CHEM-LETTER

December 1983 University of Washington Department of Chemistry Volume 13

The "Clifford A. Barnes" is shown on Portage Bay prior to its renovation. Photo courtesy of Kenneth Adkins, Science Instructional Technician in the U.W. College of Ocean and Fishery Sciences.

RESEARCH VESSEL NAMED AFTER CHEMISTRY ALUMNUS

The latest addition to the U.W.'s School of Oceanography research fleet, a retired U.S. Coast Guard fire boat, has been named after 1937 chemistry Ph.D. alumnus Clifford A. Barnes.

The "Bitt" was drydocked in Alaska and is currently undergoing major renovation at the U.W. to ready it for long periods of research in the Puget Sound and protected coastal waters.

The ship is owned by the National Science Foundation, which is also providing funds for its conversion to an ocean research vessel. The University is charged with its operation, as one of 18 participating institutions in the University-National Oceanographic Laboratory System.

The School of Oceanography's largest vessel, the 209-foot "Thomas G. Thompson," also has ties to the Department of Chemistry. Thompson was a professor in the department from the 1920's until his retirement in 1959. That ship holds a crew of 23, and can travel with 22 scientists. Currently, the "Thompson" is on a three-month zonal exploration of the mid-north Pacific with researchers from the Woods Hole Oceanographic Institution in Massachusetts.

Barnes is an emeritus professor in the School of Oceanography. He wrote his dissertation under Thompson on the "Review of Dynamical Consideration of Ocean Currents and Physical and Chemical Investigation in the Bering Sea and Portions of the North Pacific Ocean".

PLANS FOR NEW CENTER UNDERWAY

A six-month, $52,000 National Science Foundation Planning Grant has been awarded to the Department of Chemistry to refine the focus and organizational structure of a proposed Center for Process Analytical Chemistry (CPAC) at the University of Washington.

The Center will seek federal, state and corporate support as its funding base. Current resources will enable Center co-directors Professor Bruce R. Kowalski and Research Professor James B. Callis to meet with industrial/chemical companies across the nation to provide an introduction to CPAC and to assess the focus of their interest. The grant will also provide support for the second Industry-University Forum on CPAC at the University of Washington early next year.

The concept for the Center was originally proposed by Kowalski in the fall of 1982. He felt that the chemical industry, which represents 15%-20% of this country's gross national product with a sales volume approaching $500 billion, must alter its production processes to remain competitive with foreign-based multinational companies. The chronic erosion in government support for basic scientific research also stimulated interest in the concept. After further discussion by an ad-hoc committee, the plan was submitted to the Department. This plan, to establish a Center to perform basic research designed to enhance industrial productivity and develop more direct University/industry collaboration, was overwhelmingly approved.

All indicators suggest to Callis that as traditional markets saturate and operational costs escalate, increasing emphasis on process control will be critical. That priority translates not only into increased monitoring of the production process with advanced sensors, but an increase in the range of measurements taken (coupled with sophisticated

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CHEM LETTER

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FROM THE EDITOR

The name is the same. But that's about it.

Yes, this still is the annual Department of Chemistry alumni publication. But no, it doesn't just go to Ph.D. and M.S. graduates anymore. Last year, for the first time, we began mailing to Bachelors degree people—as many as could be located. We found the response from these people gratifying, and thus, the practice so started continues.

With undaunted enthusiasm, inimitable style, and a relentless nose for the news, Emeritus Professor Victorian Sivertz served as editor of this publication for 12 years. Upon his retirement, a committee of six was appointed to carry on the work of this one man. They say that a camel is a horse put together by a committee, but it is hoped that in this instance, group effort coalesced into a newsletter we can all be proud of. We really do rely on your contributions, criticisms and compliments, and so urge you to mail back your postage-paid, pre-addressed up-date sheet as soon as possible.

Finally, we think it must have begun with "Roots." The idea of people searching for their ancestral beginnings proved to be so compelling that we thought we'd try it, too. Currently, we have in our possession a 1916 departmental publication entitled "The Common Ion" and a 1928 departmental "Commemorative Bulletin" (exclusive references for the "Growing Pains" article which appears on this page). We are now making a plea for the donation of any additional historical documents which may be floating around out there. (You may keep old glassware which somehow found its way into your possession, as we are in search of more literary treasures.)

CHAIRMAN'S MESSAGE

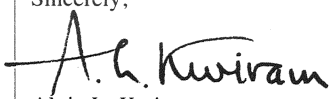
It was a superb evening." "The food was excellent." "Impressive facilities." "A gala event." These rave reviews were accorded the Chemistry Alumni Event and the Alumni Dinner hosted in the faculty club on campus during the spring ACS meeting in Seattle. Unfortunately we had to turn some people away who wanted to join the party at the last minute, because we had exceeded the club's capacity (160). The next time the ACS meets in Seattle (we hope it's before 2050) we will reserve the Kingdome and hope that the rest of you can come to join the festivities. It was delightful for all of us to see so many friends, students, colleagues. Thank you for coming.

I am sure you have already noted the new format of the Chem Letter. As we mentioned in last year's Letter, Vic Sivertz decided to retire as editor. He has done an outstanding job for a dozen years and we are all grateful for his dedication. The new editor is Nancy Cooper, our Undergraduate Academic Counselor. If you graduated within the last five years you know who Nancy is. If you graduated prior to that—well, you've missed something. Nancy has a following. We hope you can get acquainted with her in time.

As you will soon discover, however, Nancy's coverage of events in the Department is so thorough that there is no need for a message from the Chairman. Actually, she has left **one** topic for me which I had hoped **she** would cover—asking for money.

We are always very grateful for your contributions to our various funds: the Seminar Fund, Tartar Fund, P.C. Cross Fund and the Discretionary Fund. I want to call your attention to another serious need. It is increasingly difficult to provide adequate support for our students during the summer months. You no doubt recall how tight your personal budget was while you were a student. I invite you to support a student during a **portion** of the summer months so he or she can devote more time to research. A mere $25 provides support for one day; $150 is good for a whole week and $600 for an entire month. If you prefer, you can also specify that your funds be used for supporting an undergraduate for our summer research program. I know that anything you contribute will be appreciated and will contribute to the advancement of the field. Just mark your check "Summer Support". Thank you.

Sincerely,



Alvin L. Kwiram
Chairman

GROWING PAINS

The chemical library consisted of two books: Roscoe and Schorlemmer's *Treatise on Chemistry,* and Watts' *Dictionary on Chemistry*. The first teaching assistants received no compensation for their work, and three small rooms in the basement of Denny Hall comprised the laboratory space allocated to chemistry.

That was the Department of Chemistry in 1899—a humble beginning for a department which currently employs nearly 200 people, teaches 5000 students a quarter, and has a budget in excess of $5 million.

Actually, chemistry got off to a limping start in 1875, when the listing for the subject, previously referred to as "natural philosophy," first appeared in the University catalog. (The school was founded in 1861.) It wasn't until 1880, however, that an instructor for these courses was identified.

The department was organized by separation from the Department of Science in 1897, and two years later, a young Ph.D. from Johns Hopkins University, Horace Greeley Byers, was brought in to establish separate departments of chemistry and pharmacy. That task accomplished by 1903-04, Byers then turned his attention full-time to strengthening the fledgling Department of Chemistry.

Substantive growth occurred at this time. The curriculum was refined, and as graduate students began to arrive on the scene, the range of subject matter and instruction was expanded. Also recruited from Johns Hopkins University was Dr. Henry K. Benson, who was entrusted with the task of developing coursework in physical and industrial chemistry. This latter area became Benson's major work at the University, and the current Department of Chemical Engineering is housed in Benson Hall.

Space requirements for this discipline increased, commensurate with its growing respectability, and by 1908, there were four, spartan-yet-functional temporary frame buildings just north of Denny Hall used exclusively for chemistry. These "chem shacks," as they were "affectionately" called, were built to accommodate nearly 500 students, but as enrollment continued to

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GROWING PAINS (CONTINUED)

spiral, it became clear that a larger building was needed to house the department.

This opportunity came later that year, when the state made appropriations for three buildings to be erected for the Alaska-Yukon-Pacific Exposition in 1909. These were later given to the University: what was originally used as the fair's Fine Arts Building eventually became home to the Department of Chemistry. Built at a cost of $250,000 (note that recent renovations to the current Bagley Hall approached $10 million), that building is currently known as Architecture Hall.

Growth continued and in 1914, the first Ph.D. granted by the University of Washington was awarded to chemist Frank Alexander Hartman, who later went on to become professor and chairman of the physiology department at the University of Buffalo. By 1915, there were 970 students in chemistry (inorganic, organic, analytical, physical, chemical engineering and biochemical) and 89 people majoring in pharmacy.

Reportedly, the day war was declared, April 6, 1917, was an exciting one in Bagley Hall. Young men who previously had done their best to avoid military drill and who invoked every excuse in the book to get out of it, were now scrambling to enlist in the army or navy. Much talk centered around the possibility of going to an officer's training camp and trying to win a commission.

