

A rendering of the new chemistry building by John Ruble of the architectural firm Moore Ruble Yudell.

New Chemistry Building Eagerly Awaited

Crayons, construction paper, and superglue are being used to build the new chemistry facility.

Actually, the more traditional steel, cement, and bricks will be employed in the final stages of the project, but in its initial phase, the Santa Monica, CA design firm of Moore Ruble Yudell asked members of the Department to fashion the building of their dreams with common children's tools.

In a series of four workshops held over the course of six months, faculty, staff and students met with the architectural firm, campus planners, and laboratory specialists to sketch out the ideal building. This approach to design is very rare among architects and is, in part, what prompted the University to select MRY as the design team.

The new building will augment existing space by approximately 100,000 square feet and will connect to Bagley Hall at every floor

except at the first level, where access to Lewis Lane will be maintained. Garfield Lane, which currently leads from Drumheller Fountain to the Health Sciences complex will be moved slightly to accommodate the new five-story building, which will be erected at the south end of Bagley. This realignment will provide a view of the fountain from Stevens Circle and new access to the Medicinal Herb Garden.

Plans call for synthetic chemistry - both organic and inorganic - to move into the new space, as well as some physical/analytical chemistry and organic teaching laboratories. All of the upper floors will have conference rooms and there will be a special seminar room on the first floor.

Former Chemistry Chair Alvin L. Kwiram, now UW vice-provost for research, shepherded this project along in its early years. Nearly a decade ago, Kwiram began

approaching the dean of the College of Arts and Sciences and the central administration for new chemistry space. Despite several setbacks, the building eventually was included as a line item in the governor's 1987 budget. Ground is scheduled to be broken in 1992 with completion set for 1994.

The new chemistry building is part of an overall campus plan to upgrade science facilities. In the early 1980's, cell and molecular biology moved into a new building and the Departments of Physics and Astronomy are planning for new space in 1991. The College of Arts and Sciences has further demonstrated its commitment to expanding or improving space for the sciences by also targeting the earth sciences and biological sciences for future consideration.

Related picture on page 3

Students Get the Third Degree

The menu expands. Biochemistry is now an undergraduate degree option at the UW through a unique arrangement between the Department of Chemistry and the School of Medicine's Department of Biochemistry. Added to the existing Bachelor of Arts and Bachelor of Science chemistry degrees, students can now choose among three different academic avenues in the Department.

This Bachelor of Science degree is jointly sponsored by the two departments. A committee of faculty from each of the units oversees the curricular issues of the program. Advising services are housed in the Chemistry Department's offices and students must adhere to the general education requirements mandated by the College of Arts and Sciences.

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Deborah Schindele, a 1986 doctoral alumna and currently President and Scientific Director of Ultra Diagnostics Corporation, addresses the new biochemistry majors at a luncheon celebrating the degree's first anniversary last spring.

Chairman's Message

Dear Chemistry Alumni and Friends,

We apologize for losing touch with you for the last few years. The Department has been operating with fewer administrative staff than optimal, and the personnel crunch necessitated that the **Chem Letter** go on hiatus for a while. But, things have changed and we are happy to be back with a new edition of the alumni newsletter.

The past two or three years have seen several major changes in the Department. New appointments have been made in all fields of chemistry, and we are now particularly strong in surface and organic chemistry. The recent appointment of a top-class mass spectroscopist has broadened the scope of the analytical section, and we are currently recruiting for faculty in the areas of inorganic and theoretical chemistry. One result of all this activity is that there are now many new faces around the Department.

The past year has seen the retirement of former Departmental Chairman Norm Gregory. We are fortunate that Norm still comes into his laboratory regularly. Other faculty who have retired recently are Lou Crittenden, Dave Eggers, and Fred Schubert. Dave is continuing his interests in molecular spectroscopy, and is a valuable associate of my own program. Fred and Lou are also continuing their scientific association with the Department as emeritus professors. We wish them all a long and happy retirement.

Among recent important developments in the teaching program is the strengthening of our first-year sequence. Thanks to an initiative at the College and University levels, we have been given funds to make additional lecturing appointments to increase our first-year laboratory coverage. Our aim is to provide stronger, more personal and more effective teaching to entering students, to help them with the transition from high school to university.

As part of an effort to strengthen our ties with the outside world, we have just added another staff member in



Chairman Bob Watts has spent Autumn Quarter on sabbatical as a Senior von Humboldt Fellow at the Max Planck Institut in Goettingen, Germany.

the student services area. This is a particularly important field, and its responsibilities include student advising, recruiting, and career development. As part of this exercise, we are producing a booklet combining the CVs of graduate students and recent doctoral affiliates who are looking for positions. If you are in the market for top-quality, highly-trained young scientists, why not start your recruiting by perusing our new publication? Call 1-800-869-CHEM to ask for a copy.

Elsewhere in the **Chem Letter** you'll read about our plans for a new building. It will be constructed south of Bagley and should be a fitting western frame to the fine view down Rainier Vista. Suffice to say, the detail involved coordinating external appearances with the internal requirements is mind-boggling. We are very fortunate that Wes Borden has agreed to oversee the project for the Department.

The next few years are going to see many more changes in the Department. We anticipate filling as many as eight new faculty positions over the next four years. The thrust of chemistry in the community is now running very strongly towards the solution of environmental problems, and we are working on major initiatives in this field. For

example, one of the most severe pollution problems in the country is in our own state, on the Hanford Reservation. Nobody understands the scientific problems that have to be overcome before the pollution can be contained. The Department of Energy has recently established a new Molecular Sciences Center at Richland, with a mission to understand the soil chemistry involved with contaminant transport in ground waters. Members of our Department have established strong collaborative programs with the new Center and over the next two or three years we are expecting these collaborations to be extended into all the other fields of chemistry.

I find it challenging to assume the Departmental helm at this point in our history. The financial and moral support we receive from you has contributed in no small measure to our current strength and I look forward to meeting some of you over the coming years of my chairmanship. My best wishes are extended to you for a happy holiday season and a healthy new year.

Bob Watts

CPAC Identified as Nat'l Leader

The UW's Center for Process Analytical Chemistry (CPAC) has been named as one of the top two National Science Foundation centers in a report issued by the federal agency last year.

The study based its conclusions on the number of industrial sponsors each center has attracted - CPAC has 50 - and on the industrial support the centers receive. Authors of the report noted that if scientific merit had been the primary selection factor, CPAC would also have been ranked first or second among the more than 45 centers nationwide.

Each area of CPAC's overall program - chemometrics, spectroscopy, guided optics, sensors/analyzers, and process control - has realized substantial growth both in terms of the actual research and in establishing closer working relationships with the sponsors. Associate Director Deborah Illman is aware that a fine balance must be struck between advantageous expansion of the existing program and becoming so large that sponsoring organizations cease to feel a direct link to the Center's personnel, which has been recognized as one of CPAC's strengths.

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High School Teachers Institute Completes Sixth Year

New Educational Outreach Activities Launched

Building on the strength of prior summer programs, Professor Darrell J. Woodman hosted his sixth annual High School Chemistry Teachers Institute this past July amid other Departmental efforts to reach out to pre-college teachers and students in the Pacific Northwest.

Environmental chemistry served as the main theme of the classroom lectures presented by Professor Norman J. Rose. Laboratory work was a major component of the program, and included the teachers performing a selection of modern microscale experiments as well as examining the expanding role computers play in chemical education. Throughout the four-week program, the teachers shared their most effective lecture demonstrations with each other.

The "Contemporary Issues in Chemistry" lecture series proved to be a popular part of the Institute. Among the faculty who volunteered to address Woodman's teachers included chemistry's Martin Gouterman, James M. Mayer, and Gary D. Christian. Professors from physics, astronomy, radiology, and environmental health also contributed to the series, and the topics ranged from new methods for body imaging, to spectroscopy from the Hubble Space telescope, to breath alcohol measurement, to chemical issues in landfills.

