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Our planet seems to be on a continual crash course, as the jigsaw puzzle-like plates that compose the earth's crust constantly rearrange themselves, creating and destroying ocean floors and mountain ranges, and triggering earthquakes and volcanoes.

But geologists' present knowledge of tectonic motion does not answer all the questions about earthquakes and volcanoes, as Kerry Sieh and Simon LeVay make abundantly clear in their book, *The Earth in Turmoil*. Sieh, professor of geology at Caltech, and LeVay, a well-known neuroscientist and science writer, offer a history of the earth's destructive and constructive processes for both the lay reader and the geology buff.

The book reads like a series of mysteries, setting the scene of a geologic occurrence—such as the eruption of Mount St. Helens in 1980—and then following the trail of clues back to the cause. In some cases, the mystery is never solved, for nature is a tricky writer who introduces unforeseen plot twists into the geologic narrative on a regular basis.

In other cases, the mystery lies in the fact that something should have occurred but didn't, as in the case of the Yellowstone caldera (a crater

caused by the collapse of a volcano summit in the course of a major eruption). For more than 60 years, the floor of the caldera rose gradually, indicating the presence of magma pushing up from underneath. But then, without an eruption, the floor began subsiding again. The same situation is going on at present in the Long Valley caldera in Mammoth Lakes, California, where "the restless magma seems to be considering its options."

The book starts on the west coast of the United States, an area known for its seismic activity, especially on the San Andreas fault, "a seismological celebrity." Sieh has studied the San Andreas for more than 20 years, and his research, along with the findings of his peers, composes three chapters of the book, offering a glimpse of the past and present activity of the fault, as well as discussing future possibilities. From the west, the narrative travels far and fast, spreading quickly to the opposite coast like the lava that flows in the Hawaiian Islands—a turbulent region that Sieh and LeVay save for the cataclysmic end. Although the book focuses mainly on the continental U.S. and Hawaii, the authors also give snapshots of

geologic activity around the world. Of course, this is entirely necessary in a world where continental collision has produced such odd occurrences as "bits of Africa that somehow ended up in Massachusetts."

As may be expected, the massive forces that create earthquakes and volcanoes sometimes produce some interesting side effects, such as Old Faithful, a hot spot whose steamy volcanic processes are a delight rather than a fright to those who experience them. And dead forests—suffocated by the excessive amount of carbon dioxide that seeps to the surface—reveal the presence of underlying magma.

The writing itself is as cohesive as the processes it describes. Told in a visual style, the narrative also includes plenty of drawings, maps, and photographs. Sieh and LeVay augment their tale with re-creations of ancient legends and chilling first-person historical accounts. Take the case of one Mississippi Valley resident in 1812, who described his experiences during a particularly severe aftershock on the New Madrid fault.

"Carbonized wood . . . which was ejected to the height of from 10 to 15 feet,

GREENSTEIN LECTURESHIP BEGINS

and fell in a black shower, mixed with the sand which its rapid motion had forced along; at the same time, the roaring and whistling produced by the impetuosity of the air escaping from its confinement, seemed to increase the horrible disorder of the trees which everywhere encountered each other, being blown up, cracking and splitting, and falling by thousands at a time. In the meantime, the surface was sinking, and a black liquid was rising up to the belly of my horse, who stood motionless, struck with terror."

Even though the book offers up more frightening tales of humanity's relative powerlessness against the forces of nature, in the end its purpose is not to terrify, but to educate. For besides bringing the reader up to speed on what geologists know about the earth's evolutionary processes, the authors also discuss some steps humans can take to survive in such a hostile environment.

After all, when you live on such a volatile, shifting surface as we do, putting the pieces of the geologic puzzle together is the first step toward a safer future. □

Ryan Poquette



Jesse Greenstein

A lectureship has been established in honor of Jesse Greenstein, DuBridge Professor of Astrophysics, Emeritus. The first annual Greenstein Lecture was given on October 28, nine days after Greenstein's 89th birthday. The speaker was Princeton University's James Gunn (PhD '66), who built the "4-shooter" CCD camera for the Hale Telescope and revolutionized ground-based optical astronomy. In his lecture, "The Sloan Digital Sky Survey: First Light and Commissioning," he affectionately referred to Greenstein as his astronomical "father." □

HONORS AND AWARDS

Giuseppe Attardi, the Steele Professor of Molecular Biology, has received a Gairdner Foundation International Award for Achievement in Medical Science for his "pioneering contribution to our understanding of the structure of the human mitochondrial genome and its role in human disease."

Lance Davis, the Harkness Professor of Social Science, has been awarded the Alice Hanson Jones Prize in Economic History. He and coauthors Robert Gallman and Karin Gleiter were honored for their book, *In Search of the Leviathan: Technology, Labor, Productivity and Profits in American Whaling, 1816-1906*.

Professor of Aeronautics Morteza Gharib (PhD '83) has been elected a fellow of the American Physical Society.

William Johnson, the Mettler Professor of Engineering and Applied Science, will receive the MRS Medal at the December meeting of the Materials Research Society. He is credited with "the development and fundamental understanding of bulk metallic glass-forming alloys," leading to a new class of structural materials for advanced engineering applications.

Thomas McGill (MS '65, PhD '69), Jones Professor of Applied Physics, has received the Defense Advanced Research Projects Agency's Best Technical Development of the Year Award for the work described in "Double Manhattan" in this issue's "Random Walk" section.

Associate Professor of Computer Science Peter Schröder is one of 24 "promising young scientific researchers" to be awarded a five-year fellowship from the David and Lucile Packard Foundation. Schröder's research involves "modeling, simulation, and visualization of large problem sizes on workstation-class computers."

John Seinfeld, Nohl Professor and professor of chemical engineering, and chair of the Division of Engineering and Applied Science, received the Fuchs Award at the International Aerosol Conference in Edinburgh, Scotland, in September.

Paul Wennberg, associate professor of atmospheric chemistry and environmental engineering science, has been selected by the National Science and Technology Council to receive the Presidential Early Career Award for Scientists and Engineers. A new award, it