger, pp. 101–3; Sophie Bourgault & Robert Sparling, 'Introduction', in *A Companion to Enlightenment Historiography*, ed. by Sophie Bourgault & Robert Sparling (Boston: Brill, 2013), pp. 1–22. [Crossref](#); Aira Kemiläinen, 'Valistuksen historiankirjoitus', in *Historiankirjoituksen historia* ed. by Päivi Setälä, Pekka Suvanto & Matti Viikari (Helsinki: Gaudeamus, 1983), pp. 49–60 (p. 58–9).

tradition of history became especially important during the seventeenth century, when Sweden needed to prove itself among the great powers of Europe.¹⁹ The Swedish past beyond the time of actual written sources was anchored to events described in the Bible. The Swedes were thought to descend from Noah's grandson through Gothic tribes known from historical sources. In Olof Rudbeck's *Atlantica* (published in four volumes in 1679–1702), he divided the earliest history into six periods: the ages of gold, silver, stone, copper or ash tree, *Giödingz*,²⁰ and iron.²¹ In this chronology, a version of Stone Age existed as the lowest point in human history, when the Deluge had resulted in the collapse of civilization and people had been reduced to using stone tools.

In the eighteenth century, the receding political pressure to represent the Swedish past as glorious as possible made way for a more critical examination of sources. Some traditions of Gothicist historiography persisted, though: the sources depicting Sweden's remote past were perhaps patchy and unreliable, but this did not change the fact that a glorious past existed somewhere just beyond the reach of source material.²² The tradition of Gothicist history was also essential in creating institutionalized antiquarianism in Sweden, with the Collegium Antiquitatum being founded in the 1660s to gather and preserve information about objects from antiquity.²³ As a result, archaeological finds from Finland were also sent to Stockholm until the end of Swedish reign in 1809.

¹⁹ On Geatic or Gothicist history (göticism, Fi. goottilaisuus/gööttiläisyys), see, e.g. Erkki Urpilainen, *Algot Scarin ja gööttiläisen historiankirjoituksen mureneminen Ruotsissa 1700-luvun alkupuolella* (Helsinki: Suomen Historiallinen Seura, 1993); Fewster, *Visions of Past Glory*; Tero Anttila, *The Power of Antiquity: The Hyperborean Research Tradition in Early Modern Swedish Research on National Antiquity* (Oulu: Oulun yliopisto, 2014); Samu Sarviaho, 'The Elusive Finn: Ethnic Identities, Source Criticism and the Early History of Northern Sweden in Seventeenth-Century Swedish Historiography', *Scandinavian Journal of History* 46:1 (2020), pp. 21–41. [Crossref](#)

²⁰ 'Giödingz-Ålderen' refers to Odin and the *æsir* (asar) arriving in Scandinavia from Central Asia, which was considered a real, historical event. See Evert Baudou, 'Drivkrafter och tolkningar i arkeologisk forskning', in *Från Worm till Welinder: Åtta essäer om arkeologins disciplin-historiska praxis*, ed. by Goldhahn, pp. 1–32 (p. 19).

²¹ Urpilainen, pp. 159–60.

²² Urpilainen, pp. 199–201.

²³ Johanna Widenberg, *Fäderneslandets antikviteter: Etnoterritoriella historiebrik och integrationssträvanden i den svenska statsmaktens antikvariska verksamhet ca 1600–1720* (Uppsala: Uppsala universitet, 2006).

Researching the 'Finnish prehistory' at the Academy of Turku

Daniel Juslenius's (1676–1752, Professor of Greek and Hebrew 1712–27 and Theology 1727–34) work *Aboa vetus et nova*, published in 1700, introduced many claims about the Finnish past that were later to become lasting tropes of Fennomanian historiography, for example blaming the Swedes for destroying the evidence of a Finnish glorious past. Even though Juslenius does not explicitly consider archaeological research as a method for studying the past, his expression 'monuments' (monumenti) refers to all remains of the past, written sources as well as material remains, and the remark that some ancient objects could only be retrieved by 'leaving no stone unturned' (omnis esset movendus lapis), can be interpreted as an allusion to archaeology.²⁴ Both *Aboa vetus et nova* and its follow-up study *Vindiciae Fennorum*²⁵ were attempts to apply the Gothicist tradition to Finnish history and prove Finland a nation in its own right.²⁶ Historian Derek Fewster has called this initial phase of a 'national antiquarian consciousness', beginning in the seventeenth century and lasting until the early nineteenth century, a 'patriotic or proto-nationalistic antiquarianism'.²⁷ Besides the works of Juslenius and, to a lesser extent, Torsten Rudeen's studies on the Hyperboreans,²⁸ researchers of history at the Academy during the first two decades of the eighteenth century focused on Classical antiquity, literature, or mythology instead of Finnish or Scandinavian history.

