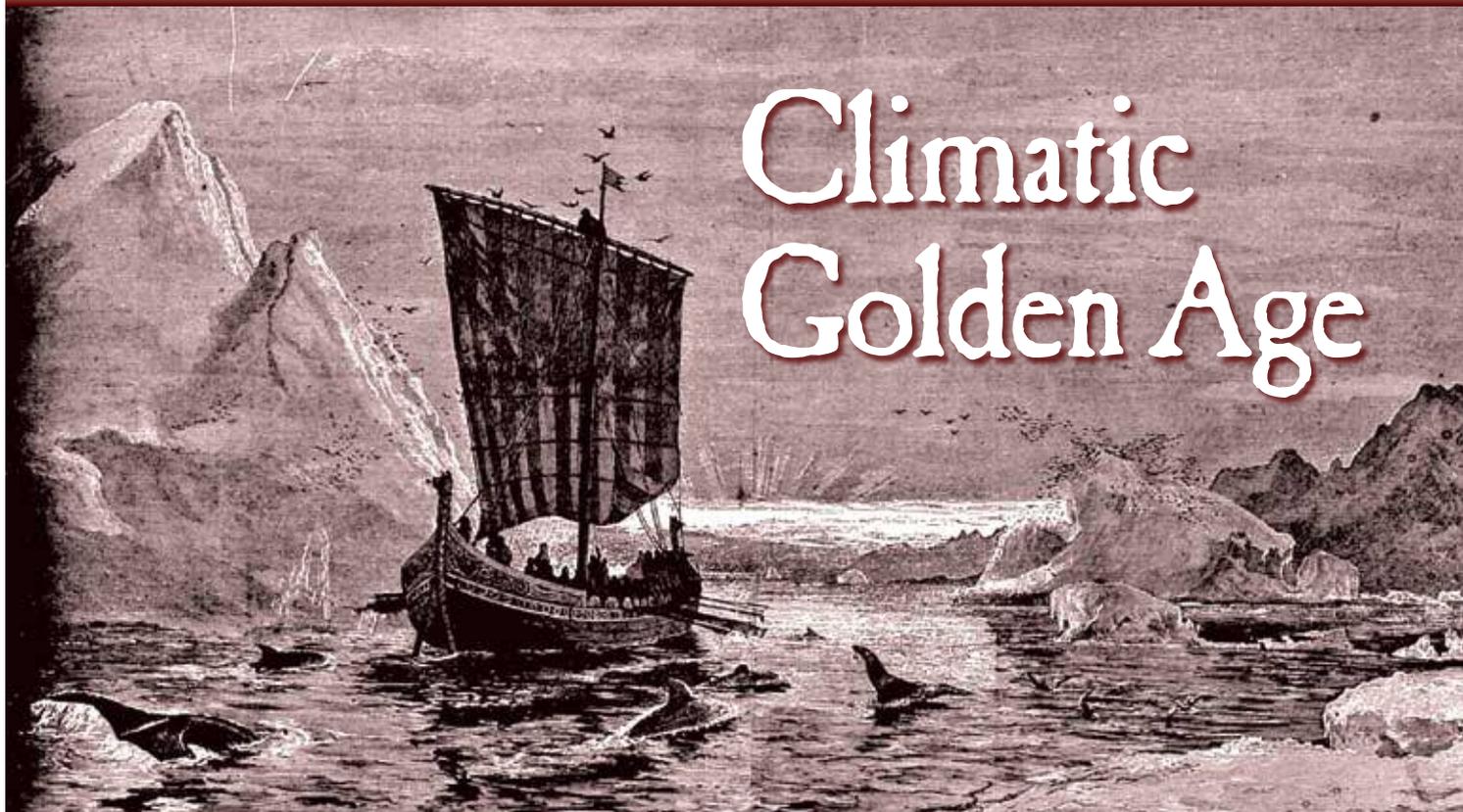


Climatic Golden Age



The weather was warmer than today prior to the advent of the “Little Ice Age” around 1300 A.D., and agriculture and commerce benefited.

by *Michael E. Telzrow*

During the late 10th century, Eirik the Red killed a man named Thorgest during an argument about a shovel on a hardscrabble island off the coast of Iceland. It was not the first time that the temperamental Viking had killed someone. After all, Vikings were known for their aggressive ways. They were products of their harsh environment, and ransacking and raiding was their stock in trade. The meager soil in their northern Scandinavian homelands impelled young Norsemen beyond their native locales in search of food, adventure, and plunder.

