



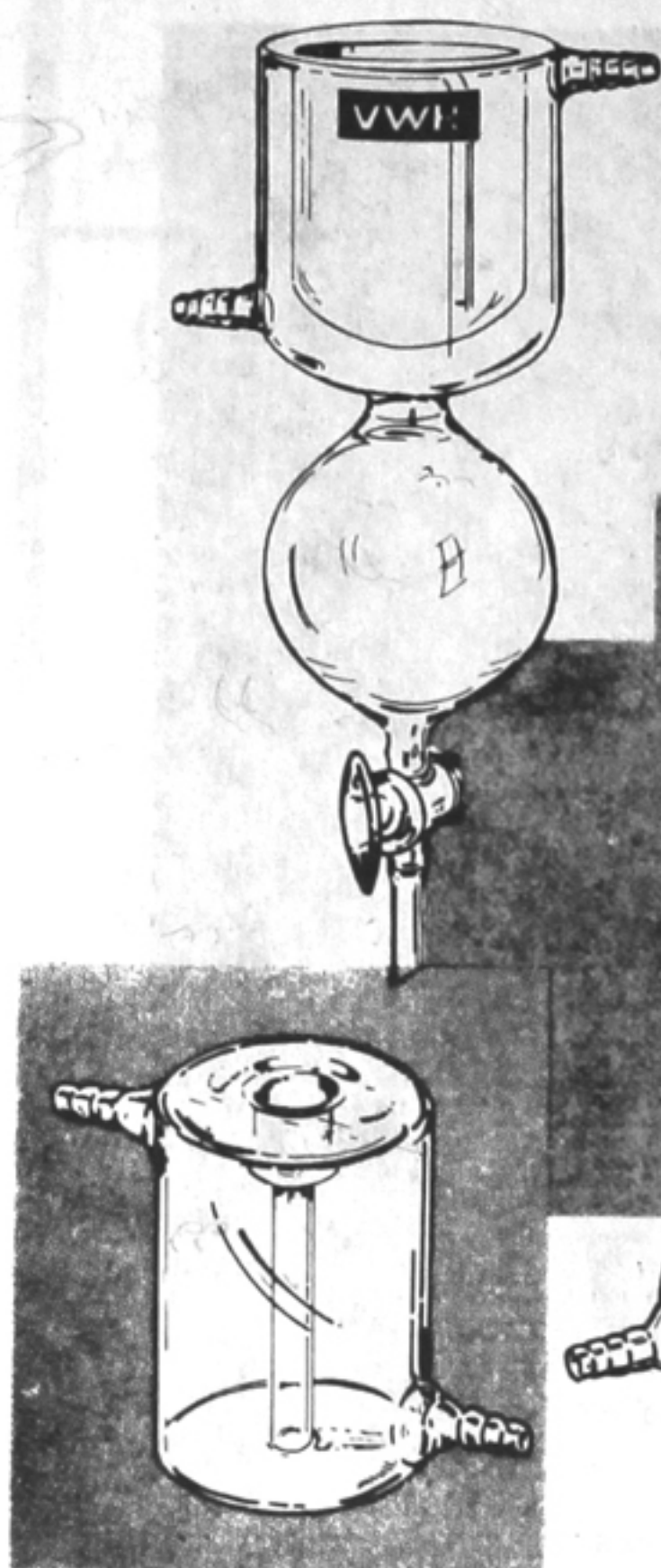
PUGET SOUND CHEMIST

BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

Volume 55, Number 2



April 1994



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On the cover: Herb Bryce, associate dean of instruction for science and mathematics, and an instructor of chemistry at Seattle Central Community College, will be the featured speaker at the April 1994 meeting of the Puget Sound Section of the American Chemical Society (see related articles in this issue).

APRIL MEETING

- DATE:** Thursday, April 21, 1994
- FEATURED SPEAKER:** Herb Bryce
Associate Dean, Science and Math Division
Seattle Central Community College, Seattle, WA
- PROGRAM:** "An Incredible Evening of Chemistry"
- LOCATION:** Shoreline Center
18560 - 1st Avenue NE, Seattle, WA
- DIRECTIONS:** Take the NE 175th St. exit (Exit #176) from I-5 and go west (from south, turn left; from north, turn right) to Meridian Ave. NE. Turn right on Meridian Ave. NE and go to NE 185th St. Take a right and go to 1st Ave. NE and take a left; the Shoreline Center is on your immediate right.
- SCHEDULE:** 6:30 pm - Dinner Buffet
7:30 pm - Program
Please feel free to join us for the program even if you are unable to join us for the dinner.
- COST:** \$12 per person for dinner
- NOTE:** When you make reservations 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, April 15, 1994. Please call: Seattle: 543-1610
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 543-1610.

