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# **PUGET SOUND CHEMIST**

BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

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Volume 57, Number 6



SEPTEMBER 1996

*For details of the Pauling Award Ceremony and  
the October Meeting featuring speaker Dr. Clifford Schrader see inside.*



# PUGET SOUND CHEMIST



## BULLETIN OF THE PUGET SOUND SECTION AMERICAN CHEMICAL SOCIETY

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### Editor

V.K. Bhat 206-745-9550

### Business Manager

Brad Burford 206-885-5010  
Ext: 5377

### Secretary

Sara Selfe 206-543-7835  
selfe@chem.washington.edu

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Fax: 360-650-2826

wicholas@chem.wvu.edu

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Fax: 206-344-4390

hbryce@seaccc.sccd.ctc.edu

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W: 206-616-1875

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forraw@u.washington.edu

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Fax: 360-650-2826

kriz@chem.wvu.edu

Deborah Wiegand (1996) 206-543-1653

wiegand@chem.washington.edu

Tim Hoyt (1997) 206-756-3833

### Typesetting

P. Horbett Graphic Design

2366 Eastlake Ave. E. #317

Seattle, WA 98102

206-328-6278 FAX: 206-328-0246

phorbett@aol.com

### Printing

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2370 Eastlake Ave. E.

Seattle, WA 98102

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**Puget Sound Chemist**, P.O. Box 24032, Seattle, WA 98124-0032

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## Puget Sound Section, ACS, Executive Committee Future Meetings in 1996

Meetings are open to all members and are held on the second Wednesday of each month.

October 9, November 13, December 11

Place: North Seattle Community College

Meeting: 6:30 PM in 2430C

Room 2430C is on the second floor above the book store.



# SEPTEMBER MEETING

- DATE:** Thursday, October 17, 1996
- FEATURED SPEAKER:** Dr. Clifford L. Schrader  
Summit County Science Consultant  
Ohio
- PROGRAM:** "Toxic Chemicals In The Environment"
- LOCATION:** Evergreen State College, Olympia, WA  
Cedar Room, Longhouse Center
- DIRECTIONS:** From I-5, in Olympia, take exit 104 to Highway 101 going north. Continue on 101 to Evergreen State College exit and follow the directions to the college. Take the main entrance to the campus, go past the parking booth (pay \$1.00 for parking) and park in Lot B. Directions to the Longhouse Center will be provided from the parking lot.
- SCHEDULE:**  
5:30 p.m. - Social Hour  
6:30 p.m. - Dinner, Faculty Club  
8:00 p.m. - Program, Cedar Room, Longhouse Center
- Please join us for the program even if you are unable to join us for the dinner.
- COST:** \$18.00 per person for dinner
- NOTE:** When you make reservation for dinner, you have an obligation to pay. Once the food is ordered, the section is billed even if you do not show up.
- RESERVATIONS:** All reservations must be made by noon, **Friday October 11, 1996**. Please call: Seattle: 527-3747; Bellingham: 650-3070; Tacoma: 535-7530
- OFFER TO STUDENTS:** The section will pay half the cost of dinner for the first ten students (high school, undergraduate, or graduate) who call 527-3747.

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## CLIFFORD L. SCHRADER, Ph.D., WILL BE THE FEATURED SPEAKER AT THE OCTOBER MEETING OF THE PUGET SOUND SECTION

Dr. Schrader graduated from Purdue University with honors. After completing a B.S. in chemistry and mathematics in 1960, he began a teaching career in science and mathematics at Crawfordsville, Indiana. After proving his versatility by teaching physics, chemistry, biology, general science, algebra, and geometry, coaching football, basketball, and golf, as well as directing the class plays at a small high school in Indiana, he moved to Dover Ohio. Except for one year of residency spent earning Ph.D. from Purdue University, he taught principally chemistry, but also other science and mathematics classes at Dover High School until 1990. From then until the present, he has been employed as a Science Consultant with the Summit County Board of Education where his task is teaching teachers.



Dr. Schrader has done postgraduate work at Cornell, Kent State University, Ohio University, Princeton, and the University of California at Berkeley. His research interests include concept formation in learners from elementary to college, problem-solving in chemistry, cognitive theory, radon levels in homes, and the chemistry of molybdenum.

He has held several state and national offices, including President of the Science Education Council of Ohio and of The Association of Presidential Awardees in Science Teaching. He is currently chairman of the Akron Section of the American Chemical Society.