During the seventh century, pagan Norsemen raided eastern Britain, stealing gold and silver from Catholic settlements. Over time, the intrepid raiders established settlements as far away as Kiev, Russia, and their influence extended as far south as Constantinople, Rouen, and Tuscany.

Years earlier Eirik’s family had been banished to Iceland from their home in

southwestern Norway “because of some killings.” Once in Iceland, the fiery-haired Eirik the Red married a local woman, but before long he was banished from the island for three years. Like a good Viking, Eirik the Red took his ship and sailed west in about 982 A.D. to explore some little-known islands. Using a dial that measured shadows cast from the sun to establish the ship’s position, he was able to steer by latitude, and he eventually made landfall on what he later called Greenland. He was not the first Viking visitor, but for the next three years he worked to establish a permanent settlement. Greenland enjoyed warm brief summers, and its days were somewhat longer than Iceland’s. It boasted abundant fish and mammals, and the western coast was largely ice free during the short summers.

In 985, Eirik sailed back to Iceland where he endeavored to persuade colonists to join him. He named the land Greenland hoping that it would provide a favorable impression among would-be colonists. His

Viking exploits: Traversing the northern seas, where the weather was unpredictable and ice floes could crush the relatively small wooden ships of the day, required an intimate knowledge of the sea. The Vikings possessed that knowledge, learned from centuries of fishing for cod from their open boats. Eirik the Red was part of a sailing culture that possessed an innate maritime knowledge and a lust for exploration. He first settled Greenland.

sales pitch worked, and 25 ships sailed back to Greenland. Upon arrival, the colonists dispersed north, and Eirik established his settlement in the richest farmland area. Conditions were much more conducive to farming than they had experienced in Iceland.

Before long, Norse sailors became aware of land to the west of Greenland. Lief Eiriksson, the son of Eirik the Red, is usually credited with establishing the first European contact with North America, but it was Bjarni Herjolfsson who made the first close visual contact. After arriving in Iceland in 985, he learned that his father had emigrated to Greenland with the first load of colonists. Wasting no time, Herjolfsson set sail for Greenland almost immediately. For several days his crew sailed in dense fog. They had lost

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their way, but northerly winds eventually brought them within sight of land. Its flat and well-forested coastline did not match the descriptions of Greenland with its deep fjords, and the cautious Herjolfsson never made landfall. Instead, he took advantage of a southwesterly gale that pushed them to their Greenland destination.

Lief Eiriksson saw the opportunity and seized upon Herjolfsson's mistake to explore the mysterious land west of Greenland. Like his father before him, he sailed west and soon came upon the flat sandy beaches with forests just beyond — the same coastline that Herjolfsson viewed from his own ship. Eiriksson named the area Markland, meaning Forest Land. This area became modern-day Labrador. A northeast wind pushed them further south to the mouth of the Saint Lawrence

Human habitation: Norse habitation of Greenland — ruins shown — was spurred because Norse homelands had poor soils, and the Medieval Warm Period lengthened growing seasons so much so that much of Greenland became arable and hospitable for grazing.

River. Here they encountered wild grapes, causing them to name the region Vinland (Wine Land).

Eiriksson and his crew wintered in northern Newfoundland where he established a shipping station. It was there that timber and furs from North America were processed before shipment to Greenland. Archaeologists have uncovered evidence of a Norse settlement at L'Anse aux Meadows at the Strait of Belle Isle near the mouth of the St. Lawrence. The well-chosen ground offered good grazing and water on three sides. Over the next years, Norsemen continued to visit North America in search of timber and furs. For over two centuries, Viking ships sailed north and west to North America on southerly coastal currents. They traded in cod, wool, and ivory.

