

# CHEM-LETTER

February 1985

University of Washington Department of Chemistry

Volume 14

## DEPARTMENT ENLARGES ITS FACULTY RANKS

In its largest single-year expansion ever, the Department of Chemistry has hired five new faculty, bringing its total of tenure-track positions to 37.

The appointments of E.J. (Rick) Heller and William H. Zoller were made at the senior level, and David E. Honigs, Dan G. Imre and James M. Mayer were all hired at the assistant professor level.

Heller has been named a professor of both chemistry and physics, with interests in quantum and semi-classical dynamics of molecules, condensed media, and non-linear systems.

His 1973 doctoral dissertation from Harvard University dealt with scattering theory, and was preceded by work in chemistry, physics and math at the University of Minnesota.

Prior to coming to the U.W., Heller was a professor of chemistry at U.C.L.A., and a staff scientist at Los Alamos National Laboratory.

Heller recently was awarded an Alexander von Humboldt prize, but plans to defer his research in Germany for a few years. His other recent honors include the Herbert N.

McCoy Award and Glenn T. Seaborg Award, both presented in 1981. While at U.C.L.A., he was also named an Alfred P. Sloan Fellow and a Camille and Henry Dreyfus Scholar.

During his first quarter at the U.W., Heller gave the A. D. Little Lecture at M.I.T. in October, spoke at Harvard and in San Francisco in November, and at Columbia University, Iowa State University and at the Hawaii A.C.S. meeting in December. Earlier in the year, he spoke at two Gordon Conferences, and at the 9th International Conference on Raman Spectroscopy in Japan in September.

Heller is a member of the National Research Council's Committee on Atomic and Molecular Science, as well as the A.C.S., A.A.A.S., and the American Physical Society.

He and his wife have three children, and Heller counts bicycling and painting among his favorite distractions.

Zoller is interested in the chemical composition of pollutants, and their fate and impact on the atmosphere. His other work involves volcanic chemistry, and

he does collaborative research with scientists from the U.S. Geological Survey in Vancouver, Washington on Mt. St. Helens, and in Hawaii on Kilauea and Mauna Loa volcanoes. In addition, he has conducted research programs in Antarctica, Alaska and Hawaii measuring the long range transport of pollutants.

He earned his B.S. degree from the University of Alaska in Fairbanks, and his Ph.D. from the Massachusetts Institute of Technology in 1969 in nuclear chemistry.

Zoller was a chemistry faculty member at the University of Maryland for 14 years, and served for a year as a visiting staff scientist at the Los Alamos National Laboratory, where he continues as a consultant. Zoller's memberships include the A.C.S., A.A.A.S., American Geophysical Union, American Meteorological Society, and he serves the A.C.S.'s Division of Nuclear  
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## PROF'S MEMORIAL RECITAL PLANNED

Internationally known concert pianist and former U.W. faculty member Bela Siki will present a recital in memory of Boris Weinstein, former chemistry professor, on Sunday, April 28th at 2:00 p.m. in Meany Hall.

Proceeds from the program will benefit graduate students in the Department of Chemistry. According to Weinstein's widow, Barbara, it will create a larger endowment base for the scholarship established in the late organic chemist's name.

Siki is currently with the University of Cincinnati College - Conservatory of Music and during a recent tour, performed in Australia, New Zealand and Japan.

For tickets to the Weinstein memorial program, contact the Meany Hall box office at 543-4880. The cost is \$10.



Pictured from left are Imre, Honigs, Zoller, Mayer, and Heller.

## CHEM LETTER

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## CPAC MEETS GOAL

Less than twelve months after they set up shop, the Center for Process Analytical Chemistry (CPAC) has garnered enough federal, state and corporate support to declare its first year a success.

CPAC, brainchild of U.W. chemistry professor Bruce R. Kowalski, brings academic and industrial scientists together to expand a discipline which encompasses aspects of analytical chemistry, electrical and chemical engineering, laboratory medicine, statistics and computer science.

