



Biophysical Society

9650 Rockville Pike
Bethesda, Maryland 20814-3998
Tel: 301-530-7114; Fax: 301-530-7133
E-mail: society@biophysics.org
<http://www.biophysics.org/>

Officers

President

Wilma K. Olson

President-Elect

Yale Goldman

Past-President

Mary Dicky Barkley

Secretary

Jill Trewbella

Treasurer

Antonio Scarpa

Council

Dorothy Beckett

Diana J. Bigelow

Mordecai P. Blaustein

Robert Clegg

Franco Conti

Timothy A. Cross

Cristobal G. Dos Remedios

Edward H. Egelman

Julio Fernandez

Jeff Gelles

Susan L. Hamilton

James M. Hogle

Linda Kenney

James C. Lee

Barry Lentz

David H. MacLennan

Justin Molloy

Eva Nogales

Carol B. Post

Ligia Toro de Stefani

Lukas Tamm

Biophysical Journal

Editor-in-Chief

Robert Callender

Society Office

Executive Director

Ro Kampman

Publications Manager

Dianne McGavin

Newsletter Production

Cheryl Szaro

Profiles

Cheryl Szaro

The Biophysical Society Newsletter (ISSN 0006-3495) is published six times per year January/February, March/April, May/June, July/August, September/October, and November/December by the Biophysical Society, 9650 Rockville Pike, Bethesda, Maryland 20814-3998. Distributed to USA customers and other countries at no cost. Canadian GST No. 898477062. Postmaster: Send address changes to Biophysical Society, 9650 Rockville Pike, Bethesda, MD 20814-3998.

Copyright © 2002 by the Biophysical Society. Printed in the United States of America. All rights reserved.

Biophysicists in Profile



Lily Jan

Lily Jan came to biophysics “by elimination.” Born in China to parents who were both accountants, Jan moved to Taiwan as a baby. Although she does not recall having an inclination toward science as a child, she does remember her high school chemistry teacher, who always made himself available to her, and encouraged her to pursue more in-depth studies by providing her with additional study material.

During high school, students in Taiwan needed to choose a career track, which enabled them to start taking classes that would fit their future careers. At that time, science in Taiwan was essentially split between biology and physics. The biology section, however, was primarily geared toward medical school or traditional fields such as zoology and botany. “In Taiwan we applied to specific departments (e.g. physics),” explains Jan, “when we applied to college, and acceptance was based on the outcome of a whole-island exam lasting for days for all high school graduates at once.” During this time, the Nobel Prize for Physics went to China’s *Chen Ning Yang* and *Tsung-*

Dao Lee, which popularized physics for the upcoming generation of high school graduates. Excited by this, Jan chose physics.

After graduating from the National Taiwan University in 1968 with a degree in physics, Jan attended graduate school at the California Institute of Technology. After having lived on an island for most of her life, traveling was “a big deal,” so Jan looked forward to attending graduate school overseas. Among the small group of graduates making the trip to CalTech was *Yuh Nung Jan*, who only a friend at the time would later become her husband.

Jan chose CalTech because of its reputation in high-energy theoretical physics and studied under the guidance of *George Zweig*. After two years studying physics, Jan switched her major to biology and worked with two new thesis advisors, *Jean Paul Revel* and *Max Delbrück*. Some of her fellow graduate students in the dorm were biology majors, and Jan noticed how excited they were over what they did and discovered. She realized that “lots of things were possible,” which was very different from the experience she had in Taiwan. Influential, too, was Delbrück, who was a mentor to Jan. It helped that he was interested in biology, and influenced many physics students to turn their attention to biology. She marvels at the opportunities she and her husband were given at Caltech to “switch from physics to biology with no background preparation.” Although as postdocs at CalTech she and her husband worked closely on the same projects, Delbrück and Revel helped her work on her thesis, trying to not overlap her work with that of her husband. In the end, Jan graduated from Caltech with a doctorate in both physics and biophysics.

