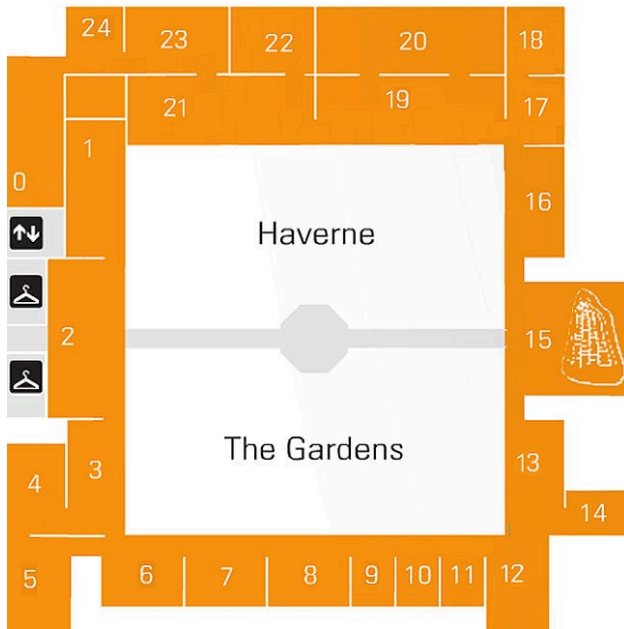


Duke in Denmark 2022

Exercise #1: Danish National Museum (Nationalmuseet) – Danish Prehistory Exhibit – The Stone Age

The Danish Prehistory exhibit is on the same level you entered to your right. There are free maps available in the entrance foyer but here is the layout as well (the exhibit is the “orange” exhibit on the color map):



Our goal today is to understand what the archeology of Denmark (and surrounding areas) tells us about how Northern European civilization developed out of the frosty and unforgiving world that had been the last Ice Age. Answers to the questions can be found in wall descriptions (each room has a “theme”) and exhibit specimen labels. If you can’t find something, just ask!

As you are doing this, in the back of your mind, always keep the question of “how did the climate of the times influence people’s lifestyles”. Remember that climate is not just whether a time period was cold or warm, but that it controls the type of ecosystem (flora and fauna) in which people lived. How much was climate the driver for lifestyles? How does this compare to today?

1) What are the age ranges of the Stone, Bronze, and Iron Ages in Denmark?

Stone Age :~14,500 BC – 1,700BC

Bronze Age: 1,700 BC – 500 BC

Iron Age: 500 BC – 1050AD

Fun Fact: The “Three-Age System” was first formalized by the Danish scholar Christian Jürgensen Thompson in the 19th century, while he was Director of the Royal Museum of Danish Antiquities, which is.....drumroll, today’s Danish National Museum! Pretty cool, no?

2) What was the primary (but not exclusive) rock type utilized for stone tools in the stone age? (Hint: this rock consists of the mineral quartz, which is pretty much the hardest natural substance commonly available).

Chert, proverbially known as “flint” or “flintstone”.

3) What is “Bronze”?

an alloy (mixture) of copper and tin

4) What are the major ore minerals of copper?

Malachite ($\text{Cu}_2\text{CO}_3(\text{OH})_2$), azurite, ($\text{C}_2\text{H}_2\text{Cu}_3\text{O}_8$), and chalcopyrite (CuFeS_2), and the occasional “elemental” copper growth

5) Which of these copper ores is most commonly found in Sweden and Norway?

chalcopyrite

6) What is “bog iron”, the most common iron-bearing natural substance found in Denmark? (you might have to look this up online...)

Check out [this](#) fairly accurate Wikipedia article on the subject.

Fun Fact: Look at iron ore sample #3 which contains bands of the minerals hematite (Fe₂O₃) and magnetite (Fe₃O₄). This sample formed billions of years ago when the first photosynthetic oxygen combined with iron dissolved in the early oceans. Such “banded iron formations” (short BIFs) are in themselves evidence of one of the most important atmospheric events in Earth history: namely, the changing from an oxygen-free atmosphere to the one we can breathe today, rich in oxygen.

7) How long ago did the first humans (referred to as “Cro-Magnon Man”, a traditional label in honor of remains from Cro-Magnon rock shelter in France) arrive in Denmark?

~14,500 years ago

8) What brought these humans so far North at a time when glaciers were still dominating the Northern hemisphere?

They followed the migration of reindeer, a major food source

9) What was Denmark like during the Last Glacial Maximum (LGM) 20,000 years ago (ugh, this probably explains why humans weren’t present at that time)?