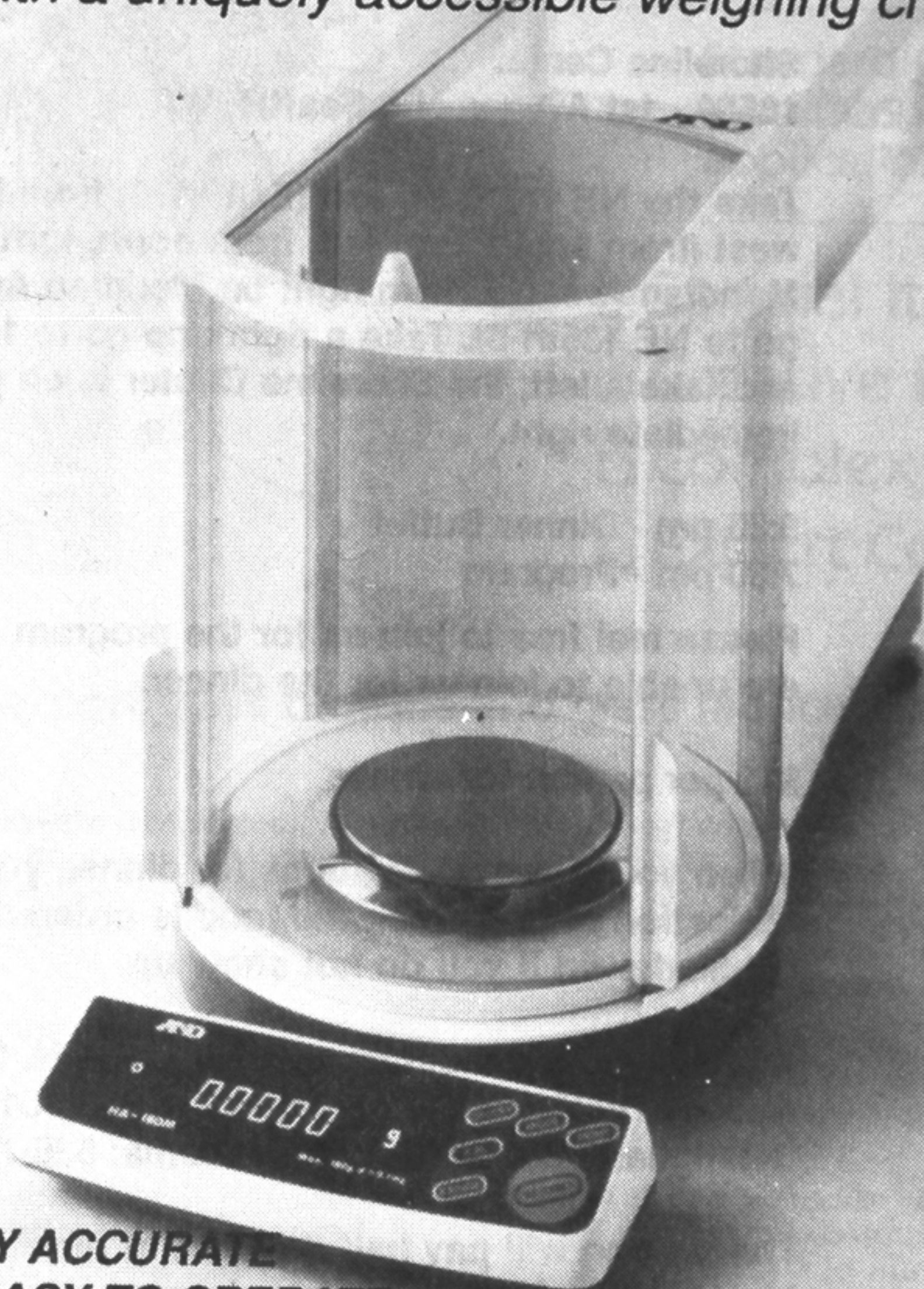
FUTURE MEETINGS 1994

- | | |
|-----------------------------|--|
| June (date to be announced) | Tour |
| Thursday, October 13 | Mr. Patrick J. Hannan on "Serendipity as the Ultimate Research Tool" |
| October | Pauling Award |
| Thursday, November 10 | Dr. Walter C. McCrone on "Judgement Day for the Shroud of Turin" |

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HERB BRYCE WILL "KNOCK OUR SOCKS OFF" AT THE APRIL MEETING OF PUGET SOUND SECTION

Note: The program featuring Dr. Natalie Foster on "*Strong Poison: Chemistry in Mysteries of Dorothy L. Sayer*" for April 11 has been cancelled due to unavoidable reasons. Instead, we will have a very fascinating and entertaining program featuring our own Herb Bryce from Seattle.

Herb Bryce is associate dean of instruction for science and mathematics and an instructor in chemistry at Seattle Central Community College. He has taught courses in chemical demonstrations and presented, both locally and nationally, numerous workshops and demonstrations with ICE (Institute of Chemical Education) Teaching Science with Toys, National Science Teachers Association and NSF. Herb has authored and coauthored books and consulted on a video disk on the techniques and subject of chemistry demonstrations. Well-known among his books is CHEM PACS, an activities book for elementary and middle school teachers.

Herb has been actively involved with the Puget Sound Section of ACS in various capacities, as past chair of the section and lately as an ACS councilor.

The program for the evening, "*An Incredible Evening of Chemistry*", is a presentation of over 20 demonstrations and is guaranteed to "knock your socks off," according to Herb. (Herb's advice: Bring extra pairs of socks if you do not want to be photographed barefooted by our itinerary photographer.)

AMERICAN CHEMICAL SOCIETY TO USE \$2.75-MILLION GRANT FROM NATIONAL SCIENCE FOUNDATION FOR TEACHER-TRAINING PROGRAM

The American Chemical Society (ACS) has been given a three-year, \$2.75-million grant by the National Science Foundation for a training program for chemistry teachers. The program is called Operation Chemistry.

Teaching science can be tough for elementary and middle-school teachers, according to an article in *Chemical & Engineering News (C&EN)*, ACS's weekly news magazine. "Often, teachers with very little undergraduate preparation in science are teaching science courses," says Dr. Ann Benbow, principal investigator for the ACS program. Even when the teachers have taken some college courses in chemistry or physics, they can feel uncomfortable teaching those subjects, she says. Industrial chemistry usually has been left out of their background entirely, she adds.

Operation Chemistry is a train-the-trainers approach to better prepare these chemistry teachers. Beginning in July, 36 four-person teams will attend four-week training sessions. The first two weeks of training at the University of Wisconsin (Oshkosh), and will focus on basic chemistry concepts. The second half of the training will be at Purdue University (West Lafayette, IN) and will emphasize applied chemistry.

Each team will have a college chemistry faculty member, a high school chemistry teacher, an elementary or middle-school physical science specialist, and someone from the local industry who has been involved with pre-high school science education. "The industry team member is extremely important to the project," Benbow says. "That person will provide up-to-date information to teachers about the relevance of chemistry to their lives and to their students' lives."

In the fall, the teams will start working with fourth- through eighth-grade teachers in their home districts, providing a team total of at least 72 hours of training in the 1994-95 academic year. Current funding will provide for training 72 additional teams during the second and third years of the project.

Operation Chemistry is modeled on an American Institute of Physics (AIP) program. AIP's Operations Physics has trained hundreds of science educators who in turn have trained thousands of teachers in regional and local workshops.

If you are interested in participating in Operation Chemistry, please call the ACS for an application at 202-872-6179.

"SCIENCE IN AMERICAN LIFE," A MAJOR SMITHSONIAN EXHIBITION, OPENS AT THE NATIONAL MUSEUM OF AMERICAN HISTORY ON APRIL 27, 1994

From Aspirin to the atom, science has dramatically changed the way Americans have lived over the past 125 years. "Science in American Life," a major permanent exhibition charting many of these changes, opens at the Smithsonian's National Museum of American History in Washington, D.C., on April 27.

Four years in the planning by more than 75 museum staff members, the 12,000-square-foot exhibit and its "Hands on Science Center" are made possible by a \$5.3 million grant from the American Chemical Society, the world's largest scientific society, headquartered in Washington, D.C.

The exhibition begins in the 1870s with the opening of the first research labs in U.S. universities. Visitors are then guided through numerous historical moments selected by the museum as significant "intersections" of science and society in American life.

They will see how Americans in the early 1900s looked to science as the key to better future; how World War II mobilized U.S. scientists to perfect radar, boost the production of penicillin and build the atomic bomb; how plastics and pesticides joined suburban living in the 1950s; and how biotechnology research today may be crucial to cleaning up the environment and treating diseases.

Developed by a team of curators, educators, writers, designers and scientific consultants, the exhibition is based on the theme that in modern America, society and science are inseparable—science has grown into a complex enterprise interwoven with all aspects of life.

"We hope that visitors who see this exhibit will have a greater understanding of the roles science and technology play in their lives," said Chief Curator Arthur Molella, who chairs the museum's department of history of science and technology. "The better informed people are, the better they can assess the difficult choices of the future."

The exhibition features more than 900 artifacts, 600 historical photos and graphics, and 20 computer and mechanical interactives to show how science—its achievements as well as its controversies—has shaped American culture and how Americans have shaped science. Among the many attractions is a family fallout shelter from Fort Wayne, IN; several recreations of pioneering laboratories; and a life-size kitchen, living room and lawn modeled on a tract home built in Albuquerque, NM, in the 1950s.

A major goal of the "Science in American Life" team was to highlight the often overlooked roles that minorities and women have played in science. For instance, an opening section features the early history of Hampton University in Virginia. Its mission was to help former slaves and American Indians adjust to free society; the practical value of science was stressed, especially for agriculture.

