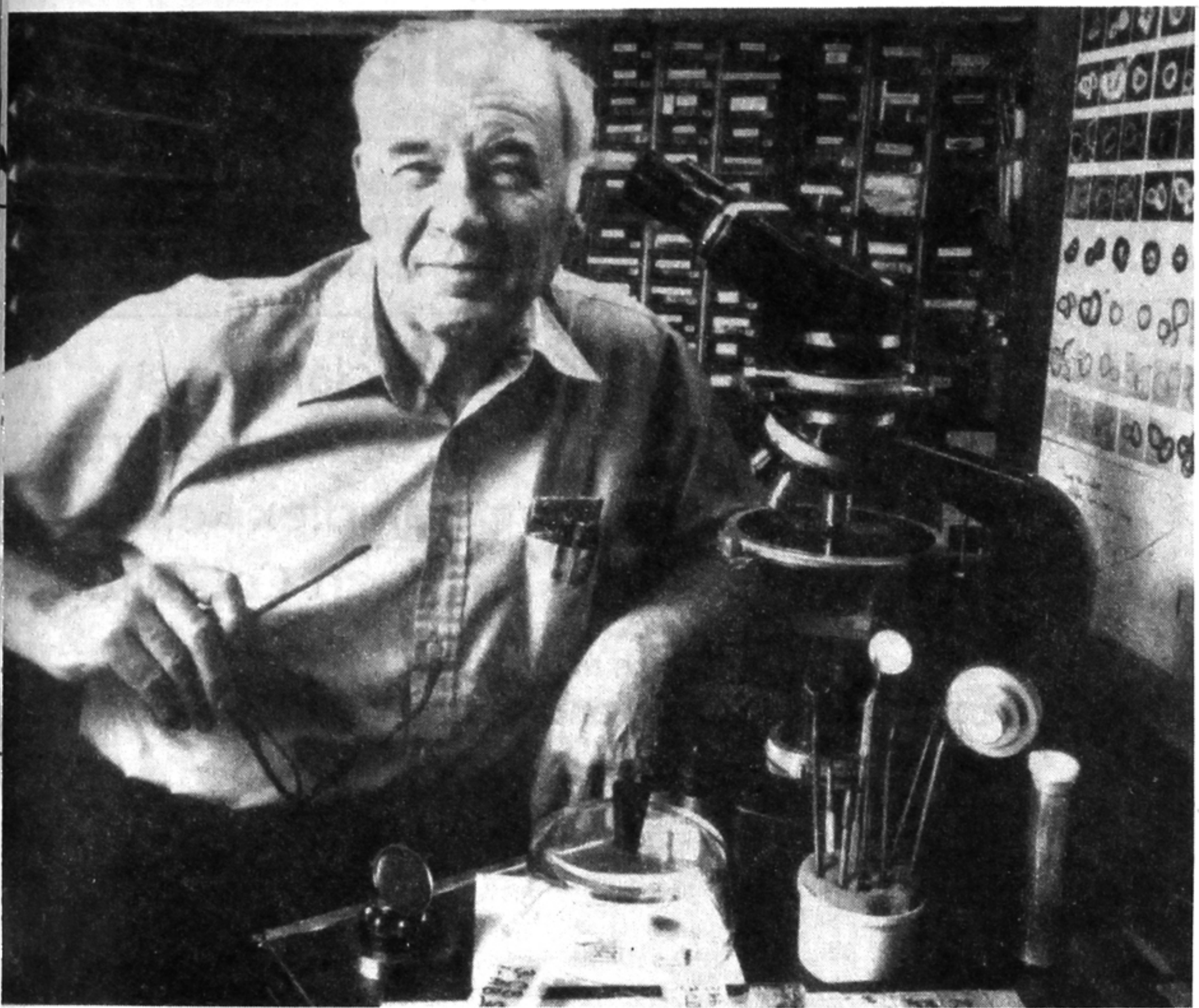


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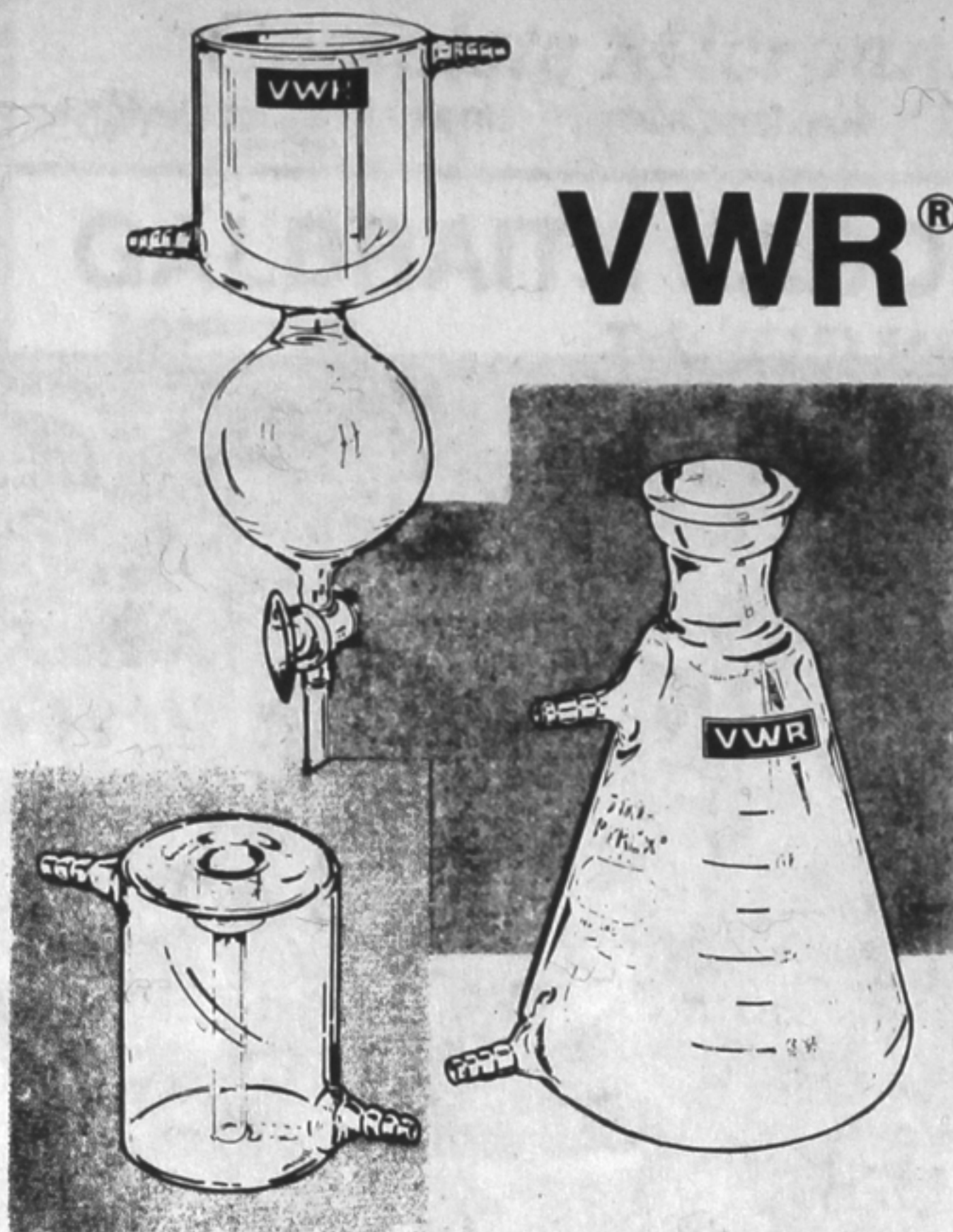
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BULLETIN OF THE PUGET SOUND SECTION OF THE AMERICAN CHEMICAL SOCIETY

