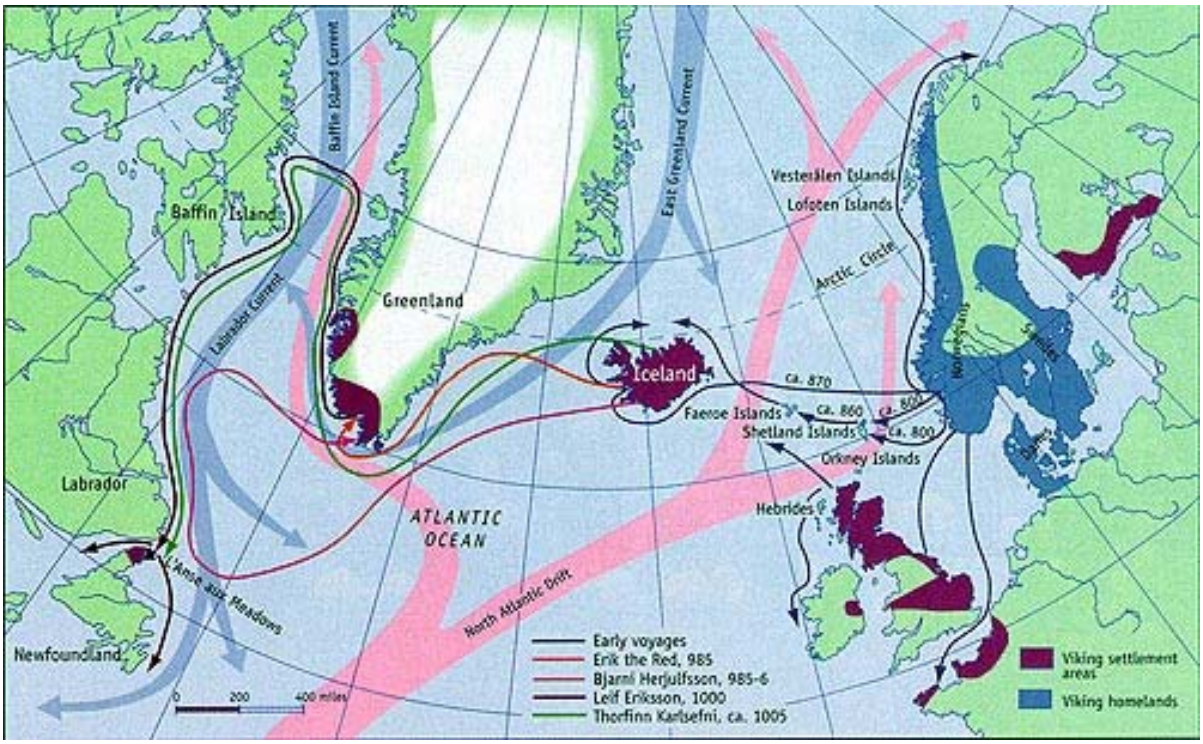
The Vikings in America and Greenland

The Scandinavian Vikings, sailing in their longboats, were the masters of the North Atlantic from the ninth to the twelfth centuries AD. The word "Viking" refers to slipping into small streams called “viks” to plunder unsuspecting villagers. The Vikings were the Norse, a Scandinavian sea-faring people from Norway, Denmark, Finland and Sweden. By the end of the eighth century, they ruled Ireland, and by the end of the ninth they also controlled large areas of England and France. By the end of the tenth century, they had colonized Greenland, sailed to America a number of times, ventured down the Volga as far as the Caspian Sea and were actively trading in the Mediterranean and parts beyond.

The Vikings not only discovered North America, they also established at least one colony there, in Newfoundland, around 1,000 AD—almost 500 years before Columbus set sail for America. Recent archeological research has verified the accounts of the Viking presence in America at that time. The Scandinavians called the new land “Vinland”—probably meaning that grapes grew there and also suggesting the climate in Newfoundland was much more moderate than it is today. There is considerable evidence that the Viking exploration and trading in the new world was more extensive than just in Newfoundland, but only the visits to Newfoundland are accepted as being beyond serious question.

North Atlantic Viking sailing routes from 1.000 to 1200 AD



[McGovern and Perdikaris, 2000]

The Viking visits to Newfoundland are accepted as historical fact because in the early 1960s, archaeologists Helge Ingstad and his wife Anne Stine Ingstad discovered an undisputably Viking settlement in Newfoundland and named the site "L'Anse aux Meadows," or Meadow Cove. The site contained evidence of three longhouses and five smaller buildings, what may have been a charcoal kiln and the remains of a rudimentary blacksmith shop. Hundreds of eleventh century Norse artifacts were unearthed including a soapstone spindle whorl and a bronze-ringed pin process, as well as other numerous iron, bronze, stone, and bone items.