The educational "Hands On Science Center" allows visitors to examine the exhibit's science and history messages by doing more than 25 activities such as water-sample testing, exploring DNA fingerprinting and detecting radioactivity in common household objects. "The Smithsonian has never before offered an exhibit with a science center like this," said its developer, Dina Rosenthal. The facility is equipped with gas, running water, electricity and air ducts so that visitors may perform "wet or messy" experiments.

Museum-goers begin their journey through "Science in American Life" by meeting 12 "hosts"—10 scientists and two children, represented by life-size photographs and recorded voices—who give a personal, contemporary perspective to the historical material found ahead. "These real people preview the issues of the show," Molella said. "The hosts bring the past into the present." Several of the scientists reappear in the exhibit, among them Harvard University chemist Cynthia M. Friend, who relates how Ellen Swallow Richards (1842-1911), a Massachusetts Institute of Technology sanitary scientist, provided a precedent for Friend's own career.

The first 9,000 square feet of the show are arranged chronologically, presenting key "intersections" of science and society since the 1870s through varied case studies

contained in six sections: Laboratory Science Comes to America, 1870-1920; Science for Progress, 1920-1940; Mobilizing Science for War, 1940-1960; Better than Nature, 1950-1970; Science in the Public Eye, 1970 to the present; and Looking Ahead.

Among the milestones examined in the case studies are the development of synthetics from coal tar (including aspirin and saccharin); the work of the USDA's volunteer "Poison Squad," who from 1902 to 1904 tested the safety of food; the mass production of penicillin; the wide use of new consumer goods after World War II; the publication of Rachel Carson's *Silent Spring*, which sparked a new era of environmental awareness; and the siting and Congress' recent rejection of the Superconducting Super Collider project in Texas.

Besides linking key scientific developments to changes in American society, the exhibit documents "the shifts in American attitudes toward the idea of scientific and technological progress," Molella said, noting concerns over the tragic 1986 explosion of the space shuttle Challenger and ethical and safety considerations raised by genetic engineering developments. "Judging the benefits and hazards of science and technology is no longer left to scientists," he said. "Science is a matter of public debate."

Additional highlights found in the case-study section of the exhibition include:

- a period setting, featuring a sound-and light presentation, that re-creates a pioneering chemical laboratory opened in 1876 at Johns Hopkins University in Baltimore

- an interactive model showing how an atomic chain reaction works
- original artifacts and photos showing science as a promoter and entertainer at the 1939 World's Fair

- posters, videos and actual equipment recalling the mobilization of science for World War II and the atomic bomb Manhattan Project

- a phrenological skull and tests used in experimental psychology and intelligence testing before World War I

- a Mexican yam of the type used for developing steroids in the birth-control pill and items relating to the rise of the women's movement in the 1960s

- political cartoons inspired by the growth of environmental awareness

"Science in American Life" concludes with the area called "Looking Ahead," which focuses on the science of biotechnology and public attitudes about it. Here, through objects, graphics, mechanical and video interactives (including 3-D modeling), the exhibit explores ways that shifting public needs, interests and values will shape science and society in the years ahead.

Topics such as gene-based medical research (cancer, AIDS, diabetes and other diseases), solid-waste disposal alternatives ("the garbage dilemma") and genetic engineering for improving tomatoes and other foods are considered. "The point here is to encourage visitors to learn basic science and to confront the practical and ethical issues behind the science and technology," said museum specialist Howard Morrison, who developed this area. For instance, visitors are challenged to consider questions such as: "Who will decide the future course of science and technology? How will we benefit? What will it cost? Who will pay the bills?"

The exhibition concludes with a polling station where visitors are asked to respond to questions similar to those above relating to the theme that America, science and society are inseparable. They can then compare their own responses to those of others.

The interactive video disc and interdisciplinary education materials related to the exhibition have been developed for middle school classrooms by the National Museum of American History. These materials are funded by a generous grant from Occidental Chemical Corporation.

The National Museum of American History, a bureau of the Smithsonian Institution, is located at 14th Street and Constitution Avenue N.W. Museum hours are from 10 a.m. to 5:30 p.m. daily, except December 25. Admission is free.

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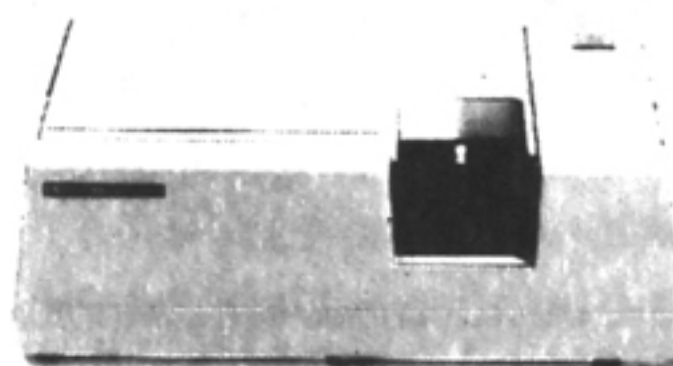
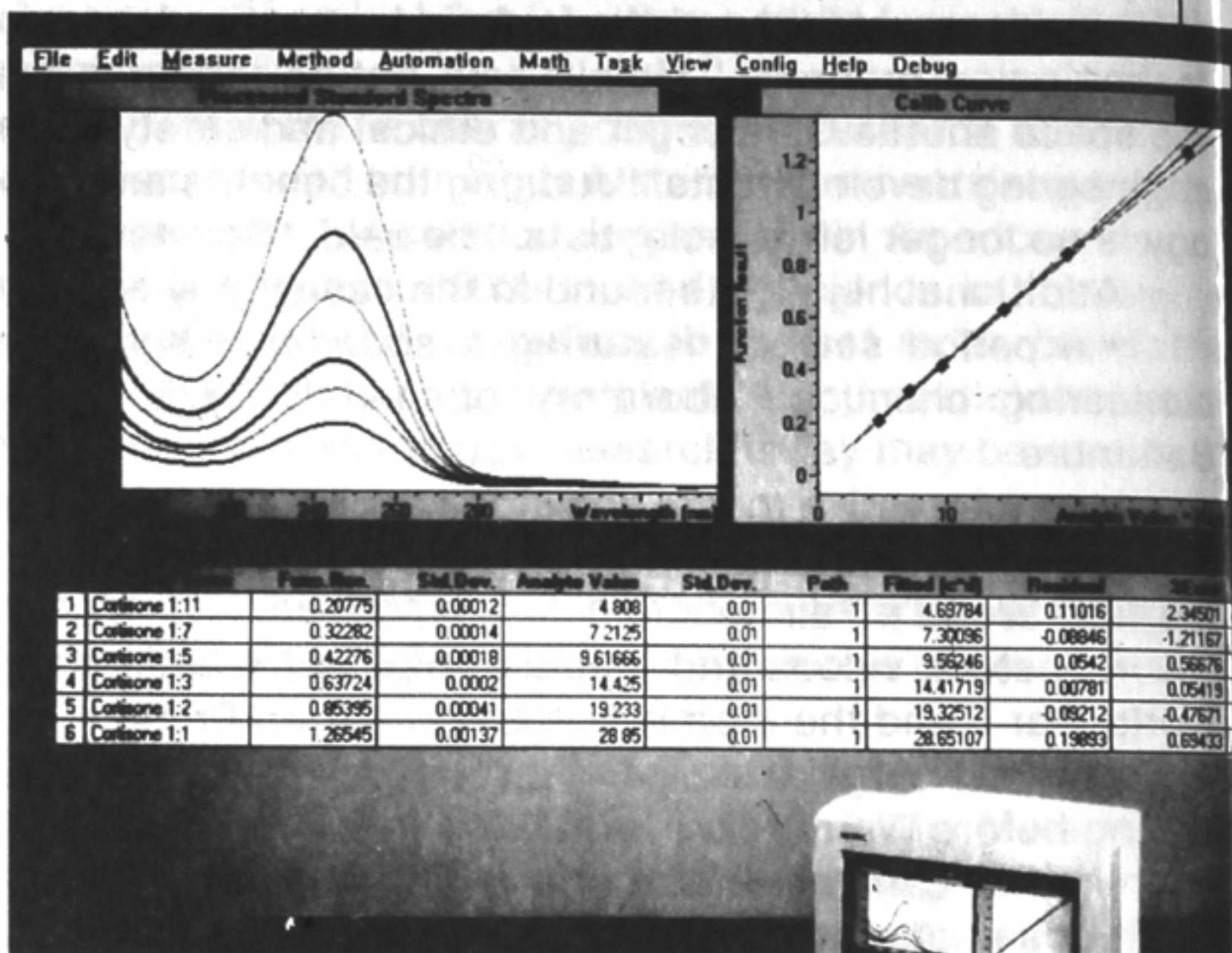
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AMERICAN ASSOCIATION FOR CLINICAL CHEMISTRY PACIFIC NORTHWEST SECTION

