

THE MAIL

GETTING WARMER

As a researcher investigating long-term anthropogenic changes in the carbon cycle, I was struck by the concluding sentences of Elizabeth Kolbert's recent series of articles on global warming, which summarized the current state of affairs as "a technologically advanced society" choosing, "in essence, to destroy itself" ("The Climate of Man," April 25th, May 2nd, and May 9th). Although the earth's climate is unquestionably changing as a result of human actions, and although the negative consequences of this will be serious, it is significant that many scenarios are less apocalyptic. Most models predict that changes in temperature and precipitation will be gradual in many parts of the world, probably allowing people in wealthier regions to adapt, albeit at substantial cost. In addition, the areas that will be hit hardest by temperature and precipitation changes include some of the poorest regions on earth. This means that there is a political aspect to who will suffer, and how much, which in turn goes a long way toward explaining the widespread indifference on the part of technologically advanced societies to the plight of the Alaskan seal-hunter community that Kolbert visits.

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Kolbert's comprehensive survey makes clear the dimensions of the globalwarming crisis, and sketches out some possible courses of action. Another possible solution is to devise a means of producing a global cooling that could reduce or counteract the warming. This is less far-fetched than it sounds, and various techniques have been proposed. One that collaborators and I have been developing, first described in Nature in 1990, involves modifying a small percentage of the shallow, low-level clouds that cover about a quarter of the earth's surface, by atomizing seawater to produce droplets that would rise into the clouds. This would increase the clouds' reflectivity of sunlight. Several independent computations suggest that the resultant cooling could be adequate to compensate for global warming. The technique would be controllable and ecologically benign, the only raw material required being seawater. More work is necessary to carry this technique further, and its meteorological ramifications need to be fully explored. But, even if we learn how to regulate the earth's temperature, we still need to eliminate other problems associated with increasing carbon-dioxide concentrations. *John Latham*

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Kolbert is absolutely right to state that scientists and researchers who work on issues connected to global warming are far more concerned about the phenomenon than the lay community is. I have worked in the Antarctic Peninsula for twentytwo of the past twenty-three austral summers, assessing and monitoring penguin and seabird populations. I've witnessed unexpected and fundamental changes. Adélie-penguin populations have decreased by half, and blue-eyed-shag populations have also declined significantly. The Larsen Ice Shelf has collapsed, and it's now possible to circumnavigate James Ross Island. For those of us working on the front lines of global climate change, the apathy of politicians, and of the public at large, about this matter is hard to fathom. Ultimately, it seems that humans are incapable of thinking in time frames exceeding their own life spans. As a consequence, they are unwilling to adopt the enlightened life-style changes that may, potentially, make a difference, albeit many decades from now.

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