

Antarctica Through the Eyes of Writers and Artists.

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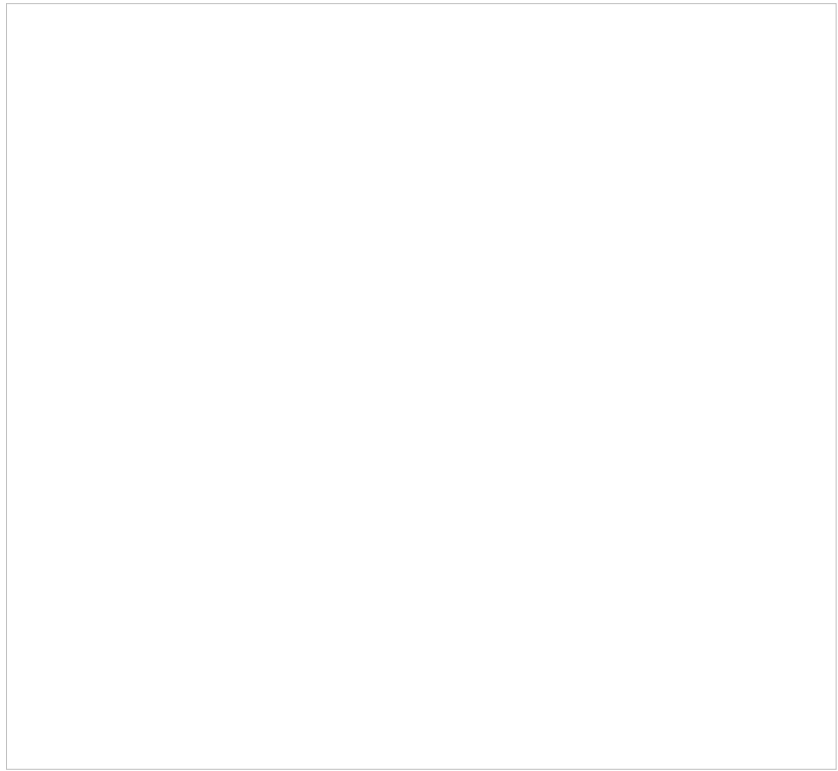
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[Antarctica Through the Eyes of Writers and Artists](#)

In my way of thinking, the creation of the Antarctic Artists and Writers Program by the Office of Polar Programs at the National Science Foundation (NSF) was a stroke of genius. The program “provides opportunities for scholars in the humanities to work in Antarctica and the Southern Ocean to make observations at U.S. Antarctic Program stations and research camps and in wilderness areas.” The program has supported artists of every ilk — authors, historians, photographers, painters, sculptors and even composers and musicians — so that they may “increase understanding of the Antarctic and help document America’s Antarctic heritage.”



This landscape painting by David Rosenthal, “Glacier Twilight,” is just one product of the National Science Foundation’s Antarctic Artists and Writers Program, which supports photographers, authors, musicians and artists to travel to the southern continent for inspiration and education. Courtesy of David Rosenthal.

My first real familiarity with this program was when Barry Lopez, the noted natural history writer, spent part of a field season with me and my colleague, Paul Mayewski, on the Newall Glacier in the McMurdo Dry Valleys region of Antarctica in the mid-1980s. We were digging snow pits to carefully sample and later analyze the snow for its chemistry, to understand how the atmosphere and climate changed with time. Lopez was a great campmate and fellow “scientist,” as he took part in all of our activities, including the rigorous and laborious digging of 6-meter-deep snowpits!

This past year, I had the great fortune of helping to bring Lopez to Ohio State University for a speaking engagement, and over lunch, we reminisced about that field season together in the Antarctic. During his talk that evening, he spoke of the relationship between humans and Antarctica, the place. Clearly his time in Antarctica greatly affected him, and his ability to put it into words has made others, who will never have the opportunity to see Antarctica themselves, more interested and aware of this faraway continent.

Many interesting products have been generated from this program. These include a series of reproductions of wonderful landscapes painted by David Rosenthal that dot the walls of the galley at McMurdo Station, and a large number of black

and white photographs of people “at work” in Antarctica by Jim Barker that can be found in strategic places around McMurdo, as well as in the NSF building in Arlington, Va.

