



BOOKS: EARTH HISTORY

Pieces of the Geologic Frame, Assembled

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John McPhee's *Annals of the Former World* is sound armchair science at its most pleasurable. It is a highly informative and enormously satisfying read, despite the volume's somewhat off-putting and obfuscating title. Had the author or his editor chosen a different title (perhaps one deliberately mimicking Steinbeck) they might well have called this description of a geologic cross-section of North America "Travels with Karen, Ken, Anita, Dave, Eldridge, and Randy." These six respected American geologists—better known by their last names: Kleinspehn, Deffeyes, Harris, Love, Moores, and Van Schmus—were McPhee's guides, companions, and interpreters in a geographically and chronologically long, but highly punctuated and peripatetic, crossing of the continent. The trip, and the writing about it, took McPhee some 20 years. There were protracted interruptions for other research and writing projects and repeated stops at outcrops and scenic overlooks to see and attempt to understand how, over geologic time, physical America came to be as it is today. But the wait was worth it. His field instructors succeeded admirably and, happily for his readers, so has McPhee.

The book flows as a linked series of engagingly written essays that represent several different kinds of journeys at the same time: a journey across America's complex, but effortlessly sketched and effectively illuminated geology; a passage through the enormity of geologic time; a survey of the evolution of the geosciences as the unifying theory of plate tectonics unfolded amidst a doubting but steadily diminishing skepticism; a tour of the lives, idiosyncrasies and personal styles of the six, patient scientists with whom he traveled; and an excursion through some colorful anecdotes of local history inextricably intertwined with the geologic settings in which they took place. It is a combination that is

tough to beat for keeping one reading.

Annals is a collection of previously published works (1), with lightly updated scientific facts and thoughts, presented between two new short bookends. An opening "narrative table of contents" outlines the history and contents of the subsequent sections. A closing chapter provides formerly missing (but much needed) description and interpretation of the Precambrian basement rocks largely buried beneath the flat middle of the continent (roughly the area between Cheyenne, Wyoming and Chicago, Illinois). In between, McPhee guides the reader across the basins and ranges from Utah to eastern California, over the folds and faults of the Appalachians from New Jersey to Indiana, through the plains and Rockies of Wyoming, and about the once-baffling and seemingly unrelated fragments of California. A thorough and comprehensive index allows searches

Should you be tempted to ask, "Is *Annals* a couldn't-put-it-down book?" I would answer, no, it is not—but not for the usual reasons such as lack of continuing interest or excitement. Instead, it is one of those rare books about science that can be opened to any random chapter and read with both fascination and comprehension. Regardless of the order in which they are sampled, the many parts are individually as interesting as the whole.

John McPhee is not a geologist nor does he offer any pretense of being one. In college he majored in English and today he teaches Humanistic Studies at Princeton. So how did McPhee obtain the knowledge to produce this excellent book about the plate tectonic history of the United States? Seemingly, his understanding of this history began with an excellent and interesting—and in retrospect, clearly "mind-grabbing"—course in preparatory school. Although this may have been only a geologic appreciation course, it is clear that his teacher planted deeply some seeds of geological curiosity and opportunity. McPhee's learning continued whenever and wherever his writing provided opportunity for brief geologic commentary. It then flourished through his travels with the geologists whose guidance helped shape the books comprising *Annals*.

Annals of the Former World by John McPhee

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for particular issues, facts, anecdotes, or people to be made with comforting ease.

The idea for this hefty book emerged from an originally far, far less ambitious goal, to write a "Talk of the Town" piece for *The New Yorker* on the geologic significance of a rock outcrop near New York City. Two decades later, the result is a comprehensive volume that is, by turns, educational, engaging, poetic, warm, and funny. Absorbing the scientific knowledge at its core is an almost involuntary and subconscious process for the reader. I believe the book can be an equally rewarding read for lay person and geologist, alike. The author tells us, in fact, that his aim was to present a branch of science and its practitioners in a manner that could arrest the attention of other people while engendering acceptability in the scientific community. That he has certainly succeeded is evident both in the past sales of the earlier books combined here and in his formal recognition by earth scientists and their professional societies.

Although that much is clear, my guess is that there is more here than meets the eye. McPhee seems to know too much geology to be flying so effortlessly with nothing but the help of notes from encounters with seven previous geology instructors. It is obvious that he has done a great deal of reading and library research on his own, but this carefully executed effort is scarcely noticed because the results are so casually incorporated. My further guess is that John McPhee has, or has ready access to, an extensive geologic library.

Whatever the source of his understanding, it has served both him and us well. His efforts to explain the nature and origin (and, sometimes, paroxysmal peregrinations) of the lithospheric plates on which we live—at certain times and in certain places, somewhat perilously—are truly effective.

Notes

1. *Basin and Range* (1981), *In Suspect Terrain* (1983), *Rising from the Plains* (1986), and *Assembling California* (1993) were all published by Farrar, Straus and Giroux, New York.

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