The Institute draws teachers from Alaska, Idaho, Montana, Oregon, Washington, and Wyoming and in addition to a small stipend, the teachers receive travel subsidy, room and board allowance, and eight academic credits. Under terms of the original funding agreement by the National Science Foundation and the State of Washington, the Institute can accommodate 30 teachers each year.

Woodman has secured some corporate and foundation funding for next year's program but he says identifying additional donors is

essential to continue this science education activity.

Research suggests that students who drop out of science do so at an early stage in their education. In an attempt to combat this attrition, the Center for Process Analytical Chemistry organized its own summer program to re-energize and update the knowledge of Washington State middle and junior high school chemistry teachers.

The National Science Foundation funded this six-week venture which was led by CPAC Associate Director Deborah Illman. The seven teachers divided their time into several modules, which included laboratory work with CPAC research investigators, on-site tours of local industry, writing a resource manual on careers in chemistry for their students, and producing a videotape of the program's highlights.

While Illman pointed out that these teachers' chemical education often stopped with freshman chemistry, they were able to successfully work alongside graduate students in the flow injection analysis, bioprocessing, chromatography, and fiber



Leigh Van Etten of Charles Wright Academy, one of the Institute's master high school teachers, works with Nisqually Middle School's Danaher Dempsey on building a computer interface.



Housing Projects

The basement of Denny Hall was home to the first chemistry program on campus in the late 1890's. For the next decade, a series of "Chem Shacks" were erected to house the expanding program. The University secured a larger facility, pictured above, for the combined Departments of Chemistry, Biochemistry, and Chemical Engineering through the acquisition of a building originally constructed for the Alaska Yukon Pacific Exposition in 1909. The present Bagley Hall was completed in 1937 and was, in its time, the most expensive building on campus. Two years ago, the Department further expanded into the Drama-TV building, since renamed the Chemistry Library Building.

optics laboratories. Tours of a local biotechnology company, Zymogenetics, and of Boeing's materials characterization laboratory and metals finishing plant lent a more practical aspect to the program, which dovetailed with the lecture portion of the High School Teachers Institute. These people also received stipends and academic credit for their participation.

If this program is expanded in the future, CPAC's industrial partners may sponsor middle and junior high school teachers from their own communities to attend. Currently, a workshop is planned for June 1991 to see how effectively the first group of teachers has been incorporating what they learned into their classrooms.

Capitalizing on small differences in age has been key to the success of Professor William H. Zoller's year-old outreach program where he trains his undergraduate research students to present talks at local high schools about the environment and the role chemistry plays in shaping the future.

Realizing the importance of ethos generated by students of similar age learning from each other, Zoller has

built a program around a small, but increasing, number of student chemists who volunteer to speak to students in Washington State high schools about the ozone hole, the greenhouse effect, aerosol chemistry, Chernobyl, pesticides and related compounds, hazardous wastes, and volcanic emissions. The talks are always presented within the context of how these students can get involved in the quality of their environment by studying chemistry in high school and later in college. Zoller's students have plans to speak before groups at nearly 100 high schools this academic year.

This program has already caught the eye of the American Chemical Society and several universities around the country who have plans to mount similar efforts. Eventually, Zoller would like to see the high school students he reaches go out, in turn, and talk to elementary school students about the environment and chemistry. Patterning his work after anti-drug campaigns used in the schools, he believes this approach is an extremely effective way to get more Americans interested in scientific careers.

Faculty Update

Niels H. Andersen (biophysical and organic): Andersen's research interests focus increasingly on the use of 2-dimensional NMR to solve problems of peptide conformational dynamics and to study the stereochemical requisites for biorecognition phenomena. These studies are supported by the Office of Naval Research and grants from the pharmaceutical industry (Bristol Myers-Squibb, Procyte). Software for computer-aided NMR structure elucidation, developed during past ONR- and NSF-supported research, is now being distributed both academically and commercially (Polygon Corporation). Conformation studies of drugs and peptides continue as the common topic of Andersen's seminars at pharmaceutical companies (Ciba-Geigy, Merck, Squibb, Monsanto Life Sciences, Syntex) and academic institutions. Studies of natural pest defense compounds are supported by the Agency for International Development.

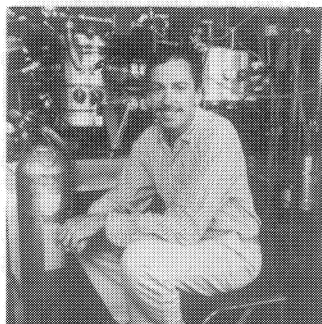
Arthur G. Anderson (emeritus organic): Anderson graduated his last Ph.D. student December 1989 and published three articles last year. A leisurely trip to Alaska this past summer is one reason Andy is enjoying retirement so thoroughly. He is also serving on the Insurance Committee of the University Retirement Association.

Weston T. Borden (organic): This past summer, Borden gave invited lectures at Gordon Conferences on "Computational Chemistry" and "Radical Ions." In January 1991, he will be a plenary lecturer at an ACS-sponsored meeting on fluorine chemistry; in April, he has been invited to speak at the "James Flack Norris Award" symposium at the national ACS meeting; and in the summer of 1991 he will give invited lectures at the "7th International Congress of Quantum Chemistry" in Menton, France and at several other universities in France, Germany, and Switzerland.

James B. Callis (analytical): Based on technology developed in Callis' laboratories, a new Seattle company was formed last year to sell field portable analytical instruments. Callis has given talks for the last two years at Gordon

Conferences and was 1990's banquet speaker at the conference on "Non-Destructive Analysis." In May of this year, Callis travelled to London to give a talk on "Ultraminiature Instrumentation" at the Royal Society, in conjunction with a meeting on trace analysis.

Charles T. Campbell (surface and physical): Campbell conducted a named lecture tour last year in England after winning the John Yarwood Memorial Award of the British Vacuum Council. His work for

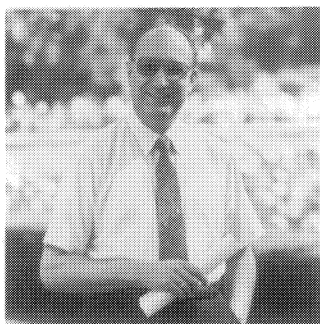


the Colloid Division of the ACS includes co-chair of the continuing symposium on the "Surface Chemistry of Advanced Materials" and he also organized a symposium on "Surface Chemistry and Catalysis" held during the "1989 International Symposium of the Pacific Basin Chemical Societies" in Hawaii. Campbell, formerly an associate professor at Indiana University, has given nearly 20 invited talks at domestic and international meetings and universities in the last two years; has published two major, invited review articles during that time; and has also published approximately 15 other scientific papers. He joined the UW faculty in September 1989.

Gary D. Christian (analytical): In March 1989, Christian was the keynote speaker at the "National Meeting of Chemists" in Saudi Arabia. That year, he also gave invited lectures in Jordan, Greece, Belgium, and Spain. In 1990, Christian was the plenary speaker at "Analytica 90: The First National Symposium on Analytical Sciences" in South Africa and was an invited speaker at an international workshop on "Flow Injection Analysis Based on Enzymes or Antibodies" in Germany. Also this past year, Christian has given talks

in Denmark, Sweden, Scotland, Canada, and the United States. In 1988, Christian was selected as the recipient of the ACS Division of Analytical Chemistry Award for Excellence in Teaching. Last year, he was appointed editor-in-chief of *Talanta*. This year, Christian was elected chairman of the ACS Division of Analytical Chemistry and appointed to the editorial advisory board of the *Journal of Pharmaceutical and Biomedical Sciences*. Because of the considerable time he has on his hands, Christian was also named acting chair of the Department of Chemistry and will remain so until Bob Watts returns from Germany at the end of 1990.