It was almost entirely covered by the Fennoscandian Ice Sheet (up to 3km thick)

10) Sea level was still low at the end of the last Ice Age ~9,600 years ago (why?). How was the “Baltic Sea” fundamentally different at that time from today?

The ice had yet to melt completely, but the Baltic was already a large freshwater lake, fed by meltwater from the Fennoscandian ice sheet.

11) What remarkable “technological innovation” first appears in the Danish archeological record around 7000 B.C.? How did this technology completely revolutionize these people’s lives?

The bow. Made hunting a lot “safer-from-a-distance”, less energy-costly, and much more effective overall.

12) How do we know that the Maglemose People actually took to the water? Make sure to marvel at the actual evidence itself (in a glass cabin near the middle of the room) – this is as REAL as it gets?!

The archeological evidence comes in the form of paddles!

13) What type of forest replaced the icy tundra of the Ice Age in Denmark?

Birch forest

NOTE: From this point on, keep track of the kinds of animals that were hunted by Stone Age hunters.

14) The elk hunters at Skottemarke did not stop with eating the elk’s meat. What highly nutritious substance did they also extract from the bones?

Marrow, not something commonly found on modern menus, yet of extremely high nutritional value

15) What did the hunters do with the hollowed-out and cracked bones? (hm, keep this in mind, it is a “theme” we will encounter again and again in early Northern European history)

They seemed to have placed them into lakes “as hunting sacrifices”.

16) Other than elk, what else was on the hunter’s diet? How do we know? How were the tools used to the acquisition of this food “augmented” to make them even more deadly?

Probably freshwater animals, hence the need for flint-augmented harpoons. However, these implements are too big for most fish and turtles, and the remains found at archeological sites suggest that they probably utilized these to hunt (elk and) deer that had been driven into lakes.

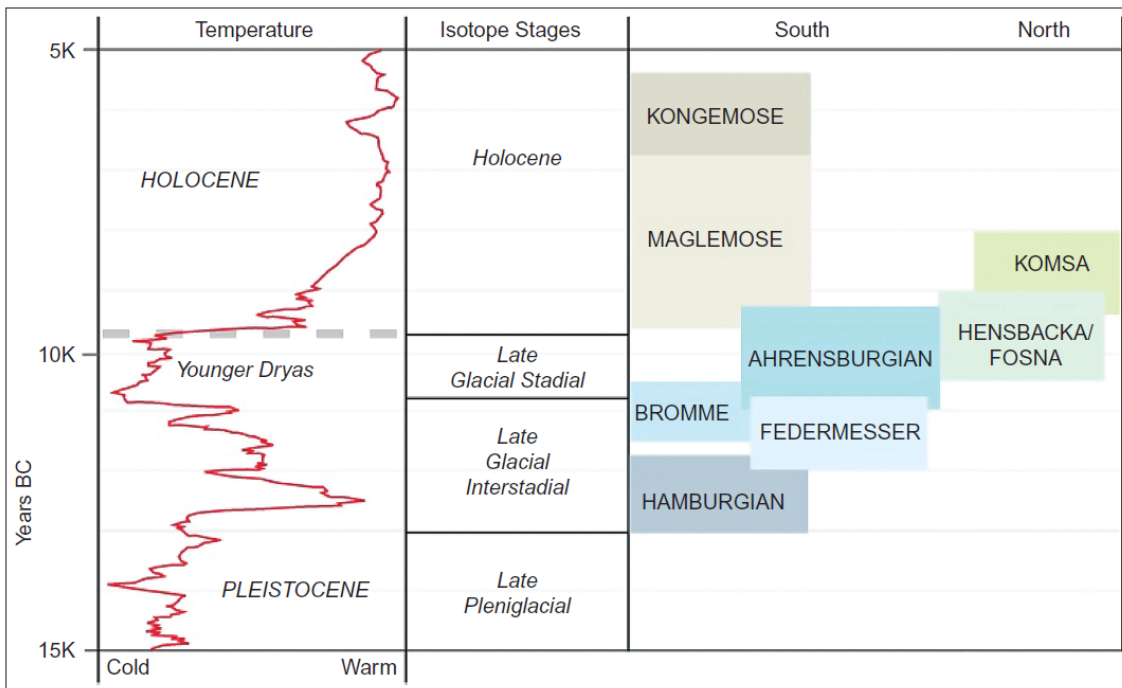
17) What animals were on the menu for stone age hunters at the Bromme site?