L'Anse aux Meadows is now owned and managed by Parks Canada. It was declared a UNESCO World Heritage site in 1978, and Parks Canada reconstructed some of the sod and timber buildings and maintains the site as shown in the following photograph.

Reconstructed Viking colony at L'Anse-aux-Meadows, Newfoundland

[http://z.about.com/d/archaeology/1/G/Q/n/anse_aux_meadows.jpg]

Leif Erikson, Viking explorer

The best-known Viking to have set foot in America was Leif Erikson who did so in about 1000 AD. Leif was the son of another Viking explorer, Erik the Red (Leif's surname is "Erik's son.") Leif was thought to have been born in Iceland in about 960 AD.

Leif described his point of arrival in America, according to *The Saga of the Greenlanders,* as a location where "a river flowed out of a lake" and where the streams teemed with salmon and there was plenty of timber for building dwellings. He also described lush pastureland for livestock and a climate so mild that the grass stayed green even in the winter.

Leif was not the first Viking to know about America. According to Icelandic sagas written in the 12th and 13th centuries (but based on much earlier oral tradition), in about 985 Bjarni Herjolfsson, a Norse settler in Greenland, was blown off course and sighted a continent west of Greenland, but he did not go ashore. Leif had learned about America from Bjarni. Leif later purchased Bjarni's boat for his adventures to America. Leif had converted to Christianity before he set sail for America.

Statue of Leif Erikson at the State Capital Building, St. Paul, MN.

[http://www.worldatlas.com/webimage/countrys/europe/aaposter/noerikson.gif]

There is considerable other evidence that Vikings were in America in addition to the excavations in L'Anse-aux-Meadows. For example, the Vinland Map says that the Vikings were in Vineland (North America) in the 11th century. The *Saga of the Greenlanders* mentioned above, now recognized as being largely accurate, records that Leif set out in the year 1002 or 1003 to follow Bjarni's route with 35 crew members. The saga states that the first land he sighted was covered with flat rocks. He therefore called it Helluland ("Land of the Flat Stones"). This was possibly Baffin Island. Next he came to a land that was flat and wooded, with white sandy beaches. He called this Markland ("Wood-land"), which is possibly Labrador. Leif and his crew left Markland and again found land, which they named Vinland. They landed and built a small settlement. They found the area pleasant as there were wild grapes and plenty of salmon in the river. The climate was mild, with little frost in the winter, so they remained there over the winter.

On the return voyage, Leif is said to have rescued an Icelandic castaway named Þórir and his crew—an incident that earned Leif the nickname Leif the Lucky. Only the Erikson visit and subsequent colonization in Labrador, however, are recognized as historical fact. Historians agree that archeological studies of L'Anse-aux-Meadows have demonstrated that it was indeed a Viking settlement dated around 1,000 AD.

The Vinland Map

The Vinland Map, dated at about 1450 (before Columbus set sail), shows part of North America, all of Europe, part of Africa, all of Asia, and all of Iceland and Greenland. Greenland, in particular, is mapped with amazing accuracy.
[http://www2.warwick.ac.uk/fac/arts/history/undergraduate/modules/hi127/programme/expansion/vinland_map.jpg]

Viking ships and sailing routes

The Viking sailing ships were masterpieces of their time. They were made in various sizes, some of them being 120 feet long, and many of them capable of carrying 100 people or more. They usually had a mast for a square sail in the middle of the ship, but like the Phoenician ships, they could be rowed when necessary. They had a shallow draft so they could land in areas where other ships could not, and they were light enough for the crew to portage if needed.

Viking expedition and trading routes

Viking expeditions (blue line) at 1,000 AD depicting their voyages throughout most of Europe, the Mediterranean Sea, Northern Africa, Asia Minor, the Arctic and North America. [http://en.wikipedia.org/wiki/File:Vikings-Voyages.png]

The Viking ships were known as longboats and were made of overlapping planks fastened with iron rivets in drilled holes. The overlapping technique was called "klinker." Because of the riveted construction, they could flex with the movement of the ocean. They were strongly built with a high bow and stern, and were the most seaworthy craft of their day.

Viking long boat

[http://www.kevinolson.com/olson/chronicles/vol12/viking_ship.gif]

The climate changes

Even though the Viking colony in North America was short-lived, largely because of the hostility of the natives there, the Viking colonies on Iceland and Greenland were generally successful. Iceland had been settled by the Vikings in about 874 AD and Greenland in about 980 AD. Tax records in Iceland in the year 1095 indicate that 72,000 Scandinavians were living there at that time. Archeologists estimate that about 5,000 Vikings lived in Greenland by about 1150.