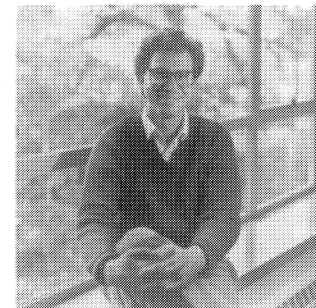
Heinz G. Floss (organic): Floss came to the UW in December 1987 from Ohio State University. He is internationally known for his work on the biosynthesis of natural products, including antibiotics, ergot alkaloids, and vitamins, and for his studies on the stereochemistry of enzyme reactions. He has received numerous awards, most recently the Research Award in Natural Products from the American Society of Pharmacognosy. Floss lectures frequently both abroad and in this country.



Michael H. Gelb (organic): Gelb's work on phospholipase A_2 has drawn a great deal of recent attention. Sterling Pharmaceuticals has given him a three-year grant to pursue his research in this area and he recently returned from Caracas, Venezuela where he collaborated on research looking for this enzyme in human platelets. Gelb has given talks at the ACS "Medicinal Chemistry Conference" in Texas, the "International Congress of Biochemistry" in Jerusalem, and at a phospholipase A_2 conference in Amsterdam. Gelb was given an NIH Research Career Development

award this Autumn and he recently was approved for tenure by the Department.

Hannes Jonsson (physical): Jonsson became a UW assistant professor in September of 1988 and has, in the last year, given a number of invited talks at schools and



scientific meetings in the Pacific Northwest. He gave a talk at the "Summer School on Liquids and Glasses" in France in 1989 and presented a poster at this summer's Gordon Conference on "Atomic and Molecular Interactions." This past year he also served on the organizing committees for the Pauling Award and the Northwest Regional Lectureship in Physical Chemistry.

Bruce R. Kowalski (analytical): The Central South University of Technology in Changsha, China has named Kowalski to a professorship there. He continues as CPAC's co-director and in 1988, was chosen as the recipient of the Council for Chemical Research Award for Promotion of University-Industry Relations.

Kenneth A. Krohn (adjunct, radiological sciences): Krohn is the principal investigator of a \$1.5 million award from the National Cancer Institute to develop and apply new methods for imaging body chemistry using positron emission tomography (PET) and NMR spectroscopy. These tools are being applied to studies of *in vivo* biochemistry of tumors, the myocardium, lung physiology, and the biochemical foundations of mental disease. The research involves chemists, physicists, mathematicians, engineers, and physicians. Krohn was also awarded funding last year by the Strategic Defense Initiative Organization of the Department of Defense ("Star

Wars") to apply some of the technological advances from the neutral particle beam program to new accelerator technology for making medical isotopes. The new radio frequency quadrupole technology would cost about one-fifth that of a cyclotron, weigh one-twentieth as much, and be much simpler to operate. This would promote wider application of PET in the hospital setting.

James M. Mayer (inorganic): Two years ago, Mayer was named a Presidential Young Investigator by the National Science Foundation. Last year, he became a Sloan Foundation Fellow and this past spring, he was selected by Union Carbide's "Innovation Recognition Program." In collaboration with W. A. Nugent from du Pont, Mayer recently published a book, *Metal Ligand Multiple Bonds*.

Yeshayau Pocker (biophysical and organic): "How Can We Improve Science?" is the focus of the AAAS Interdisciplinary Advisory Board on which Pocker serves. This past year, Pocker was the 1990 Edward A. Doisy Visiting Professor in Biochemistry at St. Louis

University's School of Medicine; lectured on the "Molecular Biology of Carbonyl Metabolism" at an international workshop at Purdue University; spoke on the "Molecular Control of Enzymatic Catalysis" as the Fondazione Sigma Tau lecturer in Italy; and delivered other invited talks on "Biophysical Chemistry of Metalloenzymes" in Canada, Italy, Sweden (Karolinska Institut), and the USA. Last year, Pocker was a Consiglio Nazionale delle Ricerche and a NATO Advanced Study Institute guest lecturer in Italy. His work as a member of the board of reviewing editors for *Science* continues.

B. Seymour Rabinovitch (emeritus physical): Last November, Rab was appointed Honorary Research Fellow at London's University College, with indefinite tenure.

Jaromir Ruzicka (analytical): The United Kingdom's Society of Engineers awarded its prestigious Gairns EEC Medal to Ruzicka in 1988 for his work on flow injection analysis. Ruzicka came to the UW in 1987.

J. Michael Schurr (physical): Schurr presented two posters and a symposium lecture on "Structural Transitions in Supercoiled DNAs" at the National Biophysical Society meeting in Baltimore in February 1990. The month before, Schurr presented a lecture on "Dynamics of DNA/Intercalator Complexes" at the "Time-Resolved Laser Spectroscopy in Biochemistry" symposium at the OE/Lase '90 Conference in Los Angeles. He and his group gave five poster presentations at the "International Biophysics Congress" in Vancouver, British Columbia this past summer. During a late August/early September speaking tour abroad, Schurr gave a lecture at Moscow's "Laser Applications in the Life Sciences" symposium and at the "Laser Light Scattering in Biochemistry" symposium in Cambridge. While in the USSR, Schurr ventured into the heart of Siberia and gave lectures at the Institute of Automation and Electrometry and the Institute of Cytology and Genetics in Novosibirsk. His visit with his new son-in-law's family in North Yorkshire, England was a particular highlight of that trip.

Eric M. Stuve (adjunct, chemical engineering): The past year saw two equipment milestones pass in Stuve's research group: after three years of construction, the high-resolution electron energy loss spectrometer for vibrational studies became operational as did the combined electrochemical-ultrahigh vacuum system. Electrochemistry and electrochemical phenomena are now studied both in vacuum and in liquid. Stuve presented his work at meetings of the American Vacuum Society, the American Institute of Chemical Engineers, and at two Gordon Research Conferences. He also participated in a Navy workshop to establish a new program in nontraditional approaches to electrochemistry.

Robert E. Synovec (analytical): Synovec's work is supported by the U.S. Air Force, Union Carbide, and CPAC. Over the last few years, he has given invited talks at the "International Laser Science Conference," Perkin-Elmer, Union Carbide, Cargill, "Ohio Valley Chromatography Symposium," Texas Tech University, and Washington State University.

Everything's Coming Up Rose's

Although Norm Rose has stepped down after two years as the Department's associate chair for graduate studies and has stepped up to become vice-chair of the Faculty Senate, his mission - helping students achieve their educational goals - remains unchanged.

As associate chair, Rose's responsibilities included teaching assistant assignments, general graduate student administration, recruiting, and advising. What he misses most from those days, however, were the times when people showed up at his door seeking advice. Rose acknowledges that this aspect of the job was most compatible with his temperament. The highlights from the days as associate chair came from watching students' progress.

The sincere and caring manner characterizing Rose's interactions with students played a large part in his winning the 1988 UW Distinguished Teaching Award. Being selected for one of the University's most prestigious honors was also an affirmation of Rose's personal value system which emphasizes the importance of teaching. Rose remembers this time very clearly as a watershed event in his life.

Rose views the University as a precious resource and also enjoys being involved in its preservation and upgrade. His involvement in broader University issues began when he was chosen first to be a member of and then chair of the Faculty Council on Faculty Affairs. The issues and their implications for the University which pass through this body fascinate him. During the past year, the Council edited and/or developed charter documents for the UW's new branch campuses in Bothell and Tacoma and considered personnel policies on a variety of issues, including eliminating mandatory retirement for faculty.