Elk, reindeer, wolverine, swan, and pike.

18) What evidence do we have that the Bromme people lived in tents (so much for being called cavemen...)?

Stone rings mark their archeological settlements, suggesting they held down animal-hide tents.

Maglemose, Bromme, Hamburg, Federmesser,....what do these cultural divisions mean? These designations are primarily based on the types of stone tools that were developed and in use by different “peoples or cultures” in Northern Europe. Some of these “tool-type” cultures existed at the same time but were geographically separated. See this graph from your reading of Chapter 2 in “Ancient Scandinavia”:



19) Finding bones with “cut and butcher marks” on them is one thing, what does specimen 2A in the cabin “Tents on the Tundra” preserve that is DIRECT evidence of actual hunting practices by the Hamburg People!?

it has a flint implement directly imbedded in reindeer bone.

20) How did the Hamburg and Ahrensburgian Cultures utilize reindeer antlers?

Based on their shape and form, as clubs. In many living Indigenous Cultures, the club is also used as a throwing weapon in the hunt.

Ok, let's go to the next room

21) What evidence exists that the enormous aurochs were actually hunted by stone age hunters?

Healed bone injuries and the association of their skeletons with flint implements.

22) When did the auroch disappear from the ecology of Denmark? When did the last auroch breathe its last breath on Earth?

They disappeared from the island of Zealand around 6,000 BC. The last auroch died in Poland in 1627 (!).

23) When we think of cows, relatives of the auroch, we imagine them grazing on lush green fields. How was the ecology of the auroch different?

It was a forest, swamp-bound organism (much like water buffalo are today).

Fun Fact: In both Danish and German, the auroch is known as the "Urochse". The prefix Ur- is one that unfortunately never made into the English language directly. "Ur" carries a meaning of "first", "original", or "ancient". Things and concepts preceded by "Ur-" are viewed as being essentially from "the dawn of time". Great examples in German are: "Ur-knall" or Big Bang, "Ur-schleim" or primordial soup, "Ur-zeit" or prehistoric times, "Ur-mensch" or early hominids, and even "Ur-wesen" or "primordial beast". Ur. It carries a sense of mystery and the unknown, so old it can barely be understood....Ur. Cool little prefix.

22) What "four-legged aid" did stone age hunters likely utilize in their hunts?

Woman's best friend: the dog! 🐕 (ugh, probably similar to a "Spitz" today)

24) What do some archeologists informally call the time period between 8700-6500B.C., why?

The Bone Age, the presence of significant numbers of bone implements alongside flint implements

25) What did the Maglemose hunters do seasonally?

In the Spring and Summer they lived along lakes and streams, whereas in the winter they moved to higher ground to be able to observe prey on valley floors.

26) Throughout this exhibit several "claims" are made about the spiritual views of stone age hunters, and the meanings they attached to various beings and concepts. Discuss with your group how you think scientists infer this information?

This is innately difficult and fraught with being influenced by personal bias. However, it can be extremely valuable to study and understand the beliefs of living Indigenous Peoples.

27) What musical instruments do archaeologists believe some stone age hunters actually played?

Mouth bows, see one being played [here](#)

28) What substance makes up the only three-dimensional artwork of the Danish stone age and what animals are commonly depicted?

Amber. Bear and elks are commonly depicted. Both wild elk and bear went extinct (extirpation) in Denmark around 5000 years ago.

29) List two interesting properties of this material that might explain why it stirred spiritual awe in the minds of stone age peoples?

Amber builds up static electricity and would attract hair and fur (see [here](#)). In the dark it can even give off sparks.

30) What makes it extremely difficult today to reconstruct the lives of stone age hunters that lived between Denmark and the British Isles? What happened?

This area, known as Doggerland, or Northsealand, is today at the bottom of the North Sea. Sea levels rose after the last Ice Age and made these ancestral lands disappear under the waves.

31) How is evidence for the existence of human settlements in this region primarily discovered today?

Occasionally, fishing trawlers or sand miners pull up archeological objects in their nets, or items are found washed up on beaches.

32) Which early Danish stone age hunting culture had most of its settlements along the shorelines of the early post-glacial North Sea? What makes it difficult to study these sites today?

Kongemose Culture. Many of their coastal settlements were later inundated by the rising North Sea.

33) Which animals were extirpated (locally extinct) from the island of Zealand (Denmark) by the hunting activity of post-ice age stone age hunters?