There was a great demand for chemists, and by June, many students had left or were planning to leave for various positions in the east. Immediately upon declaration of war, Professor Byers, as chairman of the military committee of the faculty, made a detailed census of all people on campus, and reported that with very few exceptions, virtually everyone associated with Bagley Hall had entered military service or become identified with some sort of war work.

Byers, himself, eventually became a captain, and was transferred to the Chemical Warfare Service in Washington, D.C. from the First Gas Regiment. At the end of the war, Byers resigned from the University, and became eventually, head of the Department of Chemistry at Cooper Union Institute in New York City. Benson took over Byer's work, and served as the chairman of the department from 1919 to 1947.

Formalized instruction in chemical engineering was pioneered by Benson, and under his guidance, a graduate of MIT was brought in to assist with the instruction of these courses. By 1928, the total number of students registered in chemistry and chemical engineering courses had grown to 992, and the graduate student population stood at 28. The teaching staff of the department included five professors, three assistant professors, one instructor, two associates, and twelve half-time assistants. The Department of Chemistry moved into its current home in 1937 and chemical engineering separated from chemistry in 1953.

NEW CENTER (CONTINUED FROM FRONT COVER)

multivariate analysis of the data) in order to effect immediate optimization of the production process.

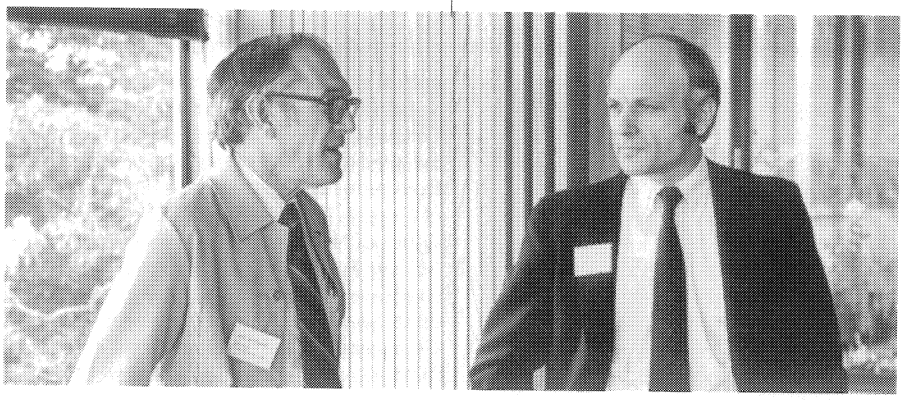
The co-directors believe that the University of Washington is an excellent location—with its personnel and instrumentation—to focus on basic research in order to raise the levels of reliability and sophistication of process analytical chemistry.

Applications of this research are not just limited to chemical companies. Project Director of this phase of the Center's growth, Dr. Deborah L. Illman, feels that the semiconductor industry, with its ion-implantation and etching methods which place demands on analytical methods, would be able to utilize on-line control effectively. She also noted that monitoring the atmosphere of a submarine, pollutants in the environment, or the medical state of a critically-ill patient would all benefit from these scientific advances. Anytime temperature, pressure, chemical constituents, product yield, waste product profiles or quality is involved, continuous analysis would be desirable.

To test the waters, the Department of Chemistry hosted an Industry-University Forum on May 3rd of this past year. Representatives from twenty national and international companies gathered on the University of Washington campus to hear the University's plans for such a Center, and express their own support or concern for the venture. In addition to Kowalski, Callis and Illman, Center investigators N. Lawrence Ricker from Chemical Engineering and Gary D. Christian from Chemistry made scientific presentations. Supporting comments from Chemistry and Chemical Engineering departmental chairmen Alvin L. Kwiram and Charles A. Sleicher were delivered, and the keynote address was given by Jack M. Frazer, chief executive officer of Keithley Instruments in Cleveland. Introductory remarks were made by William C. Richardson, Dean of the University's Graduate School and Vice-Provost for Research.

An important key to the Center's success will be its interdisciplinary research focus, and Kowalski and Callis will continue to approach faculty from other areas about this project. Presently, scientists from Chemistry, Chemical Engineering, Electrical Engineering and Laboratory Medicine are listed as CPAC investigators, and visiting scholars will also augment the Center's staff from time to time. Two such visiting professors (J. Calvin Giddings from the University of Utah and Jaromir Ruzicka of the Technical University of Denmark) will be in residence Spring quarter 1984. Their expertise in chromatography and flow injection analysis, respectively, will aid the Center's efforts as more industrial sponsors are identified.

Corporate sponsors will be asked to contribute $30,000 to participate in and benefit from the Center's research. On-going support by the University to facilitate the development and maintenance of the program demonstrates the University's commitment to the Center, according to Kowalski.



Jack Frazer, chief executive officer of Keithley Instruments, Inc. and keynote speaker at the March CPAC forum, confers with Chemistry department chairman Alvin L. Kwiram, right.

FACULTY UPDATE

NIELS H. ANDERSEN (Organic): In January 1983, Dr. Andersen was an invited participant in the 10th Winter Prostaglandin Conference in Colorado, where he presented a paper entitled "Biochemical and Pharmacological Characterization of Platelet Prostaglandin Receptors." This same topic was featured in a lecture tour of several pharmaceutical companies this past November. Andersen and his students gave four papers at the Spring ACS meeting, and in May of this year, he gave a series of lectures on prostaglandins at California colleges and chemical companies. A new classification of prostaglandin receptors resulted from his critical review of structure-activity relationships for prostaglandins, and the results of his work will be published soon by Churchill-Livingstone Publishing Company.

WESTON T. BORDEN (Organic): Professor Borden spent a month at the Institute for Molecular Science in Okazaki, Japan during the summer. While there, he carried out computational research on the mechanism of the Cope rearrangement.

GEORGE H. CADY (Emeritus Professor of Inorganic Chemistry): Dr. Cady reports that he and his new bride of seven months, the former Dorothy S. Thorp, are enjoying their wedded life very much. Cady, who last year lost his wife of 53 years, writes that the new Mrs. Cady is an enthusiastic player of bridge and golf, and that they are busy spending time with their many friends.

JAMES B. CALLIS (Analytical): Serving as a co-organizer for the Center for Process Analytical Chemistry is a prime activity of Dr. Callis'. During the past year, he has delivered talks at the Conference on Diffuse Reflectance Spectroscopy in Pennsylvania, the National Bureau of Standards, the University of Houston, and the national ACS meeting in Kansas City, where he addressed the Symposium on Applications of Imaging Devices in Spectroscopy. He was also invited to speak at the Ultra-High Resolution Chromatography Symposium at the ACS meeting in Seattle.

GARY D. CHRISTIAN (Analytical): The Puget Sound Section of the ACS, official hosts of the 185th national meeting of the Society in March 1983, has been under Christian's chairmanship this past year. He chaired the Content of Chemical Education After 2000 Symposium at the 78th Two-Year College Chemistry Conference this spring, the Analytical Chemistry Division Instrumentation Award Symposium at the Seattle ACS meeting, and the Symposium on Ultratrace Elemental Analysis at the Pacific Conference in Chemistry and Spectroscopy last fall. This past year, Christian has presented seminars at Harvey Mudd College, Western Washington University, and the U.S. Geological Survey in Virginia.

BRUCE E. EICHINGER (Physical): Eichinger spoke before the Gordon Research Conference on Elastomers in New Hampshire this past summer. He also reports that two of his research collaborators, Nancy Iwamoto and Dr. Yu-Kwan Leung, delivered papers to the Division of Polymeric Materials at ACS meetings this past year.

NICOLAOS D. EPIOTIS (Organic): Professor Epiotis will spend the 1984-85 academic year in Germany as a recipient of a U.S. Senior Scientist Award, administered by the Alexander von Humboldt Foundation. His latest book, *Unified Valence Bond Theory of Electronic Structure,* was published by Springer-Verlag this past spring.

MARTIN GOUTERMAN (Physical): Duke University was the site of Gouterman's invited talk this past summer on electronic states of metalloporphyrins. There, he was hosted by recently-tenured U.W. alumna Barbara Ramsey Shaw.

PAUL B. HOPKINS (Organic): Hopkins is the recipient of a $119,000 Exploratory Research Grant from the Procter & Gamble Company for his work on molecules which bind to DNA. He has received additional financial support from the American Cancer Society, the Petroleum Research Fund, the Research Corporation, and the Scripps Clinic. Last year he was awarded one of ten Dreyfus grants for Newly Appointed Young Faculty in Chemistry.

LYLE H. JENSEN (Adjunct Professor of Biophysical Chemistry): Harvard University, the Polytechnic Institute of New York, and crystallographers in the nation's capital who meet at the Carnegie Institution have all hosted Professor Jensen during the past year as a seminar speaker. Additionally, he was a symposium speaker at the Winter Meeting of the American Crystallographic Society at the University of Missouri, where he received the Fan Kuchen Award for outstanding research in structural problems.