His election to vice-chair of the Faculty Senate brings Rose a new slate of duties, including chair of the Senate's budget committee, faculty liaison to the Regent's Metropolitan Tract committee, and member of the special committee on the branch campuses. In a year, Rose will move to the chairmanship of the Faculty Senate and will assume an even wide array of campus-wide responsibilities.

Rose is strongly family-oriented. He has been married for nearly 30 years to Louise, whom he met in graduate school at the University of Illinois at Urbana. They have two grown daughters.



Recent B.S. chemistry graduate Diane Rota asked her mentor, Norm Rose, to help officiate at her 1987 wedding to B.S. chemical engineering graduate David S. McElhany. She is a trace organic chemist at Metro and he is a Boeing systems analyst.

Porphyrins - The Only Way to Fly

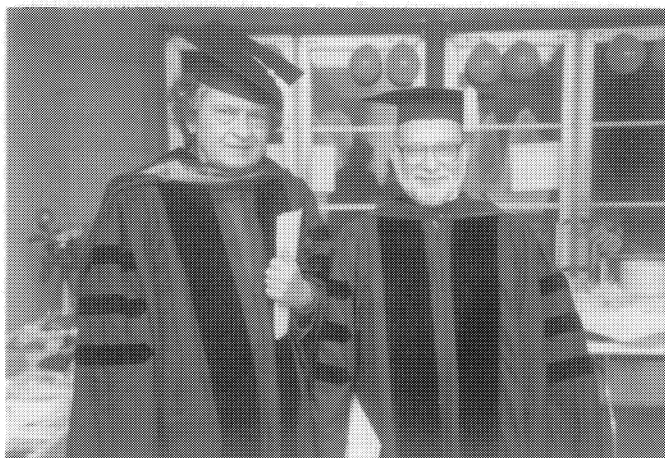
The casting of a baited hook 20 years ago has unexpectedly landed a pretty major fish. No less than the Boeing Commercial Airplane Group has shown interest in the research that physical chemist Martin Gouterman and his colleagues conducted in their laboratories more than two decades ago.

What has captured Boeing's attention is a new methodology for determining the distribution of air flow over an airfoil surface such as an airplane wing. What has delighted Gouterman is that this basic research had to wait for technology to catch up to it.

In the late 1960's, he and postdoctoral associate DeLyle Eastwood showed that at liquid nitrogen temperatures, platinum porphyrins have luminescence with high yields and short lifetimes. Work done a few years later with Jim Callis, Gouterman's first UW graduate student and now a UW professor of chemistry, studied the luminescence of these porphyrins in plastic at room temperature. It was this research that formed the basis for subsequent practical experiments.

A local biotechnology company funded some of Gouterman's studies about six years ago. This work showed that these porphyrins in plastic could be applied to an optical fiber and their resulting luminescence used to detect the presence of oxygen in blood. Callis extended this idea to suggest that the same kind of system could detect pressure distribution on airfoil surfaces.

Initial feasibility studies were conducted in a wind tunnel in the UW Aeronautics Department. This led to a grant from NASA, and the first quantitative wind tunnel studies were done at NASA-Ames Research Center near San Jose in 1988. Callis' contact with Boeing's flow visualization expert, Jim Crowder, led to additional collaboration between Gouterman's group, UW



Graduates Feted

Professors George D. Halsey and Martin Gouterman served as marshalls at the 1990 graduation ceremonies and then joined other chemistry faculty and staff in honoring recent Departmental graduates at a buffet luncheon. Held on the front porch of Bagley Hall immediately following the UW commencement activities, the event drew graduate and undergraduate students, their parents, spouses, and children. The weather cooperated and despite the fact that campus catering forgot to bring eating utensils, a good time was had by all.

aeronautical engineers, and the giant airplane company.

Customarily, pressure taps are used for such measurements but employing them has built-in drawbacks. The actual taps themselves distort the flow of air over them, the taps only allow for sampling at widely spaced intervals, and the taps cannot be placed in sensitive airplane areas, such as where the engines are mounted.

Coating the surface of the wing with porphyrin molecules in plastic produces a bright red emission, which increases at lower pressures, and which can be mapped using video measurements. According to Gouterman, Boeing's Crowder was skeptical about the initial findings until it was learned that he was unable to see the color red and thus, missed the point! It is hoped that this technique can be used to improve wing design and airplane performance.

Another logical, although currently untested, application of this work would be in the studies of flow patterns of water past a ship or boat. The methodology isn't practical for use with automobiles because the luminescence differences detected

at slow speeds are not statistically significant.

Gouterman credits Callis with much of this research's success. Callis, co-director of the Center for Process Analytical Chemistry, develops video techniques to monitor luminescence in analytical chemistry. Gouterman also points to the contributions made by several of his undergraduate and graduate students over the years - Cathy McMullen, Dan Wright, Kevin Walker, Janet Kavandi, and Jean Gallery - and to UW alumni postdoctoral collaborators Edmond Green, Gamal Khalil, and Dave Burns.

And to think that all of this might never have happened if Gouterman hadn't changed his major from sociology to biophysics in his junior year at the University of Chicago. It seemed that the thought of a research project which called for seemingly endless personal interviews with people proved too much back then for the Philadelphia native, and he decided that he'd rather interrogate molecules than people.

Ritter Fellowship Established

Emeritus Chemistry Professor David M. Ritter's contributions to science and his leadership and guidance in classrooms and laboratories over the years have led a group of his former students to create a fellowship for graduate students in inorganic chemistry in his honor. Ritter is an internationally recognized specialist in the hydrides of boron.

The project was initiated by University of Rochester A. A. Hopeman Professor James C. M. Li, a Ritter student from 1953. The idea picked up steam and contributions when Li contacted the other Ph.D. students Ritter supervised during his nearly 40 years at the University of Washington. Ritter's family also contributed to the endowed fund.

Ritter came to Seattle in 1944 after working at the du Pont Company for eight years. It was during this period that the Flint, MI native participated in the Manhattan Project, first in Chicago and later at Oak Ridge, TN.

David and Bernice Ritter have been married for 54 years. Their son, Daniel, is a Seattle attorney and their daughter, Kristin, is a Miami, FL schoolteacher. Ritter received his 1937 doctorate from the University of Chicago.

Rose, continued

Rose was able to combine two of his passions this past summer when he and Louise took a boat-bus-train trip through Alaska. His interest in the beauty of the 50th state and the world-of-rails goes back to his childhood. Today, he has taken over the family room of his home with his O-gauge model trains.

At one point, a young Norm Rose considered following in his father's footsteps and becoming a physician. Of his own admission, the death of his first patient would have ended that career. When asked if he would choose the path leading to his current academic position if he had it to do over again, the Chemistry Department faculty member since 1966 answered with a thoughtfully conceived "yes."

Donors Thanked, Students Honored at Awards Luncheon

Triples Restaurant on the shores of Lake Union was the setting of October's luncheon honoring the donors and sponsors of all undergraduate and graduate student fellowships and prizes and the recipients of such corporate and individual largesse.

Two book awards and an undergraduate tuition scholarship are funded with alumni contributions and the winners of these have already expressed their gratitude to the Department with thank-you letters to the chairman.

Guests at the luncheon included Arts and Sciences Dean Joe Norman and Associate Dean for the Sciences Fred Wan. The students' research mentors also attended.