PNW-AACC'S 5th SPRING SYMPOSIUM: "TUMORS, HUMORS AND RUMORS"

April 28-29, 1994
Seattle, WA

The Pacific Northwest Section of AACC has scheduled an instrumentation and technical symposium, "Tumors, Humors and Rumors" for the above dates at the Washington State Convention and Trade Center in Seattle, WA. Three half-day sessions for the symposium will focus on the general topics of tumor markers, current issues in immunoassays and endocrinology, and point-of-care testing. There will also be an extensive exhibit show accompanying the technical presentations.

Featured speakers will be Dr. Morton Schwartz, Memorial Sloan-Kettering Cancer Center (on tumor markers); Dr. Daniel Chan, Johns-Hopkins Hospital (on immunoassay systems); and Dr. Margaret Kenny, University of Washington (on point-of-care testing).

Please set aside these dates to visit the beautiful Pacific Northwest, and update your knowledge of these very relevant topics. Member registration for both days (including all sessions, exhibits, two lunches and a wine/cheese reception) is just \$125 when received prior to April 15.

For registration information, please contact Kathy Dugaw, at 206-526-2565.

SUGGESTIONS REQUESTED FOR POSSIBLE NOMINEES FOR THE NATIONAL TECHNOLOGY MEDAL

All ACS members are invited by the committee on Patents and Related Matters (CP&RM) to suggest possible candidates for nomination for the National Technology Medal. Recently funded by the United States Department of Commerce and established by the Stevenson-Wydler Innovation Act of 1980, the medal is awarded annually by the President of the U.S. It may be awarded to individuals, groups, companies or to institutions within the United States for outstanding contributions to technology or for the promotion of the technological workforce.

Nomination documents may be obtained by calling 202-872-8725, or writing to the staff liaison to CP&RM: Ms. Debora Fillinich, American Chemical Society, 1155 Sixteenth Street, NW, Washington, DC 20036. **The deadline for submitting nominations for the 1995 Award is May 30, 1994.**

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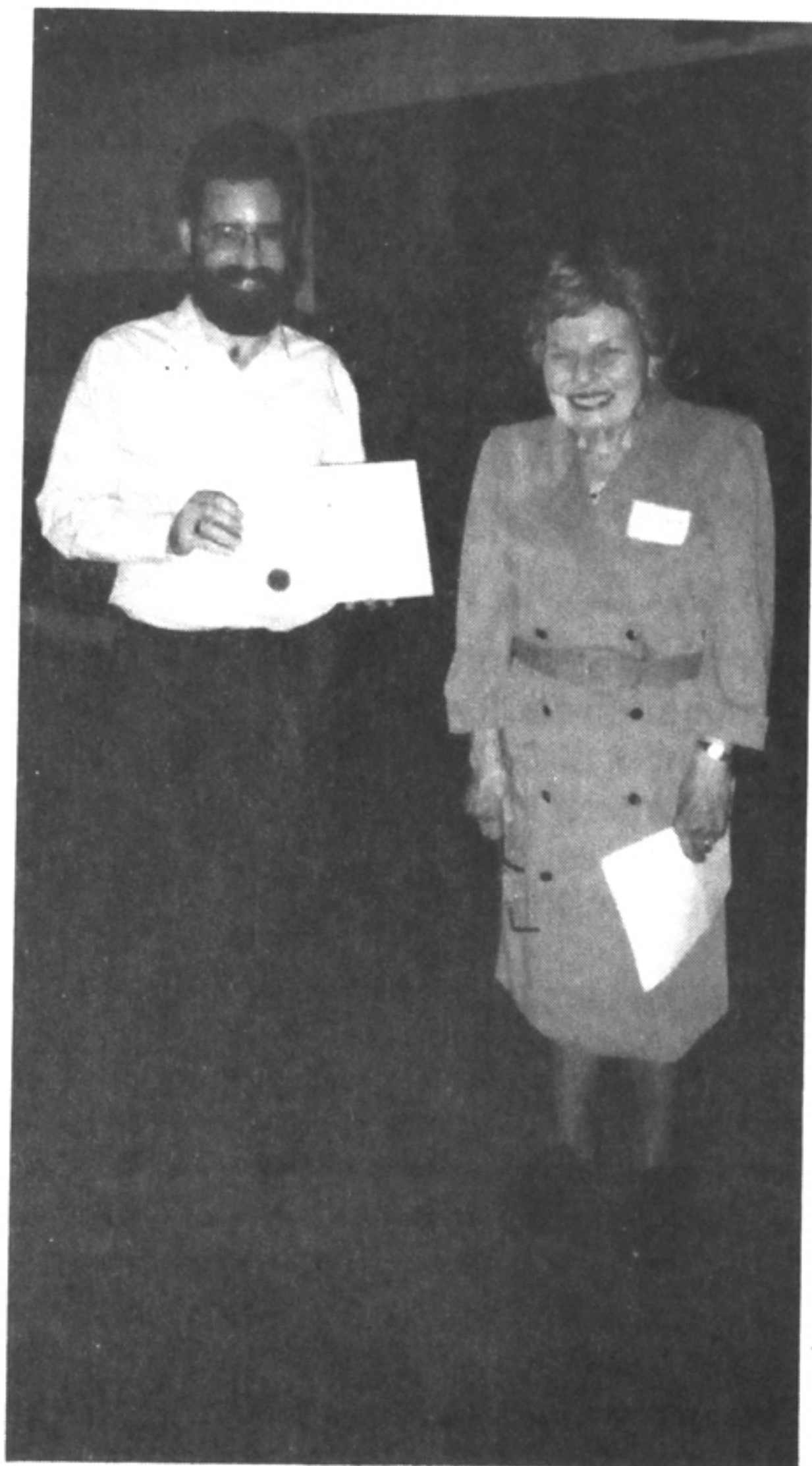
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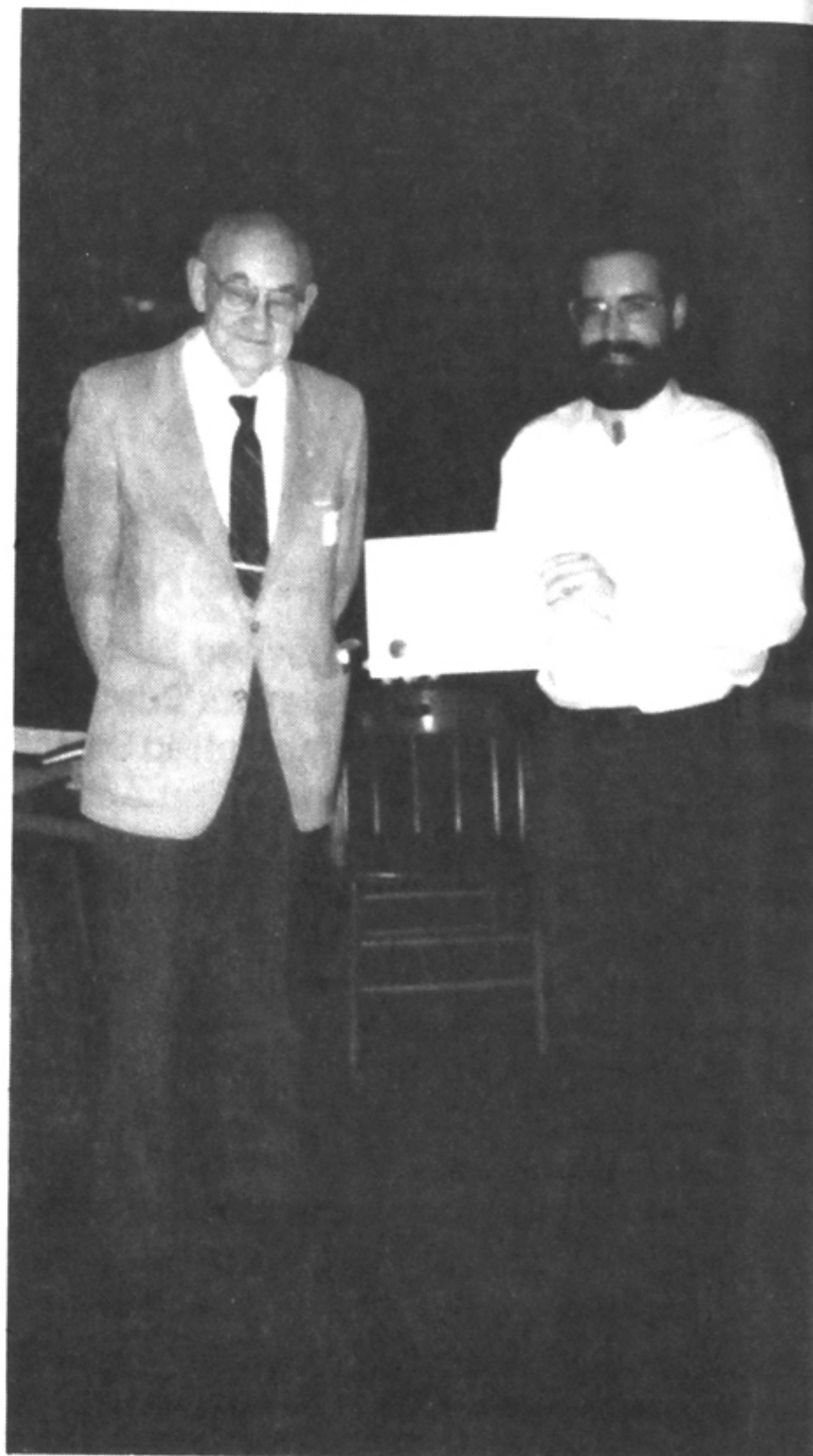
ELIZABETH K. SMITH

