skeletons. Other creatures, escaping from the fury, began mining food from beneath the seafloor. They churned up the sedimentary layers and opened up entirely new habitats. In a shrug of geologic time, most of the modern animal phyla appeared and began leaving elaborate trails in the sea bottom.

Seilacher describes all this in detail in the catalogue to the exhibit, but he has intentionally left such information off the fossil displays. He forces people to confront them first as pure designs, as pieces of abstract art.

The success of that gambit depends, not surprisingly, on the eye of the beholder. Sally Hill, an exhibit designer at the Eli Whitney Museum in Hamden, Conn., says that the fossil replicas fit her own personal definition of art. "The object is art because you enjoy looking at it as art, in my mind," she says. "To me, the scale of them and the texture of them makes you want to touch them, to feel them, to eat them. They're really beautiful."

As yet, however, Seilacher has not managed to interest an art museum or gallery in taking the "Fossil Art" show, which will travel next to the Nova Scotia Museum of Natural History in Halifax.


William K. Sacco

Museum goers take in ancient aesthetics at Yale University.

Some within the art community have trouble with Seilacher's attempts to characterize the fossils as art. "That I find just naiveté. That I can't accept," says Richard S. Field of the Yale University Art Gallery, who spoke at a panel discussion on the exhibit last month. "You can't take a cast of a fossil bed and say that it's art. It has nothing to do with human intention. . . . You can't credit the mollusk and the trilobite with having intention," he says.

Photographer Richard Benson, dean of Yale University's School of Art, took a different view during the discussion. "As a practicing artist, I'm interested in art that human beings make, and human beings making the thing is part of the defining aspect of art," says Benson. "You could make the case that [Seilacher] is the artist," he says, because the scientist fashioned the casts.

Seilacher balks at that role, though. "I have no interest in being called an artist or to be an artist." To him, nature has played the role of the artist by producing something captivating that can move people and invite meditation.

Through the power of this experience, Seilacher hopes to dispel the popularly held conception that science and emotion are antithetical. "The sense of visual fascination is at the base of many scientific discoveries and descriptions. We should not shy away and say that science is something else, that science is not appealing to the emotion. I think emotion is a large part of it. But of course, the emotion has to be controlled by reasoning and arguments and so on."

Field agrees with Seilacher that science and art have far more in common than many people realize. "Dolf wants to bring the two cultures together, and this is a great exhibition for showing that art and science are not that far apart," he says. "One could argue that the arts are a form of inquiry just as the sciences are. In fact, there isn't such a great difference." □

Earth Science

From a meeting of the American Geophysical Union in San Francisco

Central U.S. quake threat debated

Geoscientists might have vastly overestimated the earthquake hazard of the Missouri boot-heel region, according to a new study of geologic stress in that area.

The Mississippi valley near New Madrid, Mo., is famous among geologists because it spawned three great earthquakes—some of the United States' largest shocks on record—in the winter of 1811–1812. Given that history, researchers have regarded the New Madrid fault zone as the biggest quake threat in the central United States.

That view gained support from 1991 surveying measurements that indicated the ground was warping rapidly. New data, however, suggest that the original findings were themselves warped. "It is very unlikely that in the next 5,000 years we will see another great earthquake in New Madrid," says Seth Stein of Northwestern University in Evanston, Ill.

Stein and his colleagues used Global Positioning System (GPS) satellites to track ground motion around the New Madrid region from 1991 to 1997. They found no evidence that the region is storing up geologic stress, he says.

The group that did the original study now reports findings similar to those of Stein. After resurveying the region and obtaining a longer, better record, scientists from Stanford University and the University of Connecticut in Storrs conclude that the ground is warping at no more than 10 percent of the rate they previously reported, says Paul Segall of Stanford.

Segall and his colleagues disagree, however, with Stein's conclusions. "I'm a little alarmed by [him] saying that the earthquake hazard at New Madrid has been grossly overstated. That's premature," says Segall. "He may be right, but we don't know that."

Current conditions may not reflect what the fault has been doing over the past 2 centuries, says Segall. There are theoretical reasons to suspect that the ground stored up substantial stress after the quakes of the early 19th century. —*R.M.*

The swell side of El Niño

The oceanic fever known as El Niño recently heated up the planet so much that Earth temporarily took on a bloated appearance. Satellite measurements show that the average height of the ocean surface increased dramatically by 20 millimeters during 1997 and then fell in 1998—a natural cycle that could hinder efforts to detect any human-caused climate change.

The U.S.-French satellite, called TOPEX/Poseidon, gauges sea level by bouncing radar beams off the ocean surface. According to the radar data, sea level started rising precipitously in early 1997 in concert with the warming of the tropical Pacific. The ocean surface then fell as El Niño waned this year. This is the first time that scientists have measured El Niño's effect on sea level, says R. Steven Nerem of the University of Texas at Austin.

The discovery that El Niño can cause such drastic expansions of the ocean will complicate future climate studies, says Nerem. From long-term tidal records, oceanographers know that global sea levels have been climbing gradually at a rate of nearly 2 mm per year. Computer climate models suggest that the rate should start to accelerate as greenhouse gas pollution warms the climate, which melts glaciers and causes sea water to expand.

"If you have such large sea-level variations in [El Niño], it's going to be hard to detect climate change," says Nerem. The large natural swings will initially dwarf any subtle acceleration; to detect this change, satellite radar would have to continuously monitor sea level for 30 years, he concludes.

TOPEX/Poseidon, launched in 1992, has already lasted well beyond its planned lifetime. The French-U.S. team plans to send up a similar radar instrument in May 2000. —*R.M.*