Books range from Rebecca Johnson’s *Braving the Frozen Frontier*, about women working in Antarctica, and Lucy Bledsoe’s novel for middle grades, *The Antarctic Scoop*, to Kim Stanley Robinson’s excellent eco-thriller, *Antarctica*, and Yvonne Baskin’s recently released book, *Under Ground: How Creatures of Mud and Dirt Shape Our World*. In this book about the important contributions of soil and sediment organisms to ecosystem health, Baskin describes the work of my colleague, Diana Wall, on McMurdo Dry Valleys soils. The tiny nematode worms that Diana and her group study are referred to as “the top of the food chain like lions on the savanna.”

Each of these works (and the many other excellent ones that I don’t have the space to mention) bring the audience an Antarctic experience, be it aesthetic, historical, philosophical or scientific. The numerous individuals who read or view the results of these works have all learned something about the Antarctic and the science that takes place there.

I recently read *On the Ice*, by Gretchen Legler, who was supported by this program. It is subtitled as “An intimate portrait of life at McMurdo Station.” The book is many stories rolled into one: glimpses into Antarctic history and exploration, the descriptions and activities of people — both scientists and the service contractors who work in Antarctica — and the story of the author’s own search for herself and intimacy. The author’s tale is also very personal, describing her own journey to explore her sexuality. She discusses the unusual vagaries of human interactions in such a place as Antarctica, while also acknowledging the same human behavior patterns that could take place anywhere else on the planet.

I enjoyed reading Legler’s descriptions of the process of leaving McMurdo Station, the primary travel hub from which people head north and back home via aircraft. Known as “bag drag,” leaving can be as painful and tedious as the term implies. Equally revealing to the non-Antarctic visitor are her accounts of how McMurdo and Antarctic science have changed through the years in terms of gender equity and a much more dedicated environmental ethic. For example, Legler explains that the female population in McMurdo has gone from zero in the 1970s to “at least 40% during the austral summer” by the late 1990s. She calls the U.S. Antarctic stations “the most clean and ‘eco-groovy’ places on the continent.” The U.S. Antarctic Program takes environmental issues extremely seriously, with recycling and proper disposal of all waste done better there than in most other places in the world.

The Artists and Writers Program has now been duplicated by other Antarctic Treaty signatory nations because it fills an important gap. It allows others besides

scientists, and tourists who can afford to go, to “come to the ice” and partake of this beautiful but desolate place.

As Legler points out, there are other ways of seeing and knowing than just the scientific one. This program provides the artist, the writer and the historian the opportunity to transmit their visions of the Antarctic to the general public, perhaps in a much more effective way than we scientists can convey our own knowledge to the lay public.

Legler suggests that Edward Wilson was a person who saw the Antarctic from these two different frames of reference. Wilson was Robert F. Scott’s scientific officer on both of his Antarctic expeditions (see [story, this issue](#)). But in addition to Wilson’s scientific duties, he was an artist as well. Legler describes his pictures as “more valued as data, it seems, than expressions of feeling, moments of ecstasy or experiences of the sublime.” Wilson’s desire for accuracy drove both his science and his art.

In our age of narrow scientific focuses, the thought of Wilson as a scientist/artist is intriguing. However, even in this day of scientific specialization, there are still scientists/artists wandering in the McMurdo region. I think of Bill Green, a world-class geochemist and author of the award-winning 1995 book *Water, Ice and Stone: Science and Memory on the Antarctic Lakes*, as perhaps, the best example.

I see that Kathleen Heideman is the current person in Antarctica supported by this program. She is a poet and her project is entitled “The Scientific Method — Poems of Antarctic Inquiry.” I can’t wait to read the results!

Lyons is currently director of the Byrd Polar Research Center at the Ohio State University and has been conducting geochemical and climate-related research in Antarctica for more than 20 years. E-mail: lyons.142@osu.edu.

Links:

"Can you hear me now?" *Geotimes*, March 2006 [*Check back later this month to read this Geologic Column.*]

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Brewing intelligent design

“500 million years in 50 seconds: Now that’s intelligent design” was the original title of a press release from Framestore CFC announcing their visual effects work on a new commercial for Guinness. But “we don’t as a general rule court controversy, so we dropped the reference to intelligent design — besides, I felt that few people in the U.K. would even

understand the reference,” says Martin Parker, a marketing executive at Framestore CFC in London, the visual effects and computer animation company that brought to life the TV ad, which is airing across the United Kingdom. The commercial’s message is simple, and to Guinness, incontrovertible: Millions of years of human evolution have directly led people to one thing — the enjoyment of a good pint of beer.

