The Frigid Golden Age

This book offers the first detailed analysis of how a society thrived amid the Little Ice Age, a period of climatic cooling that reached its chilliest point between the sixteenth and eighteenth centuries. The precocious economy, unusual environment, and dynamic intellectual culture of the Dutch Republic in its seventeenth-century Golden Age allowed it to prosper as neighbouring societies unravelled in the face of extremes in temperature and precipitation. By tracing the occasionally counterintuitive manifestations of climate change from global to local scales, Dagomar Degroot finds that the Little Ice Age presented not only challenges for Dutch citizens but also opportunities that they aggressively exploited in conducting commerce, waging war, and creating culture. The overall success of their republic in coping with climate change offers lessons that we would be wise to heed today, as we confront the growing crisis of global warming.

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The Frigid Golden Age

Climate Change, the Little Ice Age, and the Dutch Republic, 1560–1720

DAGOMAR DEGROOT
Georgetown University
Dedicated to my beloved partner,
Madeleine Chartrand
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Acknowledgements

A long time ago, I was in a bus inching from Hamilton to Toronto at the height of rush hour in sprawling southern Ontario. As the bus crawled through traffic, I decided to pass the time by reading a then-pristine (now thoroughly tattered) copy of D. Brendan Nagle’s *The Ancient World*. With the sun sinking behind the distant towers of Toronto, I came across Nagle’s description of the first emergence of agriculture, then dated to around 10,000 years ago. Nagle rightly dismissed the idea that climate change was the only cause. Yet at that moment, with the sun’s red light giving Toronto an apocalyptic hue, I started thinking about connecting past climate changes to human history in ways that could provide parables for our warmer future. In time, I learned to my surprise that Earth’s climate suddenly cooled in the wake of the Middle Ages. I decided to draw on my Dutch heritage to explore how the precursor of the present-day Netherlands faltered in the face of this cooling.

I soon discovered that I had not exactly invented a new field. Scientists and historians, it turned out, had long implicated climate change in the downfall of ancient societies. Yet I also realized that my Dutch ancestors did not suffer so much as they thrived as Earth’s climate cooled. Perhaps I could tell an original story, after all.

My journey from these exciting first speculations to the present book owes much to the brilliance, patience, and generosity of my PhD supervisor, Richard Hoffmann. I will always remember my first meeting with Richard, on a fittingly stormy day, when he painstakingly introduced me to the differences between weather, climate, and climate change. Little did I realize that these distinctions would be central to all
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Of course, I owe everything to my family. My cat, Winnie, obligingly trampled my keyboard, scratched my documents, and gnawed on my books. My brother, Aldemar, and my sister, Godelinde, provided encouragement and successfully feigned interest in my scholarship. My mother-in-law, Judith Owens, helped me pitch this book to Cambridge and calmed my often-frazzled nerves. My mother, Jannie de Koning, single-handedly raised me into adulthood and gave me the confidence to believe that I could someday be a professor at a place like Georgetown. My late father, artist and author Bas Degroot, gave me the gift of insatiable curiosity about the world, its people, and its past. He taught me that good work should always serve a high purpose, and I hope this book does. My precious little daughter, Elowyn Degroot, continually motivates me to think about the future but also reminds me that there are far more important things in life than peer reviews and book drafts. Lastly, my partner and wife, Madeleine Chartrand, has been my dearest friend, closest confidante, and wisest colleague for nearly a decade. She has endured every research trip, reviewed every publication, and listened to just about every conference presentation. I dedicate this book to her with deep and everlasting gratitude.
Climate Terms

**Arctic Oscillation** a seesaw of atmospheric pressure between the Arctic and lower latitudes.

**Atlantic Meridional Overturning Circulation (AMOC)** a current that pushes warm, salty water into the Arctic and cold, less salty water down into lower latitudes.

**Atlantic Multidecadal Oscillation (AMO)** a 70-year oscillation between warm and cold phases in North Atlantic sea surface temperatures.

**Beaufort Scale** measures wind velocity on a scale from 1 to 12, where 1 is calm and 12 is a hurricane, cyclone, or typhoon.

**Forcing** a variable that influences Earth’s climate.

**Grand Solar Minimum** a long period of low solar activity.

**Grindelwald Fluctuation** the second cold phase of the Little Ice Age, 1560 to 1628.

**Intertropical Convergence Zone (ITCZ)** the world-straddling belt near the equator where the southerly and northerly trade winds converge.

**Little Ice Age** a variable but overall cold climatic regime that affected much of the world and endured from the thirteenth to the nineteenth centuries.

**Maunder Minimum** the third cold phase of the Little Ice Age, 1645 to 1720.
Climate Terms

North Atlantic Oscillation (NAO) another seesaw of atmospheric pressure consisting of a low-pressure zone near Iceland, and a high-pressure zone near the Azores.

Positive Feedback Loop a process in which a small stimulus magnifies a trend that in turn increases the stimulus.

Proxy something that responds to weather in a way that allows present-day scholars to use it in place of instrumental observations when reconstructing past climate change.

Siberian High a pressure cell over northern Asia that responds to the extent of winter snow and especially sea ice.

Trade Winds persistent winds that blow roughly from east to west towards the equator.

Weather Gage in the age of sale, the upwind position from a downwind opponent.
Note on Abbreviations, Dates, Names, and Translations

I have written Dutch names in Dutch, except where the people or institutions I describe are widely known outside the Netherlands by the English versions of their names. I have translated all Dutch quotations into twenty-first-century English, yet I have kept the spelling and grammar of early modern English quotations. Dates follow the modern Gregorian calendar, unless otherwise noted. Supplementary graphs and maps are available at: DagomarDegroot.com/Frigid.
Maps

MAP M1  The Dutch Republic (dark grey) in 1609, at the start of the Twelve Years’ Truce.
All maps are by Hans van der Maarel, Red Geographics.

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