At \$30,000 a year per year, the Center has attracted over 20 sponsoring public and private organizations. A half million dollar National Science Foundation grant was received late last year. The University of Washington's contributions will include 3,500 donated square feet of administrative and laboratory space and a commitment to expand the analytical division in the Department by two permanent faculty. At least one appointment will be made at the senior level.

At the Center's inaugural Industrial Advisory Board meeting in October of 1984, Fred Albrecht from the Kodak Company was selected chairman of this board, which is comprised of one representative from each of the sponsoring groups. To ensure that the Center adheres to school policy, an academic committee of deans and chairmen from the University also reviews CPAC activities.

A graduate student fellowship program supported with Center funds has been established. Applications are being accepted from graduating seniors who want to study chemistry, chemical engineering, electrical engineering or laboratory medicine at the University of Washington. Eleven students are currently employed as research assistants by the Center. A special competition, providing two-year, tax-free stipends, 130% of the normal U.W. teaching assistantships, will be awarded to two exceptionally qualified grad-

## CHAIRMAN'S MESSAGE



There is a continuous flood of issues that require attention in an enterprise as complex and diverse as the program in the Department of Chemistry. Usually we only touch on a few of the more noteworthy highlights in the Chem Letter. For this reason I have chosen to use this space to acknowledge the deserving but usually unheralded.

The Department is fortunate in having a remarkably dedicated staff which supports many critical functions. I can mention the secretaries; the Purchasing and Accounting staff; the personnel in the Electronics, Glass, and Machine Shops; the facilities managers for NMR, Mass Spec and General Spectral Services, the Computer Facility and so on; the Instructional Services staff; the Teaching and Research Facilities support staff; the Storeroom personnel; and our advisers. All are part of an integrated team that specializes in excellence. It seems that more than full measure is always expected of them, in part because of inadequate staffing levels, in part because we are always seeking to improve and expand the services provided. The staff always seems to respond by reaching down for that extra reserve of energy to try to meet the sometimes unrealistic expectations of faculty and students. That kind of dedication and commitment cannot be purchased with a monthly salary.

The graduate students and postdoctoral students represent another group that is often not given sufficient recognition. On the one hand, the graduate students at one stage or another serve as teaching assistants. In this role they make an enormous contribution to the instructional program of the Department and the University. Their talents and dedication have a direct impact on the quality of the education which the undergraduate students receive. On the other hand, all the research productivity of the Department depends directly on the skill, dedication and ingenuity of the graduate students and postdoctoral fellows. Their enthusiasm and excitement provides a stimulating and rewarding environment for their fellow students and the faculty alike. The importance of this dual role of the graduate students cannot be overemphasized. To a large degree the quality of these students deter-

mines the quality of our program.

Not least, the faculty must be acknowledged for the enormous effort that they make in all facets of their activities. Few observers can really appreciate the pressures under which they serve. Their two main activities are teaching and research, of course, but that tells so little of the story. They have to be aggressive entrepreneurs to orchestrate their research enterprise beginning with the creative act, through proposal preparation, experimental design, development, execution, interpretation and publication. That cycle is repeated many times, both in parallel and in series with their research associates. The goal of this demanding exercise is to provide a stimulating environment in which to provide a training ground for graduate students and help them develop their scientific potential. In addition to this aspect of teaching it is a perennial challenge to make the formal lecture courses for undergraduates seem fresh and exciting even though the same topics have been covered dozens of times before. During these last few years, especially, the many new initiatives we have launched combined with a large faculty recruiting effort, have placed extraordinary demands on many members of the faculty who have served on the key committees and have spent countless hours meeting with visitors and candidates and deliberating over resumes and letters of recommendation and personal impressions in an effort to make wise decisions. That they continue to pursue all of these activities gracefully, and with a touch of class, is a measure of their resilience and character.

I want to salute all of the above—staff, students, and faculty—for their dedication and for the excellence of their contributions. You may not be featured in a headline, but the headlines would not be possible without you.

No, I have not forgotten alumni. A special thanks to all of you who gave so generously this last year to help support our program. Your continued contributions will be most helpful.

