

FILED UNDER: [ARCHAEOLOGY](#) | [CAVES AND TOMBS](#) | [EARLY HUMAN MIGRATIONS](#) | [FOSSILS AND REMAINS](#) | [GENES AND HEREDITY](#) | [RESEARCH METHODS \(ANTHROPOLOGY\)](#) + More

Bronze Age Go Girl

by Patricia Waldron | July 2015

 Print  Download  Email  Save  Read Aloud [Glossary Links: DN](#)

About 3,400 years ago, a sun-worshipping teenage priestess left her home in what is now called the **Black Forest** of Germany. She traveled widely, foraging for food, and sometimes not getting enough. She returned home for a few months and then trekked about 500 miles to what is now the **Jutland** area of Denmark, near a town called Egtved. She spent the last month of her life there and died in the summer, sometime before her 18th birthday. Local people buried her body, which was clothed in imported wool garments, in an oak coffin. Her body lay beneath an earthen mound, along with the ashes of a young child, and a bucket of beer.



National Museum of Denmark

The Egtved girl was laid to rest on a cow skin, wearing a short woolen blouse, a knee-length skirt made of wool cords, and foot wrappers. A carved comb lay by her hair, an engraved bronze disc lay over her stomach, and a woolen blanket covered her.

How do we know so much about the final months of a woman who lived so long ago? Researchers at the University of Denmark and the National Museum of Denmark, both in Copenhagen, and at the University of Gothenburg in Sweden teamed up to do biochemical analyses of the preserved hair, teeth, fingernails and clothing of the **Bronze Age** remains of the "Egtved girl." By detecting chemical signatures contained in samples from the burial site, the researchers could more or less re-create where she traveled and what she ate during the last two years of her life. Such information adds to our understanding of the trade routes and movements of Bronze Age people, who were surprisingly mobile. The study appears in the online journal *Scientific Reports*.

Denmark's Ancient Treasure

Archaeologists unearthed the Egtved girl in 1921. Based on the presence of a **yarrow** flower, researchers concluded that she was buried in the summer,

Related Content

[Color Me Fair: How Skin Tones Arose in Europe](#)

Crow have black feathers, mice have brown coats and snakes have dark scales, all because of a common pigment called melanin. Even insects color themselves...

[Iceman Otzi Had Brown Eyes \(and Parasites\)](#)

Otzi, a 5,300-year-old mummy discovered in the Swiss Alps more than 20 years ago, suffered from a host of health problems, including what could be the...

[Ancient Human Genome Sheds Light on First Americans](#)

Science fiction stories tell us that extinct animals could be revived from preserved scraps of their genetic material. In Michael Crichton's 1990 thriller...

[On the Hair Trail: Tracking Hydrogen and Oxygen Isotopes](#)

There was not much left of the young woman when the Salt Lake City police found her. Working with only 26 bones, the detectives deduced that she was 17-23...

[Lewis the Elephant's Hair-Raising Tale](#)

Elephant B1013, known affectionately as Lewis, marched to the beat of his own drummer. One of the subjects of a recent study of migratory patterns in African...

[Raising a Glass to the Ancient Egyptians](#)

In the Late Bronze Age, when political figures wanted to reinforce an alliance, they gave a gift of glass. Archeologists have long known the role of glass as a...

[Khipu: A Language Tied In Knots?](#)

Recent analysis has shown that an Inca practice of tying knots on strings that was thought to be a simple record-keeping system may actually be an early form...

[Hair Today, Hair Tomorrow](#)

You can tell a lot from a single strand of hair. Everything a person eats gets distributed throughout the body by a process called metabolism. Food, drink and...

[Iceman's First Aid Kit Astonishes Medical World](#)

A traveler from the past has revealed that the use of medications began several thousand years earlier than previously thought. The man's 5,300-year-old...

[Morten Allentoft: Opening Windows to the Past](#)

Morten Allentoft is a postdoctoral research fellow at the Center for GeoGenetics at the

and by analyzing the tree rings of the hollowed-out oak of her coffin, they dated the coffin to 1370 BC. Though her burial mound showed signs of disturbance, her coffin was intact. She was laid to rest on a cow skin, wearing a short woolen blouse, a knee-length skirt made of wool cords, and foot wrappers. A carved comb lay by her hair, an engraved bronze disc lay over her stomach, and a woolen blanket covered her. Due to the acidic, boggy soil surrounding the coffin, her bones had dissolved, but her hair, nails and teeth, and parts of her brain and skin, had remained.

