

PUGET SOUND CHEMIST

BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

Volume 61, Number 5

CHEMISTRY



SEPTEMBER 2000

What makes a good problem-solver?



What makes a particular person a good chemistry problem-solver? This question is explored by Professor George M. Bodner of the Purdue University Chemistry Department in his talk titled "Problem Solving: The Difference Between What We Do and What We Tell People We Do" at the September Puget Sound Section ACS meeting at Pacific Lutheran University in Tacoma. The presentation will be at 7 p.m. on Friday, September 22 in Leraas Lecture Hall in Rieke Science Center.

Bodner, who also holds a professorship with Purdue's Department of Curriculum and Instruction, explains his thesis: "[This talk] will introduce a model of problem solving that explains why so much of our attention has been devoted to the analysis of the difference between what content experts do when they solve problems and what they tell their students to do. It will contain a remarkably simple explanation of what we have found to be a significant source of the difference between success and failure in problem solving and conclude with a discussion of how making minor changes in the way we teach chemistry can help students avoid the traps into which they often fall."

The speaker earned his Ph.D. in chemistry at Indiana University and has held positions at University of Illinois

(please see Problem-solving on page 6)

Who: Dr. George M. Bodner, Purdue University

What: "Problem Solving: The Difference Between What We Do and What We Tell People We Do"

Where: Leraas Lecture Hall, Rieke Science Center, Pacific Lutheran University

When: Friday, September 22 at 7 p.m. (dinner, 6 p.m.)

How much for dinner: \$7 (\$4 for students)

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The Bulletin of the Puget Sound Section of the American Chemical Society

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Published eight times during the academic year (September through the following June) by the Puget Sound Section of the American Chemical Society. Total circulation: 1900. Direct all copy to the Editor and advertising correspondence to the Business Manager. The Secretary handles other business. Letters may be edited due to space considerations. Please word-process or type all correspondence!

Puget Sound Section ACS Executive Committee Future Meetings in 2000

Meetings are open to all members and are held at 6:30 p.m. on the second Wednesday of each month. The next meeting of the Executive Committee will be **Wednesday, September 13, 2000, in room 2430C (above the Bookstore) at North Seattle Community College, 9600 College Way North in Seattle.**

Somorjai wins 2000 Pauling Award

The ACS Oregon, Portland, and Puget Sound Sections have named Gabor A. Somorjai the recipient of the 2000 Pauling Award, which honors Linus Pauling, who received the 1954 Nobel Prize in Chemistry and who was a native of the Pacific Northwest. The Pauling Award consists of a gold medal; recipients are recognized for contributions to chemistry of national and international significance.

Somorjai, professor of chemistry at the University of California, Berkeley, will receive the award following a symposium entitled *Surface Science and Catalysis at the Frontiers of Chemistry* to be held October 21 at Western Washington University in Bellingham, WA. Other speakers at the symposium will be Steven L. Bernasek, professor of chemistry at Princeton University, Hans-Joachim Freund, Director of the Department of Chemical Physics at the Fritz Haber Institute in Berlin, and D. Wayne Goodman, Robert A. Welch Professor of Chemistry at Texas A&M University. Bernasek received his Ph.D. degree in chemistry in 1975 under Somorjai's supervision.

Somorjai is known for his pioneering work in developing the molecular foundations of surface science, with particular emphasis on heterogeneous catalysis. In the mid-1960s, Somorjai used low energy electron diffraction (LEED) to make the important discovery that the clean Pt(100) surface reconstructs. In surface reconstruction, atoms at a surface assume positions different than one would expect if the bulk structure of the mate-

(please see Pauling award on page 6)



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Letters

National responds...

Tracy:

Thanks for talking with me earlier today and explaining that your editorial was "simply tongue in cheek" and that no ACS mid-year internal report exists that suggests that the ACS national office is trying to destroy the Puget Sound Local Section (PSS). I was sorry to hear that the PSS executive committee was feeling frustrated and stonewalled by ACS staff and that this was your attempt to get our attention. In the future, I hope that you'll simply call me if you are experiencing any problems. I will certainly try to help.

As we discussed, I've asked Nancy Bock, Speaker Service staff associate, to contact Justine Furutani to confirm all Puget Sound information for the Speakers Service Tours. I believe Justine received the information including a schedule when she attended the leadership conference in January. I have contacted the Membership Retention group and alerted them that you hold your honors banquet in February of each year and it is at this time that you will honor 50-year members. Since we were not aware of that in 2000, we did not send your certificates to you earlier. We will make every effort to ensure that you have them in time for February 2001....

