

A Prize of One's Own

"There are a lot of reasons why women don't go into science," says Japanese geochemist Katsuko Saruhashi. "The lack of equal opportunity is one. There is also the attitude of society, of parents and teachers. And there is little recognition of the contributions of women scientists." Saruhashi, 73, retired from government service after a distinguished career as a marine geochemist, is fighting a two-front war against these obstacles.

In the first place, her own career is an example of the contributions female scientists can make. She published some 80 papers, analyzing CO₂ in seawater long before it attracted international attention as a key greenhouse gas and studying the effects of fallout from atomic bomb tests on the atmosphere and oceans. She is also trying to redress the lack of recognition for women in science through the Saruhashi Prize, which she established in 1981 and is given each year to a woman who can serve as a role model for young female researchers.

Clearly a role model herself, Saruhashi was an undergraduate at Toho University during World War II, when university labs were short of equipment. One of her professors introduced her to Yasuo Miyake, a government meteorological scientist, who arranged for her to use government lab facilities. Miyake became an important mentor. "He didn't care if it was a man or a woman," Saruhashi says. "If a researcher had drive, he would do as much as he could for them."

When she graduated, she asked for and received a position on Miyake's research team. "At that time, women science graduates generally became secondary school teachers," Saruhashi says. "I wanted to do research. I met just the right scientist to help me get started." After the war Miyake set up the Geochemical Laboratory as a part of the Transport Ministry's Meteorological Research Institute, and Saruhashi went with him.

There, in about 1950, Miyake suggested Saruhashi investigate the behavior of CO₂ in seawater. "Now everyone is concerned about car-



bon dioxide, but at that time nobody was," she says. "At that time it was difficult. I had to begin by developing methods of measuring CO₂ concentrations in seawater and how they varied by location and depth."

Just as that painstaking work was acquiring momentum, Saruhashi was diverted by the Bikini atoll hydrogen bomb test of 1954. When the crew of a Japanese fishing trawler downwind of the test site fell ill from radiation sickness and one crew member died, the Geochemical Laboratory set up monitoring stations throughout Japan. Saruhashi says they were the first group in the world to begin research into how radiation from Bikini, and other U.S. and Russian test sites, was dispersed in the atmosphere.

Perhaps even more than for her own work, Saruhashi's name is becoming known for the prize, given annually to a Japanese woman 50 years old or younger who has made significant contributions in the physical sciences. "I wanted to highlight the capabilities of women scientists," Saruhashi says. "Until now, those capabilities have been secret, under the surface."

In line with Saruhashi's interest in broadening recognition of female scientists, recipients get more acclaim than cash. There is a cash award, but at \$2,400 (¥300,000) it isn't in competition with, say, the Japan Prize. "We thought it would help pay the way to a conference overseas," Saruhashi says. "It would be nice if it could be larger, but the fund is pretty small." (Funding comes primarily from Saruhashi and her friends.)

Saruhashi, who is managing director of the Geochemistry Research Association, set up by Miyake to disseminate information on issues in geochemistry, is also receiving some recognition of her own. This June she is due to receive a meritorious service award from The Society of Sea Water Science in Japan. True to her pathbreaker's nature, she will be the first woman to receive the award.

—Dennis Normile



Glittering prize. Katsuko Saruhashi with the certificate of the prize she established for Japanese women scientists, 50 or under, who can serve as role models for younger researchers.

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own research and less in the conservation. But that was her whole life."

In 1977, poachers killed her favorite gorilla, Digit. "That tragedy practically unhinged her," says Mary Smith. "She became dangerous to herself and the Rwandans, because of her volcanic temper and her methods of interrogating alleged poachers." In 1979, the Rwandan government asked her to leave the country. She returned in 1983 only to be murdered at Karisoke by an unknown assailant 2 years later.

If Goodall's story raises the question of whether empathy can have a role in science, Fossey's raises the issue of what values scientists heed. Many studies have shown that a key difference between men and women is that men often place a high value on theoretical values—knowledge for its own sake—while women tend to evaluate knowledge according to its usefulness (see story on page 409). In Fossey's case, the two types of values

were intertwined from the beginning—since her scientific interest in the gorillas was triggered by a passion for wildlife and a desire to make a difference in the world.

Ultimately, her concern for the gorillas overrode her scientific values—an experience not uncommon among field primatologists, who often study endangered species. "It's the current dilemma for many scientists: whether one has the obligation to do something useful for the world or to remain purely theoretical," says Teleki. Adds Schaller: "Whether or not one approves of her methods and her goals, Fossey was the one who made the world aware of the plight of the gorillas. Her commitment was critical to their survival."

Publish or perish?

In some ways Birute Galdikas had the most difficult scientific task of the three Trimates. Unlike chimpanzees or gorillas, orangutans are solitary creatures; ob-