



Association for Women in Science ~ Seattle Area Chapter

January Newsletter

Life and Times of Washington
State: A Tour of the Burke
Museum
By Sandra Merrick

As you enter the exhibit Life & Times you are transported back in time, a long time, 545 million years ago, with a look at some of the oldest fossils. >From a time when most of Washington was covered by an ancient sea, you see giant dinosaur skeletons including a stegosaurus, and elasmosaur, and a 140-million-year-old allosaurus, the only real dinosaur skeleton on display in the Pacific Northwest. Among the many specimens on display are the beautiful 35 to 40-million-year-old fossil crabs, the cast of a 10,000-year-old mastodon, and a 20,000-year-old saber-toothed cat. There's even a 12,000-year-old giant ground sloth that was found during construction at Sea-Tac Airport. There is rumbling volcano, and a replica cave formed when an ancient rhino was trapped by a lava flow in eastern Washington, and the oldest baleen whale fossil ever found (28 million years old). It was an enjoyable gathering and educational experience for everyone.

January Program Meeting

**Wetland Mitigation Banking
A Successful Case Study**
Charles Newling
Wetland Biologist

Wednesday

January 22, 2003

6:30 - 7:00 p.m. Networking

7:00 - 9:00 p.m. Presentation

**Fred Hutchinson Cancer Research
Center**
Day Campus - The Hutch
Rooms B1-72 & B1-74

Main Street Address - Day Campus
1100 Fairview Ave North
Seattle, Washington

SCHOLARSHIP COMMITTEE
By Fran Solomon

On September 25, the Scholarship Committee was thrilled to present \$12,250 in scholarships to nine outstanding undergraduate women who are science or engineering majors and aspire to careers in these fields. This was a record amount of money in the 13-year history of the Scholarship Committee. Seattle AWIS members contributed generously to the scholarship

fund, collectively raising 1/3 of the total amount.

The remainder of the money came from other professional organizations and from technical companies in the Seattle area.

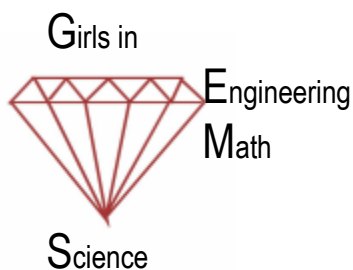
Fundraising for the 2002-2003 school year is underway. The Scholarship Committee's goal is to at least match the amount of money raised last year because there are so many undergraduate women who are deserving of our support. We encourage all AWIS members to renew their contributions to the scholarship fund. If you were not able to contribute to the scholarship fund during the past school year, please consider doing so this year. Your contribution is tax-deductible and 100 percent of the money is used for scholarships.

Rest assured that your contribution supports a very good cause. Many past scholarship winners have told us that receiving a scholarship from AWIS means a lot to them. Thank you letters that the Scholarship Committee received from some of this year's recipients indicated that the scholarships provide emotional and logistical support in addition to defraying educational expenses.

The letters contained comments such as "Your gift is an enormous blessing! Thank you all for believing in me!" and "This will really help me concentrate on my research and studies during my last year as an undergraduate."

We all know that it is not easy to pursue a scientific career and that even in these partially liberated times, girls and women can still receive discouraging messages. AWIS scholarships can counteract these messages. Please participate in the continued success of the Scholarship Committee and the continued support of future women scientists by contributing to the 2002-2003 scholarship fund.

Write your check to "AWIS-SA Scholarship Fund" and mail it to **Fran Solomon** at 5805 16th Avenue NE, Seattle WA 98105. If you would like to participate on the Scholarship Committee this year (it is a lot of fun and very rewarding!), please contact Fran at fran.solomon@metrokc.gov or at (206) 296-1924.



By Lourdes Sarausad

Which has the larger volume – a short or a tall cylinder?

If the temperature is 30° Celsius, do you need a jacket?

How much air can my lungs hold?

Is the nose of the Statue of Liberty too long?

All the above were questions that 7th and 8th grade girls investigated at the Girls in Engineering, Math, and Science (GEMS) second meeting on December 18, 2002. The title of the evening activity, "Figure This", allowed the GEMS to explore the practical uses of math to solve interesting problems through various activities. The activities involved calculating volume, ratios, temperature conversions, and calculating and comparing predicted lung capacity to their actual lung capacity. Using household items, such as a thermometer, a balloon, measuring tape, and some popcorn the GEMS were able to determine all the answer for the questions above.