Alvin L. Kwiram

uate students during CPAC's second year.

In addition to the U.W. and the N.S.F., other non-profit sponsoring agencies include the Los Alamos National Laboratory, Savannah River Laboratory, Battelle Pacific Northwest Laboratories, and Rockwell-Hanford.

Industrial sponsors include Du Pont, Weyerhaeuser, 3M, Dow Chemical, Good-year, Kodak, Foxboro Analytical, Phillips Petroleum, Procter & Gamble, SOHIO, Technion Instruments, Hewlett-Packard, Exxon, Monsanto, Combustion Engineering, and Beckman Industrial.

## CHEMIST COLLECTS KUDOS



Chemistry senior Kenneth M. Oates is shown last spring with University President William P. Gerberding, after being presented with the 1982-83 Faculty Medal for High Scholarship during his sophomore year.

The awarding of these medals for the previous year traditionally is done during the spring quarter of the ensuing year. There were 4,989 sophomores during 1982-83.

Oates is a Seattle native and a 1981 graduate of Roosevelt High School. He was bowman for last year's Husky lightweight varsity crew, is a member of Zeta Psi fraternity, and a volunteer at the U.W. Burn Center at Harborview Medical Center. Oates is also an accomplished mountain climber who has scaled the peaks of Mt. Rainier, Mt. Baker and Mt. St. Helens.

Oates is the recipient of a National Merit Scholarship, as well as an undergraduate merit scholarship and two honors scholarships. He was named to yearly high honors during his first two years of college, and was the 1982-83 winner of the Hyp J. Dauben prize in organic chemistry. He plans to attend medical school after his June 1985 graduation.


## RANKS ENLARGED

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Chemistry in a variety of capacities.

He is a popular lecturer, and gives roughly 30 talks a year to national and international meetings, as well as to nonprofessional groups interested in environmental science. Among his talks in December were five papers given at the American Geophysical Union meeting in San Francisco and one at the A.C.S. meeting in Hawaii.

Zoller, who joins the Department as an analytical, environmental and nuclear chemist, is married and has four children. Fishing is among his favorite hobbies.

 David E. Honigs is largely the product of a mid-western education, earning his B.S. from Kansas State University in 1981 (after first spending two years at the U.S. Naval Academy), and his Ph.D. from Indiana University in 1984.


During 1984, Honigs was the recipient of one of five A.C.S. Fellowships in analytical chemistry.

His work centers on remote analysis, and near infrared spectroscopy. Honigs feels that through the use of computer learning algorithms, methods can be developed for simple analysis even when the chemistry or spectroscopy of the sample is not totally understood. He plans to do collaborative research with other U.W. scientists making non-invasive NIR sensors for *in vivo* blood chemistry measurements.

Honigs has been an invited speaker at several meetings since moving to Seattle. In November, he spoke in New York City at the Eastern Analytical Symposium, and the following month he spoke in Maryland at the

U.S. Army Conference on Pattern Recognition. In February, he gives two papers on NIR analysis at the Pittsburgh Conference, and in March, he will travel to the Bay Area to speak at LABCON West.

He and his wife keep busy caring for their four-year old son.

 Laser spectroscopy of the transition state and dynamics of coherently prepared wavepackets are among Dan G. Imre's chief research interests.

He has developed a spectroscopic method for directly observing and characterizing the transition state in unimolecular photodissociation reactions. His main research objective is the development of a picture, based on his experimental observations, of nuclear motion on femtosecond time scale which transforms reactants into products.

Imre, who comes to Seattle via a technical engineering degree in Haifa, Israel, served for four years in the Israeli army, before continuing his studies at the University of Oregon and the Massachusetts Institute of Technology. At M.I.T., he did his doctoral work on the reaction dynamics by emission spectra under J.L. Kinsey.

During the summer of 1983, Imre was a visiting researcher at the Laboratoire de Photophysique Moleculaire in Orsay, France. There, he worked with Dr. Luce Abouaf in the relaxation processes in cold matrices.