She stayed at Caltech as a Research Fellow to do some postdoctoral collaboration with her husband. Together they worked in *Seymour Benzer's* lab, where Jan began to develop as a biophysicist. The Jans explored the genetics of the fruit fly and how it affected its behavior. There, they identified the *Shaker* gene as a gene of potential structural importance to potassium channels, and studied how its mutation affected the behavior of the fruit fly itself.

To further examine the *Shaker* gene, however, the Jans needed to look more intently at the gene and its function. Since this was pre patch-clamping days, the only cells they were able to look at were large muscle cells. Together they decided to move to Harvard to work in *Stephen Kuffler's* lab to learn more about neurophysiology and how it could help define and correlate their own findings.

At Harvard, Jan was the first woman postdoc in Kuffler's lab. But when asked about obstacles faced as a woman in a then-male dominated field, Jan focuses on the opportunities instead. "I witnessed the transition," she recounts, "and for that reason perhaps I have always marveled at the opportunities, rather than obstacles." When she went to CalTech in 1968 as a graduate student there was only one graduate women's house, which she describes as "a corner house for seven of us, very thoughtfully just then set up by the faculty." Less than four years later, the first undergraduate woman transferred to CalTech. Now at UCSF, she notes that "there have been a fairly large number of very strong female faculty thriving scientifically, in a progressive and proactive environment."

Following her work at Harvard, Jan returned to California, where both she and her husband accepted positions at

the University of California, San Francisco. As a dual-career family they found they could work together by working separately. Over the years they have adjusted the way they collaborate.

"On the faculty, we have developed two lines of research," she explains, "one on potassium channels and one on neural development, and we each follow one line more closely." Jan feels fortunate that they have been able to "pick up new approaches as novices on the faculty, and to be given the time—much longer than we anticipated in the case of *Shaker* cloning—to pursue difficult problems at UCSF."

"...I have always marveled at the opportunities, rather than obstacles."

Throughout this time, the Jans were also trying to raise a family. "At Harvard," Jan re-counts, "we actually took shifts carrying on experiments lasting quite a bit longer than 12 hours a day while tending our first baby." Juggling her career and her children was not that difficult, however, because the flexibility of her lab schedule allowed her to be there for her children when she needed to be. And having them to come home to helped her get away from it all when she got home. Yet, it was easy and not uncommon for her to go home and remain focused on her work. She found that the hardest part about balancing her career and her children was the guilt she felt. Eventually, however, she realized that her children were doing just fine, and that it was her own feelings she needed to work on. Her daughter, Emily, is now 25 and what Jan calls a "born artist." She majored in theater at Brown University and has illustrated her first children's book, *Pieces of Gold*, that was published in several languages in 2001

and recently won a prize. Son, Max, named after Jan's influential mentor at CalTech, has followed his namesake, and at the age of 17 is getting involved in lab work.

As a dual-career family they found they could work together by working separately.

To those starting out in science, Jan's advice is to "identify the scientific problem you believe is interesting and important and run with it." In the words of her mentor, *Max Delbrück*, 'don't do fashionable science'.

One of her former postdocs, *Edward Cooper*, now at the University of Pennsylvania Medical Center, praises her for making work in her lab exciting. She always maintained a "clear focus in the group," he says, "on identifying important scientific questions and new methodological strategies for addressing them." Cooper also stressed that Jan fostered an atmosphere of respect and commitment "through many quietly generous acts," toward her trainees, staff, and colleagues. Jan has been described as having an amazing range of knowledge and an ability to focus, and get the work done without appearing harried.

One key to Jan's scientific success is her determination to do something "important and something she believes in." It is the same determination she applies to her family life. When not working in the lab, Jan enjoys planning vacations and traveling with her family and reading in her spare time. But being a Mom is a major priority. "Before our daughter and son both take off for college and then their own careers," she explains, "my husband and I do not travel at the same time because it is important for at least one parent to be around for that casual chat anytime in the evening."