formation and advice and by encouraging economic developments that exploit resources in sustainable ways. It is fashionable to criticize tourism, but it is one way that local people can benefit from being associated with these amazing ecosystems without threatening their unique biodiversity.

These excellent books bring working scientists and students up to date on the character and perhaps the sad ultimate fate of ancient lakes. Both would be a fine addition to any limnological library and will serve admirably to stimulate research on, and concern for, these precious ecosystems.

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ALLEY, RICHARD B. 2000. **The two-mile time machine: Ice cores, abrupt climate change, and our future.** Princeton University Press. 229 p. US$24.95. ISBN 0-691-00493-5.

Ice core research during the 1990s has provided some of the most significant and exciting paleoclimate discoveries of the past decade (as a sedimentary paleoceanographer, I say this somewhat jealously). Richard Alley is one of the brightest and most interesting speakers in the business of ice core research, so what could be better than to have a book from him that brings the ice core research news to a wide audience?

Subtitled *Ice cores, abrupt climate change, and our future*, this book tells the story of recent ice core climate research: the tools, data, theories, and conclusions. The task is broken into stages, beginning with a discussion of the stratigraphic character and the types of climate indicators preserved in ice sheets and the difficulties and joys of research in a cold remote region. This is followed by the ice core data and its deduced paleoenvironmental information, which segues into theories that attempt to account for the changes seen in the ice core evidence. The final section discusses the implications of paleoclimate research for the prediction of future climate change and its likely effect on our lives.

The book is resolutely directed at nonspecialists. The text is remarkably free of jargon, and although Alley can't completely escape phrases like ''Dansgaard–Oeschger coolings between Heinrich events,'' these terms are properly introduced in nontechnical language. I don't expect that readers of the *National Enquirer* will be picking this book up, so perhaps the level of writing should be described as aimed at the literate person with an interest in science and the earth. By using traditional English units (Fahrenheit, feet, inches) Alley makes the book more accessible to the American public but, unavoidably, less accessible to the rest of the world. He deals with common but incorrect concepts in a fashion that informs the reader without insult. For example, many people know that World War II airplanes that were abandoned in Greenland are now buried under a couple of hundred feet of ice; if this is so, how can the ice a mere 9,000 feet down be 100,000 years old? The answer is found by understanding the deposition and flow patterns of ice sheets, as Alley patiently explains.

Ice core specialists will not discover new science here, but there is something for them: Alley has a marvelous knack for communication, and this book can help us improve as public speakers and teachers. I particularly enjoyed his ''molasses in a water bed'' analogy for the crustal response to glaciation and deglaciation. This is just one of many great analogies.

Scientists interested in climate history, but not personally involved in ice core research, can use this work to catch up on the progress of the past decade. All of us can give it to friends and relatives who are interested in global climate change. I gave it to my 12-year-old son to read; he found it interesting once he overcame his disappointment that it was not about an H. G. Wells' time-traveling machine.

The science is solid and you can trust what you read here. However, not even Richard Alley can satisfy everyone. At one point, he writes as if Dansgaard–Oeschger (D-O) stadial/interstadial events are the same as the 1,500-yr climate cycle. They are not; the D-O events are broadband, whereas the 1,500-yr cycle is remarkably narrow-band. Subtracting the 1,500-yr band from the climate record leaves the D-O events intact. But this is a pretty small bone to pick, and the only one I found in the whole book.

The final portion of the book, which considers the issue of human climate perturbations, is handled in a remarkably evenhanded and calm way. Alley blends scientific, economic, moral, and political considerations into the discussion and gives one a better understanding of why this is such a difficult matter to resolve. I particularly enjoyed the ''agreeing to disagree section,'' which properly acknowledges the greenhouse skeptics' role while nevertheless emphasizing the mainstream consensus.

As suits its person-on-the-street orientation, the book does not have footnotes and citations. It does includes a fine bibliography that goes beyond being a mere list of books and papers—it also talks about what the cited works are about and their significance.

The book is strictly black and white, no doubt a decision made to keep the book affordable—a laudable goal. But color images would help make some things more understandable (such as the famous backlighted snowpit photo showing the annual laminations). I hope that the publisher will put color versions of a few of these figures on a Web site.

The closest book I can compare this to is *Ice ages: Solving the mystery* by John and Katherine Imbrie, which recounted the personal exploits of the heroes who established the link between ice ages and changes in the earth's orbit. That book documented research up through the late 1970s and emphasized individual contributions toward the science. Although Alley's book does touch upon the personal heroics, most of those comments are placed in an appendix that gives credit where credit is due, reserving the main text for the scientific story. It brings us up to date on the quest to understand the earth's climate swings, proving Wally Broecker's prediction (in his Nature review of Imbrie's book) that there was room for more heroes on the climatic stage. Richard Alley is one of these heroes, and I recommend this book highly.

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