Awards received include a regional Catalyst Award from the Chemical Manufacturers Association, the Presidential Award in Science Teaching, the Ashland Golden Apple Award, and the 1989 James Conant Award of the American Chemical Society.

A constant reader, Dr. Schrader has read an average of 300 books a year for the past fifty years. While the books are mostly fiction with special interests in science fiction, mysteries, and historical novels, Dr. Isaac Asimov and Carl Sagan are among his favorite science writers.

Other special interests include a decade as a golf nut, another as a teaching and tournament tennis player, and hobby woodworking. Hobby work includes the multi-year projects of building a walnut grandfather clock and converting 3,000 parts on the garage floor into a replica of a 1954 MG TD sports car. A current interest is learning to use technology effectively.

Dr. Schrader is a coauthor of four books published by D.C. Heath, as well as numerous articles published in the *Journal of Chemical Education*, *The Science Teacher*, *Chem 13 News*, and *The Agora*.



Dr. Schrader was a member of the Ohio Model Science Curriculum Advisory Board, the writing team, the Ohio Science proficiency Test Writing Committee, and the East Regional Professional Development Center Buckeye Assessment Team for Science.

He is a consultant on chemical safety and toxicity, and teaching higher level thinking skills and problem-solving.

Dr. Schrader has given more than 200 talks, which include ACS Tour Talks, papers presented at national meetings, and presentations at international conferences in Russia, Canada and Brazil.

## ABSTRACT

### TOXIC IS NOT A SYNONYM FOR CHEMICAL

*Toxic Chemicals* is an association that occurs easily to the general public. Chemists know, if the general public doesn't, that everything we use and we ourselves are chemicals. Some very useful chemicals that have been discovered and developed by chemists are regarded as harmful to human beings because these chemicals are toxic. The toxicity of a given substance depends on many factors, such as the size of the dose, the method of exposure, and the length of time between successive exposures.

It is not possible to have an environment that is completely free of toxic substances. Where harmful chemicals are present in the air or the water, the reduction of these substances must be weighed against the cost of proposed cleanup procedures. The Delaney clause of the Environmental Protection Act requires that no carcinogen may be present in any amount in any food or drugs. Recent advances in the detection of very small amounts of substances have had a great impact on this problem.

What can a chemist do to educate the public so that realistic assessments of risks can be made? What is the obligation of chemists to the community?