Volume 55, Number 6



November 1994



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On the cover: Dr. Walter C. McCrone of McCrone Research Institute, Chicago, IL. Dr. McCrone is the featured speaker at the November meeting of the Puget Sound Section of the American Chemical Society (see related articles in this issue).

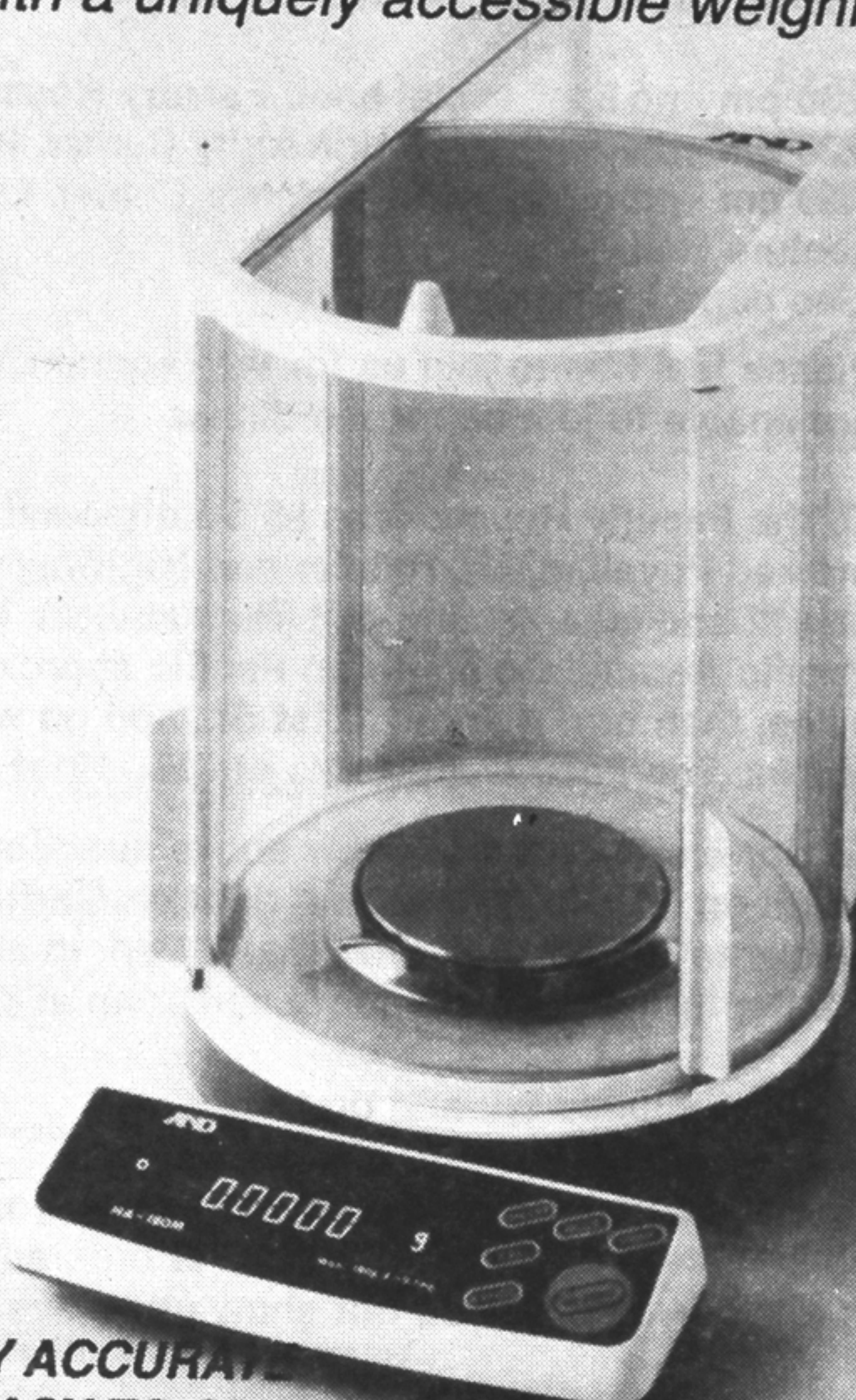
NOVEMBER MEETING

- DATE:** Thursday, November 10, 1994
- FEATURED SPEAKER:** Dr. Walter C. McCrone
McCrone Research Institute, Chicago, IL
- PROGRAM:** "Judgment Day for the Shroud of Turin"
- LOCATION:** Pacific Lutheran University, Tacoma, WA
- SCHEDULE:** 5:30 pm - no-host social hour, Faculty House
6:30 pm - dinner, buffet, University Center, Room 206
7:30 pm - program, Rieke Science Center, Leraas Lecture Hall
(See page 7 for area map.)
Please feel free to join us for the program, even if you are unable to join us for the dinner.
- DIRECTIONS:** To the Faculty House: Take I-5 Southbound Exit 127 marked Puyallup, Mt. Rainier and Highway 512. Go east on 512 and take second exit (Parkland/Mt. Rainier) to Pacific Avenue. Go south on Pacific approximately 1.5 miles, then turn right on 121st St., and go west 2.5 blocks. The Faculty House is at 715 - 121st St.
To University Center: Follow above directions, but go south on Pacific Avenue and right on Garfield St. Go 2 blocks to the campus (Park Ave.). Park in any available lot. For further help, contact Sheri Tonn at (206) 535-7552.
- COST:** \$15.00, includes tax and gratuity
- 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, November 4, 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.
- CORRECTION!** Please note that the Pauling Medal Award and the Symposium is on SATURDAY, November 5. Deadline for receipt of payment for reservations for the Award Dinner is October 26, 1994. (In the Sept. 1994 edition of *Puget Sound Chemist* this was reported to be on THURSDAY, November 5. Our apologies for the mistake!)

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DR. WALTER C. McCRONE WILL BE THE FEATURED SPEAKER AT THE NOVEMBER MEETING OF PUGET SOUND SECTION