The next GEMS meeting will be held at Fred Hutchinson Cancer Research Center on January 28, 2003. We will be doing an engineering activity called "Widget to Gadget".

Just a reminder, the Salmon Ecology field trip led by AWIS board member and Senior Ecologist of the Snoqualmie Watershed Team, Fran Solomon, is on January 12, 2003. More information regarding meeting time and directions to the site will be sent by mail.

Mentors Needed for High School Students

The Washington Biotechnology Foundation will be holding its third Student Biotech Expo on March 24, 2003. Eleven high schools throughout the community plan to participate this year with as many as 300 students preparing a project in one of nine categories. Every student is required to have a professional contact as they prepare their project. Students will be specifying what level of mentor contact they need, from phone/email contact, brief personal interview, small group visit, job shadow, through possible internships. Mentors proved to be an invaluable asset to students in the last two years. The WBF's goal is to find a mentor for every student who would like one. Many students are already planning their projects and eager to work with a mentor.

Time Commitment: varies from 2-3 hours, to as many as 9-12 depending on type of contact

Important Dates: November/December 2002 - match mentors and students

January/February 2003 - finalize projects
March 24, 2003 - Student Biotech Expo-Shoreline Community College (new venue)

Students are matched with mentors by their area of interest, such as molecular biology, forensics, immunology, bioethics, etc. The nine project categories are Research, Teaching, Molecular

Modeling, Art, Web Site design, Careers and Writing. It is up to the students to contact a potential mentor.

A good starting point is to arrange a student job shadow for an afternoon in November/December, then communicate by email or arrange another visit to discuss their project in December. In January the student should be finalizing their project for a deadline of January 31st; mentors may be able to help review the project.

The participating schools are as follows:

Garfield High School, Seattle
Shorecrest High School, Shoreline
Franklin High School, Seattle
Eastside Catholic School, Bellevue
Juanita High School, Kirkland
Shorewood High School, Shoreline
Mercer Island High School, Mercer Island
Ballard High School, Seattle
The Bush School, Seattle
Lynnwood High School, Lynnwood

Want to help? Simply contact your site coordinator or submit your mentor-at-a-glance form directly to Abigail Watkins,

mentor coordinator, email - awatkins@wabr.org; or fax - 206.441.5863. Upon receipt of your form, you will be sent mentor guidelines. Once matched, you will receive information on the student. If you have any questions, please contact Abigail Watkins at 206.956.3639.

More information can be found at www.studentbiotech.com

Thank you for making the time to mentor a student!

Directory of AWIS Board Members 2002/2003

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Scholarship Donations: AWIS Scholarship

Committee, 5805 16th Ave NE, Seattle, WA 98105

Got email?

Help us conserve dollars and trees and let us send you the newsletter via email. Send your name, phone number, and email (and tell us if you're currently a member) to Lisa Markovchick at lmarkovchick@yahoo.com

Seattle Chapter Members – Interview with Catherine Stewart
by Penny Kelley

On November 11th, Veterans Day, I headed out the door and up north to visit and interview Catherine Stewart, long time AWIS member and a retired scientist. The visit seemed fitting on a day of remembrance. The weather was perfect, the traffic tolerable and the house relatively easy to find after a few trial turns in a delightful neighborhood, just a little north of downtown Seattle. I was welcomed into her home and over coffee she shared her experiences growing up and building a career in the field of Human Factors. I had a list of planned questions of course but somehow, in the most delightful way, the conversation meandered it's own path back through time.

Catherine Stewart was born in Sault Ste. Marie Michigan, a town located in the upper part of the state. Her Scottish Irish mother was a teacher and her Scottish father was in the Coast Guard. When she was seven years old the family moved to Fort Lauderdale, Florida. This was the time of Prohibition and Catherine's father, captain of a Coast Guard boat, worked to prevent rum running between the Caribbean Islands and the United States. Catherine's mother wrote a column for a local paper and eventually opened her own school for winter tourist children. These children would come down for part of the school year to Florida with their parents. The school Catherine's mother set up allowed them to continue their studies and keep current with the curriculum, thus preventing them from falling behind their classmates back home.

Catherine described her mother as "a great gal" and it was obvious to me throughout the visit that her mother had truly been a great influence on Catherine during her life time.

"Whatever I was interested in, she supported my interests" she stated.

