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Margaret Werner-Washburne

Margaret Werner-Washburne Maggie Werner-Washburne is an Associate Professor of Biology at the University of New Mexico in Albuquerque and an NSF Presidential Young Investigator. The daughter of a Mexican mother and German father, both college graduates, Werner-Washburne grew up in a small town in Iowa and in a mixed Mexican/Anglo environment. She is a non-traditional scientist whose life's experiences have led her to devote a large part of her effort as a faculty member at UNM to increasing the representation of Native-American, Hispanic/Chicano, and African-American students in the sciences. She entered Stanford University as a biology major in the late 1960s and graduated with a BA in English with an emphasis in poetry. For a number of reasons, she never felt comfortable at Stanford. At that time, coming from a small town, 12 years of Catholic schools, a mixed ethnic background, and being a woman in the sciences at Stanford were all liabilities. It took about 10 years for these to become assets, says Werner-Washburne.

After graduation from Stanford, Werner-Washburne travelled to Mexico and Central and South America where she became interested in the indigenous uses of medicinal plants. The fascination with ethnobotany led her, after a year and a half, to return to the US where she settled in Alaska. In Alaska, she worked for one year as a trapper, writer, and teacher with Upward Bound, before moving to Minneapolis, where she worked as a paraprofessional nurse in a clinic treating low-income families, including mostly Chippewa, Sioux, and Blackfeet Indians. The clinic was associated with the University of Minnesota, where she began to take classes in botany. After a year, she left Minnesota to pursue a Masters Degree in botany at the University of Hawaii.

Hawaii proved to be a very comfortable environment for Werner-Washburne. The student body was very diverse and she had a supportive mentor in her M.S. advisor, the late Sandy Siegel, an exobiologist. Werner-Washburne moved to Madison, Wisconsin, to pursue a Ph.D. in Botany, which she received in 1984 in the laboratory of Kenneth Keegstra. She carried out post-doctoral work on yeast HSP70 genes in the laboratory of Betty Craig at the University of Wisconsin.

In 1988, she accepted a faculty position at the University of New Mexico in Albuquerque. She calls the move a tremendous opportunity and a challenge. She enjoys the opportunity to help to develop molecular biology within the biology department, but most of all, Werner-Washburne thrives upon the cultural diversity at the University of New Mexico. Of the 1,000 biology majors, about 300 are minorities, including about 70 Native Americans (mostly Navajos, Pueblos, and Apaches). Many of the students come from small towns and villages and have no idea that a career in the sciences is even possible.

One of the most rewarding parts of her job is being able to help undergraduates, especially minority students, make the transition from their family homes to college. No one was there for me as an undergraduate, says Werner-Washburne, and I consider it an honor to be able to be here for our undergraduates. I can see myself in so many of them

talented and with lots of potential but terrified and with desperately low self-esteem. Over the past three years, the Howard Hughes Medical Institute and NSF-RIMI grants have allowed faculty in the UNM biology department to dramatically increase the numbers of undergraduates, especially minorities, in their laboratories. It is a very exciting place to be right now, says Werner-Washburne. She believes that the scientific community has an obligation to help bring minority students into science. The tax money that pays our grants comes from everyone's pockets and we need to do what we can to make sure that it is not taxation without representation, says Werner-Washburne. Look around you at the national ASCB meeting. Notice there are very few minorities in the crowd. There are few to none on the podium. If it bothers you, then you need to ask what can you do. She feels that, although the solutions to these problems are complex, a beginning to the solution would be for the general ASCB membership to take part in these discussions.

Here are a few issues I would like to see us discuss: scientists, often inadvertently, give minority students the message that 'you can succeed only if you are like us.' Scientists may feel uncomfortable discussing minority issues and decide that efforts to increase minority involvement should be done by minority scientists, even though our numbers are very small. Many scientists may have had immigrant parents or immigrated themselves and do not understand how a minority underclass in the US developed and why it persists. Scientists may believe that because jobs are scarce, we shouldn't encourage minorities to get PhDs. All of these are important issues, and yet I do not hear them discussed in ethnically mixed audiences at the national meetings," says Werner-Washburne.

She credits National Academy of Sciences President and ASCB member Bruce Alberts as an exceptional scientist with a social conscience. She believes that we need more "Bruce Albertses" and that both minority and majority scientists must work together in an atmosphere of respect, learning from each other's cultures, if we are to solve the complex problems that lay before us. Sometimes it takes someone from a different culture, with vastly different perspectives, to solve a problem in a novel way or to recognize the problem at all.

Werner-Washburne's laboratory studies the process of entry into and survival during stationary phase in yeast, which is induced by nutrient limitation. The process is regulated by A-kinase and other common signal transduction pathways. One of the possible outcomes of this work is a better understanding of what regulates entry into and exit from Go in mammalian cells. If you think about it, almost all the cells in the world are in stationary phase or Go. Mitosis is a very small part of the life cycle of most cells. It surprises me how little we know about non-dividing cells, said Werner-Washburne. Her future goals are to decipher the regulatory mechanisms required for the process of entry into stationary phase and to identify the conserved mechanisms that allow eukaryotic cells to enter and survive stationary phase arrest.

Calling it a miracle that she is a scientist, and perhaps even more amazing that she is a faculty member, Werner-Washburne believes that it is never a mistake for students to pursue a PhD, if their heart is in it. She finds it sad that mentors may discourage students,

especially minority students, from studying for a PhD because there are few academic jobs. An education is never a mistake. There are many people I know who would have thought that coming to New Mexico was equivalent to dying. For me, it was a golden opportunity. We don't all see with the same eyes, says Werner-Washburne. For fun, she rode her bike 500 miles across Iowa this summer with her husband, Bruce, a social worker at the Veterans Administration, and their two children, Alex (7) and Gabriel (9), neither of whom has definite career plans yet.