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A New Look in 2002

With the start of a new year, the Biophysical Society Newsletter has undergone some changes in look and feel. We encourage readers to send feedback and let us know what features are most useful to you.

To go along with this 'New Year change' we are pleased to implement new features, beginning with the Profiles column.

Biophysical Society members come from a wide diversity of fields and have found a common bond in the study of Biophysics. Here, in Profiles, we will highlight the journey of your peers: how they got to where they are, why they chose the field of Biophysics, and what they learned along the way.

We hope you find this section interesting and insightful. And for those just beginning the journey, we hope this encourages and inspires you.

Profiles



Mary Barkley

Mary Dicky Barkley, of Case Western University, jokingly notes that she came to biophysics "through the back door."

Barkley was introduced to science and analytical thinking early in life. Her mother majored in chemistry and her father was a mechanical engineer. As an undergraduate at Stanford University, she had every intention of going to medical school. Barkley recalls that at that time, "biophysics wasn't really a field. It was more electrophysiology than molecular, like it

is now." So rather than go into biology, which then was more taxonomy, she opted for a degree in chemistry.

However, being such a huge animal lover, when she discovered she would need to "kill" dogs, she changed her career path from practicing medicine. Deciding that medical research would be a better alternative, she spent the summer before graduate school working in a radiology lab. There, a co-worker suggested she go into physical chemistry, specifically polymers. Her interest in biology, however, always stayed with her.

While working on her Ph.D. in the chemistry department at the University of California, San Diego, Barkley used pencil-and-paper mathematics for her thesis on polymer chain dynamics in the lab of *Bruno Zimm*.

When it came time to think about doing a postdoc, one event that was most influential in pointing her toward biophysics was a simple conversation with *Jonathan Singer*, a faculty member in the biology department at UCSD. During this conversation, Singer pointed out that there

are two career paths for a physical chemist: applying physical technique X to biological system Y, or understanding the biological system and choosing a physical technique to answer an important biological question. Because of this conversation, she began to use whatever technique is necessary to get the answer she needs.

While doing her postdoc fellowship at the Salk Institute in La Jolla, California, Barkley worked in the lab of Suzanne Bourgeois. There, the focus of her work was regulation of gene expression. Working on the binding of lac repressor protein to its operator site on DNA, she made a few runs on the analytical ultracentrifuge, the old Model E, and discovered that she really liked doing physical experiments. "I really liked the instrumentation part rather than the wet biochemistry," explains Barkley, "so I eventually ended up focusing on fluorescence spectroscopy."

The most important part of her journey to biophysics was that she paid attention to what she liked. "Only by doing different things do you get to know what you really like," claims Barkley. She uses this approach in encouraging her students at Case Western. "If I find that a student is not doing well in one area, " Barkley explains, "then I try to move them into other aspects of the project."

Barkley's journey into the field of biophysics was not always a serendipitous, smooth ride. For women in her generation, gender often became an obstacle. If you were a woman, Barkley recounts, "People would, at times, blow you off, especially when it came to mathematics and instrumentation." Others didn't have the confidence that women could do the work.

"Not only was I a woman," Barkley remembers, " but I was also very small and looked younger than I was." She sometimes had trouble being taken seriously. With the increased number of women entering the field and proving their mettle, Barkley hopes those misconceptions have been dispelled.

Biophysics is exciting to Barkley because of its diversity, its ability to integrate disparate fields. To those who are considering a career in biophysics, Barkley recommends that they focus on the new and emerging areas. "We need to be looking continually toward the future," she explains. "New biophysicists need to remember that interdisciplinary training is very important—biology and physics in particular."

Barkley stresses that when trying to reach those who may not have discovered biophysics just yet, the biggest effort should go into putting biophysics on the radar screen so that it is identifiable to students and to the public. She realizes that biophysics and what biophysicists do is not easily explained. "The thing about biophysicists," states Barkley, "is that they are not in just one place, in one particular department. They are a diverse group that don't all have the same label." Barkley wants to reach out to students earlier in their careers so they can see what biophysicists do and what opportunities the field offers. A first step to take, she believes, is to reach into the undergraduate curriculum as do biology and chemistry. "Identification [of biophysics] is important in the undergrad curriculum," she argues," perhaps even touching on it at the high school level. Probably the best thing we can do to reach people that may not be considering biophysics is getting it into the textbooks."

In addition to her teaching load at Case Western, Barkley is working on two research projects involving enzymes responsible for replication of the AIDS virus and the hepatitis C virus.

Although Barkley enjoys her teaching and research career, her love of animals continues to be an important part of her life. She shares her home with two Bouvier des Flandres, which is a breed of cow herding dogs, and four parrots. When not at home, she continues to pay attention to what she likes, whether close by at the Cleveland Orchestra, or further away like visiting her daughter-in-law's family at their home in the Marche region of Italy.

Call for Nominations

The Lasker Foundation is currently accepting nominations for awards in the following three categories:

- Basic Medical Research
- Clinical Medical Research
- Special Achievement in Medical Science

The deadline for nominations is February 1, 2002. Nomination forms are available at:

http://www.laskerfoundation.org/awards/nominate.html

For additional information contact dkeegan@laskerfoundation.org