Ruins of a Norse church at Hvalsey, Greenland

[http://media-2.web.britannica.com/eb-media/96/99296-004-7B2CEB61.jpg]

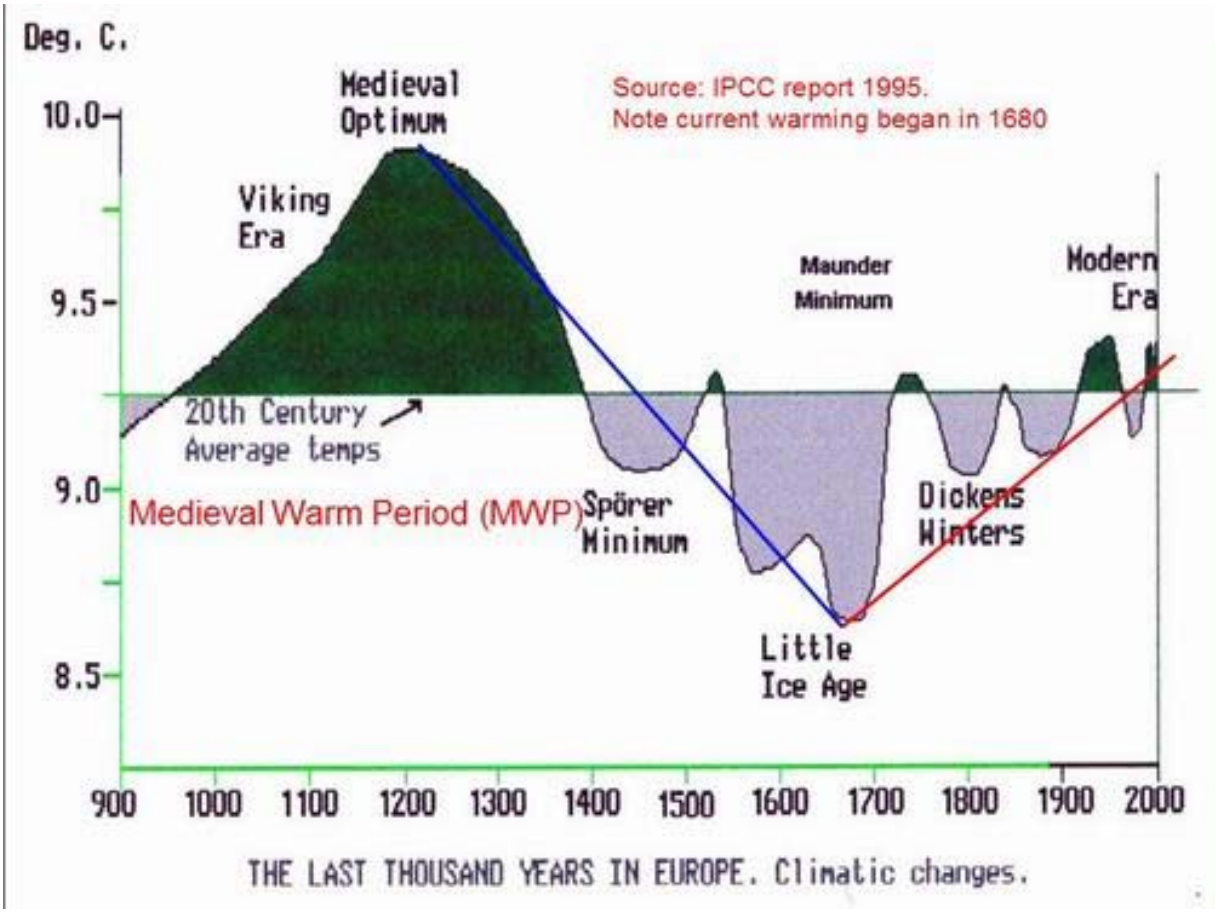
Studies of skeletal remains indicate that the people in both settlements were tall and healthy. Written descriptions speak of green pastures, ample livestock, and an abundance of fish in the seas as well as ample wild game such as seal, walruses and whales. Beginning around 1150 AD, however, conditions rapidly deteriorated.

The Vikings had no way of knowing that the relatively warm temperatures of the Middle Ages, now known as the “Medieval Warm Period” between the years 600 and 1150, would come to an end. They had no way to foresee the much colder temperatures that were to come from 1150 to 1460 eventually leading up to what is now called the “Little Ice Age” from 1560 to 1850.

