



Mission Statement: The Association for Women in Science, Inc. (AWIS) is a non-profit organization dedicated to the achievement of equity and full participation of women in all areas of science and technology

**Farewell to Lee Fortunato!
Outreach Committee Seeks New Chair**
by Linette Edison

Dr. Lee Fortunato, Assistant Project Scientist in the Department of Biology at the University of California, San Diego, recently accepted an Assistant Professorship in the Department of Microbiology, Molecular Biology, and Biochemistry at the University of Idaho! Lee received her Ph.D. from UCSD in molecular and cellular biology and her work at UCSD in the years following has focused on characterizing the interactions of human cytomegalovirus with the host's cell cycle and DNA repair machinery. Her new position is a joint appointment with the WWAMI (Washington, Wyoming, Alaska, Montana and Idaho) Regional Medical School, and begins this fall.

Lee has been an active member of the San Diego chapter of AWIS since 1997. In 1999 and 2000 she assumed responsibility as Chair of the Outreach Committee from longtime Chair, Barbara Armstrong. Over the past few years, the Outreach Committee has evolved into a 3-pronged program (science fair judging, speaker's bureau, and mentoring program) focused on providing positive female role models for girls in the San Diego area who are considering a career in science. According to Lee, "The success of the Outreach Program is a reflection of the commitment and active involvement of AWIS members who volunteer their time to participate in the program."

In addition to her overall responsibilities for coordinating Outreach Committee efforts, Lee also participated in science fair judging for AWIS at the annual Greater San Diego Science and Engineering Fair (see related article on page 2). "I love interacting with kids," Fortunato says with a smile. "I like to see all the effort they put into the projects. When I see a kid who has completely thought through a problem and come up with results, whether good or bad, it is very rewarding."

The Out Reach Committee also organized a Science Day last year at the Salk Institute that provided more than 100 students with the opportunity to conduct hands-on experiments. Fifteen booths covering all areas of science, ranging from patent law to medical care, were available for students during the daylong event. To Lee, this was a very rewarding experience because, "It felt like the kids were having a good time and getting a real feel for what we [scientists] do in real life."

The Speaker's Bureau has a long history of providing a pool of AWIS volunteers to give lectures and hands-on demonstrations at local schools. Many of the presentations are associated with school career days. "Kids need to see how 'science as a class' can translate into 'science as a career.' Most of them don't understand what steps must be taken to become a scientist, or why they should want to be one. That's why we need to see more scientists in the schools," says Diana Hussey, the departing coordinator of the Speaker's Bureau. Formerly a student in UCSD's Master's program in Biology, Diana is currently a science teacher at Ray Kroc Middle School in San Diego. The Speaker's Bureau is also actively seeking a new coordinator. The duty of the coordinator is to maintain a database of AWIS members available to speak in classrooms matching speakers with teachers when a request is made.

The third and newest prong of the Outreach Program is the mentoring program. Headed by Lee Fortunato with help from Anita McElroy, the mentoring program is designed to provide positive female role models in the sciences with more one-on-one

contact for junior and senior high school girls. AWIS volunteers in the mentoring program have teamed with the Upward Bound program at SDSU and hope to add the North County organization Girls Inc.

In order to continue the success of the Out Reach Committee, AWIS is actively seeking a volunteer(s) to head the program upon Lee's departure. An enthusiastic individual is also needed to oversee the Speaker's Bureau as well. Anyone interested in leading this highly rewarding committee, or spearheading one of the subgroups, such as the Speaker's Bureau, should contact Board Member, Linette Edison (858-713-7982, linette.edison@advancedtissue.com).

Lee Fortunato's dedication to the Outreach Program will be missed, as will her laughter and enthusiasm. Her advice to the next committee chair, "Get volunteers and set up short-term or one day events rather than events that require an on-going time commitment." While Dr. Fortunato's departure is the San Diego Chapter's loss, it's the Washington State Chapter's gain. Good luck Lee, we will miss you!