When the Academy resumed its operations in 1722, after the Russian occupation during the Great Northern War (1700–21), Algot Scarin (1684–1771) was appointed Professor of History and the focus shifted more to Nordic past.²⁹ Scarin thought that the measurements of soil thickness on top of old structures performed by Olof Rudbeck clearly showed that the Nordic countries had already been inhabited a long time ago. He assumed that arriving in a few centuries after the Deluge to a newly dried land, the first inhabitants had subsisted on hunting and fishing.³⁰

²⁴ Daniel Juslenius, *Aboa vetus et nova* (Helsinki: SKS, 2005 [1700]), pp. 126, 144–5.

²⁵ Daniel Juslenius, *Vindiciae Fennorum* (Åbo: Wallius, 1703).

²⁶ Juha Manninen, *Valistus ja kansallinen identiteetti: Aatehistoriallinen tutkimus 1700-luvun Pohjoislasta* (Helsinki: SKS, 2000), pp. 76–89.

²⁷ Fewster, *Visions of Past Glory*, pp. 23–4.

²⁸ Torsten Rudeen/Johan Tälpo, *Monomakhian veterum Hyperboreorum* (Åbo: Wallius, 1703); Torsten Rudeen/Nikolaus Hahn, *De sacris, antiquorum Hyperboreorum* (Åbo: Winter, 1703), see also Anttila.

²⁹ Scarin as a historian has been studied by Erkki Urpilainen (1993), who focuses especially on Scarin's detachment from the Gothicist tradition.

³⁰ Urpilainen, pp. 168–71; Algot Scarin/Jacob Starckou, *Aboriginum Scandianorum praecipui vitae sustinendae modi*, I (Åbo: Kämpe, 1740); Algot Scarin/Asmund Carlander, *De gentis Vanorum priscis et hodiernis in Westrogothia sedibus*, I (Åbo: Kämpe, 1747); Algot Scarin/Samuel Chydenius, *De Askmannis, ultima, in exteros, Scandianorum colonia*, I (Åbo: Kämpe, 1747).

According to Trigger, even though the use of stone tools at some point in human history was already quite universally accepted as a fact among eighteenth-century scholars, the idea of technological epochs was not connected to the theory of stages of economic development, causing it to remain just a philosophical idea.³¹ However, in Scarin's vision of Nordic prehistory this idea is touched upon.

In a thesis from 1740, Scarin postulated that the first people to have arrived in the Nordic countries were 'ikhtyophagi', fish eaters, who had lived much as the 'samojeds of Novaja Zemlja' or 'the fishermen in America'. They were also associated with Tacitus's description of the poor and animal-skin-clad 'Fenni', who made arrowheads out of bone. The text described the ancestors of the Scandinavian people as seafaring people, or pirates (Vikings), who later arrived in the lands of these more primitive people.³² Thus, it assigned the earliest time period, one resembling the Stone Age, to the Finns and Sámi. In the eighteenth century, the origin of the Finns was commonly explained as not being of the same Gothic or Scythian origin as Swedes but having arrived in the north earlier, and then pushed into the forests and mountainous regions by subsequent Germanic colonization. Scarin compared the ancient Finns to Native Americans since both had receded in the face of colonization.³³

The works of Henrik Gabriel Porthan (1739–1804)³⁴ further discussed the origin of the Finnish people and their relationship to the Swedes and the Sámi. Porthan sought to prove that Tacitus's Fenni were a reference to the Sámi instead of the ancestors of the Finns and that the Finns' reputation as witches was also related to the Sámi. While Swedish historians thought that the ancestors of both the Finns and Sámi had formed the primitive, aboriginal population of the Nordic countries, Porthan wanted to present the Finns as a distinct group of people who gradually expelled the Sámi further north.³⁵ Despite a common origin evidenced

³¹ Trigger, p. 105; see also Pável Nicklasson, 'Johan Haquin Wallman, Sven Nilsson och den moderna arkeologins genombrott', *Fornvännen* 2 (2008), pp. 102–10.

³² Scarin/Starckou, pp. 8–14, 20, 23.

³³ Urpilainen, pp. 178–84; Henrik Hassel/Matthias Hallenius, *De Borea-Fennica* (Åbo: Kämpe, 1732); Algot Scarin/Israel Escholin, *Positiones historico-politicae e Chronico episcoporum m.scr. Pauli Justen excerptae* (Åbo: Kämpe, 1726). In the Gothicist tradition, the ancestors of the Finns were also sometimes depicted as having arrived after the Swedes; see Sarviaho, p. 4.