The students and their prizes include:

Undergraduates

Merck Index Award
Denise Krein
Matt Taylor
Catherine Thut

American Institute of Chemists
Stephanie Brock

P.C. Cross Prize
Anthony Diaz
Robert McCaw

Hyp Dauben Prize
Aaron Heide
Corrina Palanca

CRC Prize
Tom Nguyen

Degering Scholarship
Mykol Larvie

Rowe Scholarship
Jimi Guthrie

H. K. Benson Scholarship
Anthony Diaz

Chemistry Alumni Scholarship
Aaron Heide

Chemistry Alumni Senior Book Prize
Helen Powell

Chemistry Alumni Book Prize
Nancy Mar

Max Gurvich Scholarship
S. Anthony Salter

Graduate Students Boris Weinstein Fellow
Paul Fleming

Howard Ringold Fellow
Susan Rempie

George Hitchings Fellow
Jinsuk Woo

David Ritter Fellow
Keith Hall

Chevron Fellow
Joe Zaug

Dow Fellow
Herb Lancaster

IBM Fellow
Paul Swift

Kwiram/CCR Fellow
Stephanie Johanson

Calgon Merck Fellow
Mary Beth Seasholtz

Battelle Pacific Northwest Laboratory Fellow
Beth Plotkin

Eli Lilly Travel Award
Beth Bowman

Graduate School Fellows
Cynthia Graff
David Hynds
Beth Plotkin
Caren Seagraves
Scott Shaffer



Dean Joe Norman, formerly a UW professor of inorganic chemistry, greets Bernice and Daniel Ritter at the Awards Luncheon.

Graduate Student Fellowship Named for Nobel Laureate Alum

The endowment of the George H. Hitchings Graduate Student Fellowship in Chemistry by the Burroughs Wellcome Company serves as a fitting tribute to a man whose life's work has been directed towards the discovery of new drugs designed to improve the quality and length of life.

Hitchings, a UW chemistry graduate with bachelor's and master's degrees from 1927 and 1928, shared the 1988 Nobel Prize in Medicine. His research led to the creation of drugs used in the treatment of leukemia, malaria, herpes, gout, cancer, and AIDS. Hitchings' work also contributed to the synthesis of immunosuppressive drugs which made possible for the first time in the 1950's successful transplantation of organs between non-identical twins.

In 1933, Hitchings received his biochemistry doctorate from Harvard University. A tissue transplant laboratory was subsequently named there for him and Joseph E. Murray, the 1990 co-recipient of the Nobel Prize in Medicine. Murray shares his prize with E. Donnall Thomas of Seattle's Fred Hutchinson Cancer Research Center.

Following teaching positions at

Harvard and Case Western Reserve, Hitchings joined the Burroughs Wellcome Company in 1942. Although officially retired as vice-president for research, development, and medicine for the North Carolina pharmaceutical company, Hitchings continues as scientist emeritus and a consultant for the firm. He recently stepped down as president of the Burroughs Wellcome Fund, a foundation which supports basic medical research. Hitchings continues to serve on the Board.

The 1989 Albert Schweitzer Award for Medicine and the 1986 UW Alumnus Summa Laude Signatus Award were given to Hitchings. He also holds honorary doctorates from 11 major American and British universities. Hitchings is a member of the Royal Society of London, the National Academy of Sciences, and is an adjunct professor of pharmacology at both Duke University and the University of North Carolina at Chapel Hill. He is responsible for more than 85 U.S. patents and has published more than 300 papers during his long scientific career.



Boris Weinstein's sons - Michael, a Seattle physician (left) and William, a local attorney (right) - meet the 1990 Weinstein Fellow Paul Fleming.

Donations Enhance Department's Mission

Professor Paul Hopkins, former chair of the development committee, acknowledges and thanks each of the following people who generously donated to the Department of Chemistry over the last three and one-half years. Contributions are used to fund an annual undergraduate tuition scholarship, annual book awards for undergraduates, the seminar program, equipment purchases for the teaching laboratories, and to either establish new or augment existing fellowship programs for graduate students. Hopkins urges people to contact him at (206) 543-9835 if any gifts were unintentionally omitted from this list or if names were misspelled.

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Outstanding Alumni

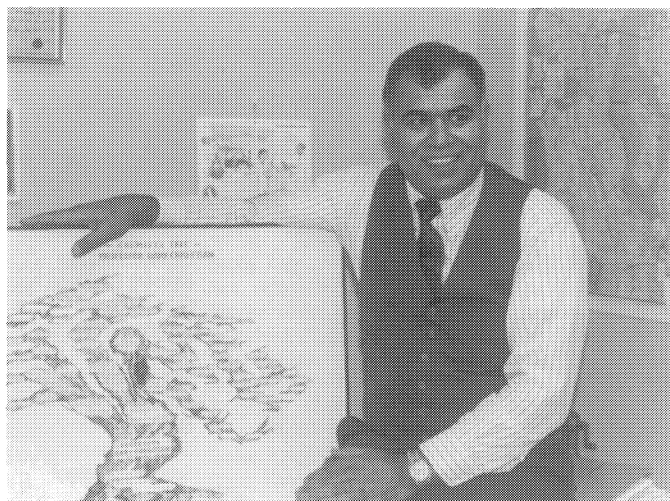
Abdulrahman Attiyat

Mutafawiq is the Arabic word to describe someone who attains well-deserved recognition. It accurately describes Ph.D. alumnus Abdulrahman Attiyat.

Although he doesn't even like to mention, let alone dwell, on his accomplishments, Attiyat did reveal that accolades and success began at an early age. In high school, he was named the best student in his district during his senior year. It was with honors that he graduated with a chemistry degree from Cairo University. For six years, he supervised a staff of approximately 30 people as director of Jordan's Police Crime Laboratory. And, the year before he became the dean of students at Jordan's Yarmouk University, he spent as a Fulbright Scholar back at the University of Washington.

The ties Attiyat has to Yarmouk University are strong. In 1977, they gave him a scholarship to do graduate study in the United States. When he returned two-and-a-half years later, with his doctoral work completed under Professor Gary D. Christian's supervision, he was appointed an assistant professor of chemistry. Within a year, Attiyat was chairman of the department, and went on in rapid succession to serve as an associate professor, director of admissions and registration, and dean of student affairs. Currently, Attiyat is the vice-president of Mu'tah University.

Becoming an academician fulfilled a childhood dream, but at one point it seemed like it might not materialize. Attiyat's father, a successful wheat and corn farmer, died shortly before Attiyat's college graduation and he was forced to work rather than go straight to graduate school. When he was hired by the Jordanian Public Security Forces in 1967, they took advantage of his chemistry background, and sent him to America to do further work in forensics. He earned a master's degree at New York University and then spent an additional year



Abdulrahman Attiyat

interning in New York City's Police Crime Laboratory.

For the devout Sunni Moslem who turns towards Mecca five times daily to pray to God, the sordid crimes to which he was exposed took some adjusting. It was during this period that Attiyat altered his views of rape - something with which Islam has its own way of handling - and saw it for the crime of violence that it actually is.

Today, his job responsibilities are perhaps less dramatic but no less important. He participates in all aspects of his university's operations, including curriculum, budgeting, admissions, faculty hiring, publications, etc. In his capacity as a high-ranking academic official, he has met with Jordan's leading politicians, including King Hussein and Crown Prince Hassan. Although Attiyat doesn't feel he will

ever deliberately try to establish a political career for himself, he doesn't dismiss the idea of serving as a political adviser if the conditions are right.

As the father of five girls and one boy who range in age from 5 to 16, Attiyat is a committed family man who likes the fact that having children is a "big deal" in America. He admires the special charities and hospitals devoted exclusively to children in this country, but says that adults owe their children more than just clothing, food, and shelter. The Arab culture continues to focus on the contributions a grandfather makes to the lives of his grandchildren and the values which are passed on in the Arab world depend on the continuity provided by the extended family. Attiyat wouldn't have it any other way.