Benefits of Warming

Their maritime skills allowed them to brave unpredictable storms and masses of sea ice in some areas, but it was the climate that ensured their success. According to Brian Fagan, author of *The Little Ice Age: How Climate Made History 1300-1850*, unusually mild conditions allowed Greenlanders to sail to North America and “trade freely with Iceland and Norway,” and if not for the Medieval Warm Period, Greenland

might have remained uninhabited for hundreds of years. During the summer months, the warm climate permitted easier travel between Baffinland and Labrador, where in past periods ice and weather would have made the journey unpredictable. They did not know it at the time, but they were benefiting from a Middle Age global-warming period that lasted for centuries, and the Norse were not the only ones to benefit from it.

Europe of the Middle Ages was still a rural continent with its inhabitants' fortunes tied to the harvest and the sea. Weather, not invading armies, was the principal threat to the well-being of 11th-century Europeans. In *The Little Ice Age*, Fagan writes, “Several wet springs and cool summers in a row, a sequence of severe Atlantic winter storms and floods, a two-year drought — such brief climatic variations were sufficient to put people's lives at risk. The annual harvest drove everyone's fortunes, monarch and baron, small-town artisan and peasant.” Thus, the relatively stable warm weather of the Medieval Warm Period worked favorably for farmers of the time. Summers were warm through June, July, and into August, and crops were generally successful. According to Fagan, average summer temperatures were between 0.7 and 1.0 degrees Celsius *higher* than their modern averages,

and Central European summer temperatures reached 1.4 degrees Celsius over their modern averages! Spring frosts were virtually unknown for 200 years. In England, dry, warm weather allowed the establishment of commercial vineyards across southern and central England and to the Welsh borders — some 310 miles north of their 20th century limits. Evidence of such vineyards exists in modern-day English place names.

Centuries in the Sun

A natural consequence of the long warm period was a sharp rise in Europe's urban population. New communities were estab-



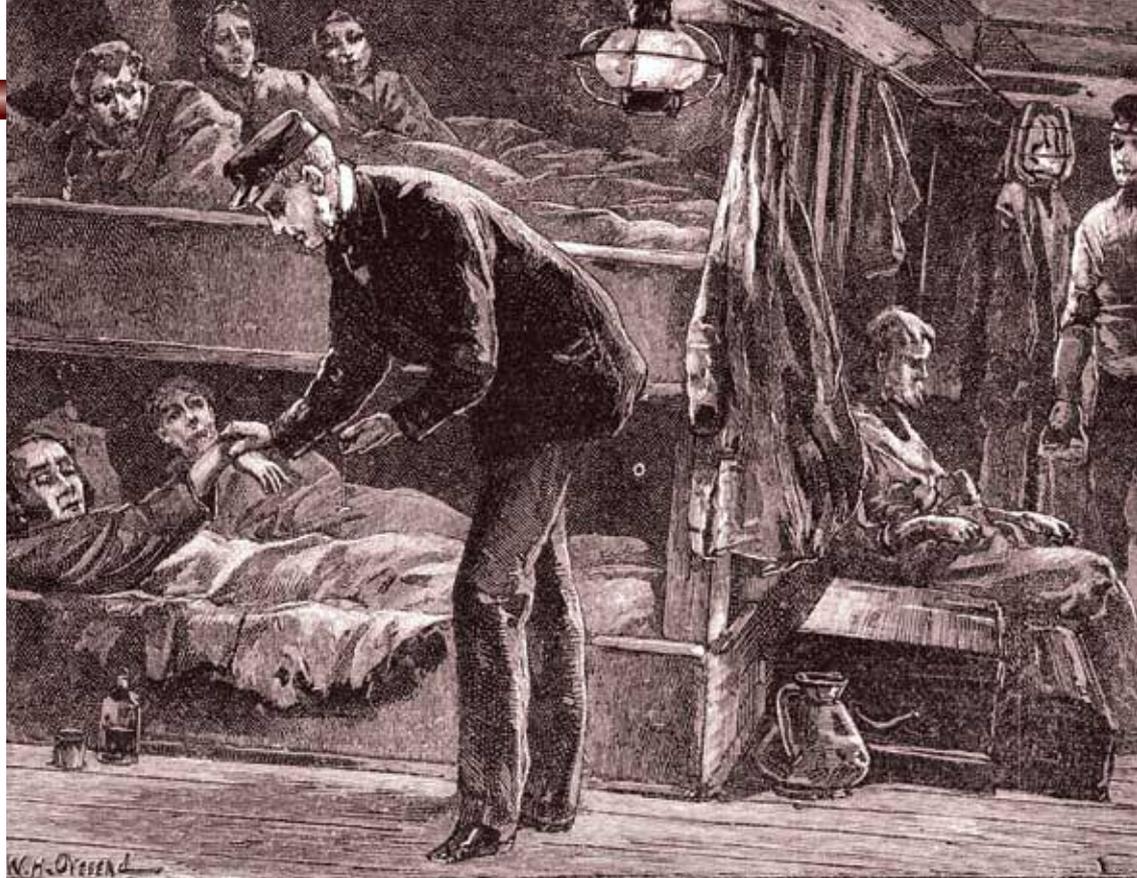
lished in previously uncleared land, and the warm summers, coupled with mild winters, allowed farming on more marginal soils and higher elevations than ever before. In *The Little Ice Age* Fagan explains, “In the thirteenth century, shepherds complained about the encroaching cultivation of prized grazing range, and on the summits of southeastern Scotland’s Lammermuir Hills, 320 meters above sea level. Today, neither Dartmoor nor the Pennine Moors support crops and the upper limit of cereal growth in the Lammermuirs is well below that of 1250.”