³⁴ Several studies have been published on Porthan in his many roles as historian, researcher, newspaper publisher, librarian, and antiquarian: e.g. *Porthanin monet kasvot: Kirjoituksia humanistisen tieteen monitaiturista*, ed. by Juha Manninen (Helsinki: SKS, 2000); Inkeri Kinnari, *Hyödyllisiä ja mielekkäitä oppeja kotiin vietäväksi. H. G. Porthanin väitösteesit ja akateeminen kasvatus* (Turku: Turun yliopisto, 2012).

³⁵ Henrik Gabriel Porthan, *Valitut teokset*, ed. and trans. by Iiro Kajanto (Helsinki: SKS, 1982), pp. 118, 123–4.

by language, these two groups were often set apart due to contemporary differences and habits.³⁶

This effort to separate the ancestors of the Finns and Sámi into two distinct groups continued in the works of the historians Johan Bilmarm (1728–1801) and Gabriel Rein (1800–67). In their work, the nomadic lifestyle, reindeer herding, and hunting were attributes more associated with the Sámi, while the ancient Finns had lived more like the ancestors of the Swedes in villages practicing agriculture.³⁷

Stone artefacts

The folklore related to Stone Age stone artefacts, in addition to their alleged nature as natural curiosities, is a well-known aspect of the history of archaeology. For centuries, people were bewildered by stones with smooth polished surfaces and sharp edges resembling tools and weapons. Ancient, near universal beliefs, probably dating back to the time when the use of stone as a raw material had first faded from collective memory, connected these objects with thunder and especially with lightning. Believed to be so-called thunderbolts arriving with lightning, their supposed origin endowed them with various magical, protective, and healing properties, and therefore, they were often collected and preserved by people.³⁸

Lorraine Daston and Katharine Park have researched the concept of wonder in the history of science and pointed out how objects and events considered wonders faded from scientific thinking during the Enlightenment. This process, shifting the focus of natural science from curiosities and contingencies to recognizing systems and patterns, began in the seventeenth century. Wondrous or supernatural explanations for phenomena gradually changed into explanations based on empiricism.³⁹

³⁶ E.g. Anders Wetterblad/Israel Aiemelaeus, *Theses miscellanaea* (Åbo: Kämpe, 1745).

³⁷ Johan Bilmarm/Fredrik Collin, *De origine Fennorum* (Åbo: Frenczell, 1764); Johan Bilmarm/Christiern Björkgren, *An Svethia plures olim habuerit incolas, quam nostro aevo*, II (Åbo: Frenczell, 1769); Gabriel Rein/Johan Norring, *De vetere Carelia ante occupationem Svecanam*, I (Åbo: Frenczell, 1825); Gabriel Rein/Fredrik Cygnaeus, *De gente Sumorum* (Åbo: Frenczell, 1827).

³⁸ See e.g. Carl Blinkenberg, *The Thunderweapon in Religion and Folklore: A Study in Comparative Archaeology* (Cambridge: Cambridge University Press, 1911); Timo Muhonen, 'Kolme ajallista näkökulmaa ukonvaajoihin: Kivikauden kiviesineet myöhempien aikojen kuriositeetteina', *Kuriositeettikabi.net* 3 (2006), <http://www.kuriositeettikabi.net/numero3/Ukonvaajat.pdf>; Sonja Hukantaival, 'Ukonvaajojen monet kasvot: Luokittelu- ja tulkintakysymyksiä', in *Puukenkien kopinaa: Henrik Asplundin juhlaKirja. Karhunhammas* 19, ed. by Janne Harjula, Visa Immonen & Juha Ruohonen (Turku: Turun yliopisto, 2019), pp. 345–381.

³⁹ Lorraine Daston & Katharine Park, *Wonders and the Order of Nature 1150–1750* (New York: Zone, 1998), pp. 18–19, 329–30, 359–60.