As we discussed, the February 15th deadline is under the purview of the Committee on Local Section Activities (LSAC). After we talked, I reviewed the ACS Constitution and Bylaws and noticed that the February 15th date is in the bylaws. Therefore, I will suggest to LSAC (through their staff liaison, Martha Lester) that they may want to add some caveat on the annual report form that allows for the staff to ascertain the ACS Investment Pool Fund summary information. It could be added to report as it becomes available. In addition, any local section can request a 30 day extension for the submission of the financial statement. I will also contact the Treasurer's Office regarding the timing of this information to see if an earlier date is possible.

Finally, I believe you've already received a note from Sue Jackels suggesting that the Office of Regional Meeting staff is supporting the NORM efforts.

Again, thanks for the opportunity to chat with you earlier today. Certainly, the staff is here to provide excellent support to the members and local sections. I appreciate the feedback and hope that you will contact me directly in the future if you have questions, concerns or suggestions.

Best wishes, Denise Creech, Assistant Director, Membership Division, ACS

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NORM staff is helpful

Dear Colleagues [on the National Regional Meeting Staff],

I am writing about the editorial that appeared in the May/June issue of the *Puget Sound Chemist*. I am concerned that it can be interpreted to reflect poorly on the national regional meeting staff, Nancy Todd, Susan Brandt, Cheryl Brown, Michael Tinnesand and others who are working so hard with us on NORM 2001. I do not agree with Tracy Furutani that National has "stonewalled PSS on planning for NORM 2001." On the contrary, we have had an extremely cooperative and productive relationship with the national staff in the planning for NORM 2001. The training meeting for regional meeting organizers was held in Seattle in 1999, and at that time, Nancy Todd and Cheryl Brown visited our site at Seattle University and since then have been extremely helpful in supporting us in every way as we have planned NORM 2001. It is true that two visits were planned and subsequently cancelled, but I certainly did not construe this as "stonewalling." It just reflects how much the national staff are doing to support so many meetings. We do have a visit scheduled for July 19. I would like to apologize on behalf of the PSS for any tongue-in-cheek comments that could be interpreted in a critical or hurtful way. Please reassure the staff of the Office of Regional Meetings that we are pleased and satisfied with their efforts. We have good communication, excellent advice, good follow-up, pleasant relationships, enthusiasm and encouragement from them. I just returned from NORM 2000, and I can report that their support of that meeting was flawless and made a huge contribution to the success of the meeting. The organizers were extremely appreciative. Just tell the staff to "stay the course and keep up the good work." Editorials like this one that give unfair representation to their efforts should be given no account.

Sincerely, Sue Jackels (General Chair, NORM 2001)

Section awards

Congratulations to **Deborah Wiegand**, Senior Lecturer in the University of Washington Chemistry Department and Councilor for the Puget Sound

Section of the ACS, for winning the S. Sterling Munro Public Service Faculty Award. Wiegand was cited for creating and administering the Science Service Learning Program, as well as her involvement with other outreach efforts with Seattle schools. Wiegand received her Ph.D. in analytical chemistry at Northern Illinois University and has taught for 10 years at UW. She has been a section officer since 1991.

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Pauling award *(continued from page 3)*

rial was abruptly terminated. Somorjai's proposal of clean surface reconstruction for the Pt(100) single crystal surface was controversial at the time, but many other surfaces have been observed to exhibit reconstruction since and this phenomenon is no longer considered surprising. Subsequently, Somorjai used a variety of surface structural techniques to probe increasingly complex surfaces. Research in his laboratory included the first studies of adsorption on stepped surfaces, the first investigation of surface melting and freezing using LEED, the first surface structural studies of molecular crystals, and the first structural characterization of an adsorbed organic molecule using LEED.

Most recently, Somorjai has incorporated scanning tunneling microscopy (STM) and sum frequency generation (SFG) into the wide array of techniques used in his laboratory to investigate surfaces. These techniques have been utilized not only for in-situ study of heterogeneously catalyzed reactions, but also in the fields of tribology, electrochemistry and biological materials. In addition to his multitude of scientific achievements, Somorjai has made remarkable contributions to the field of surface chemistry as a teacher and spokesman. In his 36 year career at Berkeley, he has trained more than 90 graduate students and over 100 postdoctoral fellows, many of whom have gone on to develop active research programs in surface chemistry and related areas.