In the Viking’s home region, human settlements spread nearly 125 miles further up the hillsides of Norway. Like England, Scandinavian regions experienced bountiful harvests in areas that had formerly never supported crops. Forests spread upward into Scotland, and in the Alps farmers planted deeper into the mountains. Southern Europe and the Western Mediterranean enjoyed higher levels of rainfall, so much so that today many Italian bridges span well beyond their once wide rivers.

And so it was for nearly five centuries. Fagan writes that it was a climatic golden age — a period of unusually warm summers and mild winters that produced atypical crop success. Thirteenth-century life was generally short and characterized by heavy labor for rural inhabitants, but crop failures were generally rare. They did not know it at the time, but all of that was about to change.

The Coming Cold

For thousands of years something called the North Atlantic Oscillation has influenced Europe’s climate. The North Atlantic Oscillation, or NAO, is a complex interaction between the atmosphere and ocean currents much like interaction that produces El Ninos of the southwestern Pacific. Fagan describes it as a “seesaw of atmospheric pressure between a persistent high over the Azores and an equally preva-



Coffin ships: The potato famine in Ireland was started when wet, cold weather encouraged the potato blight. Lost potato crops caused the population to drop from eight million to six-and-a-half million as the Irish starved or emigrated to Britain, America, or Australia on lice- and typhus-ridden ships. The Irish relied on potatoes so heavily because the English had used laws to decimate Irish manufacturing and trade for hundreds of years.

lent low over Iceland.” It has a profound affect upon Europe’s weather. More importantly, the seesaw swings perpetually in cycles that can last decades. The NAO has effected the climate of Europe for thousands of years. Scientists and historians are in general agreement that the NAO was a major factor in the unpredictable, often extremely cold weather that fell upon Europe after 1300.

Beginning in the 13th century, Greenland and Iceland experienced increasingly colder temperatures. Sea ice spread south, hampering sea-going travel between Iceland and Greenland. Early frosts in Poland and Russia brought crop failures and famine. Alpine and Scandinavian glaciers began to advance for the first time in centuries, overrunning forests and cutting off irrigation channels. While passing along the Rhône River on his way to exploring the Alps in 1546, Sebastian Münster commented that he suddenly found himself surrounded by “an immense mass of ice.” “As far as I could judge,” he wrote, “it was about two or three pike lengths thick, and as wide as the range of a strong bow. Its length stretched indefinitely upwards, so that you would not see its end.”

During Münster’s time the Rhône glacier stretched almost 700 feet wide. Today it is much narrower and smaller, and the glacier is virtually inaccessible except by foot through a difficult mountain ascent. Its huge terminal tongue, which once spread out across the valley between the 16th and 19th centuries, is now gone.