Klarese Dorpat

All Klarese Lere Dorpat ever wanted to be was a physician, so when crippling rheumatoid arthritis burned its way through her body by the time she was finishing her Harborview Hospital internship at age 27, a major reordering of her priorities and abilities was necessary.

The 1948 Bachelor of Science chemistry graduate recalls the flood of emotions she was forced to deal with when she could no longer practice her profession. It helped, somewhat, that she became pregnant at that same time, and the subsequent birth and raising of her only child helped fill her days.

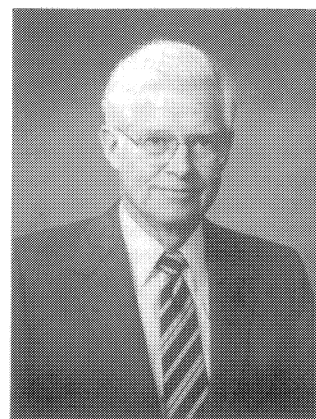
Dorpat kept up with medical journals and remained active in the periphery of her field by maintaining membership in the American Medical Woman's Association, the American Association of University Women, and associating with a local group of female physicians, which numbered only about 30 when she graduated from medical school in 1952.

It was after being turned down for a job in the early 1970's as the medical director at a Seattle woman's health clinic - arthritis had left her hands too misshapen to perform pelvic exams - that Dorpat, by that time divorced, bought some land in the San Juan Islands and moved to Friday Harbor. But, as fate would have it, her medical contributions were only now to begin in earnest.

Dorpat was approached by officials in the branch office of Skagit Valley

Ted Beck

Theodore R. Beck's achievements in and service to electrochemistry were again recognized when he received the 1990 Edward Goodrich Acheson Medal from the Electrochemical Society this fall. Beck is a chemical engineering B.S., M.S., and Ph.D. alumnus (1949, 1950, and 1952, respectively) from the days when chemistry and chemical engineering were one department. Before starting his own company, the Electrochemical Technology Corporation, in 1975, Beck worked for du Pont, Kaiser Aluminum, American Potash and Chemical, Boeing, and Flow Research. ETC specializes in electrochemical processes and devices for industry and government. Beck has been an active member of the Electrochemical Society for nearly 40 years, including serving as its 1975 president and Corrosion Division editor. His work for other groups includes chairmanship of the Southern Nevada Section of AIChE and chairman of the Puget Sound Section of the ACS.



College to teach emergency medical care classes to people who would then be recruited to serve as EMTs on the various islands. At that time, only one person, nicknamed the "flying doctor of the San Juans," was trained to help people in medical or trauma emergencies.

In the 13 years that she has offered these classes, Dorpat estimates that she has taught over 300 people how to respond in medical crises or with accident victims. When she wasn't ferrying to the other islands to teach, residents from the more remote areas would come to her twice a week for the four-month-long classes.

While teaching, Dorpat became a member, and later chair, of the San Juan County Emergency Medical Services Council. An old Cadillac was being used then as an ambulance and with Dorpat's guidance and the help of others, grants were written to secure funds for the purchase of a state-of-the-art ambulance for the island.

In the fall 1983, Dorpat added the title of "fire commissioner" to her resume after she ran unopposed in the general election. Skagit Valley College also convinced Dorpat to offer a course in family medicine for the lay public at its branch facility a few years ago. Dorpat worked part-time in a clinical setting for a while, but the residual effects of the gold shots she had to take nearly 40 years ago for her rheumatoid arthritis has left her with a weakened immune system and she found that she was catching opportunistic illnesses her patients were bringing in.

During her days in Bagley Hall, Dorpat not only took chemistry courses, but her first year of medical training, as well. She met her former husband of 22 years in the gross anatomy class where he labored over the neighboring cadaver. He noticed her, so the story goes, because her perfume made her the nicest smelling thing in the room.

In college, Dorpat was elected to Phi Beta Kappa, Iota Sigma Pi, and Alpha Omega Alpha, and was recently awarded a citation of merit by the American Red Cross. Not one to rest on her laurels, Dorpat is turning her attention now to AAUW's tutoring program. She serves on the board of the local chapter and is eager to begin working with



Frank Karasz

Although he claims that his contributions to science peaked nearly a decade ago, the facts would suggest otherwise. Frank Karasz, a 1957 doctoral alumnus, continues to receive awards attesting to his important contributions to the field of polymer science. He chaired the 1990 Gordon Conference on "Dielectric Phenomena," was awarded the 1989 Anniversary Medal of INA Yugoslavia, and was one of two foreigners elected, also in 1989, to the Scientific Committee of the International School of Advanced Studies in Polymer Science in Ferrara, Italy. The British import, who received his D.Sc. from the University of London in 1972, has close ties to the Italians. In 1988, he was named the lecturer for the annual Lezioni Lincei, which is sponsored by the Italian equivalent of the National Academy of Sciences, and he spent a week at the University of Naples. From 1973 until 1985, Karasz was Co-director of the Materials Research Laboratory at the University of Massachusetts in Amherst. In 1986, he was named a Distinguished University Professor of Polymer Science and Engineering at the same institution. Karasz has published more than 300 scientific papers.

teenagers on the island who need tutoring in order to pass their high school equivalency exams.

Crediting her parents, her daughter, and a network of extremely supportive friends for giving her the strength and ability to work through some very depressing times in her life, Dorpat says she has always just tried to make the best of every situation she faces. San Juan County is the lucky beneficiary of such an attitude.

Kent Pullen

Child pornography. Semiautomatic weapons. AIDS-infected prison inmates. Sexual abuse. Domestic violence. Wiretapping. Abortion.

These are not typical issues that confront the average chemist during the workday. But then, Kent Pullen was never an average chemist. In fact, the 1967 doctoral student of George Cady's spent the bulk of his scientific career - 21 years - as a Boeing mechanical engineer. For almost the same length of time, however, Pullen was an elected member of the Washington State legislature and today he is a full-time member of the King County Council.

As chairman of the Senate's powerful Law and Justice Committee and now as chair of the equivalent Council committee, these are everyday issues for Pullen.

Pullen is a strict constitutionalist. He believes that protecting and maintaining freedom is the single most important issue facing elected officials. Pullen supports the right to keep and bear arms and points to fascist regimes which begin when governments limit First Amendment rights of the people.

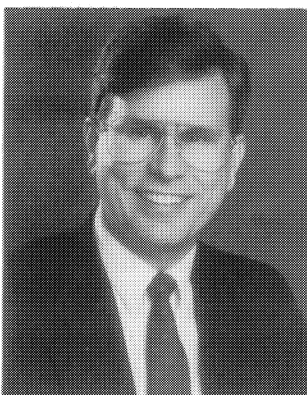
As an advocate for crime victims' rights, Pullen has sponsored legislation which extended the statute of limitations in childhood sexual abuse cases. Some victims are so traumatized that they

and thank you letters from women all over the state who have been affected by this legislation.

From the age of ten, when he recalls watching the Eisenhower/Stevenson election results roll in, Pullen says he was interested in politics. The State underwent redistricting in 1972 and this resulted in his South King County area having no incumbent in the House. So at age 30, Pullen ran and found himself elected. Two years later, he became a member of the Senate, where he stayed for 15 years before running for the Council in 1989.

Pullen says that his scientific and technical background has helped make him a more effective elected official and his education has given him a firm grasp of complex technical issues such as the environment, toxic waste, DNA, and nuclear power.

Pullen and his wife of 26 years, the former Fay Endres, came to the UW after finishing undergraduate chemistry degrees at the University of New Mexico. She taught for a short time at a local community college after finishing her doctorate with Ed Lingafelter and then stayed home to raise their family. Pullen also taught for a short time at the University of Idaho before finding employment as an engineer at Boeing. While he enjoys climbing and hiking, he especially enjoys activities involving a great deal of strategy, such as politics. That explains, in part, what helped him to become the 1985 Washington State Chess Champion.