University of Copenhagen in Denmark. Allentoft earned his bachelor's...

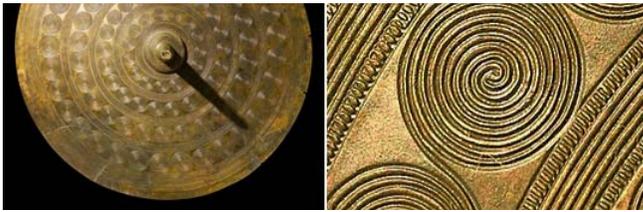


National Museum of Denmark

Due to the acidic, boggy soil surrounding the coffin, the bones of Egtved girl had dissolved, but her hair, nails and teeth, and parts of her brain and skin, had remained. ABOVE: A carved wooden comb lies by the remains of her golden hair.

Several aspects of the burial suggest that the Egtved girl was a religious figure, and many believe that she was a priestess of a Nordic sun-worshipping cult. Researchers have seen similar skirts on bronze figurines and believe that they may be part of a ceremonial costume used in ritual dances. They also think that the disc represents the sun, which featured prominently in Bronze Age religious practices.





University of Denmark/National Museum of Denmark

Archaeologists unearthed the Egtved girl in 1921. Among the items found in the coffin were: a short woolen blouse, a knee-length skirt and a belt made of wool cords (top left); foot wrappers and a small cloth sack holding the burned bones of a child (top right and center left); a bark bucket that researchers believe once held a type of honey-sweetened beer made from grain, bog myrtle and cranberries (center right); and a bronze disc engraved with symbols representing the sun (bottom).

The coffin also contained a bark bucket that researchers believe once held a type of honey-sweetened beer made from grain, bog myrtle and cranberries. By her head lay a small cloth sack holding the burned bones of a roughly six-year-old child. Researchers disagree over whether the Egtved girl gave birth to the child, or whether it was a different type of family member or a servant. Today, the contents of her coffin are on display at the National Museum of Denmark.



March of the Titans

The Nordic journey of the Egtved girl is told through Bronze Age artifacts and remains.

"She's such a big figure in the Danish identity, someone kids learn about in school," said lead researcher Karin Margarita Frei, an archaeologist at the University of Copenhagen and the National Museum of Denmark, to *National Geographic*. "And yes, she's a Danish find — but a hugely international woman. Somehow she gets more and more mysterious. She was found long ago, and still has so much more to tell us."

Analyzing Tooth and Nail

Frei collaborated with researchers from different backgrounds to learn more about the Egtved girl's life using a variety of approaches. They looked at both hard and soft tissues, threads of fabric and soil samples to reconstruct her diet and travels. Researchers also attempted to isolate ancient DNA from the tissues but were unsuccessful. They believe that the acidic soil in which the coffin was buried, combined with the environmental stresses of being displayed in a museum, degraded the DNA. [See [Morten Allentoft: Opening Windows to the Past](#), November 2012.]

Frei measured the levels of strontium isotopes present in the hair, nails, teeth and clothes and compared them to the corresponding levels in soils across Europe. [Strontium](#), a common element on Earth, has four stable isotopes — atoms with slightly different numbers of neutrons but with the same number of protons and electrons. Strontium behaves like calcium and

becomes incorporated into bones and other body parts when people consume trace amounts in food and water. Researchers can narrow down where a person lived by measuring the ratios of the strontium isotopes in a biological sample, such as a fingernail, and then finding an area where soil samples yield a corresponding ratio of isotopes.



University of Denmark/National Museum of Denmark

The researchers looked at both hard and soft tissues, threads of fabric and soil samples to reconstruct her diet and travels. They measured the levels of strontium isotopes present in the hair, nails, teeth and clothes and compared them to the corresponding levels in soils across Europe.

