ALLEY, R. 2000. *The two-mile time machine: ice cores, abrupt climate change, and our future.* Princeton, NJ and Oxford, Princeton University Press. viii + 229 pp. ISBN 0-691-00493-5, £15.95/$24.95, cloth

The story in this book is the dramatic one of the rapid climate changes which we know from the deep Greenland ice cores, and which have been characteristic of climate for much of the last 100 000 years. However, it goes beyond the story of the ice cores and their analysis to the working of the Earth climate system, and on to the possible impacts of man on the system, and indeed of the system on man. Since many readers of this journal will be familiar with the story that Richard Alley tells, what is the point of the reader purchasing the book? Well, it is a very instructive book, and although it is aimed at the general public, its style and sensible erudition allow much of value to be gleaned by any reader. As a teacher of students who often have minimal math or science background, I believe that the book will serve to unknit many a furrowed brow. Richard clearly knows the value of the good analogy in communicating a point about the complex Earth system to the scientifically challenged. To all of us who have to explain and justify our work to similar "difficult" groups such as bosses, administrators and politicians, I can recommend this book as a helpful guide. It is filled with analogies of wit and originality, and I would put Richard in the same rank as Paul Davies as a popularizer of science. He is a popularizer in the best sense: one who can explain complex subjects in a way that is easy to grasp by the layman, and not one who simplifies to the point of banality. I particularly enjoyed the story of Grandmother's visit and the frozen roast — and seeing the cataracts drop from my students' eyes as I used it in a lecture on paleothermometry. I could also digress into stories of stable drunks being pushed into staggering instability by careless forcing factors.

The book works its way from the drilling of the Greenland Ice Sheet Project Two (GISP2) ice core, through the ice-core analysis methods to the workings of the climate system, especially the large and rapid climate jumps that characterize much of the ice core. It finally discusses our own boringly stable climate, and how it could change in future. The first sections, to me, work less well than the later sections. Perhaps this is because I am most familiar with the GISP2 work, but much of its excitement and joy is not captured. Richard excels at explaining the science, but the more personal sections on camp life lack a certain colour. The sections on ice-core analysis are of course competent though rather brief (of necessity in a book of this type), but should whet the appetite of the beginner (e.g. the new laboratory technician or summer student) as well as anything else I've seen. The particularly excellent parts of the book are the last three sections covering the latest understanding of the climate system, and provide to my knowledge the most accessible and up-to-date picture of it. The last section, as Richard is careful to state, does not provide a rallying cry for eco-activists, but it most certainly explains that the scientific consensus on climate change is much stronger than expressed by the popular media — and he explains why this is so.

Of course not everything in the book is excellent. I would have appreciated a more attractive set of photos than the black-and-white images here. Some colour photos would certainly have helped make the book more attractive to many of the people who would benefit most from reading it. Richard consciously chooses to use U.S. units in the book in a commendable effort to attract a general U.S. audience. Recent U.S. positions in international environmental meetings suggest a worrying lack of success in getting scientific messages across in the U.S., so any inconvenience caused to the rest of the world's readers by parochial units is surely a small price to pay.

A few years ago I attended a conference in the U.S. where many interesting papers were presented on the state of the cryosphere and the nature of the climate system. However they left less of a lasting impression on me than the 1 day excursion. Roughly 100 well-informed environmental scientists were bussed some place for a couple of hours, spent 8 hours there, and were bussed home. During the whole day the busses never had their engines turned off. This seemed strange, so I asked the driver to turn off the engine while we were actually stationary. He refused, explaining that he needed the engine running to keep the air-conditioning on — despite the fact that the weather was a lovely 21 °C with a nice breeze and clear skies. This created a lasting feeling of pessimism on my part for the future of the Earth's climate, but it provided an example, useful in teaching my own students, of how the 4% of the world's population in the U.S. makes an outstanding 25% contribution to greenhouse-gas emissions. Perhaps if I had had Richard's book in my hand, or perhaps more profitably, if the bus driver's teachers had read the book, he might have felt more inclined to enjoy the current amiable climate, and to rush less mindlessly into a probably much more unfriendly world.

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https://doi.org/10.3189/S0022143000211283 Published online by Cambridge University Press