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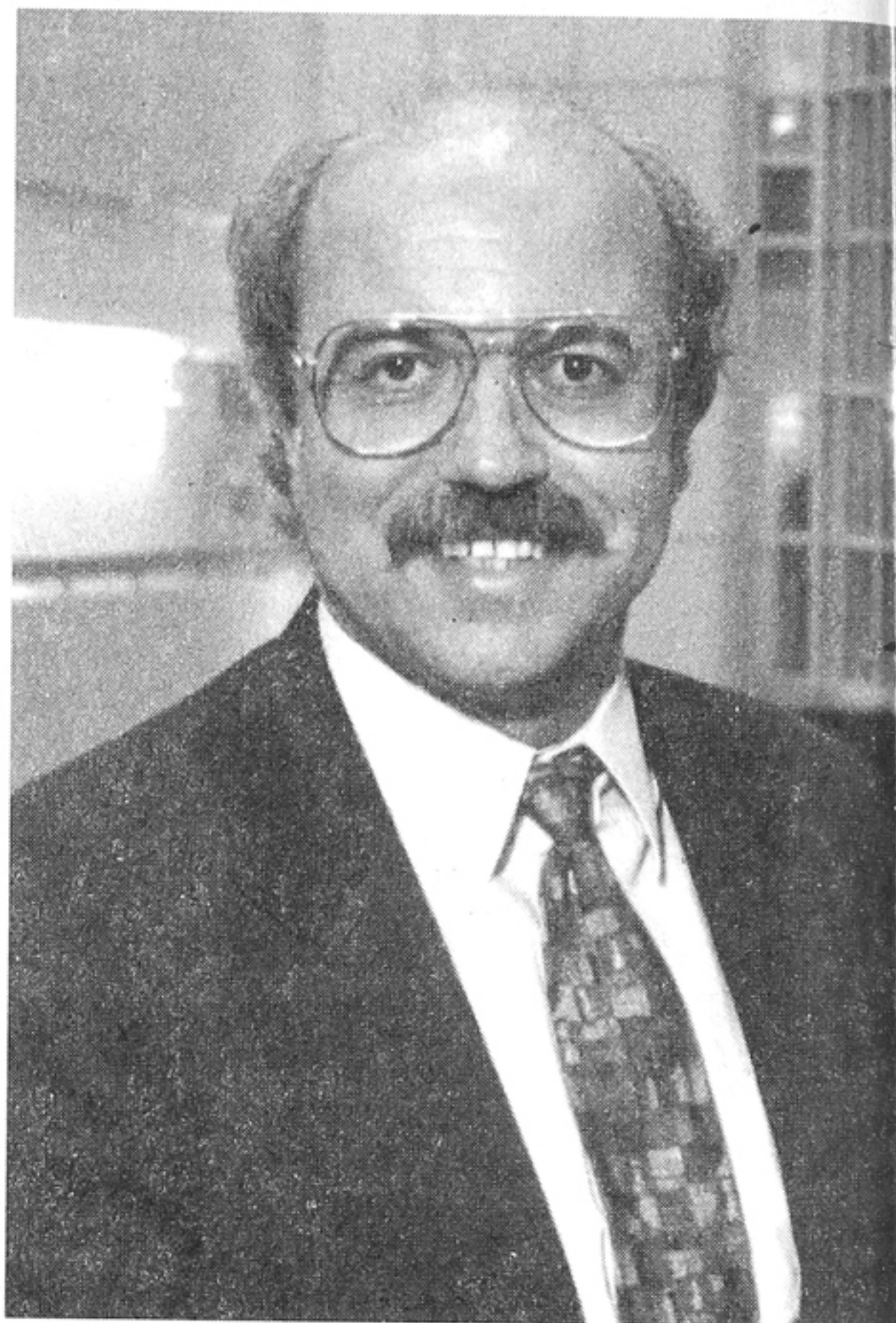
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## **1996 PAULING MEDAL AWARD SEATTLE UNIVERSITY, SEATTLE, WA OCTOBER 19, 1996**

### **PROFESSOR KYRIACOS C. NICOLAOU, 1996 PAULING MEDALIST**

The 1996 recipient is Professor Kyriacos C. Nicolaou who holds joint appointments as Darlene Shiley Professor of Chemistry and chairman of the Chemistry Department at the Scripps Research Institute and Professor of Chemistry at the University of California San Diego. The award ceremony will be held on October 19, 1996 at the campus of Seattle University in Seattle, Washington, and will include a symposium in the afternoon followed by a champagne reception and the Award Banquet featuring the Pauling Award Address by Professor Nicolaou.

The Pauling Medal Award, cosponsored by the Oregon, Portland, and Puget Sound Sections of the American Chemical Society, annually acknowledges outstanding achievement in chemistry and contributions to the field that have merited national and international recognition. The award is named after Dr. Linus Pauling, a native of the Pacific Northwest, because of the inspiration of his example. The 1996 event is being organized by the Puget Sound Section of the ACS.



A native of Cyprus, Professor Nicolaou studied chemistry at the University of London (B.Sc., 1969, Bedford College) followed by graduate study with Professors F. Sondheimer and P. J. Garratt at University College (Ph.D., 1972). He then moved to the United States for postdoctoral appointments at Columbia University with Professor T. J. Katz (1972 - 73) and at Harvard University with Professor E. J. Corey (1973 - 76). He then accepted an appointment at the University of Pennsylvania where he rose through the ranks to become the Rhodes-Thompson Professor of Chemistry. In 1989 he moved to the Scripps Research Institute and the University of California San Diego.

Nicolaou is world renowned for his pioneering work in the total synthesis and chemical biology of complex natural products. His syntheses are often accompanied by elegant designs of new synthetic strategies and of novel biological mimics of the target molecules. Among his landmark achievements are the total syntheses of amphotericin B (1987), calicheamicin (1992), rapamycin (1993), Taxol<sup>TM</sup> (1994), zaragozic acid (1994), and brevetoxin B (1995).