BRUCE R. KOWALSKI (Analytical): Grants totalling nearly $300,000 have been awarded to Kowalski and his research group from such funding sources as the Department of Energy, NATO, Eli Lilly Company, the Office of Naval Research, and the National Science Foundation. He was on administrative leave during Autumn 1983 in order to establish the Center for Process Analytical Chemistry. He has been an invited lecturer over the past few months at Rockwell International, the 13th Annual Symposium on the Analytical Chemistry of Pollutants, the 1st International Workshop on Computer Chemistry in Italy, the FDA Pesticide and Industrial Chemists Conference in Seattle, and the Biotechnology and Microsensor Information Acquisition System Workshop in Philadelphia. He is the co-founder of the International Chemometric Society, and most recently organized a NATO-sponsored Advanced Study Institute in Italy on chemometrics.

ALVIN L. KWIRAM (Physical): As part of his 1982-83 responsibilities as chairman of the Council for Chemical Research, Kwiram made several presentations on behalf of CCR at national ACS meetings and before the House Subcommittee on Science, Research and Technology, where he testified on the issue of research instrumentation obsolescence. He will continue to serve on the CCR Governing Board this year as immediate past chairman. In October, he gave lectures at Yale University, New York University, and the City College of New York, describing his recent work on optically detected magnetic resonance in proteins.

JOHN W. MACKLIN (Inorganic): This past summer, Professor Macklin was appointed a member of the College Board Development Committee in Advanced Placement Chemistry. In addition to this activity, Macklin continues his spectroscopic research into meteorites and has plans to begin research on interplanetary dust particles with scientists from the NASA-Ames Research Center in California.

JOSEPH G. NORMAN (Inorganic): As the recently appointed Associate Dean for Academic Programs and Research in the Graduate School, Norman's current responsibilities include review of graduate degree programs for the entire University, and the administration of state funds for research. As his deanship is a full-time position, Norman no longer teaches. He does, however, maintain a moderately active research program.

YESHAYAU POCKER (Organic): During the past year, Professor Pocker delivered the Symposium Lecture on "The Active Site of Carbonic Anhydrase: Geometric Flexibility, Catalysis and Inhibition" at the International Conference on Metal Ions in Biological Systems sponsored by the Chemical Institute of Canada. He was also actively involved in the 1st International Conference on Bioinorganic Chemistry in Italy, where he presented a Congress Lecture on "Mechanistic Aspects of Coordination on Catalysis and Control" and served as a discussion leader on metalloenzyme catalysis. Additionally, Pocker was a plenary speaker at the Conference on the Biology and Chemistry of the Carbonic Anhydrases this past year. This

FACULTY UPDATE

international meeting, held under the auspices of the New York Academy of Sciences, commemorated the 50th anniversary of the discovery of carbonic anhydrase. This past summer, he served as the senior scientific sponsor for visiting scholars Dr. Bruce P. Ronald, Dr. Clarita C. Bhat and Ann-Mari Dannevig.

B. SEYMOUR RABINOVITCH (Physical): Professor Rabinovitch has learned that he will be the recipient of two prestigious honors this coming year: the 1984 ACS Peter Debye Award in Physical Chemistry, and the 1984 Michael Polanyi Medal to be presented by the Faraday Division of the Royal Society of Chemistry, London. In January and February of this year, he was a visiting professor at Rockefeller University in New York, and was a visiting professor at the Imperial College of Science in London from March through July, during which time he delivered seminars at Oxford, Cambridge and a number of other British universities. Additionally, he participated in the April Faraday Discussion on Intramolecular Energy Relaxation and was a session chairman at the July conference on Intermolecular Energy Transfer in the U.K.

STANLEY RAUCHER (Organic): Dr. Raucher was the recent recipient of a five-year Research Career Development Award from the National Cancer Institute of the NIH. This award will enable him to devote his full-time attention to the study of the synthesis of chemotherapeutic agents. Raucher delivered a paper at the spring ACS meeting, and attended the Gordon Conference on Heterocyclic Chemistry this past July in New Hampshire.

DAVID M. RITTER (Emeritus Professor of Inorganic Chemistry): Although officially retired, Professor Ritter still maintains research activity in his re-established laboratory on the ground floor of Bagley Hall. Victor Williams, chairman of the chemistry department at Chapman College in Orange, California spent the summer months with Dr. Ritter, and will return for the month of January to continue their work on silicon hydrides.

BRUCE H. ROBINSON (Biophysical): A $40,000 grant to study the molecular dynamics of DNA was presented to Professor Robinson during the past year, as well as other smaller grants from the Research Corporation and the U.W. Graduate School Research Fund. Robinson was an invited speaker at both the 2nd Annual Carnegie Mellon University/IBM Instrument Conference on Magnetic Resonance in February, and the 25th Annual Rocky Mountain Conference in Spectroscopy in August.

NORMAN J. ROSE (Inorganic): Abbott Laboratories in Chicago was the site of Dr. Rose's most recent invited lecture this past autumn. He served the Division of Chemical Education as the meeting chairman for the 11 symposia and numerous lectures given by that division at the spring ACS meeting, in addition to presenting a paper there on "Structure and Possible Biological Significance of a Protonated Methylmalonate Complex of Cobalt."

J. MICHAEL SCHURR (Biophysical): Professor Schurr delivered a talk on "Optical Probes of the Deformational Dynamics of Linear and Supercoiled DNAs" at the Symposium on Internal Dynamics of Proteins, Nucleic Acids and Membranes at the 27th Annual Biophysical Society Meeting this past year. He and his research collaborators John Thomas, Jess Wilcoxon and John Shibata, presented four posters at this meeting, as well.

VICTORIAN SIVERTZ (Emeritus Professor of Inorganic Chemistry): Since this past May, Dr. Sivertz and his wife, Chloe, have been living at the Norse Home, a retirement facility in North Seattle. Sivertz was given special recognition for his 12 years as editor of the CHEM LETTER at the Alumni Dinner this past March.

VERNER SCHOMAKER (Physical): Professor Schomaker spent the first six months of this year on a leave of absence at the California Institute of Technology, where he worked on crystal structures with Richard E. Marsh and U.W. Ph.D. alumnus Bernie Santarsiero. In June of this year, Schomaker gave a seminar at UCLA and at the spring ACS meeting, he was one of four participants (along with Linus Pauling) in the symposium entitled "120 Years of Crystallography."

ROBERT VANDENBOSCH (Nuclear): Work has begun on an $8 million Superconducting Booster at the U.W. Nuclear Physics Laboratory, where Vandenbosch recently stepped down as director after the last four years. Presidential and Congressional approval were necessary to secure funding to upgrade these laboratory facilities, and a considerable portion of Professor Vandenbosch's time was directed towards this goal. In activity of another sort, he also presented the concluding talk at the Conference on Nuclear Physics with Heavy Ions at the State University of New York at Stony Brook in April. Vandenbosch reports he is looking forward to spending more time with his research pursuits during the coming year.

DARRELL J. WOODMAN (Organic): Professor Woodman has been appointed Director of Undergraduate Studies in Chemistry, and continues as chairman of the Arts and Sciences Discipline Committee and the College of Education's Natural Science and Mathematics Field Committee for Secondary Teaching. He also chaired the general papers session in chemical education at the spring ACS meeting.

FACULTY PARTICIPATE

"120 Years of Crystallography" was the title of a half-day symposium held during the national ACS meeting last March. Pictured from left were the three main speakers at this program—Edward C. Lingafelter, Verner Schomaker and Lyle H. Jensen—each of whom has pursued approximately 40 years of research and study into chemical structural problems. Norman J. Rose, far right, was the prime organizer of this symposium, which was held under the banner of the Division of Chemical Education. Not pictured is Linus Pauling, who presented the concluding commentary. A luncheon honoring the principal speakers and the Nobel Prize winner followed the program. Three general sessions on crystallography, organized and chaired by departmental Ph.D. alumnus Ronald E. Stenkamp, were held later that week. Alumni who presented papers at those meetings included Stenkamp, Edward J. Valente, J. Kenneth O'Lone, Bruno Morosin, Carlo Mealli, Terrance B. Murphy, Massimo DiVaira, and Richard M. Kirchner. Alumni Alejandro (Sandro) A. Aruffo, Christopher Perkins and Bernie Santarsiero were co-authors on papers that were presented, as well.

DEPARTMENT RECEIVES $1.5M FOR NMR STUDIES OF DNA

In 1946, M. J. (Jack) Murdock founded Tektronix, Inc. in Portland, Oregon. After his untimely death in 1971 as a result of a seaplane accident on the Columbia River, the Murdock Charitable Trust was created by order of his will to encourage scientific research in the Pacific Northwest.