Inside this Issue	Page
AWIS Information & Contacts	2
AWIS Outreach Programs	2
Historical Profile: Lise Meitner	3
Meet Our Corporate Sponsors	3
Scholarship Sponsors	4
Member Profile: Pam Surko	4
Member on the Move	4
New Members	5
May and June Events	5
Job Opportunities	6

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email: baawis@nethere.com or AWIS, PO Box 178096, San Diego, CA 92177-8096. If you would like your article to be included in the next issue, please send it by August 4, 2000

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AWIS Members Judge Science Fair

by Dawne Page

The Greater San Diego Science and Engineering Fair was a great success this year. Sixty-seven senior high students and 311 junior high students competed for AWIS awards. With so many projects to judge, we couldn't possibly have completed the task without the participation of a large team of volunteer judges including Lee Fortunato, Anita McElroy, Cathy Manner, Laurie Wood, Barbara Armstrong, Kathryn Parker, Christina Niemeyer, Judith Garfield, Sonya Koo, Laura Waggoner, Michelle Mardahl, Peggy Thompson, Carol Katayama, Rachel Soloff, Celia Bornale, and April Fischer. Thanks so much for donating your time!

We selected 2 senior high girls and 2 junior high girls to receive awards. The winners are:

- **Angelica Riestra** of San Diego, a freshman at Gompers, for her project "The Effect of Lead on the Behavior of Crayfish"
- **Elizabeth Gergurich** of San Diego, a junior at Mt. Everest Academy, for her project "Can the Floor Affect the Stress on a Dancer's Joints?"
- **Christine Garver** of La Jolla, a junior high student at Muirlands, for her project "Effects of Ear Wax on Bacterial Growth"
- **Kristen Greider** of Encinitas, a junior high student at Diegueno Middle School, for her project "Effect of Stormdrain ENC01 on Moonlight Beach Coliform"

Kathryn Parker, Barbara Armstrong, and I organized an award ceremony for the girls and their families in which AWIS presented them with one year memberships to AWIS, award certificates, and books. The girls were very grateful to be recognized for their hard work, and Kristen Greider wrote a very nice thank you note to AWIS saying, "Thank you for evaluating my project and choosing me. I enjoyed going to the reception and meeting some of your members. It was a great experience! Thank you."

Keep in Touch

If you would like to be on our AWIS-San Diego email list and receive AWIS information between newsletter mailings, please send a message to sdawis@san.rr.com. Use "Subscribe to AWIS email" as the subject line and include your full name in the body of your message.

IMPORTANT CONTACTS

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AWIS Members Take Part in Science Camp-In

by Lee Fortunato

Most of us would not think about being in high gear and ready to roll for the next 24 hours at 8 a.m. Saturday morning. Yet four of our members (Lee Fortunato, Veronica Sanchez, Cathy Manner and Nancy Yopp), along with three other brave chaperones, met their 26 charges at just that time on May 20th to begin a fun odyssey of behind-the-scenes tours that would last until early the next morning. We were participating in the Girls' Science Camp-In sponsored each year by the very competent and enthusiastic staff of the Reuben H. Fleet Science Center at Balboa Park. The 26 girls (ages 13 and 14) were selected on the basis of their science-related essays, and were treated to a terrific day of touring and exploration in the park.

We started with a behind-the-scenes tour of the zoo, including a personal chat with some trainers, a chance to pet a kinkajou, and a VERY close encounter with one of the big cats at Tiger River! We then moved on to the Museum of Photographic Arts, where we heard about the origins of the modern day camera and photographic process and tried our hands at making "sun prints". Next, we moved to the Museum of Man, for an introduction to archaeology in which we learned how and what skeletal remains can tell us about a civilization. We also got to see first hand the Egyptian mummy exhibit. After a quick snack and rest on the steps, it was time for a terrific tour of the park grounds led by one of the park rangers. She was wonderfully informed and an inspiration to us chaperones of how to make a difference in young peoples' lives.

After dinner was what I considered the biggest treat of all, the opportunity to view the new IMAX film

Science Camp-In, cont.

"Dolphins" and to chat with the "star" of the film, researcher Dr. Kathleen Dudzinski, who conducts her work while swimming with the dolphins. As a surfer and fellow "creature of the ocean," I was truly inspired and awed by the power and grace of the animals portrayed by the film. As the evening wound down, the girls explored the Fleet museum before lights went out (and all eyes rapidly closed) at midnight. Although we were all pretty exhausted when 7 a.m. rolled around the next morning, the girls had obviously all had a great time and had made some new friends back stage at the park! I would encourage anyone to get involved in these fun and informative days that allow us to contribute something to the next generation of women scientists!

Historical Profile: Lise Meitner, Ph.D.