Born in Pittsburg, I lived in New Jersey, Louisiana and Florida, where my father was a chemist in the Naval Stores industry. After graduating from Florida State College for Women, I received my M.S. from the University of Michigan and Ph.D. in Biochemistry from the University of Iowa in 1943. I worked in the Pediatrics Department at Iowa for several years doing research in mineral metabolism and nutrition of infants. In 1950, I came to the new University of Washington Medical School to establish a chemistry and

50 year members receiving their certificates from the chair, Dr. Randy Eatherton



Dr. Elizabeth Smith



Mr. Kristen Jorgensen

endocrinology laboratory in the Department of Obstetrics and Gynecology. I returned to Pediatrics in 1958 as a Research Chemist and later Director of Clinical Chemistry at Children's Hospital and Medical Center. My research and publications were in endocrinology and metabolism of infants and children, primarily concerned with hormones of the adrenal cortex. I was co-founder of the Pacific Northwest Section of the American Association for Clinical Chemistry and served in many offices of the Section. I was one of the founding members of the Pediatric Clinical Chemistry Division of the AACC and, more recently, the History Division. I retired in 1983 but continue to volunteer in the laboratory and the Endocrinology Clinic at Children's Hospital.

KRISTEN JORGENSEN

I was born in Denmark on March 31, 1920, and immigrated to Seattle, Washington, with my parents in August, 1928. Seattle has been my home ever since.

Following graduation from Franklin High School, I enrolled at the University of Washington in the fall of 1939 and received my B.S. in Chemistry in June, 1943. In the summer of 1941, I served as an assistant on the M/S Catalyst, research vessel of the University of Washington Oceanography Department. My duties included the collection and chemical analysis of sea water and other samples while the vessel was under way and at regular stations in Puget Sound and the Straits of Juan de Fuca.

Following graduation in 1943 and a tour of duty as a commissioned officer in the U.S. Army during the war, I returned to the University in 1946 for a refresher course in physical chemistry, followed by several graduate courses in 1947. In 1948, I went to work for Monsanto Chemical Co. in Seattle as part of a project to manufacture Vanillin from waster sulfite liquor. This project was completed during the year and, beginning in 1949, I went to work for the American-Marietta Co. in their quality control laboratory in Seattle. At that time the Company had the plant and laboratory in Seattle and a plant in Vancouver, B.C. Another plant was later started in Edmonton, Alberta, Canada, and another one in Portland, Oregon. Subsequently, the plants in Canada were sold to others and plants and control laboratories were established in Newark, Ohio; Peachtree City, Georgia; Richmond, California; Portland and Eugene, Oregon. The Seattle plant and laboratory were eventually closed and operations moved to a new site in Tacoma, Washington. All operations and most laboratory activities directed from the Seattle (later Tacoma) office. This meant all quality control work matters and policies were directed from the Seattle (Tacoma) office. Plant and laboratory visits by quality control management were frequent. As time went on, quality control also supervised safety and environmental operations and compliance with the same.

During the last eight or ten years I visited each plant at least once or twice each year to oversee quality and environmental safety matters. All applications for discharge permits, etc., were reviewed, or processed and submitted by the Tacoma Quality Control Department. During the last few years, approximately half of my time was taken up in the continual review of safety and pollution control requirements and the submittal of reports to management and, most important, the appropriate federal and state agencies. It was not uncommon to spend about half of working time reviewing the applicable state and federal regulations just to keep up with them and insure the proper reports were filed on time. I may say that, personally, I found the various agencies and authorities easy to work with, especially if contact was made personally. I found that I could usually get the required information and interpretation of applicable regulations if I called the agency concerned and talked to the person who dealt with these matters personally. To get written opinions, however, was usually impossible! Very few of the people I dealt with would put their interpretation of the requirements in writing. I found that you could usually rely on what they told you verbally. They hesitate to put their interpretation in writing for fear of being second-guessed by some higher-ups.