In 1971, Brian R. Reid was an assistant professor of biochemistry at the University of California, Riverside. He was doing research at that time on how transfer RNA translates the genetic code. To learn that someday he would become involved with this "Murdock Trust" would have meant little then.

Nonetheless, the relationship between Reid, now a full professor of chemistry and biochemistry at the University of Washington, and the philanthropic fund has been established.

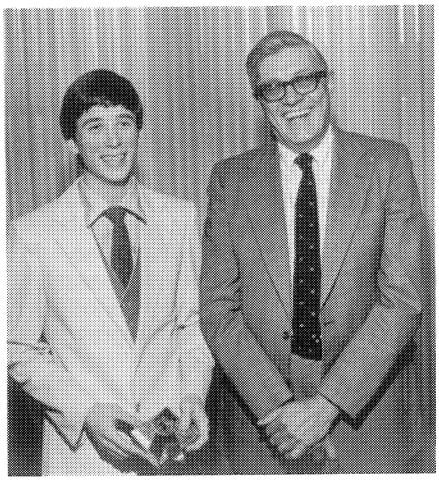
In 1980, the U.W. managed to entice Reid to move from California. At this time, Chemistry Department chairman Alvin L. Kwiram also initiated discussions with the Murdock Trust in order to identify funds to acquire nuclear magnetic instrumentation, in part to support Reid's research on nucleic acids and in part to establish a first-rate magnetic resonance facility. In 1981 the Murdock Trust made an award to the Department of Chemistry. With this as seed money the rest of the pieces began to fall into place. Reid was able to obtain substantial sums from NSF and NIH as supplements to his regular grants, additional funds were obtained through a departmental proposal to the Chemistry Division at NSF, the School of Medicine made a contribution and the University administration made a major contribution. The result was a $1,000,000 facility which includes both 200MHz and 500MHz multi-nuclear instruments to do both solid-state and high resolution liquid NMR studies. Earlier this year Reid proposed the idea of a program project proposal and choreographed its preparation with seven other members of the faculty. The Department has recently been informed by NIH that a $1.5 million award will be made and will include funds for a second 500MHz NMR instrument. This will make the ground floor of Bagley Hall home to one of the most impressive magnetic resonance facilities in the world.

To be slightly more accurate, the Department is going to build its own NMR spectrometer. Reid feels that Dr. Gary Drobny and Dr. David E. Wemmer, two faculty members in the Chemistry Department who also received funds on the Program Grant, are among the best NMR instrumentation experts in the country. Including the cost of purchasing the superconducting magnet, he estimates the two research scientists can build the machine for a total of $380,000 thus shaving about $220,000 off the cost of a new factory-made instrument. Furthermore, their new advanced design instrument will be able to perform experiments that are not possible on current commercial spectrometers, according to Reid.

The five-year grant will support Reid, Drobny, Wemmer and Professor J. Michael Schurr as they pursue research into how the short regulatory DNA sequences or "switches" at the beginning of genes control genetic expression. NMR experiments require large amounts of these DNA sequences but the techniques for their large-scale synthesis are already in place at the U.W.

Reid credits one of his second-year graduate students, Shan-Ho (Patrick) Chou, with quickly mastering the test tube synthesis of DNA and even improving the very recently developed techniques for using very reactive trivalent phosphites. Chou can now make large amounts of regulatory DNAs in a matter of hours, and his skill in this area means substantial savings to the department, and ultimately, to the taxpayer. Reid, however, did express disappointment over the fact that his entire Program Project proposal of $2.7 million was heavily cut, for it means that four other professors who contributed to the proposal cannot share as fully in the project. Despite the monetary restrictions, however, Reid feels that important insights into DNA function will be gained, and he will still be able to provide synthetic DNA for the needs of the others. He predicts that these other faculty members will be able to write very competitive individual grants within a year's time based on the in-house availability of synthetic DNA. Meanwhile, he may try to enhance the funding base of his program by submitting supplemental grants during the next five years.

MEDAL RECEIVED



Chemistry senior William H. Thompson is shown with University of Washington Provost George M. Beckmann last spring after receiving the 1981-82 Faculty Medal for High Scholarship during his sophomore year. Selected as the highest academic achiever from among 5228 sophomores that year, Thompson is also the 1982 recipient of the Hyp C. Dauben Prize in Organic Chemistry and the 1983 winner of the P.C. Cross Prize, which recognizes the top student in the physical chemistry sequence. Thompson is a 1980 graduate of Concrete High School in Skagit County, and plans to enter medical school after graduating with his Bachelor of Science degree in June of 1984.

OUTSTANDING TA'S NAMED

Nebojsa Janjic, Ruth Levy and Robert St. Dennis have been selected as the 1982-83 winners of the Outstanding Teaching Assistant Award. The trio will have their names engraved on a plaque which hangs outside the departmental office, and will share $200 as part of their prize.

Janjic received his biology degree from the University of Washington, and is studying enzyme kinetics with Professor Yeshayau Pocker. Levy, who earned her undergraduate degree from Grinnell College, is working on the synthesis of strained molecules with Professor Weston T. Borden. New York University is where St. Dennis took his bachelor's degree, and he is currently doing research with Professor Bruce

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IN MEMORIAM

Professor Boris Weinstein, faculty member in the Department of Chemistry at the University of Washington since 1967, died on July 29, 1983 after a brief illness.

Born in 1930 in New Orleans, Professor Weinstein received his undergraduate training at Louisiana State University. After he completed his Master's degree at Purdue University in 1955, he served for two years as a First Lieutenant in the Air Force. He took his Ph.D. under the supervision of Michael P. Cava at Ohio State University and then spent one year as a post-doctoral fellow with William G. Dauben at the University of California at Berkeley. Prior to coming to Seattle, Professor Weinstein was at Stanford University for seven years.

Professor Weinstein, who was a bioorganic and organic chemist, published more than 100 papers and directed the research efforts of eight Ph.D. students during his tenure at the U.W. At the time of his death, he was a co-secretary and editor of *Organic Reactions* and *Peptides, Chemistry and Biochemistry.* He has also served as editor for the last seven volumes of *Chemistry and Biochemistry of Amino Acids, Peptides and Proteins.*

During a three-month sabbatical in 1982, Professor Weinstein spent five weeks at the Weizmann Institute in Israel and the remaining time visiting and speaking at universities and industrial firms in Greece, Italy, Switzerland, France, West Germany and Great Britain. While at the University of Padova in Italy, he received a Bronze Medal from the Centro di Studi sui Biopolimeri. In October of 1982, he attended a meeting of the Japanese Peptide Symposium, one of two foreigners ever invited to participate in such a gathering.

Professor Weinstein was a co-founder and executive committee member of the American Peptide Symposium, and held additional memberships in the American Association for the Advancement of Science, the American Chemical Society, Royal Society of Chemistry, American Institute of Chemists, the American Society of Neurochemistry, New York Academy of Sciences and Sigma Xi. Over the years, he had served the Puget Sound Section of the ACS in a variety of capacities, most recently as a councilor.

He is survived by his wife, Barbara, and two sons, Michael and William, all of Seattle. The family suggests that remembrances be made to the Boris Weinstein Memorial Fund of the University of Washington Department of Chemistry.

TA'S (CONTINUED)

H. Robinson on electron paramagnetic resonance. All three are second-year graduate students.

Selection committee members Tina Weeding, Steve Hadley and Arthur Anderson examined quarterly undergraduate teaching evaluations of all graduate students prior to reaching their decision. The Chemistry Discretionary Fund is used to fund these prizes.

This year's runner-up is Richard Norman, who was an Honors undergraduate at the University of Washington. Past winners of this award include W.P. Green, S.D. Hartenstein (1981-82); A.R. Coffino, D.D. Keeports, T.B. Murphy, V. Rae (1980-81); T.B. Murphy (1979-80); L. Lawton (1978-79); L.W. Hershberger, R.K. Littleton (1977-78); T.A. Kelly (1976-77); E.R. Bacon, B.I.D. Santarsiero (1975-76); K.W. Rousslang, S.E. Stein (1974-75); W.R. Leenstra, K.W. Rousslang (1973-74); K.W. Rousslang (1972-73); C.R. Connell, D.W. Reichgott, K.W. Rousslang (1971-72).

GRADUATE NUMBERS FILED IN REPORT

In its 1982-83 certification report to the American Chemical Society, the Department of Chemistry listed 77 undergraduate and 31 graduate degrees awarded between August of 1982 and June of 1983.

In the undergraduate categories, 14 men and four women received the non-ACS accredited Bachelor of Arts degree, while 59 students (42 men and 17 women) maintained the minimum 2.8 grade point average (cumulative as well as chemistry) in the specified curriculum necessary to receive the certified Bachelor of Science degree. It is estimated that 15 of the undergraduates from this class went on to medical school, and approximately 30 students went on to graduate study in chemistry, chemical engineering, or related areas at schools such as the California Institute of Technology, Cornell University, the Paper Institute of Wisconsin, the University of Illinois, Northern Illinois University, the University of California at Santa Cruz and at San Diego, Indiana University, the University of Minnesota, Brigham Young University, and the University of Washington. The Phi Beta Kappa distinction was bestowed on 11 of these people, and 9 students graduated with Honors.

