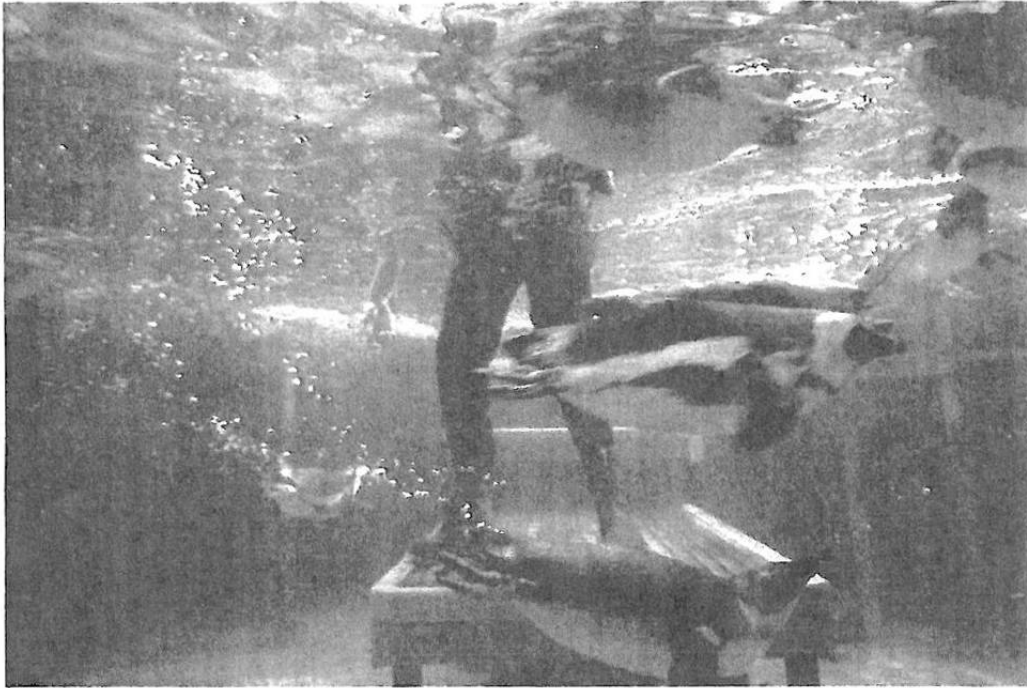


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JIM WILSON/THE NEW YORK TIMES

SWIMMING In the California Academy of Sciences, this tank was made so that a handler could get into the water to feed the penguins.

The Natural World, Up Close and Personal

By FRED A. BERNSTEIN

AT the neo-Classical building in Golden Gate Park that the California Academy of Sciences occupied from 1916 to 2003, penguins tended to huddle on dry land. Children who wanted to see them swim at the front of the tank were often disappointed.

But when the museum's new building, designed by Renzo Piano, opens in the park this fall, the 20 or so African penguins will be far more animated.

Since 2004, when the academy moved to temporary quarters, scientists have used underwater jets to simulate currents in the penguin tank. Penguins like to swim in moving water, so the jets "completely changed their behavior," said Pam Schaller, a senior aquatic biologist at the academy. The jets were such a success that they are being included in the penguin tank at the new museum.

That building, which Mr. Piano designed with the Stantec architecture firm of San Francisco, is full of innovations, including what is thought to be the deepest coral reef tank in the world. Many improvements were developed in the academy's temporary building, which became a hotbed of experimentation into ways of presenting nature to the public.

"We figured we could afford to make mistakes in the temporary

building that we couldn't make in the permanent one," said Scott Moran, the academy's senior project manager.

Mr. Moran, 44, who was in charge of turning the 200,000-square-foot warehouse into a temporary museum, had previously helped build the "Good Morning America" studio in Times Square — a different kind of fishbowl.

The original purpose of the temporary building, he said, was to store the museum's 20 million scientific specimens while the old building was being demolished

With a move to temporary quarters, curators get a chance to experiment.

and the new one built. At the same time, the academy's Steinhart Aquarium had hundreds of marine animals that needed temporary homes. "Once we realized we were building an aquarium, we thought we should let people see the animals," said Stephanie Stone, the academy's director of communications.

That meant the temporary building would get a steady stream of visitors. Still, its de-

sign, by Melander Architects of San Francisco, was informal, with exposed pipes and filters surrounding plastic swimming pools used as temporary tanks.

As it turns out, the design had a profound effect on the culture of the aquarium. In the old building, scientists and other workers entered the tanks from behind. In the temporary building, there was no behind, so the scientists were out in front, doing their jobs in public.

The scientists came to enjoy having an audience. "They don't generally think of working in an aquarium as very glamorous," said Carol Tang, director of visitor interpretive services. "It helped them to see that people appreciate what they do."

As for the visitors, particularly children, she said: "One of the things that will inspire the next generation is if they see real scientists working. This is a way of breaking through the idea that scientists are unapproachable or nerdy."

It quickly became clear that the aquarium wanted to apply those lessons in the new building. To make that possible, Thinc, the New York City company that designed the new aquarium's tanks, made it possible to open many of them from the front.

At the temporary building, many visitors had questions about the equipment that is needed to keep the aquarium running.

That fascination with everything from lights to filters to machines that make fresh water salty is reflected in the new building, where visitors will have regular opportunities to observe the "back of the house."

The temporary building also helped the curators select several new exhibitions. One show included leaf cutter ants, whose behavior creates an astonishing scene that suggests an entire forest being carted away, in miniature. Ms. Stone, the director of communications, said, "Young kids who couldn't stop squirming in other parts of the exhibit would magically sit still for upwards of 10 minutes in front of the leaf cutter ants."

As a result, the curators decided to install a leaf cutter colony in the new rain forest exhibition, inside a huge glass sphere designed by Mr. Piano.

The new aquarium will also contain a touch-tide pool, where children can pick up hermit crabs and starfish. That requires supervision: children may hurt, or be hurt by, the animals. But in the original academy building, the tank was a large circle with rocks piled high in the middle, making it difficult to monitor.

At the temporary building, Thinc installed a U-shaped tank, which the company's president, Tom Hennes, based on the shape of a blackjack table. It worked so well that a larger U has been installed in the new building.