As a result of the colder temperatures, it was much more difficult to grow grain. In addition the pastures were green for a shorter period of time and more forage had to be cut, dried and stored for winter. Even the cod fish, which had been abundant for Greenlanders and Icelanders, no longer came far enough north for the Viking fishing boats because the water in that part of the North Sea had become too cold.

The agricultural settlements in Greenland failed in about 1350 and the fishing settlements were gone by 1500. In Iceland the population declined from 77,500 in 1095 to only 38,000 by the mid-1780's. The physical height of the Greenlanders declined from an average of 5'7" in 1150 to 5' or even less toward the end of their stay there. Icelanders also suffered a decline in height, from 5''8" to 5'6"—obviously the health of the populace in both locations was suffering as the climate became substantially colder.

Temperature of the Earth over the past 1100 years

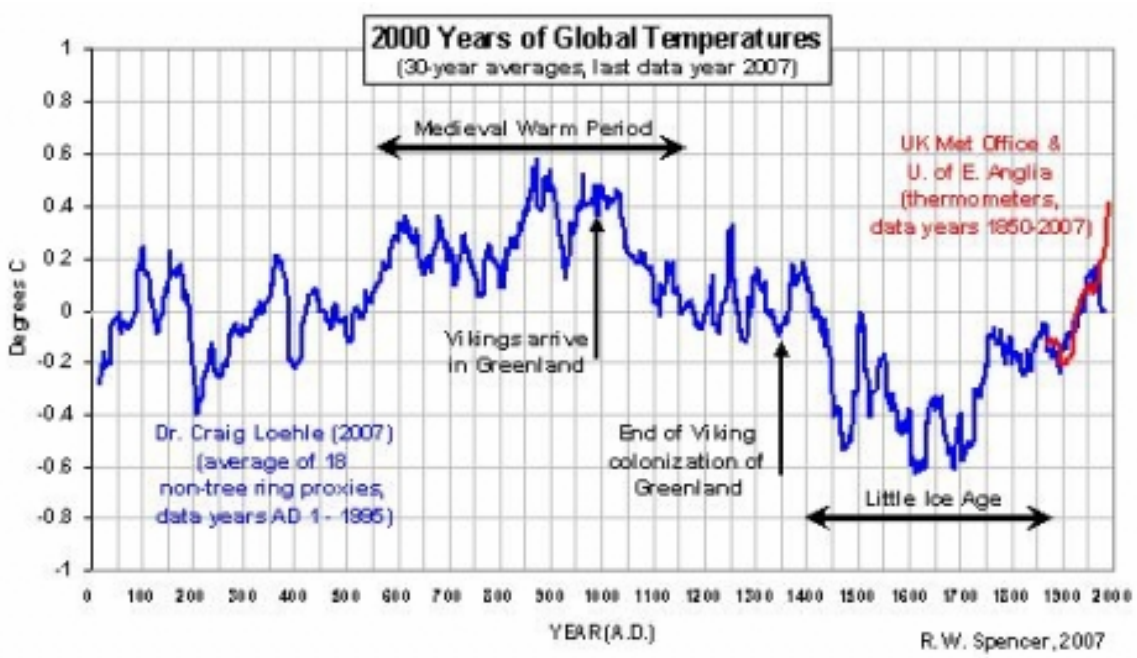


http://www.fcpp.org/images/publications/MedievalWarmPeriod500.jpg

As is apparent form the chart (the same basic picture was given on a chart published in a 1995 report by the United Nation's Intergovernmental Panel on Climate Change), the globe was much warmer during the Viking era than it is today, and was much colder during the Little Ice Age, a period from which the Earth has only recently emerged.

Global warming advocates typically show only the last 150 years of the Earth's temperatures, thereby deliberately misleading the public into thinking that the temperature change in the last 150 years is unusual, dangerous and is the result of carbon dioxide emissions. In actuality, the temperature changes in the last few years are neither unusual nor dangerous and are not primarily caused by carbon dioxide in the atmosphere.

Following is a chart of global temperature over the past 2,000 years:



[http://blogs.mbs.edu/fishing-in-the-bay/wp-content/uploads/2008/04/2000-years-of-global-temperatures-thumb.jpg]

How do we know that the charts above are accurate? There are numerous scientific methods of determining global temperatures going back to the time of the Vikings and before. The reasonable conclusions of those methods are reflected in the three charts above. There are also some interesting historical accounts that shed light on the climate change, however. For example, the book, *Landnámabók*, written in Iceland in the year 1125, records that one Thorkel Farserk, a cousin of Erik the Red who founded the colony, swam to fetch a sheep from the island of Hvalsey because he had no boat. The distance was over two miles. Because the normal water temperature at that location now at the warmest time of the year, in August, is 6^{o} C, the story demonstrates that Iceland at that time had a much warmer climate than at present. [See "Determining the Climate."]