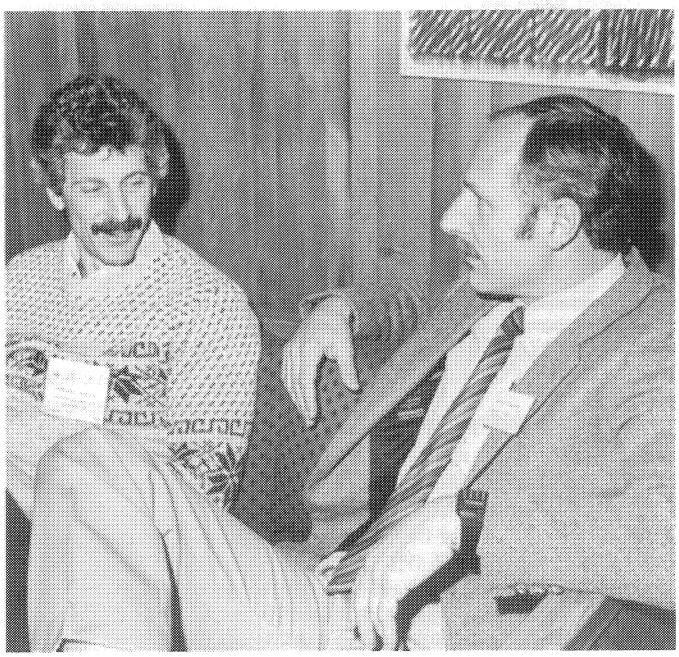
Of the nearly 120 graduate students enrolled in the department last year, five women and 12 men went on to earn Master's degrees, and doctorates were received by one woman and 14 men from that same class. Several of the Ph.D.'s went on to teach in Saudi Arabia, Korea, Mills College in California and Ithaca College in New York. Many of these people accepted post-doctoral positions in France, British Columbia, Cornell University, and the University of California at Berkeley, and the University of Washington. Other students took industrial or governmental jobs.

Ten of the Master's people remained at the Department of Chemistry to continue work toward the Ph.D. degree.

Emeritus Professor George Cady toasted old times with several of his former Ph.D.'s. From left are Cady, Gene Skiens, Lee Burger, Darryl Des Marteau, Bill Reichert, Jean'ne Schreeve, and Felix Aubke.

Larry Wangen and Bruce Kowalski remembered their U.W. graduate days away from the crush of the dinner crowd. Kowalski, a professor of analytical chemistry in the Department, was on leave Autumn quarter working on the establishment of the Center for Process Analytical Chemistry (see story on page 1).

Dropping by to see old friends from the late 1970's were Ph.D. alums Saison Shaik, Ron Yates, Stan Young (in back), Tom Deits, and John Stein.



Returning from as far away as Florida and from as far back as the 1930's, alumni from the Department of Chemistry came together on Monday, March 21, 1983 to revive old memories, relive old antics, and remember old faces. The overflow crowd was treated to a tour of renovated Bagley Hall prior to the buffet dinner, which featured a broad selection of Washington

Gary Hickernell, left, Peggy Krahn, and Dean Wolbach, right, discuss the years that have passed since they took their Ph.D.'s under Professors Stout and Chilton in the late 1960's. Man second from left is unidentified.

Master of Ceremonies Professor George Halsey is shown as he laughed uproariously at one of his own jokes.

Isiah Warner, second from left, and Larry Thomas saluted the success their Ph.D.'s in analytical chemistry have brought them. Also shown are Vickie Sessions and Della Warner.

Chemical engineering alumnus Robert Lutton, left, reminisced with Emeritus Professors Vic Sivertz of chemistry and Wells Moulton of chemical engineering. Sivertz was specially feted at the Alumni Dinner for his many years of dedicated service to the Department of Chemistry. He served as editor of the CHEM LETTER for 12 years.

state wines. Throughout the evening, people listened to special presentations, and then capped off the affair by trying to match names to faces as slides from the past were shown. Also discussed was the shape of things to come, as Departmental chairman Alvin L. Kwiram delivered an after-dinner speech on "Industry-University Relations: A New Paradigm."

OUTSTANDING ALUMNI

After high school graduation, it only took a year of performing in lounges, for weddings and at Bar Mitzvahs for Robert Gordon Anderson to know that he didn't want to make a full-time career out of playing the drums.

While he still admits to occasionally indulging in the pleasures provided by this percussion instrument, and despite assurances from a staff assistant that he's still got the beat, it is Anderson's successful career as a chemical orchestrator which has earned him distinction as one of 1983's Outstanding Alumni.

Anderson was born in 1928, and 20 years later, earned his degree in chemistry from Coe College in his home-state of Iowa. Already married, Anderson and his wife, Ann, wanted a change of pace and scenery, and decided to try life on the West Coast. R.G., as he is also known, enrolled at the University of Washington, and in 1955, received his Ph.D. in chemistry under Arthur G. Anderson's guidance. His doctoral thesis was entitled "Part I: Studies Related to the Synthesis of Pyracylene; Part II: A Preliminary Investigation of Synthetic Routes to Cyclopenta(b)- and Cyclopenta(c) Thiapyran."

Two years later he joined the Chevron Research Company, where he has steadily risen through the ranks to his current position of Vice-President of the Products Research Department. Today, 310 people work under his supervision, and he is responsible for a $30 million budget.

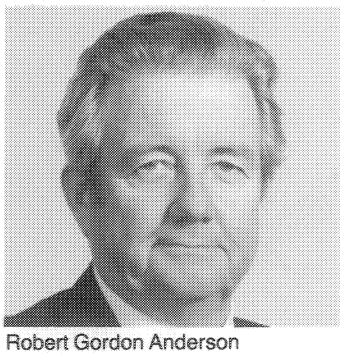


Photo courtesy of Chevron Research

Robert Gordon Anderson

Currently, the development of petroleum products falls under Anderson's purview. He pointed out that this includes gasolines, diesel fuels, aviation fuels, lubricants, industrial lubricants, greases, asphalts and solvents. Additionally, Anderson is responsible for development of and experimentation on additives for these products, which are marketed commercially through the Oronite Additive Division of Chevron Chemical Company. Anderson served for a time as general manager of that smaller division, and then went on in the late 1970's and early 1980's to become vice-president of the Lubricants Department at Chevron, assistant secretary of Standard Oil of California, and vice-president of the Fuels and Asphalts Research Department. He has held his present position since 1982.

Anderson has nearly 20 patents in the petroleum industry, including two which deal with "F-310," a gasoline additive introduced worldwide by Chevron and its affiliates in 1970.

Anderson finds woodworking a relaxing hobby, and also enjoys travelling and skiing. In fact, when interviewed for this story, he admitted that the following morning at 5 a.m. he was leaving for a two-week Hawaiian respite, with plans to hone two of his other hobbies, golfing and tennis, while on the islands.

Anderson has been married for 35 years and has three sons and two grandchildren. He is a member of the Society of Automotive Engineers (SAE), the American Chemical Society, and a key member of the U.W.'s Department of Chemistry's Industrial Advisory Committee.

If you assume that a child born on the fourth of July would just naturally grow up to be the kind of adult who places considerable value on hard work and recognizes the importance of self-discipline—a person who seems to embody the classic sense of the "American way," then you have fairly accurately described Gilson H. Rohrback, selected as one of the Department of Chemistry's 1983 Outstanding Alumni.

Rohrback, simply stated, is a "local boy made good." He is chairman of the board and chief executive officer of Rohrback Corporation, and its subsidiaries, Rohrback Instruments and Rohrback Technology.

Recognition of Rohrback's academic talents came early, starting when he was named valedictorian of his Ballard High School graduating class. Later, as an undergraduate in the Department of Chemistry at the University of Washington, he was selected for Phi Beta Kappa, and went on to graduate with a B.S. degree magna cum laude. Rohrback served for four years in the U.S. Navy Submarine Service, earning a Bronze Star, three special commendations, and a Presidential Citation. He then returned to graduate school at the U.W. in 1946, and in 1949, finished his thesis, "Studies of Fluorides," under Professor George Cady's supervision.

Rohrback's entrepreneurial and management talents paid off in the early 1950's. After working for several years as a senior research chemist at the Chevron Research Company, and as president of Crest Research, he formed the Magna Corporation, now the third largest supplier of corrosion control chemicals for the petroleum industry. The company has wholly-owned subsidiaries in Canada, England, Holland, West Germany and Italy, as well as offices and distribution centers in South America, Africa, the Middle East and the Far East.

