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Susan L. Forsburg

Susan Forsburg is a young scientist who in many ways personally exemplifies the satisfactions and challenges that her generation of scientists faces today.

Like most of her contemporaries, it has not been easy for Forsburg to become an independent scientist, given the limited number of jobs and funding available for young people entering the academic field. "It is difficult being at the bottom of the pyramid," Forsburg admits. Ten years ago many people in research were predicting that job openings would increase in the mid-to-late-1990s, but with labs producing many new scientists, supply outpaced demand. Forsburg cites scientists who produce one new PhD graduate every year over their productive life — perhaps 30 years. Given the shortage of academic positions, Forsburg sees many people who had aspired to careers in academics now considering careers in pharmaceuticals, biotech, or elsewhere. Forsburg notes that "a Ph.D. is intrinsically valuable and graduate studies make a very positive contribution," — but at the same time in her discussions with students, she finds that they are scared about their future.

Forsburg believes that it is essential to improve science education at all ages. "We need to take the responsibility for creating a scientifically literate public." If scientists were excited about science, she reasons, more people would understand its importance and the value of basic research. Her advice to young scientists who want to go into research is, "if you love it, you can do it." Forsburg believes that to make it in science, "you have to work very hard and be prepared to sacrifice. But this is true of any challenging profession."

Forsburg is currently an Assistant Professor of Molecular Biology and Virology at the Salk Institute for Biological Studies. Her work centers around eukaryotic DNA replication. She feels that she is fortunate to work at one of the most remarkable institutions in the country. She notes that the Salk Institute is different from most research labs in that "everyone knows everyone." There are no walls or locks, allowing scientists and students to mingle. Everything is shared, leaving little room for "empire building." This leads to intellectual symbiosis and an esprit de corps not found in most environments. "The Salk is housed in a spectacular building that is within walking distance of other great research institutions, including Scripps and UCSD." The downside, Forsburg feels, is that the structure of this private institution requires scientists to raise all of their own funds, forcing faculty to spend a lot of time writing grants. While she is relieved of the responsibility of teaching directly, she does spend a great deal of time with students from the University of California at San Diego who are in her lab.

When Forsburg was growing up in the San Francisco Bay area she wanted to be a veterinarian, but after entering high school she realized that she was really intrigued by how things worked. She was drawn to the outdoors and especially to birds. This interest in wildlife kindled her interest in biology.

Forsburg began her scientific career in microbial genetics. Although she continues to identify herself as a geneticist and a "yeast person," her focus has expanded to the biology of cells and the question of how cells divide. The broad objective of Forsburg's work is to determine how eukaryotic cells regulate DNA replication (S phase).

Regulating S phase presents a cell with a number of challenges. Failure to meet these challenges can lead to DNA damage, genetic instability, abnormal growth, and/or cell death; in human cells, this can result in serious conditions such as cancer or birth defects. "We study a simple eukaryotic system, the fission yeast *Schizosaccharomyces pombe*, to examine this problem. Many components of cell cycle control have been shown to be conserved amongst eukaryotes, so the insights gained from simple model systems have been very helpful in understanding the events occurring in higher eukaryotes." Forsburg's latest interest is in examining S phase in meiosis, the specialized cell cycle that results in the production of eggs and sperm. "Yeast cells have a simple developmental cycle that includes meiosis, so we can bring to bear the same panel of approaches that we use to study normal S phase."

Walter Eckhart, Director of the Armand Hammer Center for Cancer Biology at the Salk Institute, says Forsburg is "a talented and generous colleague who serves as a role model for others. Since joining the Salk Institute, she has developed an outstanding research program to study regulation of the cell cycle and DNA synthesis."

Forsburg's personal indulgence when she's not working on her research or writing grants is the development and maintenance of her lab's web site. Her goal has been to create a Web page that is not only helpful to a scientist interested in fission yeast, but to the casual "surfer" interested in what the Salk Institute is and does. Forsburg wrote all of the HTML code herself, and has included links to information not just about her experiments but also about her interest in birds and in the theater. "I find it therapeutic to work on our Web page," she confesses, "like playing Bach on the piano, which I do rather badly."

Although Forsburg had not initially thought of herself as a cell biologist, her work with yeast cell cycle regulation led her to the ASCB Annual Meeting a few years ago, and she has been a faithful member ever since. She values not only the scientific offerings of the Society but also its activist nature. "The congressional alerts are very helpful and I feel that the resulting letters to my Representative have made an impact. *Molecular Biology of the Cell* has become an essential journal in my field. It makes me think I'm doing something right."

The Women in Cell Biology Committee of the ASCB recently named Forsburg recipient of the 1996 WICB Junior Career Recognition Award. She is honored by the award and notes that it promises to boost not only her self-esteem, but her career as well. "You don't usually get a pat on the back in this field."

Forsburg traveled extensively before returning to California. She received her BA from UC Berkeley in English and Molecular Biology. She received her Ph.D. at MIT and then spent four years at Oxford University working for Paul Nurse at the Imperial Cancer Research Fund. She says, "it's a wonderful profession that lets you go to another country

and be able to do good work." While science is quite different in Europe, the experience with Nurse was invaluable to Forsburg. Her greatest satisfactions while in Oxford were to work in a top lab, and to be able to go to the theater in London frequently.

As for life outside the lab, Forsburg's greatest passion is the theater. She does not act, but she is an enthusiastic attender. She credits this fascination with improving her teaching skills. "There's a streak of performance in every research seminar," she laughs, "and this is a creative, imaginative profession that's like making art."