Bear, lynx, and badger

Let's go to the next room

34) Why did the practice of farming take nearly 1000 year longer (in 4,5000 B.C.) to become established in the Northern coastal lands, including Denmark, than it did in the rest of Central Europe (in 5,500 BC).

The Northern European settlements lived near the coast and thrived due to the bounty of the sea. There was no pressure to settle down and farm

35) What was on the menu for typical Baltic Sea stone age settlements along the Baltic Sea after temperatures had recovered from the Ice Age?

Porpoises and seals

36) The forests that grew in this warmer climate consisted mostly of what kind of tree?

Lime trees, and no they don't carry little green limes. It is proverbial for "Linden", see [here](#)" In the US, we call the wood of this tree "basswood".

37) What type of water vessels were utilized by these hunters for fishing?

Dugout canoes

38) When did sea levels stabilize after the Ice Age?

~5000 BC.

39) The Ertebølle Culture developed along the food-rich coasts of the North Sea in Northern Denmark, just before sea level stabilized. What interesting geological phenomenon explains why these archaeological sites are found above sea level in Northern Denmark, and below sea level in Southern Denmark, today?

Since then, tectonically (the entire lithosphere of the Earth) has been tilting, rising up in the North and dropping down in the South.

40) A rich source of information on the Ertebølle Culture comes from the remains found in their "dump piles" which archaeologists call.....

Middens or shell middens

41) Several Ertebølle burials have been unearthed. What was special about how some of these individuals were buried?

Although graves didn't seem to be clearly marked, and often time disturbed later, some of the individuals were coated by colorful ochre. Does this imply some belief in the afterlife?

42) What led some early archeologists to conclude that some of the remains found at Ertebølle settlements were victims of cannibalism?

Human bone fragments are often mixed in and scattered with other animal fragments, even inside middens. Today it is believed these fragments were from earlier graves, disturbed as sites were inhabited for several centuries.

43) When did the first farming communities arise in the Middle East?

~9000 BC

44) When were goats, sheep, and cattle first domesticated?

8000-7000 BC

45) What impact did the farming and permanent settlement have on the landscape?

Forests were cleared for fields, areas around settlements saw increased human activities

46) What major metric increased as a result of farming during this time?

Population growth

47) Based on bones from archeological sites, we know that the livestock of the day differed from their descendants, how?

Their livestock was generally smaller – they have only gotten to the size we have today through careful breeding and selection throughout the millenia.

48) What is unusual about the Vedbæk burial? What touching gift was added to the burial?

This grave preserves the body of both a mother and an infant. Swan beak and bones, as well as feather remains, suggests they were bedded down on the wing of a swan.

49) What interesting perspective of how the transition from hunting to farming took place is perhaps given by the remains found at the Dragsholm?

The body carried implements used in hunting, fighting, and farming. The transition from hunting to farming was gradual not abrupt.

50) The transition from stone age to bronze age was not abrupt. Provide an example of how we know this from the archaeological record of the late Neolithic Northern settlements?

Although stone implements still dominate, the occasional copper (not bronze) axe also makes an appearance

51) What archaeological evidence do we have that the end of the Stone Age possibly saw conflict between different settlements?

Finds of battle wounds on skeletons, some healed, some lethal, even scalping marks.

52) What two major types of household items make their first appearance in the archeological record at this time?

Cooking pots and blubber lamps

53) What two large marine mammals also first appear on the regular menu of these early coastal farming communities?

Seal (see above already) and whales

54) How might population growth and permanent settlement as farmers create regional conflicts?

Increased populations required a steady and successful harvest. In years of scarcity, competition for food resources would have led to conflict between farming settlements.

OK, let's go to the next room

55) What farming tool saw widespread demand and caused a new renaissance of stone age implements in the latter Stone Age? Why this tool?

High quality sturdy flint axes. These were required to effectively clear the land and shape wooden farming tools.

56) Where does most of the flint used for stone axes in Denmark come from?

From the chalk deposits where chert occurs naturally as nodules

57) What other role did these valuable flint axes play in the society?

A sign of wealth and prosperity, perhaps used in ceremonies

58) Archaeologists are “lucky” that many of these axes were preserved from this age because of what apparent practice? (hm, where have we seen this before?)

Hoardings of these axes were deposited, perhaps “sacrificed” in lakes and bogs

59) What makes archeologists think that some of these flint axes were actually never used for what they were originally designed for, but were instead used in bartering and as a form of “money”?

Some of them were so large and cumbersome, they would not have made effective tools.

60) What other natural substance experiences, yet again, a renaissance in the Neolithic?

amber

61) How are bog deposits used to carefully reconstruct past climate conditions?