By Cathy Manner

"I am not important: why is everybody making such a fuss over me?" – Dr. Lise Meitner

Although Lise Meitner often believed that she was undeservedly thrust into the limelight for her accomplishments in the field of nuclear fission, she in fact was denied science's highest award for her pivotal contributions in this area. Meitner overcame both gender and ethnic discrimination to achieve her groundbreaking work, only to be passed over for the 1944 Nobel Prize in favor of her longtime collaborator, Dr. Otto Hahn.

Meitner was born in Vienna, Austria, in 1878, to a prosperous and successful family. Educated privately by a tutor as a child, she entered the University of Vienna in 1901. When she earned her doctorate in physics in 1906, she was only the fifteenth woman to earn a Ph.D. from the university in over five hundred years, and the first to do so in physics.

Following graduation, Meitner moved to Berlin to pursue her growing interest in the emerging field of radioactivity. She accepted a position at the University of Berlin and began her long professional association with radiochemist Dr. Otto Hahn. She characterized the physics of radioactive substances, while he studied their chemistry. The pervasive institutional sexism of that time often made it quite difficult for Meitner to perform her experiments. In the beginning, she was denied access to the university laboratories, and was relegated to a small carpentry studio in the basement with little equipment. Additionally, for many years her only financial support came from a small monthly stipend from her father. Despite these obstacles, the Meitner-Hahn collaboration was extremely fruitful, and from 1924 to 1934 their research team was nominated annually for the Nobel Prize in Chemistry.

In 1934, their attention turned to a recent experiment conducted by Enrico Fermi, on the neutron bombardment of uranium. That experiment had produced several products, and Fermi did not know how to interpret the results. Meitner and Hahn expounded on these studies, although the changing political climate in Germany soon introduced complications. The Nazis, following their rise to power in 1933, gradually deprived Jews of their fundamental freedoms. Meitner, though not religious, was of Jewish descent, and she was eventually forced to give up her faculty position at the university. A few years later, in 1938, she fled Germany for Sweden, fearing for her life.

During her years in Sweden she kept in close contact with Hahn. Hahn continued his work with uranium, and relied heavily on Meitner's insight and interpretation of experimental data. In

late 1938, Hahn reported to Meitner that his latest experiment had yielded radioactive barium. It was Meitner who realized that the uranium nucleus was splitting into two units. Since there was an observed loss of mass, then according to Einstein's famous

equation, $E=mc^2$, energy must be released. Meitner's calculations correctly predicted that Hahn's experiment should yield barium, krypton, and energy. Meitner and her nephew, Otto Frisch, himself a scientist, coined the term "fission" for this process and published a paper in 1939.

For the development of the theory of nuclear fission, which was soon applied to the creation of the atomic bomb, Hahn alone received the 1944 Nobel Prize in Chemistry. Hahn downplayed Meitner's contributions, although complete elucidation of the theory required her insight into the physics as well as his chemical findings. Meitner later earned several awards for her accomplishments, but the Nobel oversight was never acknowledged.

Meitner continued to work in nuclear physics until her retirement in 1960. She remained a staunch advocate for enhancing opportunities for women in science, and for the peaceful use of atomic energy. She died in 1968, at the age of almost 90, leaving an impressive legacy of over 135 published papers.

Meet our Corporate Sponsors

By Janice Payne



Digital Gene Technologies, Inc. has been a generous supporter of AWIS. They were a Platinum sponsor for both the 1999 Women in Bioscience conference and the year 2000 scholarship program. Many thanks to DGT for their support.

DGT was founded in 1995 and one of their company goals is to identify the distribution and expression patterns of genes in any cell or tissue sample. This can be accomplished with their patented automated TOGA (Total Gene Expression Analysis) technology, which was invented by one of the company founders, Dr. J. Gregor Sutcliffe. Dr. Sutcliffe is a Professor in the Dept. of Molecular Biology at The Scripps Research Institute. The TOGA technology is quite powerful in that it allows identification of known or novel genes that may be involved in human disease.

TOGA assigns each mRNA species an identity based on a parsing sequence, a restriction endonuclease cleavage site plus a short adjacent sequence, and the distance from this short sequence to the 3' end of the mRNA. The parsing sequences are used as binding sites for primers in an automated PCR-based assay that reveals the presence

Meet Our Corporate Sponsors, cont.

and relative abundance of every mRNA in a sample, including novel mRNAs that have not yet been described. The pattern of gene expression revealed by TOGA can be compared between

two or more tissue samples. For example, genes expressed by a malignant tumor could be compared to those expressed in non-diseased tissues.