Imre and his wife, who is an architect, enjoy photography, and plan to continue developing their own black and white prints once they set up a darkroom in their new home.



After earning his Ph.D. in 1982 from the California Institute of Technology under John E. Bercau, James M. Mayer spent two years at the Du Pont Company before coming to the U.W. There, he worked in Stephen D. Ittel's group, initially exploring the reactions of Lewis acids with organometallic compounds, later starting his own independent work on transition metal oxide compounds.

This work led to the synthesis of oxiodobis(2-butyne)rhenium(III), which, according to Mayer, is the first well-characterized low-valent oxo complex.

The subject of a *Chemical & Engineering News* article on July 23, 1984, this research is helping to understand catalytic chemistry more fully. Mayer believes that any molecule containing a metal atom attached to organic and oxo groups could possible serve as a model for heterogeneous catalysis by metal oxides.

Mayer intends to continue the synthesis of new inorganic compounds at the U.W., and is primarily interested in the oxidation of organic compounds mediated by transition metal species.

Among his recent lectures, Mayer spoke at last summer's A.C.S. meeting in Philadelphia, presented a poster at a Gordon Conference, and gave a talk at the University of British Columbia in November.

A bachelor who enjoys both playing and listening to classical music, Mayer's outdoor activities include hiking and downhill skiing. His undergraduate degree was earned at Harvard University.

## FACULTY UPDATE



**IELS H. ANDERSEN** (Organic): Andersen's interests in protein/ligand and receptor/drug interactions have led this past year to collaborative research projects with the Squibb Institute for Medical Research and the Genetics Systems Corporation. While his primary research emphasis has shifted to studies of biorecognition phenomena using 2-D NMR spectroscopy, he has maintained studies on natural products synthesis and structure elucidation. In this connection, he attended last summer's Gordon Conference on Natural Products.

**ARTHUR G. ANDERSON** (Organic): During Anderson's official Spring quarter leave, he visited the chemistry departments at nine state universities in California, Arizona, New Mexico, Colorado, and Utah to observe their graduate programs. He continues as the Associate Chairman and Graduate Program Coordinator in the Department.

**WESTON T. BORDEN** (Organic): Last spring, Borden presented a week-long lecture series on diradicals at Iowa State University. In the fall, he was an Organic Synthesis Distinguished Lecturer at Notre Dame, and just before Christmas, he was a plenary speaker at the theoretical chemistry symposium honoring Nobel Laureates Fukui, Hoffmann, and Lipscomb at the Pacific Basin Chemical Societies meeting in Hawaii. Borden will be spending Spring quarter as a Visiting Scientist at the Institute for Molecular Science in Okazaki, Japan, and has been invited to lecture at the P.R.C.'s Sichuan University during his stay in the Far East.

**GEORGE H. CADY** (Emeritus Professor of Inorganic Chemistry): Cady reports that near the end of a tour he and his wife, Dorothy, took last spring of China, she suffered a heart attack and died in Guilin. They had been married shortly less than one year.

**JAMES B. CALLIS** (Analytical): In collaboration with Chemistry's David Honigs, Laboratory Medicine's Margaret Kenny, and The Evergreen State College's Clyde Barlow, Callis is working on a new concept in non-invasive clinical diagnosis using the near infrared region of the spectrum. During this past year, he spoke at the University of Pennsylvania, the National Cancer Institute, 3M Corporation, and Emory University.

**GARY D. CHRISTIAN** (Analytical): Christian has been appointed to the Advisory Board of *Analytical Chemistry*, to the Committee of Examiners for the Graduate Record Examination's chemistry test, and to a four-year term as a member of the

N.I.H.'s Biometallic/Bioanalytical Study Section. His chairmanships include the *Journal of Analytical Chemistry's* ten-year evaluation Task Force, the subcommittee to review the A.C.S. standardized examination in analytical chemistry, and the 38th N.W. Regional A.C.S. meeting's Analytical Chemistry Division.