When Frei measured the strontium isotope ratios in the enamel of the Egtved girl's first molar and compared them to ratios from local soil, she found that this treasured figure in Danish history was not actually born in Denmark. The enamel of the first molar forms by four years of age, so people always carry in their teeth an isotopic signature of their childhood homes. The strontium ratios in the Egtved girl's molar did not match the local levels, and instead indicated that she was born hundreds of miles away. The researchers concluded that she likely grew up in what is now the Black Forest region of southwest Germany.

This area had strong economic ties to Denmark during the Bronze Age. Ancient Denmark had rich stores of amber, a golden gemstone composed of fossilized tree resin. Ancient Danes traded the amber for bronze from the Middle East, and ancient Germans would act as the middlemen.

Reading Between the Isotopes

The Egtved girl's clothing carries its own isotopic signature, and those ratios also point to an origin in the Black Forest. "The wool that her clothing was made from did not come from Denmark and the strontium isotope values vary greatly from wool thread to wool thread," said Frei in a statement. "This proves that the wool was made from sheep that either grazed in different geographical areas or that they grazed in one vast area with very complex geology, and the Black Forest's bedrock is characterized by a similarly [variable] strontium isotopic range."

Isotope analysis of bone ash from the child whose remains were found at the same site yielded results similar to those obtained from the Egtved girl's teeth, indicating that she and the child were likely born in the same area.



University of Denmark/National Museum of Denmark

The researchers divided a strand of her hair into four sections, each representing about six months of the last two years of the girl's life. The ratios varied in a way that suggested that she likely spent the early part of this stretch of time in her homeland, then traveled to a place that might have been Egtved for about nine months, before returning home for four to six months. The youngest segments of both her hair and her fingernails suggest that she returned to Egtved shortly before her death.

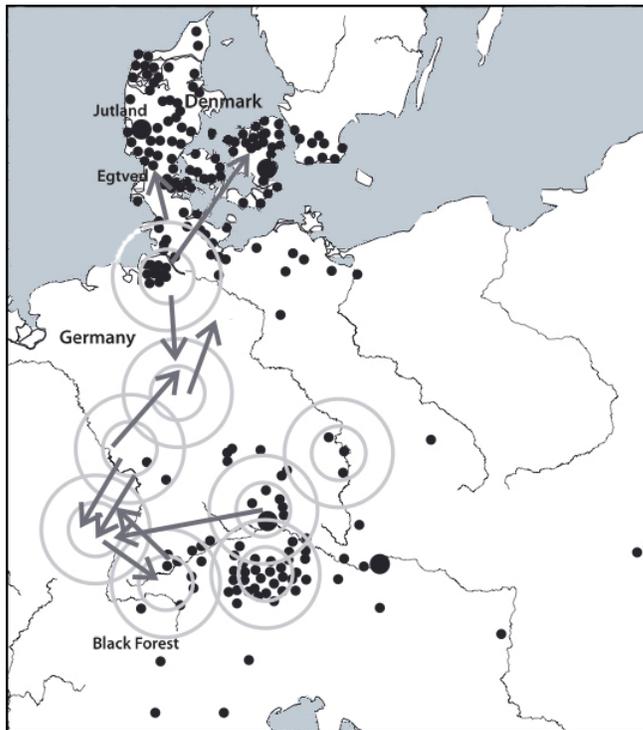
The hair and nails from the Egtved girl's body tell a more complex story, however. Because hair and nails grow continuously, their strontium ratios reveal where a person has lived recently. The researchers divided a strand of her hair into four sections, each representing about six months of the last two years of the girl's life. The ratios varied in a way that suggested that she likely spent the early part of this stretch of time in her homeland, then traveled to a place that might have been Egtved for about nine months, before returning home for four to six months. The youngest segments of both her hair and her fingernails suggest that she returned to Egtved shortly before her death.

The researchers also analyzed a second strand of hair, this time looking for carbon and nitrogen isotopes. These analyses revealed that the Egtved girl survived on a land-based diet and, at times, did not get enough protein.

Have Sun, Will Travel

The frequency of these long-distance trips surprised the researchers, and strongly suggests that some Bronze Age people were far more mobile than most archaeologists had thought. The findings support prior conclusions by geneticists and linguists that Bronze Age women traveled between different groups of people while men stayed home, said Alex Bentley, an archaeologist at the University of Bristol in the United Kingdom, to *Science*. He calls the research "impressive and meticulous." Fellow archaeologist

Joachim Burger, of the Johannes Gutenberg University Mainz in Germany, considers the study "state-of-the-art." Neither researcher was involved in it.



