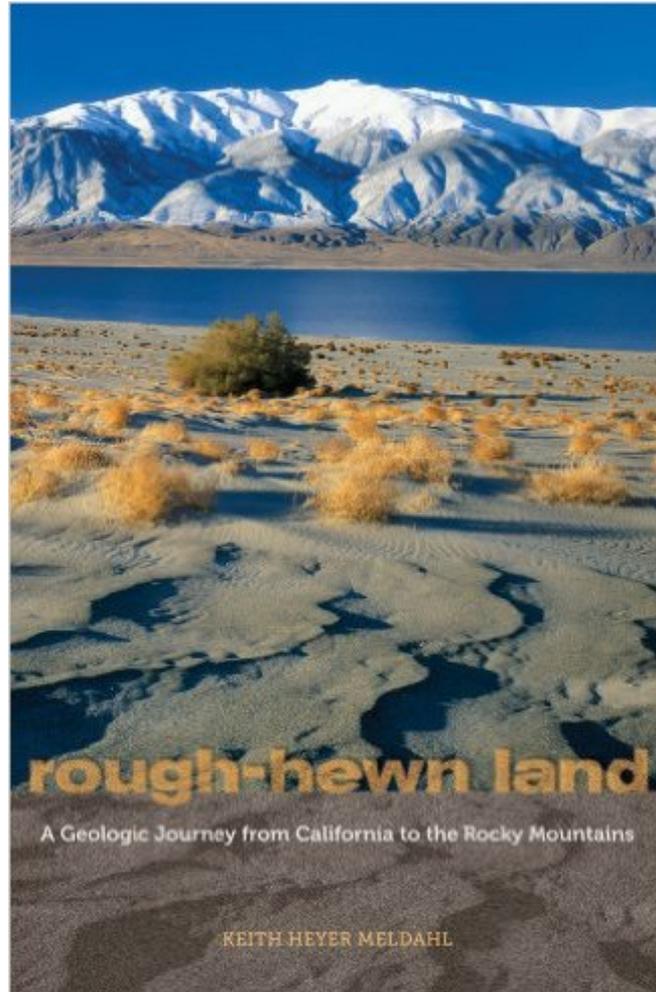


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# Rough-Hewn Land: A Geologic Journey From California To The Rocky Mountains



## Synopsis

“Unfold a map of North America,” Keith Heyer Meldahl writes, “and the first thing to grab your eye is the bold shift between the Great Plains and the Rocky Mountains.” In this absorbing book, Meldahl takes readers on a 1000-mile-long field trip back through more than 100 million years of deep time to explore America’s most spectacular and scientifically intriguing landscapes. He places us on the outcrops, rock hammer in hand, to examine the evidence for how these rough-hewn lands came to be. We see California and its gold assembled from pieces of old ocean floor and the relentless movements of the Earth’s tectonic plates. We witness the birth of the Rockies. And we investigate the violent earthquakes that continue to shape the region today. Into the West’s geologic story, Meldahl also weaves its human history. As we follow the adventures of John C. Frémont, Mark Twain, the Donner party, and other historic characters, we learn how geologic forces have shaped human experience in the past and how they direct the fate of the West today.

## Book Information

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## Customer Reviews

In ROUGH-HEWN LAND, Keith Heyer Meldahl (a Professor of Geology) takes the reader on a geological journey eastward, starting at the Golden Gate and ending on the eastern edge of the Rocky Mountains. The north-south band of his tour centers roughly on Interstate Highway 80. He explores such things as the pillow basalt heaped up around the Golden Gate (volcanic basalt that once formed part of the ocean floor thousands of miles west of California); other geological aspects

of the accreted terranes that form the entire west coast of North America for one hundred or more miles inland; the gold and other mineral resources of the Sierra Nevada foothills; the dramatic evidence of past earthquake activity throughout much of the West and the geological reasons for it; the Basin and Range province, where to a degree unmatched anywhere else the Earth's crust has been stretched like an accordion; and the formation of the Rocky Mountains, where some of the oldest rock of the continent can be found on mountain summits. What underpins the geology of the book is plate tectonics, and Meldahl helped me appreciate much better that the explanatory power of plate tectonics is roughly on a par with the concept of biological evolution and with quantum physics. Most of the book is in accord with the current consensus of geological science, though on a few specifics Meldahl ventures beyond the accepted consensus. For instance, does the San Andreas fault mark the western edge of the North American Plate, as reflected in all the textbooks? Meldahl says no, that wedged between the Pacific Plate and the North American Plate there is a separate plate that moves on its own, which he calls the "Sierran Plate".

When it comes to books written about geology for a general audience there is only one definitive classic: *Annals of the Former World* by John McPhee. It's hard to imagine that anything could really improve upon the classic, but I think *Rough-Hewn Land* has in many ways added to McPhee's geological chronicle across the western portion of I-80 and is a worthy companion piece. For a complete history of the assembling of California to the exhumation of the Rockies you can't go wrong with either of these books, but there are a few key differences: The first key difference between *Rough-Hewn Land* and the *Annals*, is that *Rough-Hewn Land* has been written by a professional geologist, that is intimate with the geology of the western United States. McPhee uses his unique narrative style to essentially relate a very detailed interview/tour guide of a local expert. Meldahl on the other hand is the expert, so his story is more coherent and complete. He also is better at relating how plate tectonics controls the dramatic landscapes of the American west. I was worried that Meldahl's prose would be somewhat dry considering that he is a professor after all, but I was pleasantly surprised that his writing is not only very readable but it is also quite enjoyable. There was even a bit of humor in his writing, that is if you find geologist "humor" to be funny (Beer cans are used at one point to illustrate a concept). And if the geology bores the reader Meldahl has included some asides into the regional histories like the California gold rush and why the geology of Utah doomed the Donner Party long before they got to the infamous pass named in their honor. However, it does lack the amateur enthusiasm of the McPhee's books.

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