Her mother's support was there when Catherine was nine or ten and she wanted to start a collection. Should it be stamps or matchbooks or maybe something else? Why not insects was the suggestion her mother gave and so Catherine started collecting insects. Her mother found an article on entomology in the paper and took her to see the lady entomologist connected with that article. A mentoring relationship started that lasted for several years through correspondence. As for her collection, she was in the right place, Fort Lauderdale, Florida. Her collection consisted of beetles, caterpillars, butterflies and moths. Her father made her a special mounting board for her butterflies in which the body of the insect rested in a carved out cavity in the wood. The wings would lie on the surface and Catherine would pin strips of paper over the wings to hold them in place while the insect dried. Unfortunately, ants eventually got into her collection.

During her college years, Catherine pursued a degree in research psychology. Her original goal was to become a child psychologist but she later shifted her focus to research psychology, taking courses in experimental design, physiology, and statistics. After earning a bachelor degree at the University of Miami, she headed to the University of Kentucky to work on her Masters. She completed all necessary coursework and came home for a visit with the intent of heading back to the university to work on her thesis. It was on this visit home that she met her future husband. She got married and right around the same time World War II started. She stayed with her husband, then in the service, and stationed at Fort Lauderdale. While he was engaged in the war, Catherine found work as a secretary and started a family. After the war was over, her husband went to school. They later separated and it was at this time that Catherine decided to go back and finish her masters. Upon returning to the academic world, she found that too much time had passed. All of her credits had expired and she had to start over in earning the masters degree. Quite simply put, that is exactly what she did.

We talked briefly about school, how demanding, challenging and interesting learning can be, but how life is not exactly balanced during that time.

"Right" she agreed, " You don't feel like you really are doing what you should until you start taking hold of some of it and doing it yourself."

Catherine did take hold, traveling to different companies and ending up in Seattle working for Boeing. Now, her history was fascinating but to hear her talk about her work, that was inspiring.

"I only did what I liked" she stated. That simple statement really stuck with me. Before she left home, Catherine made up a list of cities and companies where she wanted to work. She chose companies that had positions or potentially had positions doing what she wanted to do. Her first interview was in Denver. During the interview, she was asked if she had studied engineering. "No" she said, thinking that the man asking the question had briefly looked at her qualifications and mistook the eng in English for engineering. That was the last time she said no in an interview. The next company she tried was Boeing. She wanted to work in personnel (now called Human Resources) doing research that aimed at trying to match the right people to the right job. Her interest in this area landed her a position in Human Factors department (what is known today as ergonomics), and she stated "it was a perfect match". As described by Catherine (and as I understood it) she worked with engineers on the design of equipment/tools. She would help the engineers design equipment with the intent to reduce human errors and provide a safer working environment.

As she said, "You can change the equipment but not the human."

This area of work also required Catherine to use her knowledge and skills in research psychology. To reduce human error, Catherine had to work at understanding human performance and their working environment. She gave me an example, relating to work stations in a nuclear power plant. Say you have two consoles facing each other. Each console has a dial that is connected to the same generator and basically the function of those dials increases or decreases the power. Now instinctively, a person working at that console may associate increasing the power by turning the dial to the right or clockwise and decreasing the power by turning the dial to the left or counterclockwise. In Catherine's example, one console was set up so that turning the dial to the right (clockwise) did indeed increase the power but on the other console that was opposite facing, turning the dial to the right resulted in decreasing the power. To take this a little further, even if a person could learn the difference between the two consoles, in times of stress what would a person be more likely to do? Would they remember which console they are working at and know to turn the dial in correct direction or would they react instinctively and turn the dial the direction they are used to associating with increasing or decreasing power? This example clearly demonstrated how one could change the equipment but not the human. It was much easier to simply change the design of consoles so that when working at either one, turning the dial to the right resulted in increasing the power of the generator. I also found this glimpse into the type of work Catherine did very interesting and something that I had never thought about before.

At the time Catherine started doing this type of work in the 1960's at Boeing, there was resistance from manufacturing companies at the idea of having a Human Factors department but insurance companies were very supportive of the idea. Boeing was supportive or supportive enough and Catherine was able to do this type of work until the company experienced an economic down turn. Although she was not fired from the company, Catherine did find herself on hold waiting for a new project to come up. She ended up finding employment elsewhere. Her new position was at the Miter Corporation in McClaim, Virginia which is very close to Washington DC. The Miter Corp. was an offshoot of MIT and it was here that Catherine worked in Human Factors studying transportation. From there, she went to work at the U.S. Department of Transportation in Washington D.C. It was in D.C., during the 1970's, that Catherine was approached by the Association for Women in Science. She was invited to become a member and has been one ever since.