Dr. McCrone did his undergraduate and graduate work at Cornell University (Ph.D. 1942). He then worked at the Illinois Institute of Technology Research Institute for 12 years before starting his own research laboratory, McCrone Associates, in 1956. His special interests have always been chemical microscopy, crystallography and ultramicroanalysis. He and his associates have applied these methods to everything from the Vinland map to the Shroud of Turin as well as trace evidence in civil and criminal investigations.

He has more than 300 technical publications including 11 books. In 1960, he started the McCrone Research Institute - devoted to teaching and fundamental research. About the same time, he organized corresponding research and teaching organizations in England. In 1979, he retired from McCrone Associates in order to spend full time teaching. He is editor and publisher of the international applied journal of microscopy, *The MICROSCOPE*. He is a fellow of the American Institute of Conservators, the International Institute of Conservators, the American Academy of Forensic Sciences, an Honorary Fellow of the Royal Microscopical Society and a member of many other societies. He has received a number of awards - Benedetti-Pichler (1970), Ernst Abbe (1977), Anachem (1981), Criminalist of the Year (1985), and Selikoff (1988).

ABSTRACT JUDGMENT DAY FOR THE SHROUD OF TURIN

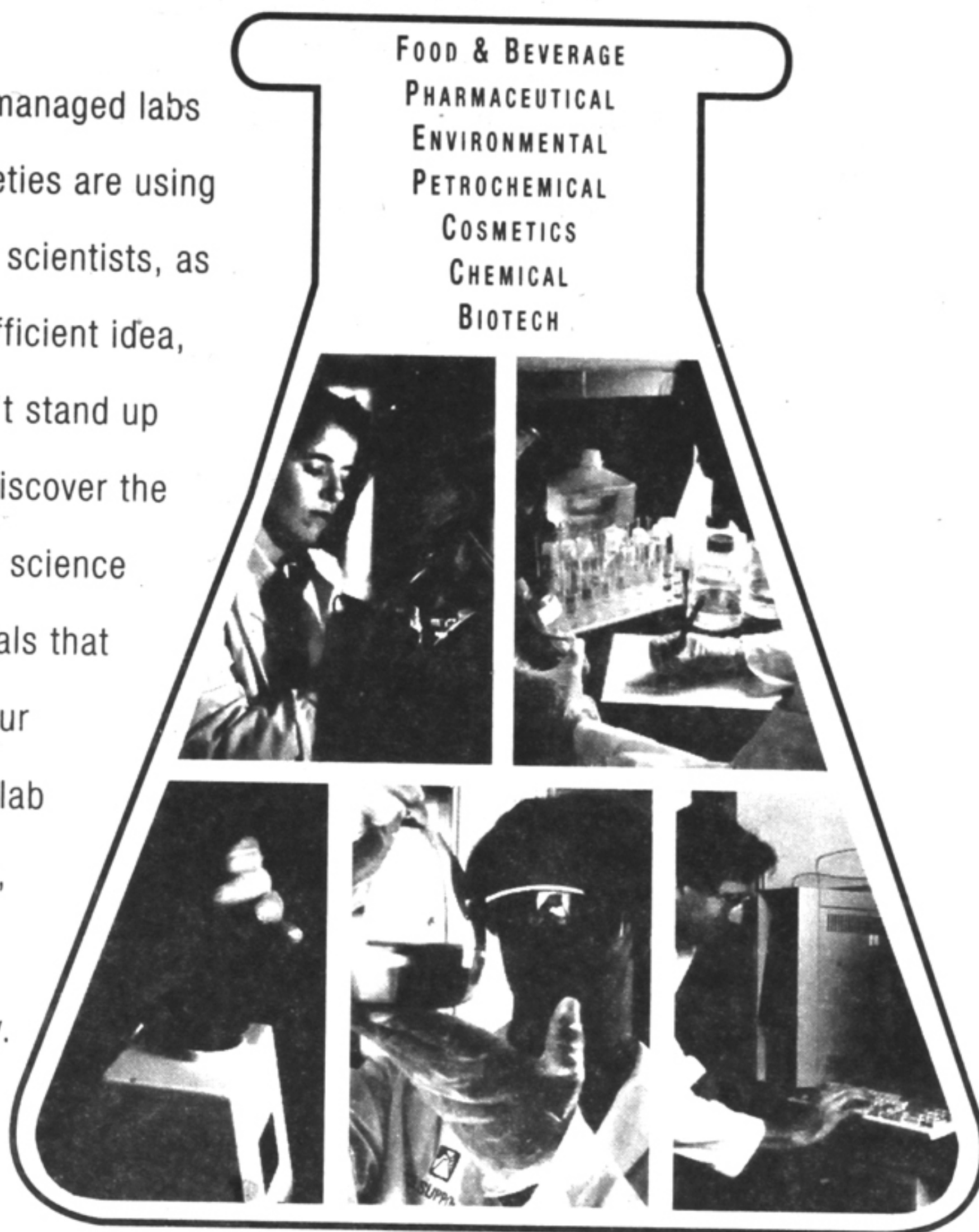
More than 600 years ago, a 14-foot length of linen suddenly appeared in the pages of history. Showing full-size back and front images of a crucified man, it was exhibited, and accepted by the general populace, as the Shroud of Christ. Some have doubted its authenticity up to the present and during the past decade two scientific commissions have investigated this question. Most recently, in October, 1978 a group of thirty scientists from prestigious U.S. laboratories were able to examine the cloth and its image and to sample the cloth surface. One member of the group, a chemical microscopist, found paint pigments (red ochre and vermilion) and a collagen medium. He decided in 1979 that the Shroud is an impressive painting done just before its first appearance in France in 1356. Carbon dating in 1988 confirmed his date, reporting 1325 ± 65 years.