Professor Nicolaou has received many esteemed national and international awards for his work, among them the ACS Award for Creative Work in Synthetic Organic Chemistry



1993), the Janssen Prize for Creativity in Organic Synthesis (1994), the Rhone-Poulenc Silver Medal (Royal Society of Chemistry, London), 1995), the Ernest Guenther Award in the Chemistry of Natural Products (ACS, 1996), the Chemical Pioneer Award (American Institute of Chemists, 1996), and the Inhoffe Medal (Gesellschaft für Biotechnologische Forschung, 1996), and the Nichols Medal (ACS, New York Section, 1996). He was elected to the American Academy of Arts and Sciences in 1993 and to the National Academy of Sciences in 1996.

## 1996 PAULING AWARD SYMPOSIUM

The Pauling Award Symposium will begin at 1:30 p.m. at the Pigott Auditorium on the Seattle University campus. The program will include Dr. Paul Anderson, ACS President-Elect, Vice President, Chemical and Physical Sciences, DuPont Merck Pharmaceutical Company, Dr. Chi-Huey Wong, Ernest Hahn Chair in Chemistry, The Scripps Research Institute, and Dr. Erick M. Carreira, Associate Professor of Chemistry, California Institute of Technology. The symposium will be followed by a social hour scheduled at 5:30 pm. Both the symposium and social hour are free.

The Pauling Award Banquet will follow the social hour, service beginning at 7:00 pm at Casey Commons, Seattle University. Following the dinner will be the presentation of the 1996 Pauling Medal and Professor Nicolaou's Award Address.

The charge for the banquet is \$30.00 per person.

For information about the Pauling Award ceremonies please visit the web site: <http://www.seattleu.edu/~sjackels/pauling.html>, or address inquiries to: Prof. Susan C. Jackels, Department of Chemistry, Seattle University, Seattle, WA 98122-4460; Telephone: (206) 296-5946; email: [sjackels@seattleu.edu](mailto:sjackels@seattleu.edu).

**Getting to Seattle University:** From north of Seattle, take the James Street exit off I-5, exit 165; from south of Seattle, take the James Street exit off I-5, exit 164A; from east, take I-90 to Seattle and exit to I-5 North and take James Street exit, exit 164A. Then continue east on James Street to Broadway. Turn left on Broadway and go north to the parking garage at Broadway and Columbia, across from the entrance to Swedish Hospital. There are a few visitor parking spots on the first level, otherwise take any spot that is not reserved.

**Please make reservations for the banquet before October 10, 1996** by using the following form and mailing it with your check, made out to Seattle University, to : Ms. Doris Sidrovich, Department of Chemistry, Seattle University, Seattle, WA 98122-4460. The seating for banquet is limited and therefore early reservation is advised.

Enclosed is my check in the amount of \$\_\_\_\_\_ for \_\_\_\_\_ person(s) @ \$30.00 per person to attend the 1996 Pauling Award Banquet to be held October 19, 1996, at 7:00 p.m., Casey Commons, Seattle University.

The banquet will be served as a sit-down dinner and includes salad, bread, entree, vegetables, dessert and wine. Please indicate your selection: \_\_\_\_\_ Meat, \_\_\_\_\_ Fish, \_\_\_\_\_ Vegetarian.

Thank you,

Name: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Telephone: \_\_\_\_\_

Address: \_\_\_\_\_



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## LINUS PAULING 1901-1994

Linus Carl Pauling was born in Portland, Oregon, on February 28, 1901. He graduated from Oregon Agricultural College in 1922 with a bachelor of science degree in chemical engineering. He went on to the California Institute of Technology where, in 1925, he received a doctorate in chemistry. After a year abroad, Dr. Pauling joined Caltech as a faculty member and remained there for over three decades. Following stints at the Center for the Study of Democratic Institutions, University of California San Diego, and Stanford University, he established the Linus Pauling Institute of Science and Medicine in Palo Alto, CA, in 1973.