DGT has established a variety of both corporate and academic research collaborations to allow researchers access to the TOGA technology. Immunex Corp in Seattle is using TOGA to identify genes associated with inflammatory diseases of the gastrointestinal tract. Academic researchers at institutions such as The Salk Institute, The Scripps Research Institute, and the Univ. of Illinois have access to TOGA at no charge in the hopes of promoting basic research in genomics. The technology will allow medical researchers to track the effects of drug therapy as well as compare gene expression rates between normal and cancerous tissue. DGT also sells access to their proprietary databases of genomic profiles.

For more information or to check employment opportunities, call DGT at 858-552-1400 or visit their website at www.dgt.com.

**AWIS SAN DIEGO THANKS THE YEAR 2000
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Member on the Move

Kathryn Parker will be in Washington, DC for a year on a Congressional Fellowship where she will gain knowledge of the operation of the legislative branch of the federal government, provide scientific and technical expertise, and forge links between the scientific and government communities. Fellows spend a year working as special legislative assistants to Congress and participating in a seminar on science and public policy. Kathryn tells us she hopes, "to serve as a positive example to government of the value of consulting with the scientific and private sector communities on policy matters."

Moving? Address change? Please give us your new address so you won't miss our mailings! You may email Susan Jennings at sdawis@san.rr.com, leave a message on AWIS voice mail: (619) 687-5580 or mail changes to the AWIS-San Diego, P.O. Box 178096, San Diego, CA 92177-8096.

Member Profile

Pam Surko, Ph.D. Chief Scientist

Science Applications International Corporation (SAIC)

By Christine Haws.

In the dynamic research and development sector of SAIC, Dr. Pam Surko uses her background in physics and engineering to work on a range of artificial intelligence projects for diverse national and international clients. Her responsibilities span from business development and project allocation to hands-on work with neural networks, genetic algorithms and other data mining projects.

Growing up in the 50's when the main employment opportunities for women were nursing and elementary school teaching, Pam exceeded all expectations by getting a scholarship to attend UC Berkeley, where she studied physics at both the undergraduate and graduate levels. Her parents were children of Depression-era farmers in rural South Dakota who, although minimally educated themselves, understood that the key to success was education. "They gave me the confidence that I had a good brain and could do anything I put my mind to," Pam commented.

She enrolled at UC Berkeley as an English major not developing an interest in physics until her junior year. "My experience in high school physics, which was taught by the football coach, was not great," said Pam. "However, taking the elementary physics course (at UC Berkeley) from the Nobel Laureate Luis Alvarez, a dynamic teacher and great scientist, convinced me to switch majors." For the next ten years Pam taught and did research in high-energy physics at Princeton University until making a dramatic career change. "It became clear to me that I was a better engineer than a physicist," she said. In addition, her field of specialization was undergoing some major changes, which would have meant spending more time away from her home and family. "This seemed like an intelligence test I was flunking, so I decided to change fields." She became interested in artificial intelligence and neurophysiology and accepted a position at Bell Labs where she was able to 'earn as she learned.' "I didn't leave academe purposefully," she said, "my other option was to go back to being a post-doc which didn't seem very appealing."

Pam made some interesting comments about her experiences at Bell Labs versus those at Princeton. "The leadership of Bell Labs was actively attempting to provide equity to women scientists, whereas there was no such leadership at Princeton. In fact, the Princeton atmosphere was hostile to young women faculty members at the time, even though there were many fair-minded individuals there. Within the first few months at Bell Labs, I felt like a great weight had been lifted off my shoulders. People didn't assume I was there only because I was a token female; they knew I had something to contribute, and I did".

In 1988 she was offered the opportunity to move back to California as a Senior Scientist with SAIC working on a variety of artificial intelligence projects "and I have been happy ever since," she says.

Does she still see herself as a scientist? "I surely do consider myself a scientist, although certainly not a physicist any more," she remarked. Her background in

Member Profile, cont.

mathematics and problem-solving skills are valuable remnants of her physics education that she applies to her everyday work "I'm especially grateful that my physics education was better centered in liberal arts than my education would have been had I done an engineering degree. Being able to write clearly and quickly and

speak well is an essential part of being an industrial scientist or technologist today.”