Kent Pullen

suppress memory of the abuse until well into adulthood. Thanks in part to Pullen, victims can now seek justice for the crimes committed against them until either three years past the age of majority or three years after the age of discovery, whichever is later. The legislation made the new law retroactive and Pullen still receives Christmas cards

Bagley Briefs

Food for Thought

Getting people to put their money where their mouths are could be the unstated mission of the UW Faculty Auxiliary. Led by Sue Christian, wife of Acting Chemistry Chair Gary D. Christian, the group recently published a cookbook, the profits from which will be used to fund graduate and undergraduate tuition scholarships.

"Cooking With All Your Faculties" includes 19 international menus, from appetizers through entrees and side dishes to beverages and desserts. There is also a special section on Pacific Northwest cuisine.

Christian, who served as the book's co-editor, said that recipes were contributed by the group's well-travelled members. Artwork was provided by students in a beginning UW drawing class.

The softback publication is available at local bookstores. It may be purchased directly from Christian at PO Box 26, Medina, WA, 98039 for \$14.95, including shipping. Checks should be made payable to the Faculty Auxiliary and Washington residents need to add \$1.05 tax.

The Auxiliary has been funding scholarships since 1957, and it is hoped that profits from the sale of this cookbook will enable them to offer at least a dozen tuition waivers this year.

Pauling Symposium Held at UW

Stanford University's James P. Collman was honored last month as the 25th recipient of the Pauling Award in a symposium sponsored by the Puget Sound, Oregon, and Portland sections of the ACS.

Recognizing outstanding achievement in chemistry is the stated focus of the award, which is named after two-time Nobel Laureate Linus Pauling, an Oregon native and emeritus professor at Stanford.

This year's program featured talks by University of Oregon's Richard Finke, CalTech's Robert Grubbs, and K. Barry Sharpless from MIT. Collman's presentation was on "Multiple Bonding Between Heavy Elements." Collman is an internationally recognized expert on oxygen-binding hemoproteins, metalloporphyrin molecules and organometallic chemistry, as well as other areas in transition metal chemistry.



Linus Pauling, left, congratulates James P. Collman at the Pauling Symposium.

The organizing committee was comprised of UW professors Michael H. Gelb (chair), Hannes Jonsson, Julia Kovacs, and Robert E. Synovec. The symposium was underwritten by IBM, VWR Scientific, and emeritus chemistry Professor Ed and Roberta Lingafelter.

More Inorganic Chem and General Lab Added to Curriculum

The UW central administration recently bowed to Departmental lobbying efforts to fund an expanded freshman laboratory program and to increase the number of required inorganic chemistry courses.

The freshman program has been expanded as part of a University-wide program to improve entry-level instruction, which was initiated by Provost Laurel Wilkening, herself a planetary scientist with a Ph.D. in

chemistry. The program ultimately adds two and one-half lectureship positions to the faculty, with one position devoted exclusively to the freshman general chemistry laboratory sequence. The other full-time position will be dedicated to pre-general chemistry courses and this person will oversee a reinstated tutorial room. Teaching assistant training will be the responsibility of the half-time person.

Welcoming the opportunity to supplement its inorganic chemistry offerings, the Department has responded to an ACS directive last year which asked universities to explore this issue. At the senior level, four courses in transition metal chemistry, organometallic chemistry, main group chemistry, and bioinorganic chemistry were already on the books and now the inorganic faculty have created junior-level lecture and laboratory courses.

The newly required freshman- and junior-level courses raise by 12, up to 192, the number of credits now needed for an ACS-accredited degree. While most programs at the UW have remained at 180 credits, all engineering degrees now also require 192 credits.

Graduate Student Recruiting Underway

The getting of graduate students in today's competitive atmosphere compares to the recruitment techniques employed to lure top high school football players to major universities. The UW, always a serious Rose Bowl contender, fares equally well in the pursuit of the nation's top undergraduate chemistry students.

A major commitment of funds donated by alumni and friends allowed the Department to host visits of nearly 80 prospective graduate students last year. This fall, the Department matriculated one of its most intellectually gifted and the largest class in nearly 20 years.

The ability to offer supplemental fellowships has been a considerable boon to the Department. Washington State legislatively-mandated graduate student salaries rank comparatively low and overcoming that obstacle is always a factor in the recruiting process as students become more discerning consumers of graduate education.

This fall, the Dow Company joined a growing list of companies which includes IBM, Chevron, Merck, Burroughs Wellcome, and Battelle Pacific Northwest Laboratories to fund special fellowships for graduate students. Fellowships honoring faculty Alvin L. Kwiram, David M. Ritter, and Boris Weinstein, as well as alumni George Hitchings and Howard Ringold, continue to augment the Department's efforts to attract the country's best undergraduates.

Those people interested in contributing to an existing fellowship or establishing a new one, either independently or through their company, are encouraged to contact the chairman at (206) 543-1613.

Breathing Rarefied Air

For the second year in a row, the Department has ranked at the top of the charts in degree statistics generated by the American Chemical Society.

In figures released last Spring, the Department joined the University of Illinois at Urbana-Champaign and the University of California at Berkeley as the only three universities to place in the top 25 for all four categories used in their report - total bachelor's graduates, ACS-certified bachelor's graduates, master's graduates, and Ph.D.'s produced in the 1988 academic year.

The previous year's study showed the Department was one of only two schools to claim the same achievement.

Chemists Collect Kudos

Flanked by former Chairman Tom Engel, who did not appear to age despite the demands of his job, are the top graduating seniors from the last three years.

From left in the photo below are the 1988 Merck Index winners Gorm Nykreim and Johannes Rudolph and American Institute of Chemists winner Arthur Grunke. Nykreim currently works with CalTech's cosmochemist Geoffrey Blake on studies involving the spectroscopy of interstellar molecules focusing on van der Waal's clusters. Rudolph works with MIT's JoAnne Stubbe on protein-protein interactions in the purine biosynthetic pathway. Grunke is in Edward Yeung's group at Iowa State University where he examines new applications of lasers to detect separations in analytical chemistry. While at the UW, Grunke did undergraduate research with David Honigs, Rudolph worked with Michael Gelb, and Nykreim split his time between projects in chemists Bob Vandenbosch and Dan Imre's labs, and with 1989's Nobel Laureate physicist Hans Dehmelt and astronomer Donald Brownlee.



On the extreme left in the photo above is Brian Schultz who currently studies molybdenum-oxo chemistry relevant to biological enzymatic activity with Richard Holm at Harvard. Schultz's undergraduate research supervisor was Julia Kovacs, also a Holm's student from an earlier time. Daniel Wright is a member of Norman Phillips group at UC Berkeley where he measures low-temperature heat capacities of high-temperature superconductors. The UW's Martin Gouterman supervised Wright's undergraduate research. Standing next to former Chairman Tom Engel is Karen Mason, who is in the biophysics program at Stanford with Harden McConnell. There, she performs physical chemical studies on MHC class II molecules and how they interact

with peptides and T-cell receptors. Yeshayau Pocker directed Mason's research at the UW. Not pictured is Erin Renshaw, who did undergraduate research with Bob Vandenbosch and has gone on to study heavy ion nuclear reactions with Victor Viola at Indiana University. Schultz, Mason, and Renshaw were the 1989 Merck Index Award winners and Wright was named the AIC winner.