Somorjai was born in Budapest, Hungary where he studied chemical engineering at the Technical University, Budapest. He fled Hungary in 1956 with his future wife, Judy Kaldor, and emigrated to the United States in 1957. Somorjai received his Ph.D. degree from the University of California Berkeley in 1959 and subsequently took a position with the solid state materials group at IBM Research. While at IBM, Somorjai persuaded the management to purchase the first commer-

(please see more Pauling award on page 8)

Problem-solving *(continued from page 1)*

at Urbana-Champaign and Stephens College before settling at Purdue University. He has won numerous awards, including the Chemical Manufacturers Association Catalyst Award in Chemical Education in 1989 and the Alpha Lambda Delta "Best Freshman Professor" Award in 1989-90, the first year the award was given.

The talk will be preceded by a pizza dinner at 6 p.m. in Rieke Science Center Lobby. The cost for the dinner is \$7 (\$4 for students) and RSVPs should be made to Toni Curtis at (253) 535-7530, curtisaa@plu.edu or Craig Fryhle at (253) 535-8314, fryhle@rainier.chem.plu.edu by 5 p.m. on September 21. Reservations may also be made through Kathy Hohstadt at (425) 823-9210, hohstadt@jps.net.

To get to Rieke Science Center at Pacific Lutheran University, take exit 127 off Interstate 5 and head east on Highway 512. Take the first exit (Steele Street) and turn left. Stay on Steele as it curves left and becomes 116th St. South. At the three-way stop, turn right on Spanaway Loop Road. Continue south for seven blocks, then turn left onto Garfield Street. Follow Garfield as it curves to the right and becomes 12th Avenue. Turn left on 123rd Street, which brings you to the PLU campus. Rieke Science Center is a brick building with three peaks just north of 123rd Street and east of 10th Avenue. Park in the Olson Lot, which is just north of 124th Street. PLU's website, www.plu.edu/about/map.shtml, contains an excellent map.

High school teachers

Researchers and high school teachers: Join Partners in Science — Partners in Science, sponsored by the M.J. Murdock Trust, provides opportunities for high school science teachers to work at the cutting edge of scientific research. Teachers and academic scientists collaborate on a research project beginning the summer of 2001 and continuing through the academic year and the following summer. Teacher applicants must be active in high school classroom teaching and possess academic qualifications in the research discipline. Awards include teacher stipends for two summers, discretionary and travel funds, and support for enrichment activities during the academic year. Deadline for applications for the summer of 2001 is December 1, 2000. Begin now to find your partner!

Information and applications available from Partners in Science Program, M.J. Murdock Charitable Trust, P.O. Box 1618, Vancouver, WA 98668, or call: (360) 684-8415 or (503) 285-4086. Visit the website: www.murdock-trust.org

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More Pauling award *(continued from page 6)*

cially available LEED apparatus so that he could undertake basic surface science studies on materials of interest to IBM. In 1964, Somorjai accepted a faculty position in chemistry at Berkeley where he has been ever since. He has also been a principal investigator at the Lawrence Berkeley Laboratory since that time. Somorjai has published over 750 articles and has authored three textbooks, starting with the Principles of Surface Chemistry published in 1972, Chemistry in Two Dimensions: Surfaces in 1981, and Introduction to Surface Science and Catalysis, which was published in 1994. He serves on the editorial boards of fourteen journals and is Co-Editor in Chief of Catalysis Letters. Somorjai's list of awards includes the Wolf Prize in Chemistry, the Von Hippel Award of the Materials Research Society, as well as the Adamson, Debye, Colloid and Surface Chemistry Awards, and the Award for Creative Research in Catalysis, all from the American Chemical Society. Somorjai is a member of the National Academy of Sciences, a fellow of the American Association for the Advancement of Science, and an Honorary Member of the Hungarian Academy of Sciences.

The Pauling Symposium will begin at 1:30 p.m. on Saturday, October 21 and will be followed by a reception which is open to the public. A no-host dinner and the Pauling Medal presentation begin will begin at 7:00 p.m., with all activities held on the Western Washington University campus. This year's award chair is WWU professor Mark E. Bussell and the symposium chair is WWU Professor James R. Vyvyan. For more information, call (360) 650-2883 or visit the 2000 Pauling Award website at the WWU Chemistry Department webpage: <http://www.chem.wwu.edu>.

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