This screen shot of hominids in ice is from a Guinness television ad airing in the United Kingdom that visualizes evolution over millions of years in just under a minute. Photos courtesy of Framestore CFC.

The commercial, entitled “[noitulovE](#),” begins with three men drinking pints of Guinness in a bar in London. Then, the song “The Rhythm of Life” from the musical *Sweet Charity* kicks in, and viewers are brilliantly transported backward through the history of life on Earth: The men walk backward out of the bar and into the street, as the street, buildings and the men’s clothing become Edwardian, then Saxon, then Bronze Age, then Neanderthal and so on. Going back through time, ice ages pass, the Grand Canyon forms, and an asteroid wipes out the dinosaurs, as the men, now chimps, climb back into trees, then transform into flying squirrels, mammals, fish, prehistoric birds, dinosaurs, and finally end up as three mudskippers that drink from a muddy pond — with one sounding a complaint about the quality of the drink. “Good things come to those who wait,” the commercial concludes, with a picture of Guinness pints.

It took 500 million years “for drink to evolve from a dirty puddle to the apotheosis of good beer, which is, of course, Guinness,” says Mark Petersen, client services director at AMV BBDO, the ad agency that created and produced the commercial. The ad was not designed to say anything about the evolution debate or intelligent design, he says, because “it’s simply not an issue in the U.K.,” where people accept evolution. Guinness, he says, has always positioned itself as a slightly unusual company with a unique product, and this commercial forwards that sentiment.

But it seems that many people in the United States find the ad “worth mentioning in light of the evolution debate,” says Paul Myers, a biologist at the University of Minnesota in Morris. Myers writes a blog about evolution, and his readers alerted him to the 50-second ad, which first appeared on British television

in October 2005 and is not airing in the United States. "I think the ad is hilarious, it's great fun," he says, despite some technical inaccuracies. For example, people did not evolve from mudskippers or flying squirrels, and "the ad does perpetrate the erroneous idea of evolution having a direction," he says. But "heck, it was intended as a light, humorous piece, a beer commercial."

The ad does "play a little fast and loose with geological time and evolution," but "we wanted to have a little fun with it," Parker says. "In no sense is it to be considered educational." Petersen adds that they recognize that they have "taken great liberties with evolution and teetered rather tenuously on science here," but to cover 500 million years in 50 seconds, "we knew we'd have to take some liberties."

Despite these liberties, the commercial is important in that it "takes evolution for granted," something that many Americans still do not do, Myers says (see [story, this issue](#)). Evolution is the very basis of much of science, and seeing it accepted in something as routine as a lighthearted beer commercial is probably good for Americans who are so entrenched in the debate right now, he says.

The commercial took more than three months to put together, from the planning stage, through film shoots in Iceland and in a London studio, to the assembly and creation of 15 different computer-generated creatures and 500 million years of changing landscapes, to the final editing. Framestore CFC, which has produced TV series on prehistoric life such as *Walking With Dinosaurs* (see [Geotimes, June 2005](#)), was able to resurrect some of its previously generated creatures and landscapes, but the producers still had to create quite a bit of the graphics from scratch, from eroding rocks to asteroid impacts. "It was certainly an involved process," Parker says.

The ad has already been nominated for several visual effects awards, and Parker says that Framestore CFC has heard from people all over the world who "found the ad witty." The ad did not air in the United States for several reasons, including advertisement rules about how alcohol can be shown and the fact that Guinness is usually sold in bottles in America, rather than from the tap. Americans can view the ad, however, at Framestore's Web site — and if you haven't seen it, grab a pint, take a minute and enjoy a good chuckle.

Megan Sever

Links:

"[noitulovE](#)" on Framestore CFC Web site

"[Evolution Lessons From Infectious Diseases](#)," *Geotimes*, March 2006

"[Bringing Dinosaurs to Life](#)," *Geotimes*, June 2005

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Book review

Plows, Plagues, and Petroleum: How Humans Took Control of Climate

by William F. Ruddiman.

Princeton University Press, 2005.

ISBN 0 6911 2164 8.