Pam joined AWIS in the early '80's, and became the president of national AWIS in 1984. Her experiences at Princeton resulted in her becoming active on the Committee on Status of Women in Physics of the American Physical Society. This in turn led her to AWIS, which she felt was miles ahead of the professional organizations in political sophistication at the time.

In ten years time she'll be of nominal retirement age, although she can't see herself leading a life of leisure. "I will probably take another purely technical job, doing a project that I feel has both interesting science (for selfish reasons) and if successful may decrease the net misery in the world."

WELCOME NEW AWIS MEMBERS

Alycen Nigro TSRI	Barbara Coleman
Anna-Maria Hays TSRI	Jeri McMains
Brenda Kahl Nanogen	Kathleen Scully
Polly Moore UCSD Cancer Center	Dana Hall
Sophie Ramo DigMedia, Inc.	Emily Burke TSRI

May Event: Speaker Tina Nova, Ph.D.

by Joan Zeltinger and Susan Brown

With humor and grace, Dr. Tina Nova shared with us the story of her working life, from humble beginnings as a lab dishwasher to her current position as President and CEO of DNA Dynamics, Inc. As she traced her career path, Nova shared many of the insights about career advancement she gained along the way. She also credits part of her success to the women she met early in her career whose example and encouragement inspired her. After a traditional start in academia, graduate school and a post-doctoral fellowship, Nova joined Hybritech to develop a monoclonal antibody to prostate-specific antigen (PSA, the basis of the current blood test for prostate cancer). At the time, she wondered "am I doing the right thing?" a question she hasn't stopped asking. She encouraged all of us to constantly ask ourselves "am I moving up?" and "is this what I want to be doing?"

The canonical theme of Nova's career has been 5-6 year stints in a given company, during which she is promoted but continues to have the same responsibilities. In each case, she achieved a position with greater responsibilities (and a job title to match) by moving to a new company. Nova made several comments about differences she has observed in the way men and women approach career advancement. For example, when faced with apparent barriers, men tend to walk by or through them, whereas women will often try to work around them, for instance by investing in further training and education.

Career advancement depends on preparedness and timing. Nova warned against jumping too quickly to a position for which you are unprepared. Conversely, becoming too comfortable in a

job and too attached to a company and the people who work there will also hold you back. The key is to seek the balance you need between challenge and comfort. She acknowledged that some moves, such as from director to vice president, are big crossing points in a career. Sometimes the best way to cross such a divide is to join a start-up company at which the institutional hierarchy is not yet entrenched.

Most important of all, according to Nova, is clear communication with the people in a position to promote you. Unless you tell your boss your plans, she cannot know that you want to advance. Communication about career goals and accomplishments is a second area in which Nova has observed differences between men and women. The men she has supervised have tended to stop by before a performance review to remind her of their accomplishments that year. In contrast, women have tended to visit *after* the review, to express dissatisfaction. Nova's advice is to keep track of your accomplishments on a regular basis, and to remind your boss of your contributions, and career goals, before your next review.

Possibly the best part of Nova's talk was hearing the story of a woman who has advanced to the very top. Like her early mentors, Nova's encouragement and example inspire us.

Understanding Your Myers-Briggs Type Led by: Janet McAfee, M.A., Career Counselor UCSD Extended Studies and Public Programs by Marilyn Ferrari

At the June Event, Ms. McAfee provided an excellent workshop for AWIS members to interpret the results of the Myers-Briggs test, which participants completed in advance of the event. The Myers-Briggs, which identifies a set of personal traits, is a tool for increased self awareness and positive interaction

After giving a brief history of the development of the test, McAfee explained how the classifications can be used as a guide to understanding personality type, work-place preferences of the personality types, and for connecting personality types with careers and jobs. The Myers-Briggs also can be used for team building, enhancing communication, enhancing work productivity, counseling, and identifying compatible careers.

The workshop was interactive and instructional; AWIS members were grouped according to their classifications and asked to respond to several questions regarding their preferences for their work situation, including what others like most/least about them, and how supervisors can best motivate them. Members were then asked to discuss their results as a group. The group discussion was a very valuable exercise and provided increased awareness of how different personality types interact and respond to the same circumstances.