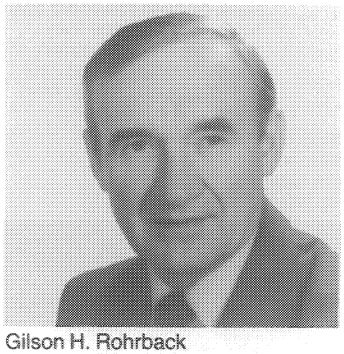


Photo by Bill Stone Photography, New York City

Gilson H. Rohrback

Under Rohrback's leadership, Magna pioneered the concept of mobile treating units for oil wells, the use of mobile chemical treating systems for large volume water systems, and the concept of combining corrosion inhibitor injection and instrument monitoring as closed loop systems.

Magna was sold to Baker International in 1976, the same year Rohrback formed the corporation which bears his name. After buying back certain rights from Magna for specific instrument development, Rohrback's company has grown into the world's largest manufacturer and distributor of corrosion measuring and controlling instrumentation. Rohrback currently has more than 75 patents and publications in the field of corrosion chemistry and instrumentation.

Rohrback's latest business venture weds the creative and practical sides of innovative technological discoveries. The Rohrback Technology Corporation, headquartered in Seattle, will develop and market emerging concepts in instrumentation, electrochemistry, biotechnology, and specialty chemicals, and will seek to transform them into profitable, commercial endeavors. Rohrback hopes to bridge the gap between the inventor's focus on technology and the business manager's focus on the "bottom line" by operating a full-scale service of market forecasting, scientific/technical consulting, and public relations.

Rohrback is married and has two daughters and a son. He has been active in a number of civic organizations such as the Lions Club, and has served on the Boy Scout Re-

OUTSTANDING ALUMNI

gional Council, YMCA regional Board of Directors, and the Presbyterian Intercommunity Hospital Foundation in Whittier, California. Prior to his recent move back to Seattle, Rohrback was a member of the Jonathan Club in Los Angeles and a two-year member of the Engineering Advisory Committee at Harvey Mudd College. Currently, he is a vital participant on the U.W.'s Department of Chemistry's Industrial Advisory Committee.

Noted alumni Shih Yi Wang, Director of the Division of Environmental Chemistry at Johns Hopkins University, passed away on October 3rd of this year. The U.W. Department of Chemistry feels strongly about honoring him posthumously, and so in collaboration with one of his postdoctoral associates, Dr. W. Robert Midden, the following "Outstanding Alumni" article was prepared.

Shih Yi (Sydney) Wang held the life-long belief that basic chemical research must be instrumental in dealing with problems of our environment. Throughout his career, he dedicated himself to the understanding of physical and chemical effects on biological properties. Wider recognition of Wang's talents in the scientific arena came in 1977, when the fruits of his research labors culminated in his being named director of the newly-established Division of Environmental Chemistry at Johns Hopkins University.

In 1923, Wang was born in Peking, China (where his two brothers and a sister still reside). After receiving his Bachelor of Science degree in chemistry from the National Peking University in 1944, he took his 1952 Ph.D. in organic chemistry with Arthur G. Anderson, Jr. at the University of Washington, where his dissertation was entitled "Synthesis of 1,8-Tetramethylene-azulene and Related Compounds." Ten years later; Wang became a naturalized U.S. citizen.

Wang was a two-year postdoctoral student at Boston University, and then went on to work with Robert B. Woodward at Harvard University for a year in the mid-1950's. After six years as an assistant professor at Tufts Medical School, Wang joined the faculty at Johns Hopkins University in 1961. He began in the Department of Biochemistry in the School of Hygiene and Public Health, became an associate professor in 1963, and then was promoted to full professor there in 1966. For one year, he served as director of Johns Hopkins University's Division of Radiation Chemistry, and then in 1977, was appointed professor and head of the Division of Environmental Chemistry.

Dr. Wang began his study of UV irradiation of nucleic acids and related compounds nearly 30 years ago. Through the years, his other interests have included the characterization of photoproducts of DNA, radiation mutagenesis, and ultrasonic radiation of nucleic acids. Wang's laboratory was not only reponsible for the discovery of the thymine dimer (simultaneously with a group of Dutch scientists), but also for the discovery and characterization of five other classes of DNA photoproducts. Pyrimidine adducts, which were also revealed through research in Wang's laboratory, are now felt to be responsible for the mutation hot spots in DNA. The significance of Wang's discoveries, which can be viewed as a watershed of sorts for many other aspects of DNA research, led to a better understanding of the mechanisms of DNA repair. Additionally, it provided insight into the nature of damage caused by a wide range of other environmental factors such as polyaromatic hydrocarbons, alkylating agents, and genotoxic compounds in general.

Photo courtesy of Johns Hopkins University

Shih Yi Wang

Wang was a member of the American Chemical Society, the Chemical Society of London, the American Association for the Advancement of Science, and the American Society for Photobiology. He was selected as the NATO guest professor at the University of Koln, Germany in 1962, and was the recipient of a 10-year U.S. Public Health Service Career Development Award in 1961. Most recently, he was honored by the Maryland Section of the ACS for his outstanding contributions in research, teaching and administration by receiving the 1983 Maryland Chemist's Award. He was the author of more than 100 published articles, and served as editor of the two-volume *Photochemistry and Photobiology of Nucleic Acids* (Academic Press, 1976). At the time of his death, he was a member of the editoral board of the international journal *Photobiochemistry and Photobiophysics*.

ALUMNI TIDBITS

A GERALD S. ADAMS (B.S. 1966) went on to study biochemistry, earning a Ph.D. in 1970 from Oregon State University. He has been teaching at Whittier College since 1970, and he is currently chairman of the Chemistry Department and Vice-Chairman of the College Faculty . . . VICTOR M. ALHADEFF (B.S. 1950) received an M. S. in chemistry at Berkeley. He no longer works in the field, however. . . CLYDE J. AMBACHER (B.A. 1959) works as a chemist in Seattle. . . MILTON H. ANDRUS, JR. (Ph.D. 1967) is a research specialist at 3M in St. Paul, MN. . . .

B DOUGLAS C. BABCOCK (Postgraduate work 1952) is a materials engineer for the Boeing Company in Seattle. . . WILLIAM R. BAKER (B.S. 1974) writes that after taking his Ph.D. in 1979 at the University of Illinois, he spent two years with Professor William G. Dauben at Berkeley as a post-doctoral fellow. He joined Abbott Laboratories in 1981 and as a senior research chemist, he is presently involved in cardiovascular research. . . DAVID O. BARLOW (Ph.D. 1952) is currently an affiliated professor in the College of Forest Resources at the U.W. There he does some research and some teaching and writes that these activities fit into his schedule nicely since retiring from du Pont in 1980. . . ROBERT K. BARNES (Ph.D. 1955) is an associate director of R&D for the Union Carbide Corporations's Chemical and Plastics Division in South Charleston, WV. . . ESLER R. BECHTEL, JR. (B.S. 1937) retired in 1975 after a long career in quality control in the steel industry in both the USA and South America. His last 15 years of active service were spent in the Arizona copper industry. . . MICHAEL S. BIENN (B.A. 1968) went on to earn a Master's degree at South Dakota State University in 1978. He is currently manager of chemical testing and research at a testing lab in Seattle. . . CHARLES J. BISHOP (Ph.D. 1969) left the Solar Research Institute in early 1982 to return to industry. Currently, he is the director of Technical Services at the A. O. Smith Corporation in Milwaukee, WI . . . PETER BODSKY (B.S. 1982) works in quality control for Southwest Canners in New Mexico. . . FRANKLIN E. BOSHEARS (B.S. 1979) works in quality assurance for the federal government in Auburn, WA. . . JACK D. BREAZEALE (Ph.D. 1955) is a senior staff scientist at United Technologies Chemical System Division in Sunnyvale, CA. . . LARRY C. BUTLER (Ph.D. 1972) is the task leader for environmental chemistry for the Environmental Protection Agency on Sabine Island, Gulf Breeze, Florida. Among other responsibilities, he supervises analysis of pesticides, hydrocarbons, jet fuels and PCB's in matrices such as sea water, sediment and biota.

C CHARLES CHACKERIAN (Ph.D. 1964) works in the Astrophysical Experiments Branch at the Nasa Ames Research Center in California. . . CHING-HONG CHEN (M.S. 1972) took his Ph.D. in biochemistry in 1978 at the University of North Dakota. He works now as a research associate at the Northwest Lipid Research Cen-

Continued on next page

ALUMNI TIDBITS (CONTINUED)

ter at Harborview Medical Center in Seattle. . . EUGENE E. COLLIAS (M.S. 1951) earned an additional M.S. in oceanography at the Scripps Institute in 1959. He retired from the University of Washington's Oceanography Department in 1980, after more than 30 years there. He and two partners now operate an oceanography consulting firm in Seattle. . . J. WESLEY CRUM (Ph.D. 1950) is an emeritus professor of education at Central Washington University in Ellensburg, WA. He currently is involved in planning, promoting and directing foreign tours, and has visited 88 countries in the last 15 years . . . RALPH G. CZEREPINSKI (Ph.D. 1967) is a research associate for the Dow Chemical Company in Midland, MI.