IMMUNOLOGICAL REACTION TO ANTIGENS CAUSING INSULIN DEPENDENT DIABETES

It has been believed for quite some time that individuals with the severest forms of diabetes may have a genetic predisposition for the disease. In this type of diabetes, Type I, the pancreatic cells producing insulin are destroyed by T cells - an autoimmune disease, and the individual becomes insulin dependent. So far there has been no direct evidence of any factor that triggers the body's immune system to destroy its own insulin-producing pancreatic cells. However, a recent study by Dr. Trucco of Children's Hospital in Pittsburgh and department of pathology at the University of Pittsburgh School of Medicine and coworkers suggests (*Nature*, 371, 351, 1994) that exposure to a bacterial- or viral-borne "superantigens" on pancreatic islet cell membranes may be the factors activating the T cells, some of which might initiate the destruction of insulin-producing pancreatic cells. (*C&EN*, 26 September, 1994, p. 24)

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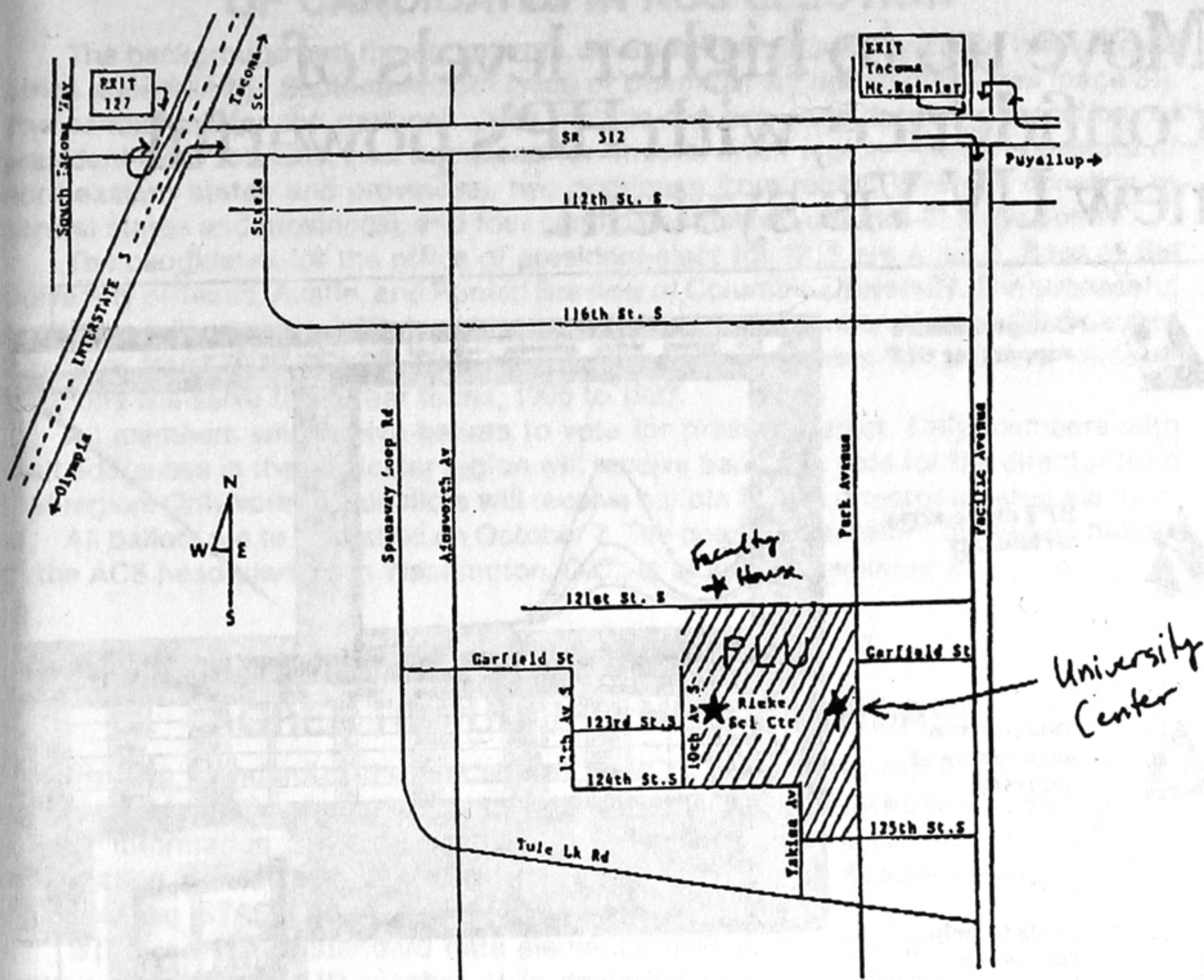
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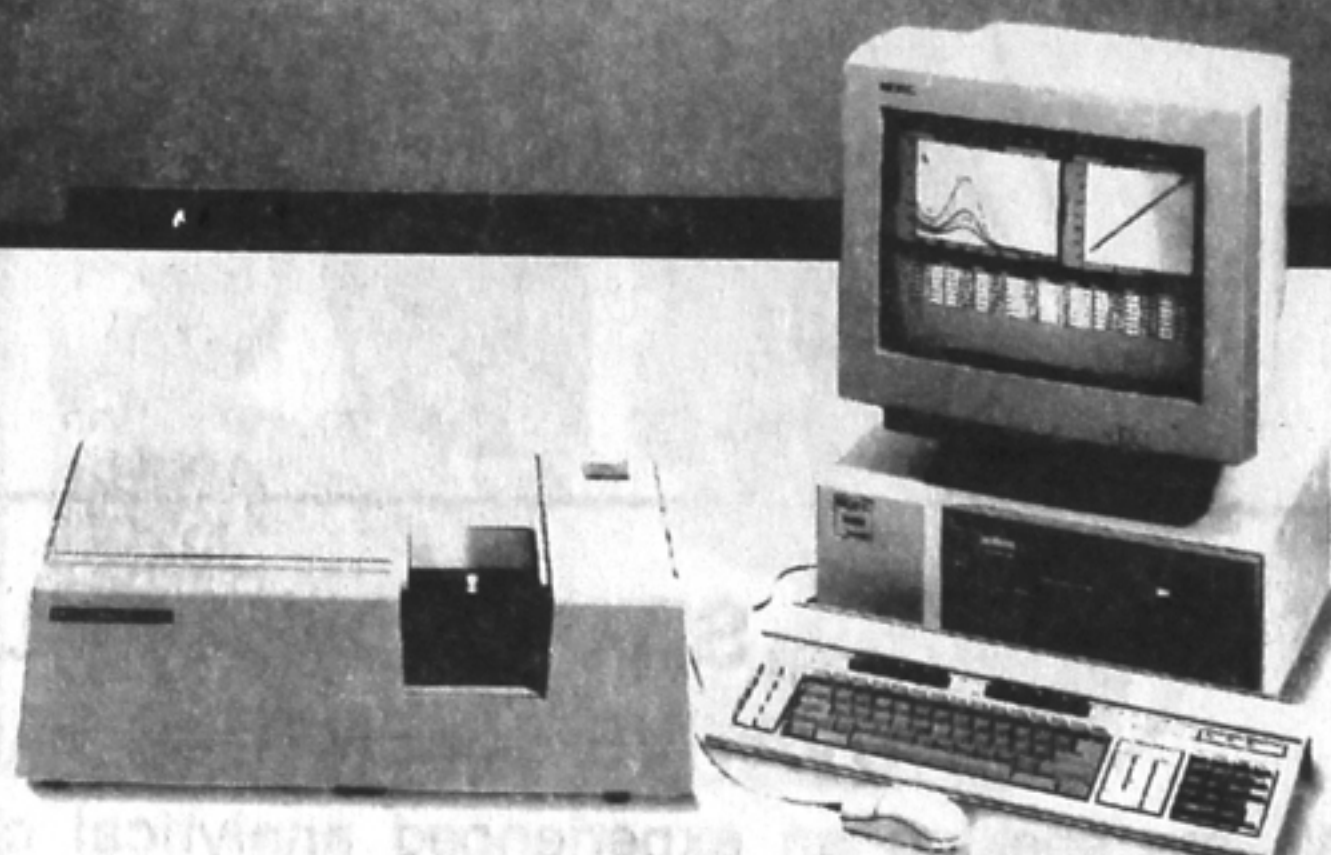
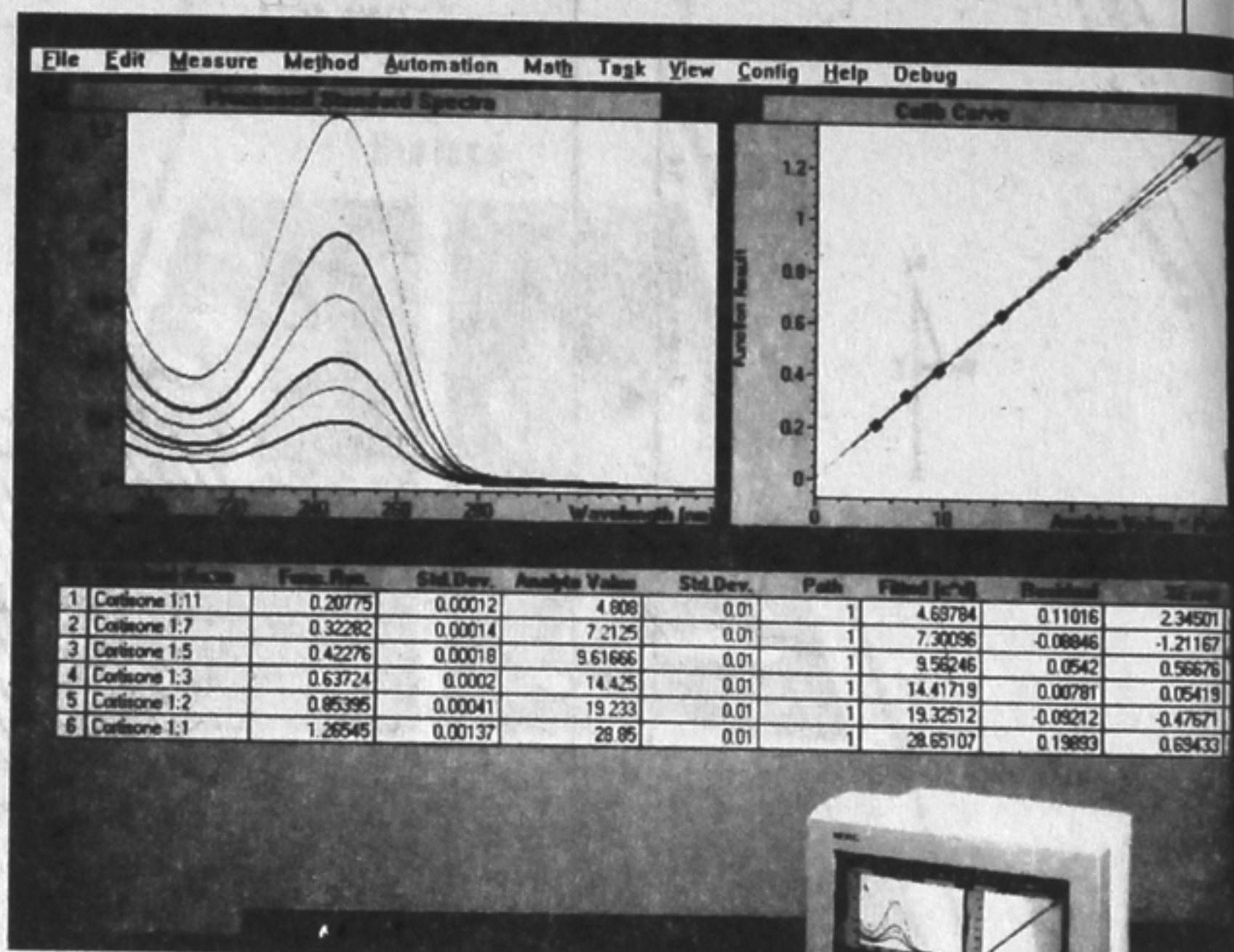
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ELECTION STATEMENTS AND BACKGROUNDS OF CANDIDATES IN ACS ELECTION