During the eighteenth century, two main scientific explanations existed for the thunderbolts: either they were the results of meteorological or geological phenomena, related to meteorites or volcanic pyroclasts,⁴⁰ or they were analogous to the stone artefacts used by Native Americans or Polynesians, and therefore ancient tools. The latter opinion was backed up not just by ethnographic analogies, but also the descriptions of ‘barbarians’ in Classical sources.⁴¹ Eighteenth-century sources refer to these objects with many different terms, the most common being related to thunder (*ceraunia*, *pierres de foudre*, and *thorswiggas* or *åsk(e)wiggas*), but also *pierres de circoncision* (connecting the use of stone tools to passages in the Bible) or *casse-têtes*.⁴²

The terminology is often confusing and overlapping: *ceraunia* can mean actual stones falling from the sky or stones deliberately modified as tools by humans, and it can also be both. Kristiina Johanson, for example, has noted that objects catalogued as thunderbolts in museum collections are not just Stone Age artefacts found in later contexts, but are also natural stones, fossils, and even stones of actual meteoritic origin. In folklore, all of these had similar beliefs and ritual re-use attached to them.⁴³

The attempt to explain the terminology in a French dictionary from 1730 included several entangled meanings: *ceraunia*, or *pierres de foudre*, is a term erroneously used for ancient stones shaped like tools or weapons often kept in cabinets

⁴⁰ Matthew R. Goodrum, ‘The Meaning of Ceraunia: Archaeology, Natural History and the Interpretation of Prehistoric Stone Artefacts in the Eighteenth Century’, *British Journal for the History of Science* 35:3 (2002), 255–69. [Crossref](#); M. R. Goodrum, ‘Questioning Thunderstones and Arrowheads: The Problem of Recognizing and Interpreting Stone Artifacts in the Seventeenth Century’, *Early Science and Medicine* 13:5 (2008), 482–508. [Crossref](#)

⁴¹ For the history of the recognition of stone tools through analogies, see Kunnas-Pusa, ‘Function Follows Form?’

⁴² ‘Pierre de circoncision’ refers to passages in Exodus and the Book of Joshua depicting stone knives used for circumcision. It was used as a synonym for ‘pierres de foudre’ (thunderstones) during the eighteenth century, especially in French auction catalogues (but also in scientific texts) to refer to stone artefacts: e.g. *Catalogue raisonné des Antiquités & autres Curiosités du Cabinet de feu M. Picard* (Paris, 1779). The term is also used as a synonym for ‘åskewigga’ in Per Gadd/Alexander Ramstadius, *Om finska jaspis-arter och agater* (Åbo: Frenckell, 1776). ‘Casse-tête’ often refers to stone artefacts from America or the Pacific: e.g. Pierre Remy, *Catalogue des Curiosités qui composent le Cabinet de m. Le Duc de Caylus* (Paris, 1773). Still in modern French, ‘casse-tête’ means a puzzle, a challenge for one’s brain, but also tomahawk-like weapons. This is further discussed in Liisa Kunnas-Pusa, ‘Kieli ja käsittely tieteen ja tiedon historian peilinä: Esimerkkinä kivikautisten esineiden nimitykset 1700–1800-luvuilla’, in *Tiede ja tieto historiantutkimuksen kohteena*, ed. by Mikko Myllykangas, Annastiina Mäkilä, Johanna Skurnik & Veli Virmajoki (forthcoming).

⁴³ Kristiina Johanson, ‘Missing Interpretations: Tracing Natural Artefacts in Estonian Archaeological Material’, *Fennoscandia Archaeologica*, 35 (2018), pp. 87–106 (p. 9). See also Hukan-taival.

of curiosities. The dictionary clarified that real pierres de foudre exist, too. While they are stones that fall from the sky, they are not formed by thunderstorms, but instead the result of mountain erosion spread by wind.⁴⁴

Stone artefacts were discussed as a thunder-related phenomenon in a thesis published in 1744 under the supervision of Johan Browallius (1707–55). Browallius accepted that these objects had been used as tools, calling them ‘stridshamrar’ (stridsyxa, a battle-axe) and noting that stone tools were still being used in the Americas among indigenous people. Nevertheless, he still assigned the origin of these stones to thunderstorms and likened them to meteorites.⁴⁵ Instead of being deliberately formed by humans, they were natural stones once utilized as tools.

Eight years later, in 1752, the use of stone in history was discussed in a thesis by Gustav Allenius (1730–1808), with the Professor of Physics Carl Fredrik Mennander (1712–86) serving as the præses. This text clearly distinguishes between ancient stone artefacts and stones created by thunder, *ceraunia*: ‘These stones, considered by common people to be *ceraunia*, are not that, but weapons and tools, used by ancient people for many purposes before the discovery of metallurgy, as for example Mahudel has tried to prove.’ (Fig. 2)⁴⁶ Nicolas Mahudel had presented his theories about the relationship between thunderbolts and ancient tools in France in 1734.⁴⁷ In the theses used as source material for this article, this was the only explicit reference found to Stone Age artefacts as distinct from other thunderstones.