My particular job came to an end when the entire company was sold by Univar Corp. to Georgia-Pacific Co with their own personnel already in place doing my job and had no need for my services. For my part, I was eligible for retirement benefits from the Univar Corporation which I took willingly.

MANUEL PANAR APPOINTED DIRECTOR OF INDUSTRY RELATIONS OF AMERICAN CHEMICAL SOCIETY

Dr. Manuel Panar has been appointed director of industry relations of the American Chemical Society. Dr. Panar, who spent 30 years in research management with E.I. du Pont de Nemours & Co. Inc. in Wilmington, DE, retired from du Pont on Nov. 30, 1993. He most recently served as executive director and vice chair of the company's Committee on Educational Aid.

Dr. Panar assumed his position at ACS on January 24, 1994. He has been an ACS member since 1956.

Prior to serving on du Pont's Committee on Educational Aid, Dr. Panar was director of central analytical science and corporate information science for the company. His du Pont career began in 1964, and most of it was concerned with research, with a focus on polymers. He held a number of positions in this capacity, including research manager of materials science and of polymer synthesis.

Dr. Panar earned his B.S. degree from the University of Alberta (Edmonton) in 1957 and his Ph.D. from the California Institute of Technology (Pasadena) in 1961. He did post-doctoral work at Harvard University in 1961-62.

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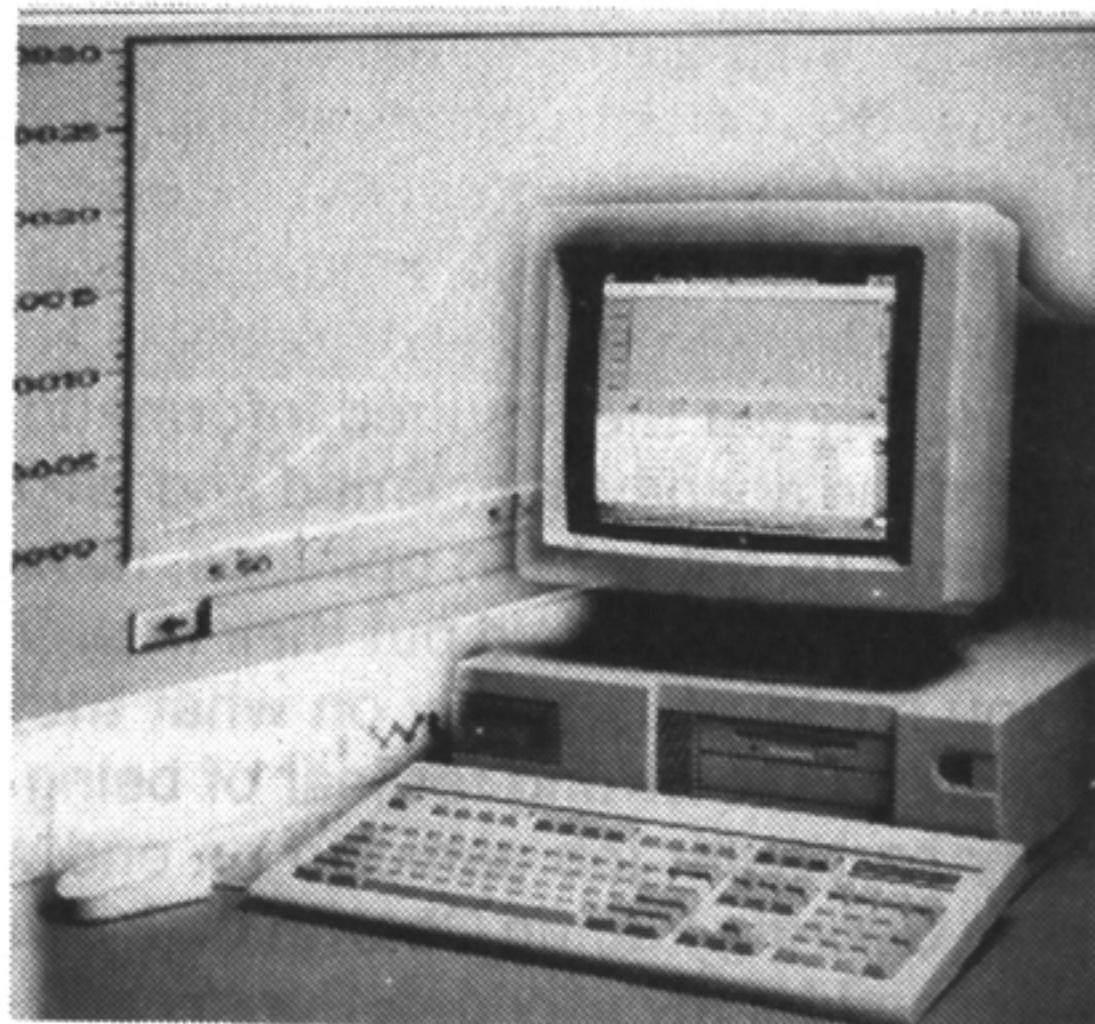
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RECYCLING INFORMATION PAMPHLET AVAILABLE

Recycling has been added to the titles available in the American Chemical Society's series of Information Pamphlets. **Recycling** was developed by the ACS Department of Government Relations and Science Policy under the auspices of the Society's Committee on Environmental Improvement. The pamphlet concentrates on the science and technology behind the recycling of the major constituents of the municipal solid waste stream: paper, plastic, glass, aluminum, steel, and yard waste. The key recycling steps—sorting, processing, and the development of the new products—are reviewed for each material. The document also highlights the importance of recycling markets, marketing, and market development. ACS Information Pamphlets are written for the educated non-scientist.

Other titles available in the ACS Information Pamphlet series include the following:

Acid Rain (April 1991)

Biotechnology (December 1985)

Chemical Risk: A Primer (December 1984)

Chemical Risk: Personal Decisions (November 1989)

Global Climate Change (July 1990)

Ground Water (August 1989)

Hazardous Waste Management (September 1992)

Pesticides (November 1987)

Copies of these pamphlets can be obtained by writing to the American Chemical Society, Department of Government Relations and Science Policy, 1155 Sixteenth Street, NW, Washington, DC 20036, or call 202-872-8725.