Hardcover, \$24.95.

Trapped in the ice

[Matthew S. Lachniet](#)

William Ruddiman has forwarded an exciting and controversial hypothesis that is fueling a heated debate among climate scientists: Humans may have taken control of climate thousands of years before the Industrial Revolution. In *Plows, Plagues, and Petroleum*, Ruddiman details the ways that humans may have increased atmospheric greenhouse gas concentrations by land clearing and agriculture starting 8,000 years ago.

This well-written book does a great job of summarizing complex topics through simple calculations and examples, and provides the right balance of cultural background and scientific data. And Ruddiman's premise is sure to stoke the already heated debate in the scientific and economic communities.

Ruddiman's hypothesis is both novel and controversial because it implicates a much more significant human influence on climate than previously documented. The story begins simply with bubbles in ice. After water vapor, carbon dioxide and methane are the dominant greenhouse gases in terms of their contribution to trapping solar heat. The gases' past atmospheric concentrations have now been well-documented hundreds of thousands of years into the past by sampling "fossil" air that was trapped in bubbles in the polar ice sheets. These bubbles tell a fascinating story.

Although, as Ruddiman explains, carbon dioxide and methane concentrations have operated within "natural" bounds for at least the past 400,000 years — responding to factors like the amount and distribution of incoming solar radiation to Earth's surface and carbon dioxide inputs from volcanoes — two apparent anomalies seem to defy the natural explanations. Methane concentrations began increasing 5,000 years ago, and carbon dioxide levels began increasing 8,000 years ago, both at times when Ruddiman suggests they should be dropping.

The timing of the methane trend coincides with the development of the rise of agriculture in Asia — a major source of methane produced by anaerobic

decomposition of organic matter in wetlands. And the beginning of the carbon dioxide increase coincides with widespread deforestation by Stone Age peoples in Eurasia, when burning of biomass released large amounts of carbon dioxide into the global atmosphere.

Thus, Ruddiman suggests that the human influence on climate began thousands of years before the Industrial Revolution, when the release of gases through fossil-fuel combustion has been well-documented. The smaller pre-Industrial emissions may have been nearly 40 percent as large as the post-Industrial emissions — truly a staggering revelation.

A huge implication of the pre-Industrial greenhouse gas releases is that humans may have helped create the “stable” Holocene climate in which advanced civilizations emerged for the first time in Earth’s history. These “extra” greenhouse gases that accumulated in the atmosphere may have even helped warm the planet enough to stop a glaciation in northeastern Canada, thus potentially averting Earth’s gradual slip into another ice age. Ruddiman suggests that even short-lived human population crashes over the past two millennia may have affected the global carbon cycle and climate: Following disease pandemics when human populations plummeted, previously deforested land lay fallow, leading to revegetation that removed carbon dioxide from the atmosphere. This change showed up in polar ice cores as a decrease in gas concentrations.

As may be expected for such a novel idea, Ruddiman’s hypothesis has attracted critical attention and has yet to be completely accepted by the scientific community. A full acceptance of his hypothesis will require additional tests, and the idea will need to survive close scrutiny of a skeptical scientific community.

Ruddiman omits from the book some of the more technical details of the arguments, such as the carbon cycle constraints placed by stable isotopes, and the specific orbital configurations of past interglacial periods possibly analogous to the current interglacial period in which we live (see [story, this issue](#)). Additionally, since publication of Ruddiman’s book, newer and longer ice core gas records have been produced from Antarctica that, to some researchers, do not support Ruddiman’s hypothesis.

Regardless of the criticism, however, the beauty of his hypothesis is that it presents a testable idea that future research can refute or validate. Even if the hypothesis ultimately proves partially or fully incorrect, Ruddiman has done his job as a scientist by stimulating new research directions, and for questioning the role of humans in global climate change before the Industrial Revolution. His idea continues to stimulate new research and modifications to the hypothesis, and will surely be a hot topic in climate science for many years into the future of our rapidly warming world.

Lachniet is a paleoclimatologist and assistant professor in the geosciences department at the University of Nevada in Las Vegas. E-mail: matthew.lachniet@unlv.edu.

Links:
"Earth's Fickle Climate: Lessons Learned From Deep-Time Ice Ages," *Geotimes*, March 2006 [Print Exclusive](#)

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