The background and the statements of various candidates vying for the national office appear in the September 26th issue of *Chemical & Engineering News* (page 31). The candidates for the national office include the two candidates for the office of president-elect for 1995, two nominees for director from region I (which consists of northeastern states and provinces), two nominees from region V (which consists of central states and provinces), and four candidates for two director-at-large posts.

The candidates for the office of president-elect for 1995 are Allen J. Bard of the University of Texas, Austin, and Ronald Breslow of Columbia University. The successful candidate will serve as ACS president in 1996 and as a member of the ACS Board of Directors from 1995 to 1997. The four successful candidates for the four director positions will serve three-year terms, 1995 to 1997.

All members will receive ballots to vote for president-elect. Only members with their addresses in the particular region will receive ballots to vote for the director from that region. Only voting councilors will receive ballots for the director-at-large election.

All ballots are to be mailed on October 7. The deadline for return of marked ballots to the ACS headquarters in Washington, D.C., is Monday, November 21.

CAS AND DIALOG AGREE TO PUBLISH NEW STANDARD

To help standardize the procedures used to search and retrieve scientific and technical information from electronic databases, CAS (Chemical Abstracts Service) and Dialog Information Services, Inc., have announced their agreement to join other information providers in co-sponsoring publication of the Scientific and Technical Attribute Set (STAS).

STAS is a list of standard data elements, their names and abbreviations, and a unique data element ID number. It is designed to improve interoperability among consumers and providers of scientific and technical information using the Z39.50 protocol. Prior to its development, there was no standard way to refer to a large number of searchable and retrievable fields within scientific and technical databases.

In making the announcement, CAS director Robert J. Massie and Dialog president Patrick Tierney acknowledged that STAS' development and publication represents the first time the world's two largest scientific and technical database providers have worked together to develop an industry standard.

CAS and Dialog are joined by the Clearinghouse for Networked Information Discovery and Retrieval (CNIDR), and FIZ Karlsruhe as co-sponsors in publishing STAS.

Founded in 1907, CAS is the world's leading provider of chemical information. A division of the American Chemical Society, CAS publishes Chemical Abstracts (CA) and related publications and CD-ROM services, operates the CAS Chemical Registry System of more than 13 million substance records, and produces a family of online databases, including the CA and CAS REGISTRY files. CAS operates STN International, a network of scientific and technical databases, in association with FIZ Karlsruhe in Germany and the Japan Information Center of Science and Technology.

Dialog Information Services, Inc., a Knight-Ridder company, is the acknowledged world leader in electronic information access and delivery. The DIALOG* service contains more than 450 databases, primarily in the business, news, scientific and technical areas, used by over 155,000 customers in 100 countries. The DIALOG OnDisc collection of databases on CD-ROM consists of more than 60 titles offered in six subject families: Business Information, Education & Humanities, Health & Biomedicine, Law & Government, Newspapers, and Science & Technology.