Pauling's wide-ranging scientific work has had enormous influence on almost every field of chemistry. Among his interests have been the structure of molecules and crystals, the nature of chemical bonding, immunochemistry and disease and, more recently, "orthomolecular medicine" - the determination of the optimal amounts of substances, such as vitamin C, for maintenance of good health. His discovery of the structure of several proteins, including the famous alpha-helix, led to his 1954 Nobel Prize in Chemistry. He was the recipient of numerous other prizes and medals, including the first Pauling Medal in 1966,  
(Continued on page 11)

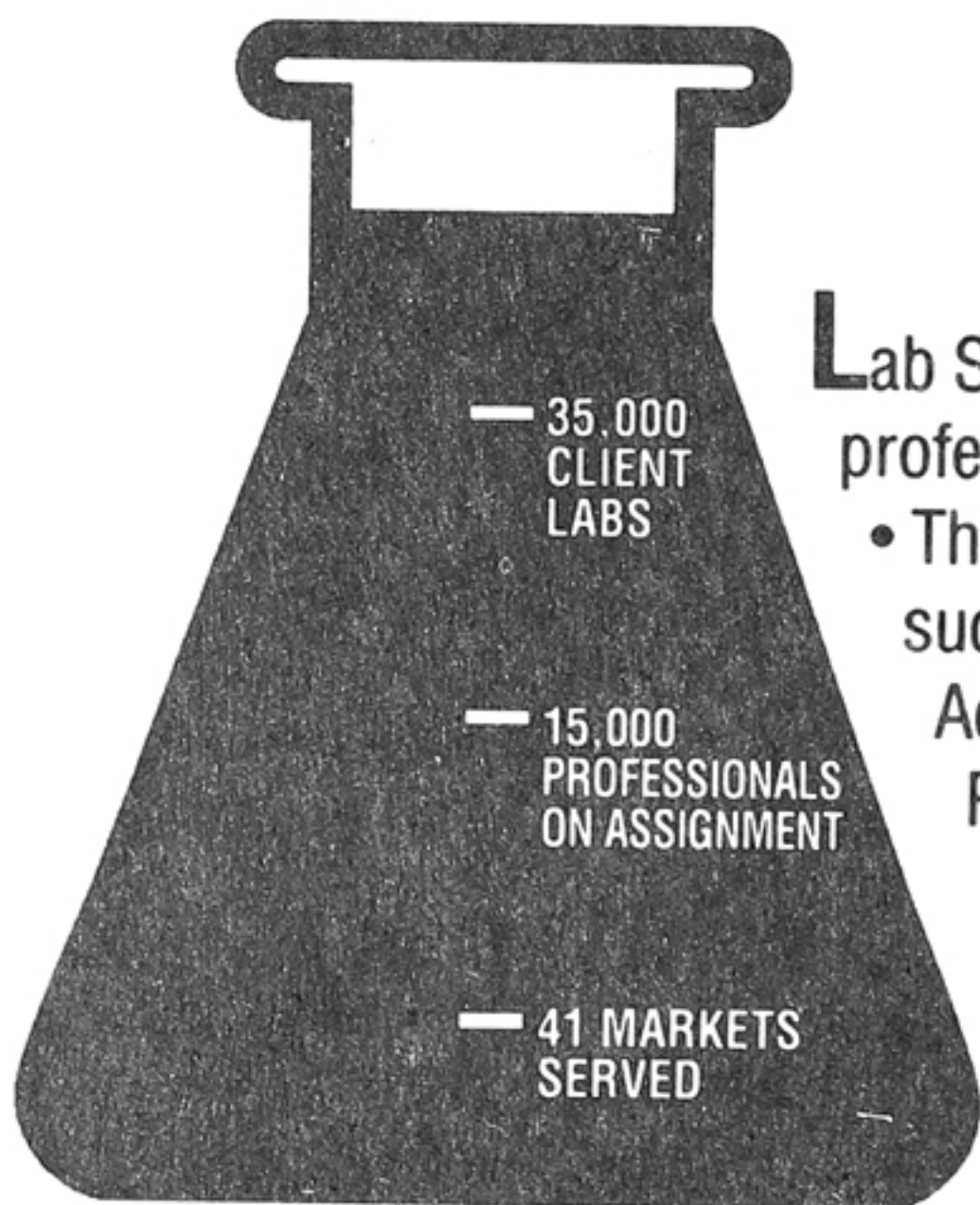
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# PUGET SOUND SECTION OFFICIAL BALLOT FOR 1997 OFFICERS

Please complete the ballot, remove this page, fold and seal it, and mail to Ms. Sara Selfe, Secretary, ACS Puget Sound Section, P. O. Box 24032, Seattle, WA 98124-0032. The deadline for completed ballots is October 30, 1996.

Although it may seem unnecessary to vote when candidates for the offices are unchanged, it is important to show that you support the ballot. Besides, we need certain percentage of ballots returned to validate the election. Please show your support of the section by sending in your completed ballot today.