The ethnographic analogies between European thunderbolts and stone artefacts used by indigenous populations were known to Finnish and Swedish scholars. Nevertheless, in Pehr Kalm’s (1716–79) travelogue of his North American journey, he does not connect American stone tools to European finds, even though he had collected the former and wrote about them.⁴⁸ Native American cultures were also examined in Kalm’s study on the Inuit, published in 1756, with Andreas Indrenius

⁴⁴ Augustin Calmet, *Dictionnaire historique, critique, chronologique, géographique, et littéral de la Bible. Tome troisième* (Paris, 1730), pp. 222–3. ‘Thunderstones’ were also associated with volcanoes and meteorites in Petrus Hahn/Jonas Heurlin, *De tonitru* (Åbo, Wallius 1702).

⁴⁵ Johan Browallius/Carolus Polviander, *De fulmine* (Åbo: Kämppe, 1744), pp. 11–13.

⁴⁶ ‘Lapides quoque, quos pro *Cerauniis* vel *fulminaribus* vulgus vendidat, non esse, nisi instrumenta vel bellica vel oeconomica, quae ante metallorum usum cogniti variis negotiis adhibantur prisci, post alios Mahudel prolixè evincere conatus est.’ Carl Mennander/Gustav Allenius, *De usu lapidum in historia* (Åbo: Merckell, 1752), p. 18.

⁴⁷ Nicolas Mahudel, ‘Sur les pretendues Pierres de Foudre’, *Histoire de l’Académie Royale des Inscriptions et Belles-Lettres avec les Mémoires de littérature tirés des registres de cette Académie, depuis l’année M. DCCXXXIV, jusques & compris l’année M. DCCXXXVII* (Paris: L’Imprimerie Royale, 1740), pp. 163–9; see also Kunnas-Pusa, ‘Functions Follows Form?’, p. 127.

⁴⁸ Pehr Kalm, *Matka Pohjois-Amerikkaan*, ed. by Anto Leikola (Helsinki: SKS, 1991 [1753]), pp. 88–92.

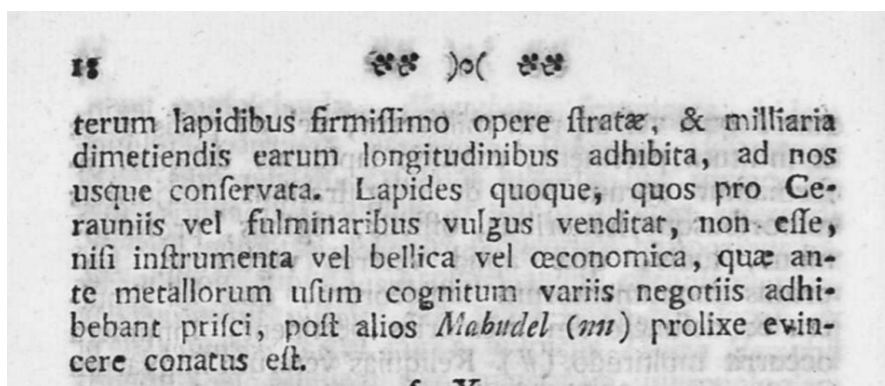


Fig. 2 Extract from Carl Menander / Gustav Allenius, *De usu lapidum in historia* (Åbo: Merckell, 1752). Digitised by the National Library of Finland. Public Domain

as the respondent. It included depictions of Inuit leather clothes, kayak making, and how they made stone and bone tools.⁴⁹

A mineralogical thesis written under the supervision of Professor of Chemistry Pehr Gadd (1727–97) in 1767 stated that, like all people, the ancient Finns also once made weapons out of stone. This was evidenced by a folk poem in which Väinämöinen is asked to produce a ‘sword made of stone’. The study also referred to excavating Bronze Age burial cairns in Reuharinniemi, Tampere.⁵⁰ Gadd discussed stone tools in other texts as well. He dismissed the belief that thunderbolts caused trees to splinter, attributing the phenomenon instead to electricity,⁵¹ and referred to them as ancient weapons that had also been sacrificed to Thor.⁵²

The contested nature of thunderbolts as a natural phenomenon continued to co-exist with explaining them as historical objects until the nineteenth century. In 1803, a three-part article published in *Åbo Tidningar* stated that ‘åskwiggår’ or ‘celestes carreaux’ (stones from the sky) are either pyroclastic matter from volcanoes, eroded material from mountains, stones from the Moon, or stones formed

⁴⁹ Pehr Kalm/Andreas Indrenius, *De esquimaux, gente Americana* (Åbo: Merckell, 1756). Kalm discusses many of the same things as Henry Ellis, *A voyage to Hudson's-Bay by the 'Dobbs Galley' and 'California' in the years 1746 and 1747, for discovering a North West Passage* (London: H. Whitridge, 1749). Kalm disapproved of the Native Americans' ‘ignorance and contempt for science’ in his travelogue (Kalm, *Matka Pohjois-Amerikkaan*, p. 92), while Ellis, in contrast, admired the ingenuity and skills of the Inuit.