Participants were enthusiastic about the event finding it "Excellent," "Very Useful," "Very informative," and "Well-presented." For additional information on the range of career services available through UCSD Extension, contact Ms. Janet McAfee at: jmcafee@ucsd.edu (858-882-8016). The event was organized by Dr. Diana Orentas and the SD AWIS Events Committee.

JOB OPPORTUNITIES

PROJECT DIRECTOR

Would you like to play a key role in advancing better therapeutics for people with cardiovascular disease? Our client has a rare opportunity for a project leader to plan and direct the developmental strategies from clinic to commercialization of a new biologics product. In this crucial role, you will ensure the clinical appropriateness of projects and provide input on safe clinical strategies. Your work will be instrumental in bringing forward a CV therapeutic which could affect millions of lives. In

order to monitor and ensure adherence to prescribed protocols, you will need previous industry experience in clinical project management and an advanced degree (PhD, PharmD, MD, or MD/PhD in Cardiology). Work on IND, NDA or BLA filings would be a plus.

CLINICAL RESEARCHER

Rare opportunity to work with the sponsor company and make a difference in the lives of critically ill patients. It is an exciting time in the clinical evaluation of a new oncology therapeutic at one of biotech's leading companies. In this position of leadership and responsibility at one of San Diego's leading companies, you would initiate studies, negotiate and set up sites, and deal with budgets and regulatory issues. You will play a key role in the evaluation of this anticancer agent in the US and UK. Three to five years of clinical research experience plus a life science degree would be necessary. This is also a tremendous opportunity to be mentored by one of the industry's best clinical researchers.

BS/MS Molecular Biologist/Protein Expression

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DIRECTOR INTELLECTUAL PROPERTY/ ASSOCIATE GC

One of Southern California's premier biotech companies has an exceptional career opportunity as Director of IP or Associate GC. To be considered, you must have a JD with PTO certification and a life sciences background (advanced degree preferred). Experience with patent prosecution as well as transactional or licensing experience would be necessary. Working with one of industry's best GCs at a stable and profitable company, you will experience career growth with an excellent mentor.

MICROARRAY/EXPRESSION DATABASE DEVELOPER

A Big Pharma company in Southern CA is currently exploiting novel approaches to elucidating the genetic basis of disease. Do you have experience designing/implementing relational databases? Have you established parameters for microarray data storage and management? Is your background in genetic or molecular biology with formal training in computer science? There is a great career opportunity in America's Finest City that may be appropriate for you.

For more information about any of the jobs listed above, contact Dr. Barbara Coleman of MSI International at 858-546-2890 or by email at bcoleman@n2.net

ENZYMOLOGIST/PROTEIN CHEMIST (Ph.D.)

A talented enzymologist with 1-5 years experience in enzyme kinetics, catalysis & inhibition will be a key contributor in breakthrough discoveries at a successful, international, Southern California-based biotech company. A broad understanding of enzymology, reaction kinetics, and inhibition testing is required. You must have experience characterizing enzymes, substrates, and inhibitors including defining parameters of allosterism & reversibility. Work with proteases or kinases is ideal. If you are not intimidated by a highly dynamic and intellectually

stimulating environment and enjoy cutting edge science contact us (see below).

Ph.D. PHARMACOLOGIST or PHYSIOLOGIST or ANIMAL MODELER

A great convergence of good science and solid business approach, this still private, pre-IPO biotech company located in the Bay area has a leadership opportunity for someone who has experience evaluating and establishing in-vivo models, designing protocols and validating results, small animal handling/surgical skills, and supervisory experience. Working closely with a Director of Functional Genomics, you will lead a team to develop and establish new animal models for cardio/neuro/or immuno studies.

For more information about any of the jobs listed above, contact Dr. Barbara Coleman of MSI International at 858-546-2890 or by email at bcoleman@n2.net

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Posting Jobs in the AWIS newsletter: To post a job in the AWIS newsletter, contact Barbara Armstrong via e-mail: baawis@nethere.com, or snail-mail: AWIS PO Box 178096, San Diego CA 92177-8096. AWIS will request a donation of \$25.00 per posting to offset the cost of printing and mailing. Deadline for inclusion in the September/October newsletter is August 4. If submitting by snail mail, be sure to write Attn: Newsletter Editor on the bottom left corner of the envelope.