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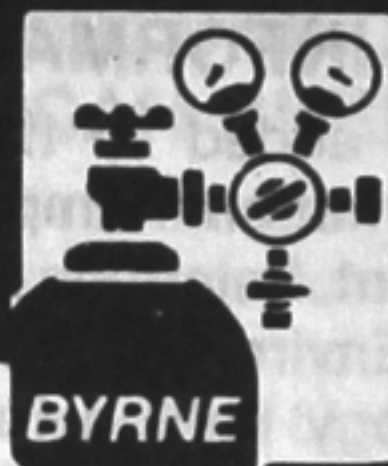
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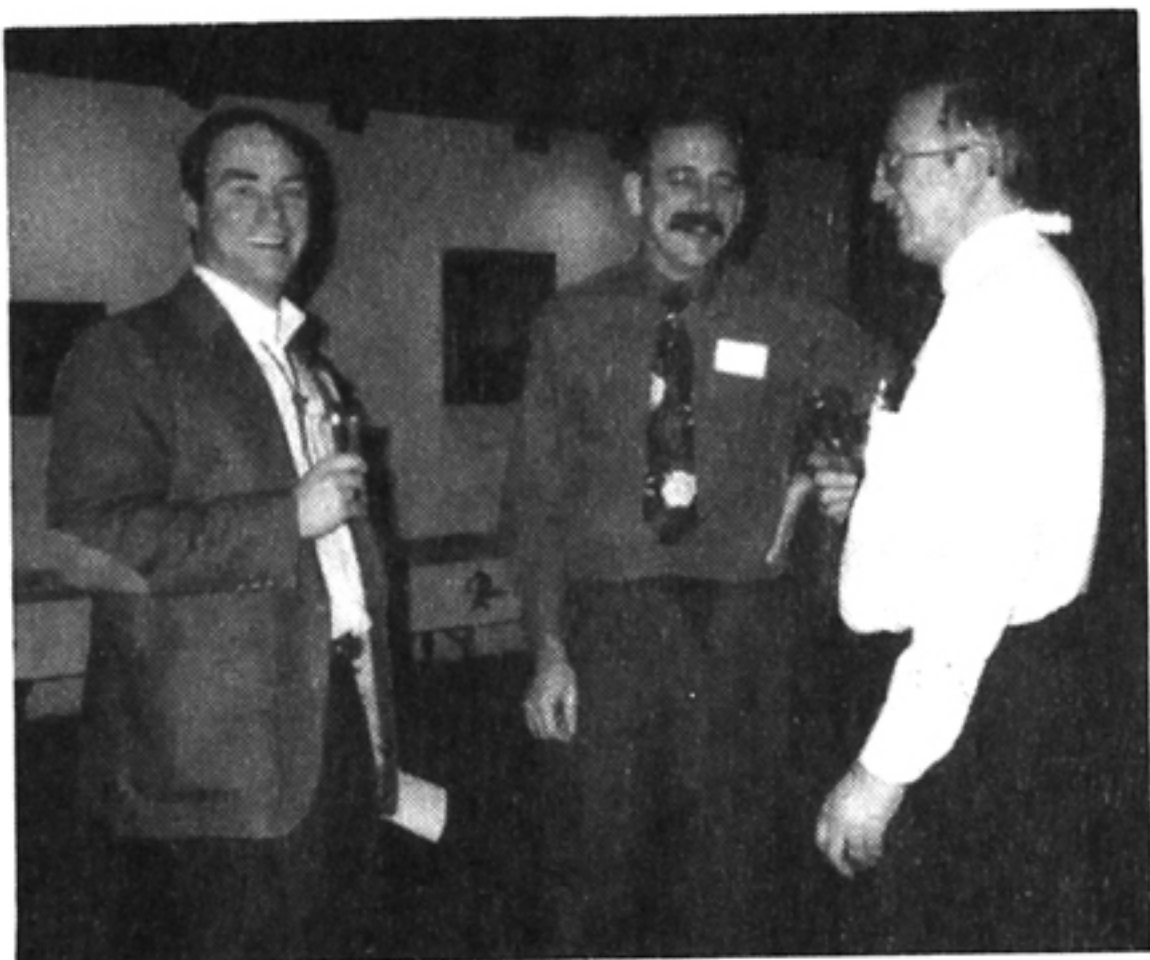


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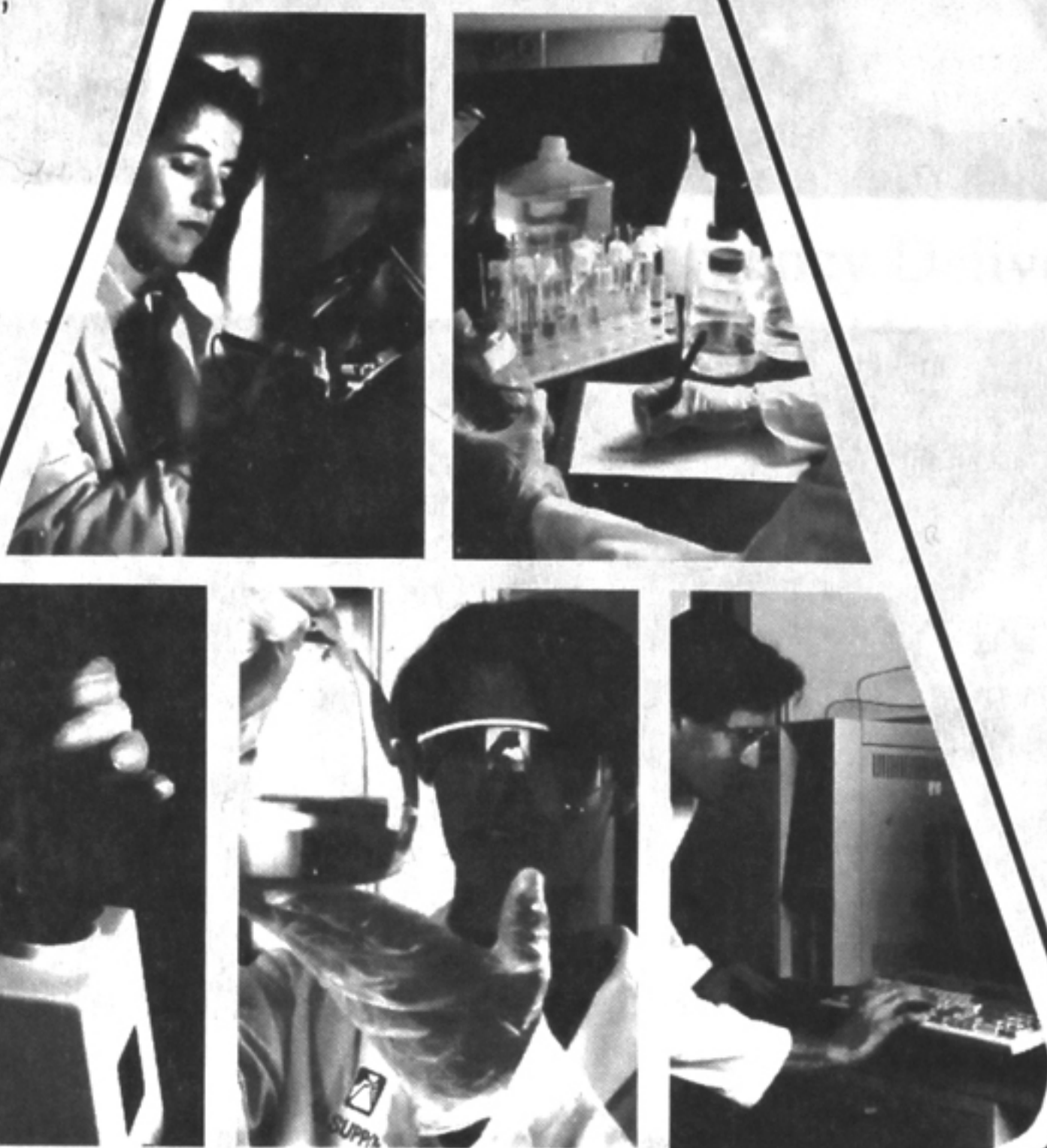
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ACS RELEASES 2ND EDITION OF *LESS IS BETTER*

Environmental awareness, regulatory requirements, and a desire to maintain good standing in their communities have contributed to increased efforts by laboratories to reduce their generation of chemical wastes. As the title of a recently released second edition of a booklet from the American Chemical Society Department of Government Relations and Science Policy suggests, laboratory efforts in reducing wastes may be rooted in the philosophy that "Less is Better."