## Chair Elect (vote for one)

☐ Richard Van Dorne, American Analytical Laboratory

## Secretary (vote for one)

☐ Sara Selfe, University of Washington

## Treasurer (vote for one)

☐ David Munch, Seattle Central Community College

## Councilor - three year term, 1997 - 99 (vote for one)

☐ Mark Wicholas, Western Washington University

## Alternate Councilor - three year term, 1997 - 99 (vote for one)

☐ Deborah Wiegand, University of Washington

**Richard Van Dorne**, was born in Massachusetts and grew up in Orange County, CA. He attended college at the University of California, Irvine, where he received his B.S. in Chemistry in 1986. He received a M.S. Degree (in Analytical Chemistry) at California State University, Sacramento, in 1993. He has worked at various environmental laboratories before and after his Master's Degree. He has taught (part time) General Chemistry at Olympic College for a year before taking his present position as Health and Safety Manager/Senior Chemist at American Analytical Laboratories, Inc., in Seattle, WA. His research interests are developing HPLC techniques for environmental and chemical analysis. He would also like to develop ties between industry & academe for the development of younger chemists wanting to find a place in our community.

**Sara Selfe**, candidate for the position of Secretary, did her undergraduate studies at Wayne State University and continued her graduate studies at the University of Washington earning her Ph.D. in 1984. Subsequently, she was a Howard Hughes Fellow in the Department of Pharmacology at the UW Medical School. With her interest in educational issues, she first served as Director of Undergraduate Services in the UW Department of Chemistry and then worked in the UW Center for Instructional Development and Research on improvements in entry level science courses through the state funded Entry Level Initiative. Sara Selfe is currently a faculty member in the Department of Chemistry at the University of Washington, where she serves as division coordinator for the Chemical Education Division. She has been the Secretary of our section since December 1995.

*(Candidate Information continued page 10)*



**David Munch**, candidate for the position of Treasurer, has been our treasurer for a number of years. He earned his Ph. D. in theoretical chemistry from the University of Washington and has been teaching at Seattle Central Community College.

**Mark Wicholas**, candidate for the position of Councilor, is chairman of Chemistry Department at Western Washington University in Bellingham. He has been a councilor of our section for a number of years.

**Deborah Wiegand**, candidate for the position of Alternate Councilor, is from the Department of Chemistry, University of Washington and has been an Alternate Councilor for a number of years.

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**Ms. Sara Selfe, Secretary**  
**ACS Puget Sound Section**  
**P. O. Box 24032**  
**Seattle, WA 98124-0032.**



the ACS Priestley Medal, and received honorary degrees from numerous distinguished universities around the world. His scientific publications number several hundred and include several books.

Science was not Linus Pauling's sole interest. With his wife Ava Helen, whom he met while they were students at Oregon Agricultural College, he was an implacable foe of the spread of nuclear weapons, and he campaigned tirelessly on behalf of this issue. Pauling's public disclosure of the danger to human life from fallout resulting from tests of nuclear weapons in the atmosphere played a major role in the subsequent international agreement banning such tests. For his efforts on behalf of peace, he was awarded the 1962 Nobel Peace Prize. The award's citation acclaimed him for his work, "not only against the testing of nuclear weapons, not only against the spread of these armaments, not only against their very use, but against all warfare as a means of solving international conflicts."

Linus Pauling died on August 19, 1994, at his house in Big Sur coast of California. He was the most distinguished chemist from the northwest.

## Pauling Award Recipients

1966 Linus Pauling	1976 F. Albert Cotton	1986 Harry B. Gray
1967 Manfred Eigen	1977 John A. Pople	1987 Harden M. McConnell
1968 Herbert C. Brown	1978 Dudley Herschbach	1988 Keith Ingold
1969 Henry Eyring	1979 Daniel Koshland	1989 Neil Bartlett
1970 Harold C. Urey	1980 John D. Roberts	1990 James P. Collman
1971 Gerhard Herzberg	1981 Henry Taube	1991 Rudolf Marcus
1972 E. Bright Wilson	1982 George Pimental	1992 Kenneth Wiberg
1973 E. J. Corey	1983 Gilbert Stork	1993 Richard Zare
1974 Roald Hoffman	1984 John S. Waugh	1994 James A. Ibers
1975 Paul Bartlett	1985 Herold Scheraga	1995 Alexander Rich

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