In addition there is no mention of sea ice around Greenland until the 12^{th} century. But because of an increase in drift ice along Greenland's east coast by the 12^{th} century and later, the sailing route from Iceland to Greenland had to be changed. Ivar Bardsson, a Norwegian priest who lived in Greenland from 1341 to 1364, wrote: "From Snefelsness in Iceland, to Greenland, the shortest way: two days and three nights.Sailing due west. In…the sea there are reefs called Gunbiernershier. That was the old route, but now the ice

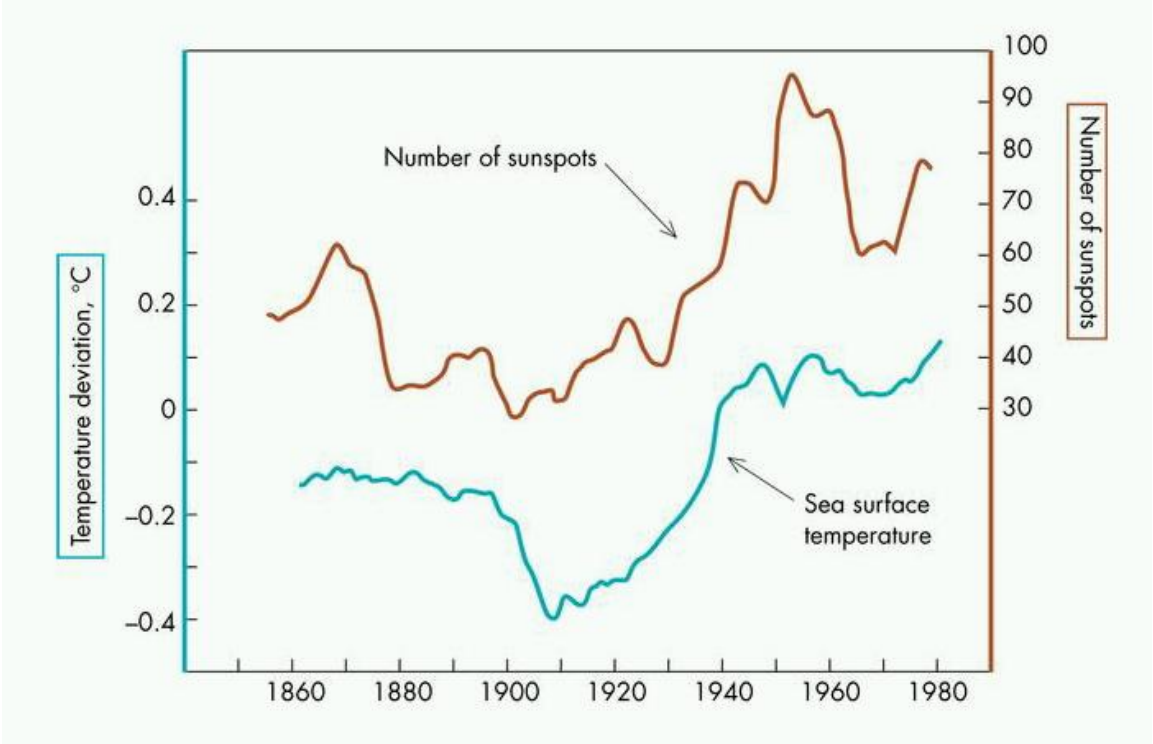
is come from the north, so close to the reefs that none can sail by the old route without risking his life." [See "Determining the Climate."]

As the diet and other living conditions of the Vikings deteriorated, which was also the case for other Europeans, the people became more vulnerable to disease. Over a few years up to and including 1349 AD, two-thirds of the entire population of Norway died from the Black Death. The Vikings were struggling just to survive. Major sailing expeditions were no longer an option.

Why has the Earth's climate changed so dramatically over the past 1,000 years? The answer to that question is well-known but is not widely publicized (and is not normally taught in our schools). The correct explanation is that the amount of sun activity reaching the earth varies considerably over time. Periods of high sun activity, which include explosions of solar radiation called "sun spots," have the effect of warming the earth. Periods of low sun activity, in contrast, have the effect of cooling the earth. Climate change is primarily caused by changes in sun activity, not by changes in carbon dioxide levels—man-made or otherwise.