⁵⁰ Pehr Gadd/Carl Giers, *Indicia mineralogiae in Fennia sub gentilismo* (Åbo: Frenckell, 1767), pp. 3–5, 13–14.

⁵¹ Pehr Gadd, *Satakunnan kihlakuntain pohjoisosan taloudellisen kuvaamisen yritys* (Tampere: Tampereen Historiallinen Seura, 1946 [1751]), p. 54.

⁵² Gadd/Ramstadius.

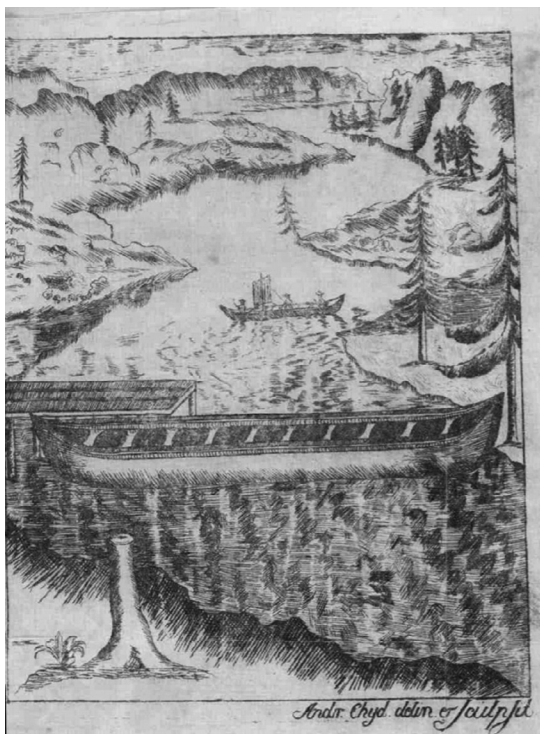


Fig. 3 Illustration from Pehr Kalm / Anders Chydenius, *Americanska näfwerbåtar* (Åbo: Merckell, 1753). Digitised by the National Library of Finland. Public Domain.

by electricity during thunderstorms, but the article did not mention their use as possible ancient tools.⁵³ By and large, stories about stones falling from the skies often featured in early nineteenth-century newspapers.⁵⁴

However, by the early nineteenth century the existence of the Stone Age was already fairly common knowledge. An 1821 article published in the newspaper *Turun Wiikko-Sanomat*, presumably written by Reinhold von Becker (1788–1858), educated the Finnish people on the subject:

Before people learned how to use metals, they only had sharp stones instead of knives, the tips of arrows and spears were made of flint and some other weapons were hammered out of stone with great effort. These kinds of stone weapons have up until now been found in Europe, Asia, and Africa.⁵⁵

⁵³ *Åbo Tidningar*, 10 Dec 1803, 14 Dec 1803, 17 Dec 1803.

⁵⁴ E.g. *Åbo Tidningar*, 16 July 1808; *Åbo Allmänna Tidning* 12 Jan 1811, 30 June 1812.

⁵⁵ *Turun Wiikko-Sanomat*, 11 Aug 1821: 'Ennenkuin ihmiset oppiivat tuntemaan ja takomaan metalleja, ei ollut heillä muuta kuin joku terävä kiwi weitsen asemesta: nuolien ja keihästen kärjet tehtiin piistä (eli limsiamesta) ja muutamat muut sota-aseet kalkuteltiin suurella waiwalla kiwestä. Sen kaltaisia kiwisä sota-aseita on vielä jolloin kulloin nykyisempinäkin aikoina löyty maan powesta sekä Euroopasta että Aasiasta ja Afrikasta.'

Conclusions

Stone Age artefacts appeared in the source material only rarely, but when they did, they were discussed in the framework of the transnational scientific discourse of the time. For example, the contemporary French sources were familiar to scholars at the Academy of Turku. The artefacts begin to be more frequently mentioned from the 1740s onwards. The attitudes towards accepting the stone tools as man-made objects, diverting from the Biblical depiction of world history, or connecting ethnographic analogies to European stone tools, seemed to vary according to scholars' personal preferences. Since the source material regarding the artefacts was scarce, and the artefacts themselves a marginal topic of interest, these personal opinions were probably more visible than they would if there was more source material. Therefore, conclusions should be drawn carefully.