Kristian Kristiansen/M. Bank

The map shows the frequency of long-distance travel between southern Germany and Denmark, the two dominant powers in Western Europe, during the Bronze Age.

"In Bronze Age Western Europe, Southern Germany and Denmark were the two dominant centers of power, very similar to kingdoms," said coauthor Kristian Kristiansen, an archaeologist at the University of Gothenburg, in a statement. "We find many direct connections between the two in the archaeological evidence and my guess is that the Egtved Girl was a Southern German girl who was given in marriage to a man in Jutland so as to forge an alliance between two powerful families."

But some archaeologists don't necessarily agree that the girl's travels were marriage-related. Without additional information, they feel, it's hard to say why she traveled. Some Bronze Age Scandinavian women had significant political power, said Flemming Kaul, a Bronze Age specialist at the National Museum of Denmark, to *National Geographic*. "It's possible that women of the northern Bronze Age were able to make negotiations and establish friendships by themselves, and not necessarily through marriage connections," he said.

The Egtved girl's remains were found at one of only 20 well-preserved Danish Bronze Age burial sites. Frei and Kristiansen plan to perform isotope analysis on remains from other sites as well, to learn more about the travels of Bronze Age people.

Discussion Questions

Considering the Egtved girl's presumed high status as a religious figure, what other reasons might she have had for traveling? Could the carbon and nitrogen isotopes have given any indication about whether she traveled by boat, horse or foot?

Had it been possible to conduct DNA analysis, what might it have revealed about her and the young child whose remains were buried with her?

Journal Abstracts and Articles

(Researchers' own descriptions of their work, summary or full-text, on scientific journal websites.)

Frei, Karin Margarita, et al. "Tracing the dynamic life story of a Bronze Age Female." *Nature*, May 21, 2015:
www.nature.com/srep/2015/150521/srep10431/full/srep10431.html.

Bibliography

Balter, Michael. "Coffin remains tell life story of ancient sun-worshipping priestess," *Science* (May 21, 2015) [accessed May 25, 2015]:
news.sciencemag.org/archaeology/2015/05/coffin-remains-tell-life-story-ancient-sun-worshipping-priestess.

"The Bronze Age Egtved Girl was not from Denmark." University of Copenhagen website (May 21, 2015) [accessed May 25, 2015]:
news.ku.dk/all_news/2015/05/the_bronze_age_egtved_girl_was_not_danish/.

"The Egtved Girl," National Museum of Denmark website [accessed May 30, 2015]: en.natmus.dk/historical-knowledge/denmark/prehistoric-period-until-1050-ad/the-bronze-age/the-egtved-girl/.

Frei, Karin Margarita, et al. "Tracing the dynamic life story of a Bronze Age Female." *Nature* (May 21, 2015) [accessed May 25, 2015]:
www.nature.com/srep/2015/150521/srep10431/full/srep10431.html.

Keim, Brandon. "Bronze Age Woman Had Surprisingly Modern Life," *National Geographic* (May 21, 2015) [accessed May 25, 2015]:
news.nationalgeographic.com/2015/05/150521-bronze-age-woman-egtved-modern-archaeology/.

Keywords

Egtved girl, Bronze Age, stable isotope analysis, Jutland, Denmark, Black Forest, Germany, Kristian Kristiansen, Karin Margarita Frei

 Citation Information MLA APA Chicago Manual of Style

Waldron, Patricia. "Bronze Age Go Girl." *Today's Science*. Infobase Learning, July 2015. Web. 14 July 2015. <<http://tsof.infobaselearning.com/recordurl.aspx?wid=10835&ID=33145>>.

 Record URL: <http://tsof.infobaselearning.com/recordurl.aspx?wid=10835&ID=33145>

[About Infobase Learning](#)
[Contact Us](#)

[Video News Briefs](#)
[Glossary](#)

[→More Online Products](#)

Copyright © 2015 Infobase Learning. All Rights Reserved.

Select Language Powered by  Translate