The following chart illustrates the extremely high correlation between sun activity and global temperature. As is obvious from the chart, sun activity is the primary cause of temperature change on the earth:

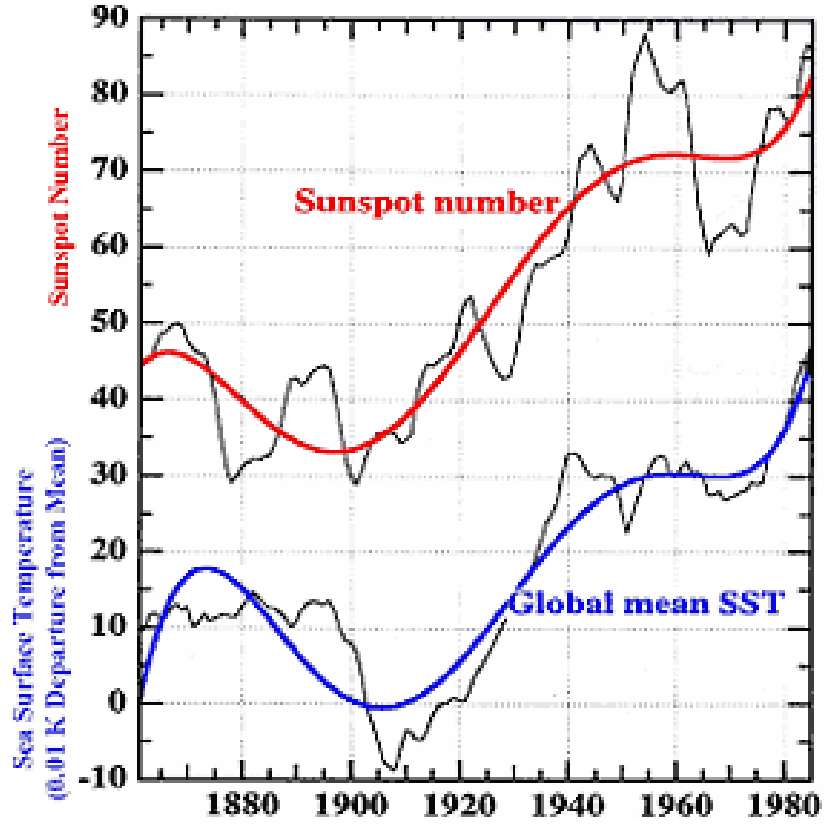
Sun activity correlated to temperature changes



[http://www.astro.umass.edu/~myun/teaching/a100/images/seatemperature.jpg]

As can be seen from the chart below, a similar picture was drawn by the United States National Oceanic and Atmospheric Administration regarding the correlation between sun activity and global temperatures:

Sun activity correlated to global temperature according to the National Oceanic and Atmospheric Administration (NOAA).



[http://www.oar.noaa.gov/spotlite/archive/images/sunclimate_3b.gif]

The Glacier Girl—buried under Greenland's ice

The Glacier Girl is a World War II Lockheed P-38 Lightning fighter plane that was forced to land on the Greenland ice cap during the war. It was recently restored to operable condition after being buried under Greenland ice for nearly fifty years.

Between 1977 and 1988, eleven different teams had tried and failed to find and recover the aircraft. These teams had followed the advice given by various members of the scientific community who said the plane would be near the surface to at most some 50 feet down. It was not until 1988 that two explorers, sponsored by the Greenland Expedition Society, finally found the lost plane. It was located a surprising 268 feet

below the surface of the ice which had accumulated over the plane in the 50 years it had been there. The plane had also been carried three miles by the drifting glacier.

If one were to calculate how long it would take for a mile-thick ice-cap to accumulate at the same known rate of ice build-up over the glacier girl, it can quickly be determined that at that rate, it would require about 1,000 years. This information, therefore, is consistent with what is known abut the warmer climate in Greenland 1,000 years ago, and the dramatic change in climate that occurred thereafter. The amount of ice on Greenland in 1,000 AD is not known, but 1,000 years is sufficient time for most or all of the present ice to accumulate.

The Glacier Girl resting under 268 feet of ice.

[http://www.damninteresting.net/content/glacier_girl.jpg]

The Glacier Girl flies again—photograph of the Glacier Girl in flight after restoration.

[http://www.damninteresting.net/content/glacier_girl2.jpg]

The Northwest Passage

The Northwest Passage is a sea route through the Arctic Ocean, along the northern coast of North America, by way of waterways amidst the Canadian Arctic islands connecting the Atlantic and Pacific Oceans. The series of Arctic waterways are collectively known as the Northwest Passage. Before the Little Ice Age, Norwegian Vikings sailed at least as far north and west as Ellesmere Island, Skraeling Island and Ruin Island for hunting expeditions and trading with the Inuit groups who lived in the region.

On August 21, 2007, the Northwest Passage became open to ships once again for a short time and again on August 25, 2008. During the Viking era, the passage was likely open during the summer months at least. Some scholars believe that the Vikings used the passage to sail to Siberia and Russia and for sailing down the West coast of North America. No agreement among historians exists on this matter, however.