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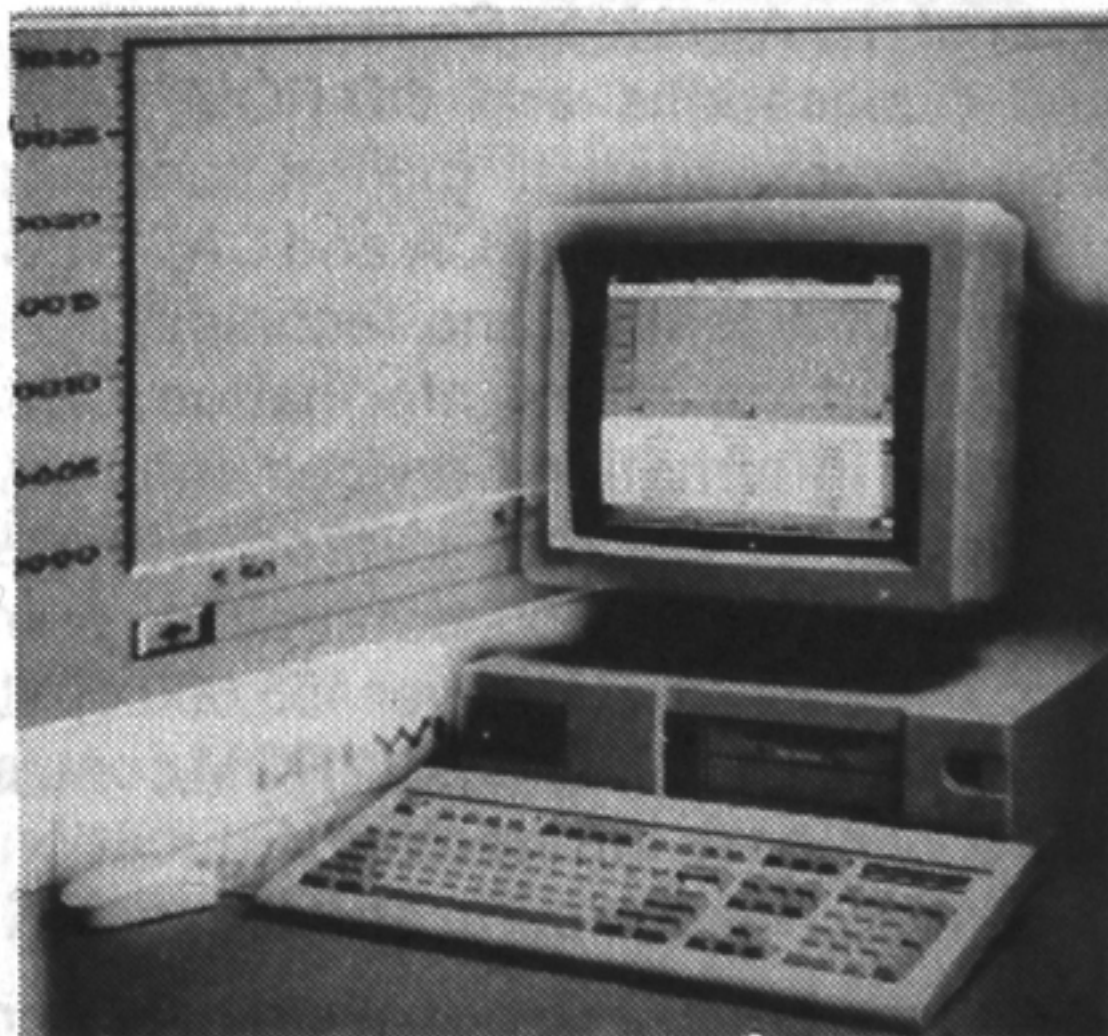
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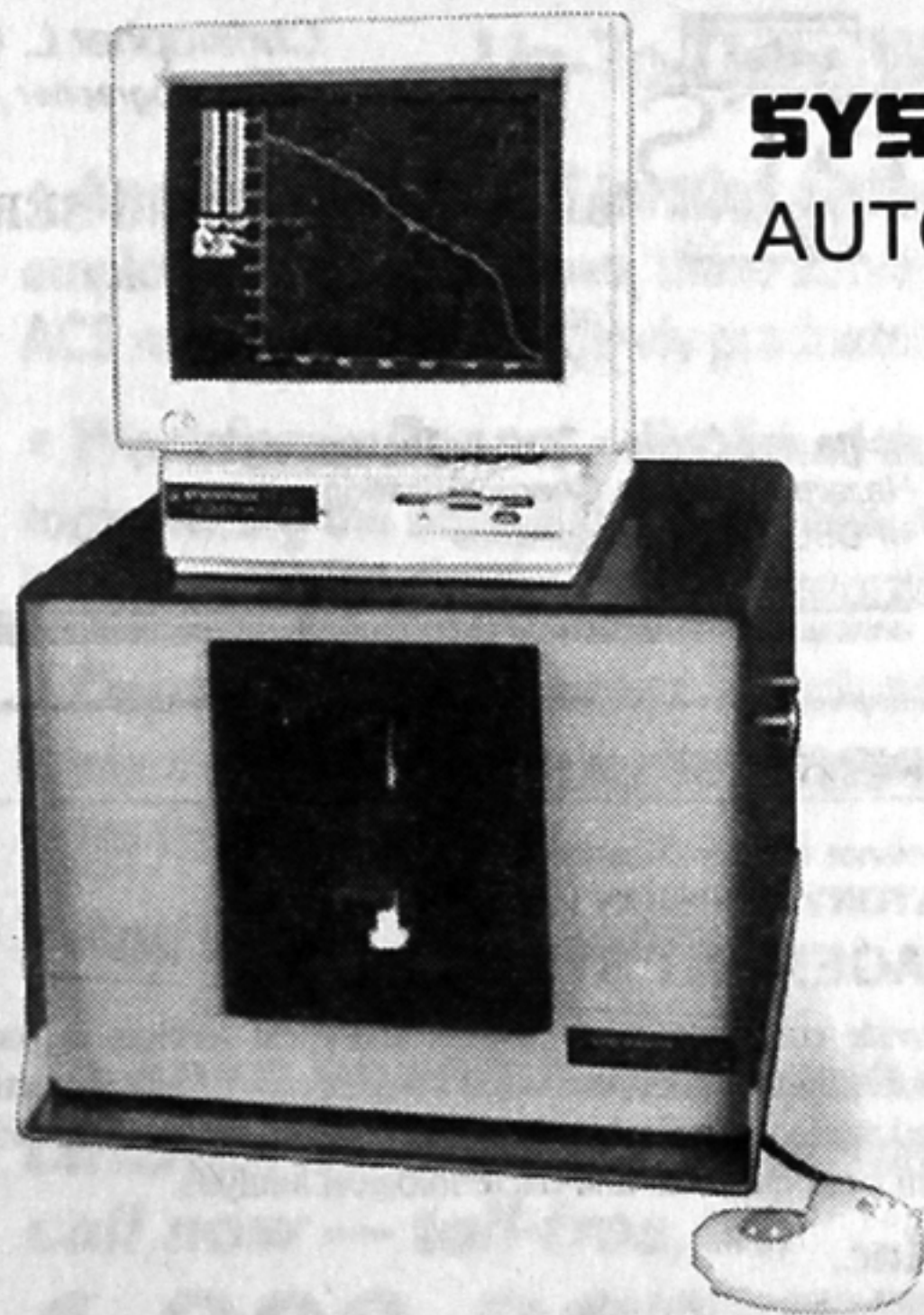


HEALTH RISKS OF DIOXINS

The EPA assessment in 1985 that the dioxins pose a health risk to humans is reaffirmed in its recently released draft report. According to this draft report, dioxins and related chemicals are probable carcinogens, and in addition, they may have a wide range of other adverse effect on human health including abnormal fetal development, disruption of regulatory hormones, reproductive disorders, and immune system disorders.