D RICHARD O. DAVIDSON (B.S. 1972) is in industrial chemistry for Van Waters and Rogers in Portland, OR. . .JEAN-RENÉ DELCAIRE (Postgraduate work 1959) spent two years in Japan and India teaching natural products following his stay at the University of Washington. After three years in the French Army and 12 years in industry, he joined Arthur D. Little in France as a consultant, while finishing his Ph.D. thesis in business administration at the University of Paris in 1976. . .DARRYL D. DES MARTEAU (Ph.D. 1966) received the A.C.S. Division of Flourine Chemistry Award for Creative Work in 1983, and delivered the plenary lecture at the 10th International Symposium on Flourine in Canada last year. Currently, he serves as professor and head of the Department of Chemistry at Clemson University in South Carolina. . . FRANZ H. DETTMER (B.S. 1942) attended the U.S. Naval Post Graduate School and in 1956, received an M.S. in physics. Colonel Dettmer retired to Everett, WA. in 1976, after 34 years in the U.S. Air Force. . . KLARESE (LERE) DORPAT (B.S. 1948) earned her medical degree in 1952. Although she has retired on San Juan Island, she remains the physician coordinator for the EMT (Emergency Medical Technician) training program, a course she helped start in 1975, in San Juan County. . . THOMAS G. DUNNE (Ph.D. 1957) is a professor in the Department of Chemistry at Reed College in Portland, OR. . . IRA DYE (B.S. 1949) recalls that his years at the University of Washington were punctuated by a call to active duty during the Second World War. He went on to earn an M.S. in petroleum engineering from the University of Pittsburgh in 1956 and presently, he is director of the research labs for the engineering sciences at the University of Virginia in Charlottesville.

E ROBERT H.K. ENG (B.S. 1970) received an M.S. in 1972 from Harvard University and in 1975, an M.D. degree from the Einstein College of Medicine. He currently works in Infectious Diseases in the Veteran's Hospital in East Orange, N.J.

F ZELDA HINDIN FEINBERG (B.S. 1938) went on to receive an M.A. from Mills College in 1940. She resides in Seattle. . . DON F. FENNER (B.A. 1960) went on to earn an additional degree in chemical oceanography at the University of Washington in 1962. He now works as a research oceanographer for the Navy in Mississippi. . . GARY T. FORREST (M.S. 1971) received a Ph.D. from M.I.T., and is the product marketing manager for the Spectra Physics Company in Bedford, MA. . . STEVEN FREES (B.A. 1979) works as an engineer at the Boeing Company in Seattle.

G GEORGE GERHOLD (Ph.D. 1958) is a professor of chemistry and an associate dean in the College of Arts and Sciences at Western Washington University in Bellingham, WA. . . DAVID C. GREEN (Ph.D. 1974) is a senior research associate for the Chevron Research Company in Richmond, CA. . . CHARLES GREENLIEF (Ph.D. 1970) is a professor in the Department of Chemistry at Emporia State University in Emporia, KS.

H RANDALL E. HAMM (Ph.D. 1940) is a professor emeritus in the Department of Chemistry at Washington State University. . . DOUGLAS J. HAMMILL (B.S. 1976) earned an M.D. degree at the University of Washington in 1981. Currently, he is a resident in pediatrics at Duke Medical Center in Durham, N.C. . . EDWARD A. HARDWIDGE (Ph.D. 1972) is a research head for the Upjohn Company in Kalamazoo, MI. . . HOWARD HARRIS (B.S. 1965) is the plant manager for the Fiberchem Company in Kent, WA. . . JAMES D. HAUSCHILDT (Ph.D. 1940) received an M.D. degree from the University of Oregon in 1954, and is a practicing physician in Wheeler, OR. . .PETER A. HEDGES (B.S. 1979) has been working as a chemical analyst at the Olympia Brewing Company. . . RONALD A. HENRY (Ph.D. 1942) officially retired as a senior research scientist at the Naval Weapons Center in China Lake, CA., but he has continued to work part-time doing research. . . WILLIAM L. HENSON (Ph.D. 1971) earned a Juris Doctor degree from the University of California at Davis in 1974, and works as an attorney for the U.S. Army in the Sacramento District. . . BECKY HICKEY (M.S. 1973) retired as supervisor of the Undergraduate Laboratories in the Department of Chemistry at the University of Washington in 1981 to have a baby. She currently works part-time as a chemistry instructor at Edmonds Community College. . . DAVID HINMAN (Ph.D. 1975) is a research specialist for General Foods Corporation in Tarrytown, N.Y. . . GEORGE H. HITCHINGS (B.S. 1927) took his Ph.D. in biochemistry at Harvard and then spent many years at the Burroughs Company, where he was vice-president for research from 1967 to 1975. He went on to affiliate with many universities around the country, and spent considerable time as a visiting lecturer in such places as Korea, Pakistan, Iran, Japan, India and South Africa. In April of 1982 he received the Distinguished Service Award from the University of North Carolina Medical School. . . HAROLD G. HOULTON (Ph.D. 1936) retired in 1970 from Ashland Oil. Currently, he works as a consultant in the nuclear field. . . LUZERNE E. HUFFORD (B.S. 1921) became a certified public accountant in 1931, and worked as an Internal Revenue agent until retirement. . . GEORGE W. HUTTON (B.S. 1940) spent 40 years with the Alcoa Company, the last eight years of active service as vice- president and general manager of Alcoa's alloying metals division. He currently resides in Colville, WA. . . KI-JUN HWANG (Ph.D. 1981) is a senior research chemist at the Monsanto Agricultural Products Company in St. Louis, MO.

I JOHN C. ILLMAN (M.S. 1943) retired from the Shell Development Company in 1972, and from the Shaklee Corporation in 1976, where he worked as the manager of the Cleaning Products Division. . . HEPBURN INGHAM (B.S. 1981) is working towards a graduate degree in biochemical engineering at Arizona State University.

J ALBERT W. JACHE (Ph.D. 1952) is the associate vice-president for Academic Affairs at Marquette University in Milwaukee, WI. He was chairman of the Flourine Chemistry Division of the A.C.S. last year, and is a member of its Executive Committee this year. He is also chairman of the Nuclear Engineering Education Committee at Argonne National Laboratory this year.

K FRANK E. KARASZ (Ph.D. 1958) is a professor in the Department of Physical Sciences at the University of Massachusetts in Amherst, MA. . . JEFFREY R. KAUFFMAN (B.A. 1969, B.S. 1975) is a pharmacist in Edmonds, WA. . . LYMAN F. KELLS (Ph.D. 1944) writes that he is semi-retired and living in Seattle. . . RICHARD M. KIRCHNER (Ph.D. 1971) is an associate professor and chairman of the Department of Chemistry at Manhattan College in the Bronx, N.Y. . . FRED W. KNAPMAN (M.S. 1941, Ph.D. 1951 Columbia University) reports that he is an emeritus professor of chemistry at Western Washington University. Since retiring in 1974, he and his wife have travelled through Europe, the Soviet Union, Egypt, India, Thailand and Great Britian. This year he will celebrate not only his 75th birthday, but his 50th wedding anniversary. . . FRED R. KRICK (B.S. 1963) is an analytical chemist for the Food and Drug Administration in Seattle. . . RAYMOND KUSUMI (B.S. 1981) is a research technician for the Olympic Stain Company in Seattle.

L HAROLD K. LATOURETTE (Ph.D. 1951) retired in February 1983 after 31½ years with the F.M.C. Corporation in Philadelphia, PA. . . JAMES C. M. LI (Ph.D. 1953) is a professor in the Department of Mechanical Engineering at the University of Rochester in Rochester, N.Y. . . .RODNEY J. LUCAS (B.S. Chemistry and Chemical Engineering 1982) is a project engineer for the Exxon Company in Ventura, CA.