In Scandinavia, the advancing glaciers and the climate change exacted a toll on the human population. Norwegians living west of the great Jostedalbreen glacier, reported a number of crop failures in the mid-17th century, and the advancement of the glacier. In 1644, a petition they sent to the government spoke of a level of starvation and hunger that forced many to eat “bark mixed with chaff instead of bread.” Four years later, King Christian IV wrote to Norwegian farmers granting them relief because of the “crop failure, poor fisheries and cattle pestilence.” The great glacier continued to grow, and in the 1680s, it began to reach into the fertile farm lands of Norway. Farmers found themselves unable to pay land rent because the advancing glacier had covered their high pastures.

During the late 17th century and early 18th centuries, damage done by the Nor-

The average individual does not have to be a scientist to understand that the world has always experienced shifting climate patterns. One need only look at recorded history to see that climatic change has been constant and that it has profoundly affected the development of mankind.

wegian glaciers prompted government investigations. The vicar of Jostedal described the Jostedalsbreen and its effects: “Its color is sky blue and it is as hard as the hardest stone ever could be with big crevasses and deep hollows and gaps all over and right down to the bottom. Nobody can tell its depth although they have tried to measure it. When at times it pushes forward a great sound is heard, like that of an organ and it pushes in front of it unmeasurable masses of soil, grit, and rock bigger than any house could be, which it then crushes like sand. In summer there is an awful cold wind blowing off of it.” Summer was so cold that farmers were compelled to wear winter clothes in the field. In many cases, the land was left uninhabitable. Much of the arable land was carried away, and the close proximity of the glaciers caused massive crop failure due to low temperatures.

While Northern Europe suffered, the rest of Europe benefited from the low pressure over Greenland. Dry warm summers characterized the period between 1284 and 1311. It all changed after the turn of the 14th century. Unpredictable weather patterns emerged, influenced by a shifting NAO index. The winter of 1309-10 saw the Thames River freeze over. By 1312, the winters were mild again. In 1315, heavy rains deluged Europe and an unseasonably cold August and September hurt crop productivity. Bernardo Guidonis, a contemporary observer, wrote, “Exceedingly great rains descended from the heavens, and they made huge and deep mud-pools on the land.” 1315 was a disaster. The rains continued to devastate Europe from Ireland to Germany and into the Scandinavian countries. Soil fertility was reduced and famine quickly followed. Many rural communities failed or lived at

subsistence levels, and with the increase in urban populations many cities were vulnerable to food shortages.

The only constant was the unpredictability of the weather. Gone were the days of the stable warm summers and mild winters that facilitated Norse migration into the northern seas. The ice and sea would not allow it. Bitterly cold winters could

be followed by intensely hot summers. The coldest cycle of the Little Ice Age occurred between 1680 and 1730. England’s growing season was a remarkable five weeks shorter than it was during the 20th century’s warmest periods. The Netherlands witnessed 20 to 30 days more of snow on the ground compared with about 10 days during the 20th century. The cod industry in Iceland failed as ice completely surrounded the entire coast. And so the “ice age” continued through the 18th century and into the 19th. Charles Dickens grew up in the coldest decade in England since the 1690s. No doubt his vision of *A Christmas Carol* was influenced by the white Christmases of his youth. 1816 was considered a “year without a summer” on

both sides of the Atlantic. Heavy rain and low temperatures once again threatened crop production.

Mid-19th-century summers were typically cold and wet; just the sort of weather that favored the spread of potato blight spores. The great Irish potato famine was due in large part to the weather. Drier, less moist and less windy conditions would have lessened the severity of the crop failure. Millions of Americans of Irish descent owe their nationality to the Little Ice Age.

The unpredictable, typically cool weather of the period between 1300 and 1850 has gradually given way to a warming trend. The world’s climate is forever changing, but you wouldn’t know it if you only listened to the global-warming mob. The average person is bombarded daily with stern warnings that we have only a few years left before we reach the dreaded global-warming “tipping point” from which there is no return.

But the average individual does not have to be a scientist to understand that the world has always experienced shifting climate patterns. One need only look at recorded history to see that climatic change has been a constant element of history and that it has had a profound effect on the development of mankind. ■



Praise for prosperity: The Gothic cathedral in Worms, Germany, was consecrated in 1110 A.D., part of the surge in cathedral building during the Medieval Warm Period. The period saw bountiful harvests, owing to warm stable weather.