The report defines dioxins and related compounds as tetra- to octachlorobenzo dioxins and furans with chlorine atoms in at least 2,3,7, and 8 positions. Included are coplanar polychlorinated biphenyls, or PCBs as they are generally known, and the brominated analogs of dioxins and furans. The mass of these compounds is expressed in terms of their toxicity compared with the most toxic dioxin, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD) and denoted as 2,3,7,8-TCDD equivalents, or TEQs. Expressed this way, a particular dioxin analog of 100 g with one tenth the toxicity of 2,3,7,8-TCDD will have a mass in TEQs of 10 g. Using this system, the EPA estimation of the air emission of dioxins in the U.S. totals about 30 lb. per year in terms of TEQs.

The main source of known emissions of dioxins is from waste combustion with medical and municipal waste being the major source. Human exposure to dioxins is primarily through food among which fish, meat, and dairy products are the dominant ones. A typical U.S. citizen receives, in terms of TEQs, about 111 picograms of dioxins through food. The level of dioxins in body fat, on the average, is about 40 ppt. These background levels of dioxins are close to the levels that cause noncancerous adverse effects in animals. Among these disorders, developmental disorders may be the most noticeable. However, at what levels humans will respond with adverse impacts on development is not known. Included among the adverse developmental effects are decreased birth weight, cleft palate, behavioral problems, and decreased cognitive ability.



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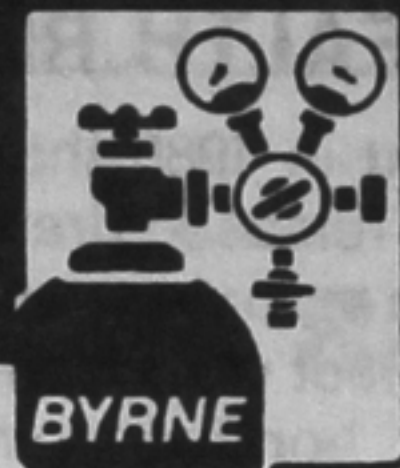
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CALL FOR NOMINATIONS FOR 1995 SECTION OFFICERS

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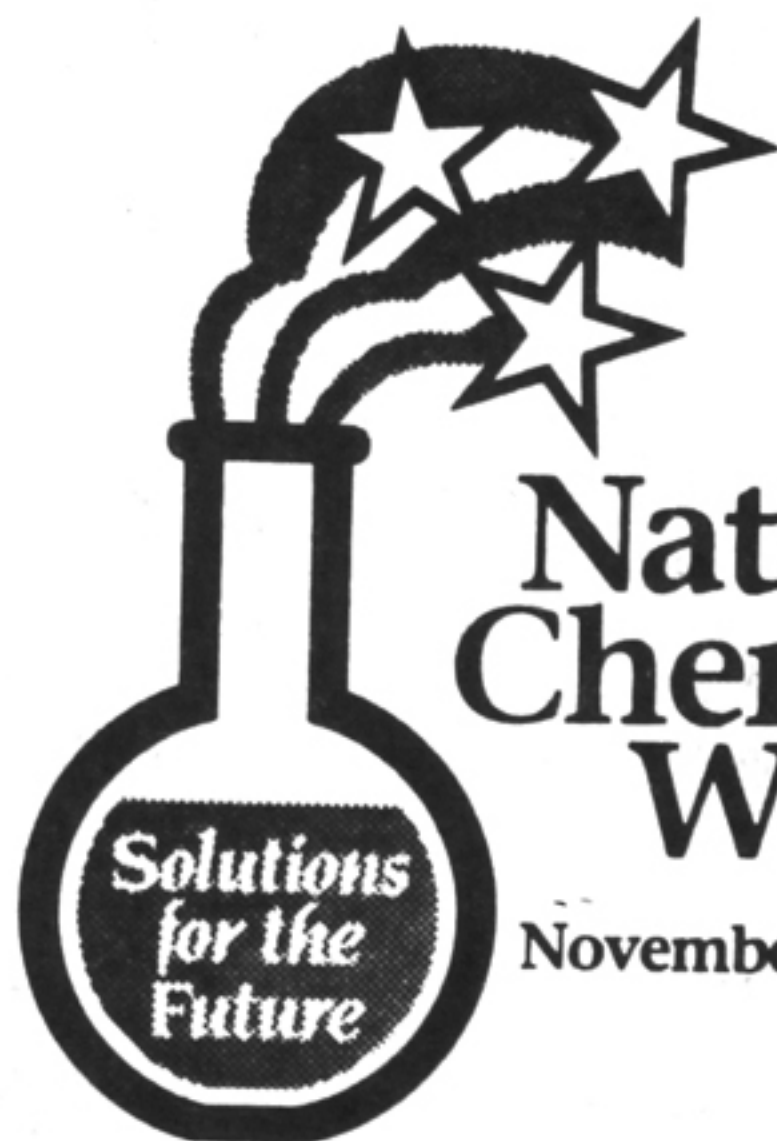
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PUGET SOUND CHEMIST



BULLETIN OF THE
PUGET SOUND SECTION
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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.

November 9

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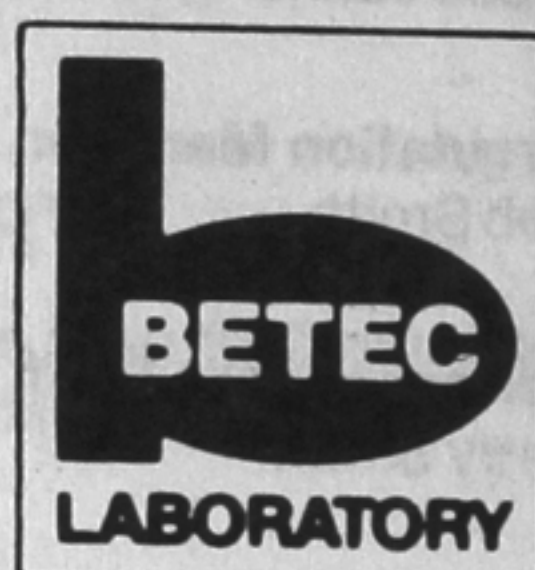
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