However, it can generally be observed in the source material that scientific explanations gained momentum during the eighteenth century and became mainstream by the end of it. An example of this is the debate on the 'theory of diminishing water' (*vattuminskingsteorin*, Fi. *vedenvähenemisteoria*). Resulting from the last glaciation period, the topography of Sweden and Finland suggested much higher water levels during some point in history, and the coastal waters were continuously receding. The Deluge was considered a valid explanation in the early eighteenth century, but not anymore by the end of it.⁵⁶

Regarding the stone tools, this process of moving towards empiricism and scientific explanation is evident, for example, in Pehr Gadd's disbelief that striking lightning created them. Still, even when recognized as ancient artefacts, stone tools are associated with specimens of natural history. The historical background of entanglement between stone tools, fossils and meteorites was simply too strong and the division between artificial and natural was fluid in the antiquarian tradition.⁵⁷ Stones resembling tools were only one subcategory of strange stones. The connection between Stone Age and natural history has lasted until today, with the Stone Age later also being affiliated to indigenous peoples. For example, The American Museum of Natural History in New York also displays the 'evolution-

⁵⁶ Kinnari, pp. 101–2; Pehr Kalm/Johan Browallius, *De hypothesi diminutionis aquarum* (Åbo, 1757); Gadd, *Satakunnan kihlakuntain pohjoisosa*, pp. 40–1; Michael Ticcander, *Sysmän pitäjän* (Åbo, 1792/Sysmä, 1942), pp. 24–25; Urpilainen, pp. 177–8; Jensen, *Fortid i historien*, pp. 140–1; Christer Nordlund, *Det upphöjda landet: Vetenskapen, landhöjningsfrågan och kartläggningen av Sveriges förflutna, 1860–1930*, (Umeå: Kungl. Skytteanska Samfundet, 2001), pp. 15–16; Jari Pohjola, Jari Turunen, Tarmo Lipping, Anna Sivula & Marko Marila, 'Introduction', in *Historical Perspectives on Postglacial Uplift: Case Studies from the Lower Satakunta Region* (Cham: Springer, 2019), pp. 1–18 (pp. 1–2). [Crossref](#)

⁵⁷ E.g. Johanson.

ary story of the human family' and 'the cultures of Asia, Africa, North and South America, and the Pacific'.⁵⁸

On the other hand, prehistoric cairns and other interesting structures were considered historical objects in the source material.⁵⁹ Structures were perhaps more easily recognized as manmade. Also, the newspaper material contained several stories about stone cairns and other structures labelled as ancient tombs, but none about stone artefacts until the nineteenth century.⁶⁰

What then can be said about the eighteenth-century vision of the Stone Age? A period resembling the concept of prehistory could be detected in some sources, like Algot Scarin's vision of the 'ikhtyophagi'. Even when differences in the overall timeline of history are considered, there are some interfaces with the Stone Age as it is understood today. It is unreachable through written sources but can be approached using ethnographic analogies; tools and weapons were made of stone and bone, and the lifestyle was nomadic with hunting and fishing as the prevalent subsistence strategies.

In the nineteenth century, the narrative about the ancestors of the Finns having arrived in Finland during the Iron Age, forcing the Sámi, the remnants of a Stone Age population, off their lands, became an important building block of Finnish national history. This idea was already clearly visible, for example, in Henrik Gabriel Porthan's work. When the Scandinavian historiography portrayed the first inhabitants of the North as Finns and Sámi together as a Proto-Finnic tribe, it led to a pressure to prove the Finns equally civilized to the Scandinavians. Eighteenth-century ideas of proto-nationalism, natural determinism, the theory of 'nation character', cultural evolution, and the model of universal development became even more important in the formation of the concept of the Stone Age, when these notions were later combined with ideas of Darwinism and biological evolution.

List of primary sources

Newspapers⁶¹

Tidningar Utgifne af et Sällskap i Åbo

⁵⁸ Human Origins and Cultural Halls, Permanent Exhibitions. The American Museum of Natural History, <https://www.amnh.org/exhibitions/permanent>.