The layers in bogs preserve plant materials, particularly pollen and spores, that tell us exactly what types of plants thrived at different times. Plants are excellent environmental and climate indicators.

62) What does this climate record suggest about the human impact on the landscape in 4000 B.C.?

By 4000BC interestingly, tree pollen signatures are swamped out by herb pollen, suggesting that the forests were being replaced by open farm land.

63) What natural sites were apparently considered “sacred” by Neolithic people? (this “reverence” persists in many European countries to the present day).

Bogs, lakes, and natural springs

64) Why were strong oxen, a valuable commodity to Neolithic farmers?

As plough-dragging animals

65) It is during the Neolithic that a particularly “dark” ritual first appears in the Northern cultures. What was it? What evidence suggests that participants in these rituals were not necessarily volunteers.

The first evidence of human sacrifices (alongside more traditional animal sacrifices) first appear. Some of the victims carried restraints around their head or hands.

66) Remarkably, what dangerous medical procedure was practiced during this time (and was survived) to treat battle wounds on the head?

Trepanation is the practice of opening a hole in the skull.

67) Why were most of these treatments done to the left side of the head?

Perhaps they were used to treat axe or club wounds. Opposing fighters would primarily damage the left side of their opponent’s head.

68) Interestingly, what do some of the fancy flintstone axes seem to copy?

Copper and bronze implements more common in the South.

69) Ugh, if flintstone is the hardest substance available, how was it ground and polished?

Using other flintstone (flintstone on flintstone, works really well actually).

70) Some of the fancy Neolithic axes were made from a rock called diabase which does not naturally outcrop anywhere in Denmark but only in Northern Scandinavia. Why is this NOT necessarily evidence of long-distance trading?

Because such rock specimens are found as glacial erratics across Denmark, where they were moved to by the last ice sheet. IN some cases they are thousands of miles from their original outcrops in Northern Scandinavia.

Ok, let's go to the next room

71) What prominent "cultural features" show up in the landscape around 3800-3100B.C. in Northern Europe?

Large megalithic (consisting of huge boulders) burial mounds

73) Ever seen "*Ancient Aliens*" with crazy-haired Giorgio Tsoukalos? People like him claim that the massive "megalithic" grave sites could not have been built by stone age people but it was, in his famous words: "Aliens!". What archeological evidence strongly suggests that the massive stone "megalithic" tombs are the result of centuries of development and experimentation (and not sudden construction by aliens)?

We can trace the evolution from early earth and wood mounds gradationally through to the large megalithic grave structures. These ingenious people learned as they went along! We don't need no stinkn' aliens! 😊

74) What is a barrow, and what is a dolmen?

Barrows are usually elongated works of wood and earth, holding one or two burial chambers, whereas dolmen consist of large, most often granite, boulders that were stacked together and on top of each other to create a burial chamber.

75) Why do you think these graves were open to the East?

The sun rises in the East – perhaps a symbolic orientation reflective of a belief in an afterlife (the sun returns after each night...). This practice persisted throughout traditional Christendom.

76) What other purpose did these gravesites serve in stone age society? (in some cases this is still the case in modern societies)

As places of worship, meeting places, cultic rituals and sacrifice, contemplation, celebration of the dead

77) What replaced the "megalith" graves?

Passage graves of stone and earth

78) What do the myriad of graves suggest about society and population size at the time?

The construction of such massive structures must have required a minimum of centralized power and cultural connection, as well as lots of people

79) What "art" other than weaponry and tool-making saw a renaissance during the passage grave period?

Pottery-making thrived

~~80) What interesting phenomenon is meant by “wagon graves”?~~

Ok, let's go to the next room

81) At the end of the Stone Age, how do settlement patterns change in Northern Europe?

Clustered settlement farms broke up into larger individual farmsteads.

82) What major innovation was made by Neolithic people?

The invention of the wheel!

83) What is misleading about labelling the dominant culture at the time the “Single Grave Culture”.

These graves were often reused or in turn “buried” as other burials took place on top of them

84) Although the “Bronze Age” was well on its way in Southern and Central Europe, stone age implements remained dominant and popular in Northern Europe. What metal objects did become popular among SOME parts of the population?

Jewelry and household luxury items

85) What Danish-sourced stone age implement remained popular and shows up in early Bronze Age archeological sites in Central and Southern Europe at this time?

Flint daggers

Now take a stroll through the Bronze and Iron Age – both topics we will return to later.