Northwest Passage as drawn by NASA

[http://www1.american.edu/ted/ice/images4/800px-Northwest_passage.jpg]

Vikings in South America?

There are even indications the Vikings were in South America. A French anthropologist by the name of Jacques de Mahieu claims that he has unearthed the ruins of a Norse village containing a wall covered with Norwegian inscriptions. Mahieu believes that the Norse inhabitants ruled over an area of Bolivia and Peru for 250 years some 800 years ago. [Patrick Huyghe, *Columbus was Last*, (New York: MJF Books, 1992), p. 166]

Along similar lines, the existence of a now extinct tribe of South Americans who lived in the far Western reaches of the Amazon River has recently come to light. They are called the Chachapoyas, or “cloud warriors.” The physical appearance of these people is known because they mummified their dead. They were tall, fair-haired and light-skinned. Some researchers believe they must have come from northern Europe. That is, they appear to be of Scandinavian origin.

Chachapoya mummies

[http://filer.livinginperu.com/features/img/chachapoya_mummy.jpg]

The Chachapoya mummies pictured above were discovered in 2007 in a burial vault 82 feet down. The vault—which was apparently also used for worship—was discovered by a farmer working at the edge of northern Peru's rainforest. He reported it to scientists who uncovered ceramics, textiles and wall paintings in addition to the mummies.

Little is known about the Chachapoyas except that they were one of the more advanced ancient civilizations in the area. They are thought to have been adept at fighting, and they commanded a large kingdom about 1,000 years ago. Because they were large people and fierce fighters, Jacques de Mahieu thinks they may have been the source of the stories about Amazon warriors. [*Ibid.*] They were defeated by the Incas and later by the Spanish conquistadors. Hopefully, more will become known about them when more research is done. DNA tests should tell us how similar they were genetically to the Scandinavians of today.

Were the Vikings in America 3,000 or more years ago?

There is even substantial evidence for a Viking presence in America as long ago as 3,000 years. At Peterborough, Canada, 50 miles northeast of Toronto, there is a large limestone rock covered with ancient inscriptions. One of these inscriptions bears the name of a "Slave of Woden" from Norway who wrote that he was there to trade for "high quality copper." The inscription is dated at about 1,500 BC.—3,000 years before Columbus. This inscription may shed light on the discovery over the years of some 5,000 ancient copper mines along the North Shore of Lake Superior. [Patrick Huyghe, *Columbus Was Last,* (New York: MJF Books, 1992,) pp. 57-63]

Phoenician trading ships were sailing in a far-reaching network at that time (1500 BC), and copper was highly prized because it could be mixed with tin to make bronze, which (see "Ancient Maps," CMods Unit 2, #5) is 88% copper and 12% tin. Bronze was extraordinarily useful for various tools, weapons, musical instruments, art works and all sorts of other metal devices. Could the people on the North Shore of Lake Superior, perhaps by way of Viking and Phoenician traders, have been supplying copper for the "civilized" world of 3.500 years ago? Perhaps so. There is, however, no consensus among historians that such was the case.

The Vikings become Christians

The Vikings came into contact with Christianity through their raids and their colonies. When they settled in lands with a Christian population, they adopted Christianity quite quickly. This was true in Normandy, Ireland, and throughout the British Isles.

In addition to the many conversions abroad, the Viking Age also saw a gradual conversion in Scandinavia itself as Anglo-Saxon and German missionaries arrived to convert the pagans. By the mid-11th century, Christianity was well established in Denmark and most of Norway. By the mid-12th century Christianity had became established in Sweden as well.

The Viking conversion to Christianity had begun as early as 793 when monks at Lindisfarne, a monastery founded by Irish monk Aidan were kidnapped by Vikings. The new slaves demonstrated Christianity to their masters in their work, and a goodly number of Vikings converted to Christianity as a consequence. Slowly Christianity spread through the Vikings lands. When the Viking leaders such as Olaf Trygvesson, Olaf Haroldsson, Hakon the Good of Norway, Erling Skalljsson, and Harald Greycloak began to convert, it spread much faster. Christian king Olaf Haroldsson was especially instrumental in having Norway's remaining pagans converted, by force if necessary.

The adoption of Christianity was a significant factor in changing Viking culture. Vikings turned away from plunder and toward settlement and governance instead. Norway had also had been unified in the 10th century, and the Vikings focused on building prosperous communities in the lands that they had previously plundered. They set up housekeeping in three main areas of Europe: the Normandy region of France, eastern England, and eastern Ireland. They additionally had settlements in Iceland, Greenland, North America and perhaps elsewhere.