The first edition of *Less Is Better* quickly became a standard reference on lab waste minimization efforts. The second edition expands upon this success, also covering topics such as the regulatory implications of treating waste, increased use of computer systems, and the benefits of properly labeling laboratory chemical containers. The new version updates information on the economics of waste disposal, reflecting the significant increases implemented since the first version.

In an example of how "less is better," the booklet points out that, in light of disposal costs, a laboratory that purchases an "economy size" container can end up paying twice as much it would have paid by purchasing two smaller containers. The booklet notes that in a laboratory where waste minimization practices have not been implemented, unused chemicals can constitute 40% or more of the waste stream.

The booklet was written by the American Chemical Society's Task Force on Laboratory Waste Management. The Task Force authored the first edition as well as the *Waste Management Manual for Laboratory Personnel*. As with most other booklets published by the American Chemical Society Department of Government Relations and Science Policy, single copies of the second edition of *Less is Better-Laboratory Chemical Management for Waste Reduction* are available without charge. Non-profit organizations may order ten free copies.

This handbook is written with the scientific community in mind to be used as references for various regulations and science policy issues. Other titles available in the handbook series include the following:

Chemical Risk Communication: Preparing for Community Interest in Chemical Release Data;

Issues in Peer Review of the Scientific Basis for Regulatory Decisions;

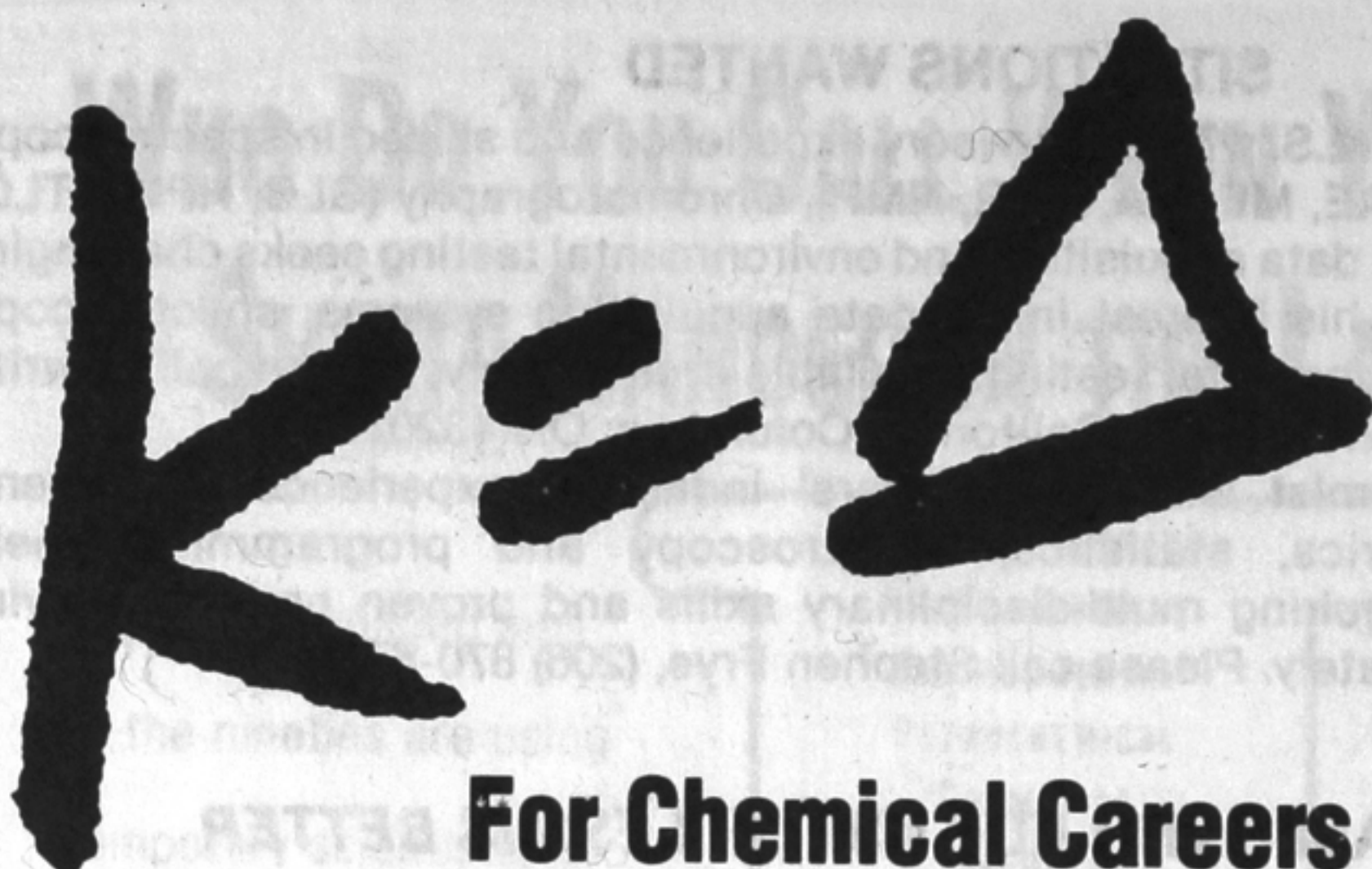
Principles of Environment Sampling;

Informing Workers of Chemical Hazards: The OSHA Hazard Communication Standard;

Principles of Environmental Analysis; and

The Waste Management Manual for Laboratory Personnel.

Single copies are free and multiple copies are available for a nominal fee. For a copy, write to the American Chemical Society, Department of Government Relations and Science Policy, 1155 Sixteenth Street, NW, Washington, DC 20036, or call 202-872-8725.



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Puget Sound Section, ACS Executive Committee Future Meetings in 1994

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

April 13 May 11 June 8

Place: Seattle University

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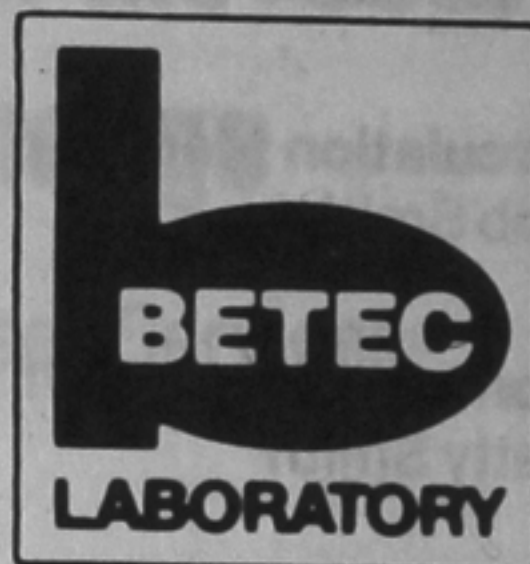
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