M BERNARD M. MALOFSKY (Ph.D. 1964) was appointed vice-president and director of research and development for Loctite Corporation's Industrial Group in Newington, CT. He joined the company in 1972. . . MICHAEL MARONEY (Ph.D. 1981) is a post-doctoral fellow in the Department of Chemistry at North-

Continued on page 15

DEPARTMENT OF CHEMISTRY UNIVERSITY OF WASHINGTON ALUMNUS REPORT

Name_____ Degree(s) at U of W_____ Year(s)_____

Home Address_____

Other Degree(s)_____ Institution(s)_____ Year(s)_____

Position_____ Organization_____

Business Address_____

News Notes:

Comments and Questions:

News of Other Graduates:

Date_____ Signed_____

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Attn: Editor

ALUMNI TIDBITS (CONTINUED FROM PAGE 12)

western University in Evanston, IL. . . ROBERT R. MARRIOTT (B.S. 1937) writes that he is mostly involved with musical activities these days, since retiring from the scientific field in 1975. . . CARL F. MARRS (B.S. 1975) went on to study at the University of Wisconsin in Madison for a Ph.D. in molecular biology, which he received in 1982. Currently, he works for Cetus Company in Palo Alto, CA. . . LANCE MATHESON (B.S. 1974) is currently working towards an M.B.A. at the University of Washington. . . THOMAS MATROS (B.S. 1982) is working as a technician at the APCOA Corporation. He hopes to finish his M.B.A. at Seattle's City University by 1984. . . ALVIN M. MATSUMOTO (B.S. 1971) earned his M.D. degree from the University of Washington in 1975. He is a staff physician and associate investigator of the Veteran's Administration, and is also an assistant professor of medicine in the Division of Endocrinology and Metabolism at the U.W. School of Medicine. Currently, he is engaged in clinical research in the area of neuroendocrine control of gonadotropin secretion and the hormonal control of spermatogenesis. . . JOSEPH L. MC CARTHY (B.S. Chemical Engineering 1934) went on to earn a Ph.D. from Mc Gill University in 1938. He is professor and dean emeritus in the Department of Chemical Engineering and College of Engineering at the University of Washington. . . DAVID W. MC CLURE (Ph.D. 1963) was reelected for a third term as chemistry department head at Portland State University. . . RICHARD MC DONALD (Ph.D. 1957) is a professor at Kansas State University. He delivered a plenary lecture on 'Ion-Molecule Reactions of Hypovalent Ion Radicals' at the 7th Conference on Structure and Energy Relationships in March 1983 in Monterey, CA . . . JIM MC GILL (Ph.D. 1977) is a senior engineer in Boeing's Computer Services Division in Seattle. . . RUTH E. MERLING (M.S. 1917) took her Ph.D. in 1920 from the University of Illinois. Before retiring from the Eastman Kodak Company, she was registered to practice before the U.S. Patent Office, and was a member of the Kodak Patent Department. . . WESLEY MINNIS (M.S. 1916) earned his Ph.D. in 1922 from the University of Michigan. He is retired and lives in Ocean City, N.J. . . .EDWARD T. MIZE (B.S. 1936) has worked during his long career as an analytical chemist for the Shell Development Company, Tidewater Associated, and the Phillips Petroleum Company, retiring from the latter in 1974. . . ROBIN E. MOSER (Ph.D. 1942) retired from Mt. Hood Community College in 1975. Since then, he has been an analytical chemical consultant at Glenn Matteson, Inc., a manufacturer of vitamin and mineral food supplements in Portland, OR. . . TERRANCE B. MURPHY (Ph.D. 1982) is an assistant professor of chemistry at Ithaca College in New York. . . PHILIP C. MYHRE (Ph.D. 1958) is a professor and chairman of the chemistry department at Harvey Mudd College in Claremont, CA.

N RICHARD E. NORMAN (B.S. 1981) is a research assistant in the chemistry Ph.D. program at the University of Washington. He is working with Professor Norman J. Rose on copper complexes with possible biologically relevant ligands. . . PAUL NUTKOWITZ (Ph.D. 1967) is an assistant engineer in the Planning Office of the New Jersey Department of Transportation. He received an M.S. in Environmental Science from Drexel University in 1973. . . GLEN T. NYGREEN (B.S. 1939) went on to further study at the University of Washington, earning a 1954 Ph.D. in the combined fields of psychology and sociology. He is vice-president, professor of sociology, and deputy to the president of Lehman College, City University of New York in the Bronx.

O JOHN P. OLIVER (Ph.D. 1959) is a professor of chemistry at Wayne State University in Detroit, MI. . . ALLAN G. OSBORNE (Ph.D. 1955) is a senior process engineer for the John Fluke Manufacturing Company in Everett, WA.

P HELEN S. PEARCE (M.S. 1932) writes that she and her husband own a dump truck service in Helena, MT., and that she is continuing to enjoy her semi-retirement. Since joining the Telephone Family Campers group several years ago, summers find Helen and her husband on many outings in their mobile home . . . PETER J. PETERSON (B.A. 1962) has been working as a civilian supply manager for the U.S. Army, and after a stint in Alaska, he and his wife currently live in Germany. Prior to earning his M.B.A. from the University of Oregon in 1971, he worked in radiochemistry at the Nevada Test site for five years. . . .DONALD PRENGUBER (B.A. 1958) is a lead engineer in the Materials and Processes Division of the Boeing Company in Seattle.

R EDWIN RAY (Ph.D. 1974) is dean of instruction at Morgan Community College in Ft. Morgan, CO. . . KENNETH RAYMOND (Ph.D. 1980) is an assistant professor of chemistry at Eastern Washington University in Cheney, WA. . . .S. DARRELL REEDER (Ph.D. 1951) has been employed since graduation at the Idaho National Engineering Laboratory (INTEL) in the fields of radiochemistry, nuclear physics, and analytical chemistry. . . HARRY ROEGNER (B.S. 1950) works as a chemist for the Department of the Navy in Bremerton, WA. . . TRACY ROLD (Ph.D. 1977) is employed as an advisory chemist for the IBM Corporation in Boulder, CO. . . . CLIFF R. RUDY (Ph.D. 1970) was promoted last March to a program manager for the Monsanto Company's Mound Laboratory in Miamisburg, OH.

S KLAUS A. SAEGEBARTH (Ph.D. 1957) has worked for the du Pont Company for over 25 years. Currently, he is director of agricultural research and development in the Biochemicals Department . . . SIEGFRIED W. SCHUBERT (Ph.D. 1960) is living in Switzerland, and is plant manager and vice-president of Teranol, Inc., a division of Hoffman-LaRoche, Inc. For many years he has been actively involved in the production and planning of additional manufacturing sites with their United States division, and has spent some time in New Jersey and Texas . . . ALLEN B. SCOTT (Ph.D. 1942) is an emeritus professor of chemistry at Oregon State University. . . MUHAMMAD A. SHARAF (Ph.D. 1982) is a post-doctoral fellow in the Department of Chemistry at Cornell University . . . DANIEL E. SHELTON (B.S. 1976) went on to receive a D.O. degree in 1980, and currently has a private, general practice in Federal Way, WA . . . DAVID P. SIEGWARTH (B.S. Chemistry 1958, B.S. Chemical Engineering 1963) earned his Ph.D. in chemical engineering from the University of Illinois in 1968. He works for the NWT Corporation as a consultant in San Jose, CA. . . MARY K. SIMEON (M.S. 1935) reports that she has fully recovered from major surgery three years ago. . . W. EUGENE SKIENS (Ph.D. 1957) is living in Richland, WA., where he is a senior research scientist at the Battelle Memorial Institute. . . JAMES G. SMITH, JR. (Ph.D. 1960) writes that he is a group leader in analytical chemistry at the Penwalt Corporation in King of Prussia, PA. . . PAUL D. SMITH (M.S. 1973) received his Ph.D. in 1977 from a university in West Germany, and currently works as a research chemist in the field of olefin polymerization catalysts for the Phillips Petroleum Company in OK. . . ERNA JORGENSEN SNIPES (B.A. 1971) studied further at the Universtiy of Washington, and received a B.S. in pharmacy in 1976. She now resides in Mt. Vernon, WA., where she is a head pharmacist for Payless Northwest Corporation. . . PETER STONEBRAKER (Ph.D. 1973) is with the Chevron Chemical Company in San Francisco, CA. . . REBECCA SWEIGART (B.S. 1981) will be on active duty for at least the next four years, and she is currently stationed at Wright-Patterson Air Force Base in Dayton, OH. . . DAVID L. SYMONDS (B.S. 1977) is a radiology resident at the University of Colorado Health Sciences Center. He earned his M.D. degree from Cornell University in 1981.

T RICHARD G. TONKYN (Ph.D. 1960) is vice-president for research and development at the Mogul Corporation in Chagrin Falls, OH. His company specializes in water treatment products and services. . . .MAN-YEE B. TSANG (Ph.D. 1980) is currently a research associate in the Cyclotron Laboratory at Michigan State University in East Lansing, MI.

W ISIAH M. WARNER (Ph.D. 1977) is an associate professor of chemistry at Emory University in Atlanta, GA. . . GUY J. WENDINGER (B.A. 1971) received his chiropractic degree in 1982 from the Palmer Chiropractic College, and is currently in practice in Edmonds, WA. . . C. DEAN WOLBACH (Ph.D. 1969) is working as a senior scientist for the Acurea Corporation in Mountain View, CA.

Y HORNG CHIN YEH (Ph.D. 1980) is a research chemist for the Phillips Petroleum Company in OK . . . STANLEY D. YOUNG (Ph.D. 1979) is a senior scientist for a recombinant DNA company, Unigene Laboratories, in Fairfield, N.J.

Z EDWARD W. ZAHNOW (Ph.D. 1961) is a research associate for the du Pont Company in Wilmington, DE. He is involved with pesticide residue research in connection with du Pont's agricultural chemicals business.

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