Not only did Christianity make the Vikings more civilized, it also brought enhanced interest and knowledge about writing and education. The Norse Sagas, which previously had been passed on by word of mouth, were now written down. Literacy expanded rapidly, and after the protestant reformation in the early 1500's, public schools were established for boys and girls and for rich and poor. Many official records, such as births, baptisms, marriages and deaths, were now recorded and preserved. Most of the records of various families during these times and later are the result of these accounts having been written and maintained by the church.

Sample Lesson Plan

Grade levels: 7-12 and college. College students should also research and evaluate the evidence for and against the authenticity of the Kensington Runestone and the Vinland Map, and perhaps others matters of some controversy.

Objectives:
Students will:

1. Learn the factual information relating to the Vikings during the Viking era, including the influence of an expanding population, the structure of Viking long boats and including prominent Vikings Eric the Red and Leif Erikson.
2. Understand the necessity of making accurate revisions of written history based on reliable factual information and objective research.
3. Begin to understand the basic principles of 10th century Viking navigation.
4. Understand why the Viking long boats were both relatively safe and highly adaptable.
5. Recognize the enormous impact that climate change had on Viking activities and successes.
6. Understand that climate change is a natural phenomenon.
7. Understand the impact Christianity had on Norwegian culture in the 11th century and following. (The root word of "culture" is "cult," meaning religion.)

Materials:

1. Overhead projector and slides or power-point technology.
2. Student access to the internet.
3. A globe and various maps including the Vinland map and the Zeno map.

Procedures:

1. Teachers may wish to lecture on this information or may assign students to the information and resources included on the CMods webpage.
2. Students may engage in research or other projects intended to answer the following questions:
    a) How did the Viking sailors determine their position on the globe?
    b) One of the reasons for the many Viking settlements was their rapidly expanding population. What factors may have accounted for this expanding population?
    c) How do the successful Viking sailing exploits relate to the ancient maps showing South America and Antarctica? (See CMod # 5 "Ancient Maps.")
    d) Why is the Viking settlement of North America in 1,000 AD a "fact" of history?
    e) Explore the similarities between the effect Christianity had in the founding of the United States compared to the impact it had on Viking culture. (See CMod # 3, "The American Creed.")

3. Teachers may wish to ask the following questions: One of the primary rules of historical research is giving the benefit of the doubt to the documents themselves, absent convincing evidence to the contrary. How does that principle apply to the various Icelandic sagas and to the Vinland Map? What about the Zeno Map?

Vocabulary:

Celestial navigation: determining one's position on the globe by means of angular measurements between common celestial objects or to the horizon. The Sun and the horizon were most often measured, but the Moon, planets and one or more of 57 navigational stars where also used, their coordinates having been tabulated in nautical almanacs. Besides nautical tables, a sextant and a method of keeping time were required to determine position using this method.

Fact: as in a fact of history, a statement that can be checked and either confirmed or denied. There must be a consensus of scholars in a particular matter for it to be considered a fact. Facts are often contrasted with opinions and beliefs which may be true but are not subject to verification to the same degree as are facts. Fact may also indicate findings derived through a process of evaluation, including review of testimony, direct observation, or otherwise; as distinguishable from matters of inference or speculation. What had once been thought to be facts are sometimes proven false.

Norse Sagas: The word "sagas" comes from the Icelandic language and means "what is said." Sagas are accounts of ancient Scandinavian and Germanic history, especially about early Viking voyages including migrations to Iceland, Greenland and Vinland. The texts are epic tales in prose, often with stanzas or whole poems embedded in the text. They are commonly of heroic deeds of worthy men who were usually Vikings. Most sagas of Icelanders took place in the period 930–1030 (Age of the Sagas) in Icelandic history. Most were written down between 1190 and 1320. The sagas of kings, bishops, contemporary sagas and the like have their own time frame. It was only recently that the sagas of the voyages to America were authenticated.

Normandy: a geographical region primarily in Northern France, south of the English Channel, between Brittany (to the west) and Picardy (to the east). The name “Normandy” is derived from the settlement and conquest of the territory by Viking "Northmen" from the 9th century, and confirmed by treaty in the 10th century. For a century and a half following the Norman Conquest of England in 1066, Normandy and England were linked by Norman (Viking) rulers, but following 1204 the continental territory was ultimately held by France. Many of the residents of Normandy have Viking ancestry.

During the Battle of Normandy in World War II, Normandy became the landing site for the invasion and liberation of Europe from Nazi Germany. This was a turning point for the war in Europe.

Map of Normandy

[http://encarta.msn.com/map_701515160/normandy.html]