Her next place of employment was at the Idaho National Engineering Lab in Idaho Falls, ID. Although there was no official Human Factors Department, she told her boss what she wanted to do and was given the means to do so. She developed a Human Factors department that is still there to this day. Then came the Reagan era and the company experienced a cut in funding. Catherine hit the road again in search of employment and ended up in California working for TRW. This company was doing work for the airforce and Catherine found herself working in Human Factors as it related to defense, missile systems and nuclear power.

California turned out to be her last place of employment before retirement at age 72. She really did not want to retire but was forced to do so due to severe osteoporosis. She ended up back in Seattle.

We continued talking about different things. Catherine's cats came into the room by this time and I found out that she had raised silver Persian cats when she was twelve and sold them for spending money. I did not ask but was sure that she had the support of her parents in this endeavor. She also talked about the view of ergonomics

today and how a huge convention had been held recently in Seattle. As mentioned earlier in the article, manufacturing companies really resisted having a Human Factors department. She spent some time trying to sell the idea to companies and met quite a bit of resistance. How different it is today, where conventions can be held on the subject and now companies can see (most of the time) that an ergonomics or human factors department can actually save them money in the long run.

The conversation wound down and I prepared to leave and head back south to Olympia. I was rather thoughtful as I left and pondered some of the answers she gave to the few questions I did ask from my list. It was not just that she had an interesting story to tell that really stood out in my mind. Most people do have good stories if you take the time to ask and listen. What really stuck with me was how Catherine really seemed to focus on telling me about her work. Her memories were of the things she did and not on the negative things. When I asked what obstacles she had encountered, she very clearly and directly stated to “not focus on the obstacles, focus on what is out there and what you can do to prepare for those jobs.” She also said to think about how interesting those jobs are and to look for what employers need. When I asked about discrimination she said she had run into it but it was something she dealt with and moved on. She did not elaborate any further on this subject. When I asked about how she handled family and job demands, she said it was a lot but doable. I am so use to women sharing their experiences and elaborating on such questions that her simple answers stood out in my mind. It is true that I draw encouragement from knowing that I am not the only one out there going through struggles and so value other women sharing their stories. I also found it very encouraging to listen to someone whose memories did not seem to focus on the negatives as much. Her experiences were very inspiring and encouraging. I also thought about the influence that Catherine’s mother had on her as was very evident throughout her whole story telling. To me, this seemed to point out that more than ever, AWIS provides a needed service to the community of young girls who need encouragement, mentoring and examples of women in science, and other related fields and the fulfilling lives that come from pursuing something one truly enjoys doing.

January Program Meeting

Wednesday

January 22, 2003

Wetland Mitigation Banking: A Successful Case Study

Charles Newling

Wetlands Training Institute

Development in and around wetlands is regulated by Federal and sometimes state or local law. Permits are possible for some wetland alterations but usually are conditioned to require compensatory mitigation for any wetland losses. The history of successful mitigation has been spotty. Wetland mitigation banking is one approach to improve the results. A case study documenting successful application of this approach will be presented. The Walkerwin Wetland Restoration and Mitigation Bank is the first successful wetland mitigation bank in the State of Wisconsin. It stands as example of what happens when things are done right.

Charles J. Newling, a Professional Wetland Scientist, Certified Wildlife Biologist, is a partner in the Walkerwin Wetland Restoration Project and its wetland ecologist. He is also Senior Vice-President of both Wetland Science Applications, Inc., a consulting firm, and of the Wetland Training Institute, Inc. which provides advanced technical training for professionals. Mr. Newling spends about half his work time annually teaching and about half consulting. In addition to conducting about a dozen short courses annually for the Wetland Training Institute, Inc., he also teaches the Wetland Ecology and Management course for The Evergreen State College Master of Environmental Science program and a series of short courses for the Portland State University School of Extended Studies. He recently was selected to hold a dual position on the Board of Directors for the Society of Wetland Scientists and the SWS Professional Certification Program. In 2000, he was selected as Outstanding Environmental Educator by the Environmental Education Association of Washington. He resides in northeast Tacoma.

From I-5 (north or south):

- Exit** Seattle Center/Mercer St.
Move to far right lane
- Right** at light at bottom of exit ramp
- Right** onto Fairview Ave. N
- Right** at Yale Ave. N for Buildings 1-4
The meeting will be held in Building 2
(The Weintraub Building)
Rooms B1-72 & B1-74

This information is available online at
www.fhcrc.org/visitor/maps/slu.html