Pictured in the photo above from left are Catherine Thut, Matthew Taylor, Denise Krein, and Stephanie Brock. Thut is working in the local biotechnology industry for a year before attending graduate school in molecular biology or biochemistry. John Beale, now at the University of Texas in Austin, supervised Thut's UW research. Taylor plans to study bioorganic chemistry at CalTech with Peter Dervan and comes out of Paul Hopkins' laboratory at the UW. Denise Krein remained in Seattle for graduate school and currently works with Adjunct Atmospheric Chemistry Professor Robert Charlson. Brock's work at UC Davis will be in inorganic chemistry, a field she studied with Jim Mayer at the UW. Brock was named the 1990 AIC recipient and the other three students were Merck Index winners.

Birthday Bash Slated for Cady

It's not too late to make plans to attend George H. Cady's 85th birthday party on January 26th in Seattle.

The organizing committee is chaired by former Cady students Felix Aubke, a professor of chemistry at the University of British Columbia, and Jean'ne Shreeve, currently associate vice-president for research and dean of the College of Graduate Studies at the University of Idaho. The day-long symposium and dinner in Cady's honor is designed to acknowledge his contributions to fluorine chemistry. Shreeve encourages any people interested in attending to contact her at (208) 885-6651.

The list of Cady's accomplishments is long. In 1988, he shared the first French Prix Moissan award, a

prestigious prize named after the father of fluorine chemistry. The American Chemical Society has twice recognized him with awards for his work in fluorine chemistry, and he has received distinguished service citations from the U.S. Navy and the University of Kansas, Cady's undergraduate alma mater.

After finishing his 1930 doctoral program at the University of California at Berkeley, Cady held positions at the University of South Dakota, MIT, U.S. Rubber Company, and Pittsburgh Plate Glass before coming to the University of Washington as an assistant professor in 1938. Cady chaired the Department for four years in the early 1960's, and became emeritus professor in 1972. He also worked on the Manhattan Project in the 1940s.

Third Degree, continued

While most A&S degrees are earned with 180 credits, this new science degree requires 200 credits.

Students are asked to take year-long sequences in calculus, physics, general and organic and biochemistry as well as selected courses in biology, genetics, and physical chemistry. To accommodate these new majors, the Department now offers a new course in physical chemistry for biological sciences students.

One component of the program which allows for some specialization within the major is the science electives requirement. Students can select from additional courses in math, microbiology, biochemistry, cell and molecular biology, and chemistry in order to complete this requirement. They are also strongly encouraged to include undergraduate research in their studies.

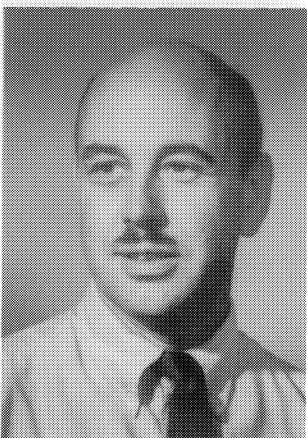
The greater Seattle area has become a major hub of biotechnology and local industry is expected to draw heavily upon these new biochemistry graduates. In just its first year, the program has attracted nearly 80 students and future growth is expected.

CPAC, continued

One of the most popular and applied of all CPAC projects has been with its chemometrics software on partial least squares, developed in Professor Bruce R. Kowalski's laboratories. The most widely publicized project of current interest is being examined in Professor James B. Callis' labs. There, students are developing instrumentation for on-site and/or in-field quality evaluation of hydrocarbon fuels. The approach used for the simultaneous determination of such things as percent aromatics, percent olefins, percent aliphatics, Reid vapor pressure, API gravity, freezing point, and heat of combustion is the use of near-infrared spectroscopy (NIR). A single spectroscopic measurement can define multiple parameters in only minutes. In the Bioprocessing Laboratory, the fermentation process is examined using the classic brewer's yeast fermentation of glucose to ethanol and carbon dioxide. Shortwave



Vic Sivertz



Art Fairhall

near-infrared (SW NIR) spectroscopy offered an attractive means to non-invasively predict ethanol production.

One of the most exciting projects recently completed was actually suggested by a CPAC sponsor: constructing a fiber optic probe for extremely acidic media. Carried out in conjunction with Los Alamos National Laboratory, the work will have general applications for many of the Center's other partners.

In situ environmental monitoring is emerging as a major research focus for future CPAC work. The detection of pollutants before their release into the water, soil, or air will be fundamental to solving some of the most troublesome environmental issues. Illman likens the approach which CPAC hopes to make *de rigueur* as one comparing postmortem analysis to preventive medicine.

Emeritus Faculty Remembered

Victorian Sivertz and Arthur Fairhall touched the lives of many people as chemistry professors and their recent deaths greatly diminish the vitality of the Department, which tries to maintain strong ties to its emeritus faculty.

Sivertz, a Victoria, B.C. native, held a variety of administrative and teaching positions during his tenure and was responsible for advising students, planning the time schedule, job placement for the Department's graduates, and serving as the liaison to area high schools. From the time he joined the Department in 1926 until his 1967 retirement, Sivertz's experimental work dealt with molecular forces in gases, surface tensions of colloidal systems, electrical conductivity of colloidal systems, and colloidal gold and platinum in silicic acid gels.

For 13 years, Sivertz served as secretary/treasurer of the Puget Sound Section of the ACS and was its chairman in 1946. As the section's archivist for nearly 20 years, he was the logical person to serve as its editor, as well. Sivertz wrote the *Chem Letter* for a decade and was instrumental in organizing the first ACS Northwest Regional Meeting in Seattle in 1946.

His wife, Chloe, survives him. He also leaves a son and one granddaughter. He died in November 1989.

Fairhall was also born in Canada. After finishing his B.Sc. in 1946 from Queen's University in Ontario, he went on to study nuclear chemistry at the Massachusetts Institute of Technology, where he completed his doctoral work in 1952.

Two years later, Fairhall came to the UW as an assistant professor. He chaired the Department's budget and building committees for many years and was named acting chairman for three years in 1975. His research interests included nuclear fission phenomena (particularly in elements lighter than thorium), natural radiocarbon measurement and dating, bomb radiation in the atmosphere and the oceans, the natural carbon cycle, and petroleum versus biogenic hydrocarbons in the marine environment.

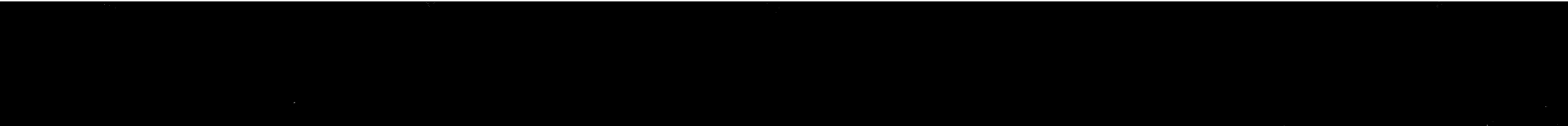
But Fairhall didn't just study the sea. He was an avid sailor and often took his boat cruising up to Alaska through the San Juan Islands and Strait of Juan de Fuca. His former wife of 30 years, Edith, also recalls that Fairhall was an accomplished musician. He sang in a local chorus and enjoyed playing and listening to the organ.

Fairhall is also survived by three sons. He died in September 1988.



A Time for Work and a Time for Play

Led by organic chemistry Professor William Dehn, far left, this group of Departmental faculty and students was about to attempt another scaling of Mt. Rainier. This 1915 photo was supplied by Dehn's widow, the late Lois Dehn, who said it was the group's practice to get in shape for the climbs by first taking a ferry to Tacoma, and then walking from Tacoma to the mountain.

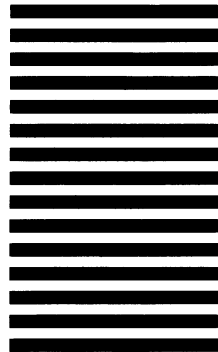


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