⁵⁹ E.g. Gadd, *Satakunnan kihlakuntain pohjoisosa*; Pehr Kalm/Eric Castrén, *Historisk och oeconomisk beskrifning öfwer Cajanaborgslän* (Åbo: Merckell, 1754); Sigfrid Henrik Porthan, *Descriptio parociae Cuopio – Kuvaus Kuopion pitäjämästä* (Kuopio: Kuopion 200-vuotisjuhlien valmistelutoimikunta, 1982 [1775]).

⁶⁰ Stone structures, 'Lapp cairns', are at least mentioned in *Tidningar Utgifne af et Sällskap i Åbo*, 15 Feb 1777, 15 May 1777, 30 Sep 1778, 13 July 1782, 28 Oct 1784.

⁶¹ Digitally available through the National Library of Finland's digital archive database, <https://digi.kansalliskirjasto.fi/etusivu>.

Turun Wikko-Sanommat
Åbo Allmänna Tidning
Åbo Tidningar

Theses⁶²

- Bilmark, Johan/Björkgren, Christiern, *An Svethia plures olim habuerit incolas, quam nostro aevo*, vol. II (Åbo: Frenckell, 1769)
- Bilmark, Johan/Collin, Fredrik, *De origine Fennorum* (Åbo: Frenckell, 1764)
- Browallius, Johan/Polviander, Carolus, *De fulmine* (Åbo: Kämpe, 1744)
- Gadd, Pehr/Giers, Carl, *Indicia mineralogiae in Fennia sub gentilismo* (Åbo: Frenckell, 1767)
- Gadd, Pehr/Ramstadius, Alexander, *Om finska jaspis-arter och agater* (Åbo: Frenckell, 1776)
- Hahn, Petrus/Heurlin, Jonas, *De tonitru* (Åbo, Wallius 1702)
- Hassel, Henrik/Hallenius, Matthias, *De Borea-Fennica* (Åbo: Kämpe, 1732)
- Juslenius, Daniel, *Vindiciae Fennorum* (Åbo: Wallius, 1703)
- Kalm, Pehr/Browallius, Johan, *De hypothesi diminutionis aquarum* (Åbo: Merckell, 1757)
- Kalm, Pehr/Castrén, Eric, *Historisk och oekonomisk beskrifning öfver Caajanaborgslän* (Åbo: Merckell, 1754)
- Kalm, Pehr/Chydenius, Anders, *Americanska näfverbåtar* (Åbo: Merckell, 1753)
- Kalm, Pehr/Indrenius, Andreas, *De esquimaux, gente Americana* (Åbo: Merckell, 1756)
- Mennander, Carl/Allenius, Gustav, *De usu lapidum in historia* (Åbo: Merckell, 1752)
- Rein, Gabriel/Cygnaeus, Fredrik, *De gente Sumorum* (Åbo: Frenckell, 1827)
- Rein, Gabriel/Norring, Johan, *De vetere Carelia ante occupationem Svecanam*, vol. I (Åbo: Frenckell, 1825)
- Rudeen, Torsten/Hahn, Nikolaus, *De sacris, antiquorum Hyperboreorum* (Åbo: Winter, 1703)
- Rudeen, Torsten/Tälpo, Johan, *Monomakhian veterum Hyperboreorum* (Åbo: Wallius, 1703)
- Scarin, Algot/Carlander, Asmund, *De gentis Vanorum priscis et hodiernis in Westrogothia sedibus*, vol. I (Åbo: Kämpe, 1747)
- Scarin, Algot/Chydenius, Samuel, *De Askmannis, ultima, in exteris, Scandianorum colonia*, vol. I (Åbo: Kämpe, 1747)
- Scarin, Algot/Escholin, Israel, *Positiones historico-politicae e Chronico episcoporum m.scr. Pauli Justen excerptae* (Åbo: Kämpe, 1726)
- Scarin, Algot/Starckou, Jacob, *Aboriginum Scandianorum praecipui vitae sustinendae modi*, vol. I (Åbo: Kämpe, 1740)
- Wetterblad, Anders/Aiemelaus, Israel, *Theses miscellanaea* (Åbo: Kämpe, 1745)

LIISA KUNNAS-PUSA (b. 1984), MA, is an archaeologist and a doctoral candidate at the University of Helsinki. She is currently working on her thesis 'Historiography and Conceptual History of Stone Age Archaeology in Finland c. 1700–1900'. Her research interests include historiography and the history of science in the eighteenth and nineteenth centuries, conceptual history, the history of museums and archaeological collections, representations of the Stone Age, and the use of history in nationalistic ideologies. E-mail: liisa.kunnas-pusa@helsinki.fi.

⁶² Digitally available through the National Library of Finland's database of Dissertations of the Academy of Turku, <https://www.doria.fi/handle/10024/50699>.