**BRUCE E. EICHINGER** (Physical): In collaboration with Professors Borden and Robinson, Eichinger is sharing seed money from the Washington Technology Center for work on conductive polymers. Eichinger's other research is supported by the N.S.F., and he has received a three-year renewal of his D.O.E. grant. During the past year, Eichinger has given invited lectures at a Gordon Research Conference, two national A.C.S. meetings, and for the Network Group in Manchester, England. He recently returned from the Polymer and Catalysis Symposium at Phillips Petroleum, where earlier last year he had presented a seminar.

**THOMAS ENGEL** (Physical): The Office of Naval Research is funding Engel's latest research using a scanning tunneling microscope to study metal oxidation. In the last several months, Engel has spoken at Reed College, the A.C.S. regional meeting in Moscow, Idaho, and the U.S.-Italian Study Conference on Atom-Surface Scattering, sponsored by the N.S.F.

**MARTIN GOUTERMAN** (Physical): Picosecond studies on excited states of porphyrins was the subject of one of two papers Gouterman delivered at a symposium on "Optical Properties and Structures of Tetrapyrroles" in Konstanz, West Germany last summer. Gouterman, who was temporarily relieved of his Undergraduate Curriculum Committee chairmanship duties during his Autumn quarter sabbatical, also gave seminars at Brookhaven National Laboratories, U.C.L.A., U.S.C., and Texas Tech University last year.

**GEORGE D. HALSEY** (Physical): University committees on which Halsey serves include the College of Arts and Sciences Honors Council and the Fulbright Fellowship Selection Committee. He is the chairman of the Faculty Insurance Committee and co-chairman of the City/University/Community Advisory Committee, which is participating in the University's Ten Year Plan for capital expansion. Additionally, Halsey is a board member of A.A.U.P., and is the immediate past president of the U.W. chapter of Phi Beta Kappa.

**PAUL B. HOPKINS** (Organic and Bioorganic): His research on synthetic substances which are designed to bind selectively to DNA, has been the subject of

invited talks at Procter & Gamble and the Eli Lilly Company, as well as at several universities in the mid- and northwest. Additionally, Hopkins presented a poster at last summer's Fifth International Conference on Organic Synthesis in Freiburg, West Germany.

**LYLE H. JENSEN** (Adjunct Professor of Chemistry and Professor of Biological Structure and Biochemistry): Jensen chairs the five-member Advisory Committee that sets policy and screens proposals for the newly established, N.I.H.-funded facility on the U.C. La Jolla campus for collecting x-ray diffraction data from single crystals of macromolecules. Jensen presented papers at the XIII Congress of the International Union of Crystallography in Germany this summer. In addition, he served as an alternate delegate to the General Assembly of the Union. This group met periodically during the Congress to receive reports from the various commissions and to act on the business affairs of the Union.

**BRUCE R. KOWALSKI** (Analytical): Kowalski will receive the Pittsburgh Society of Analytical Chemistry Award this year. One of the two most prestigious awards given in this field, the prize will be presented as part of the 1985 Pittsburgh Conference, to be attended by over 30,000 scientists. In addition to a busy domestic and foreign speaking calendar, Kowalski has been asked to organize a special session on process analytical chemometrics at a Gordon Conference this coming summer.

**ALVIN L. KWIRAM** (Physical): Kwiram served on the Governing Board of the Council for Chemical Research as the immediate past chairman and continues as a member of the Government Relations Committee. He is also a member of the A.C.S.'s Task Force on Industry/Academic/Government Cooperation. Kwiram gave invited talks at the University of Oregon and at the Ninth International Photobiology Congress held last July in Philadelphia.

**EDWARD C. LINGAFELTER** (Emeritus Professor of Physical Chemistry): Since retirement, Lingafelter has been seen sneaking into Bagley Hall as late as 10:00 a.m. at times. He and his wife, Roberta, plan to spend a few weeks this spring in Europe, concentrating their time in Italy with a stop in Belgium to see their granddaughter. In addition to finishing up a number of research papers, Lingafelter has inherited from Victorian Sivertz the assignment as Archivist for the N.O.R., an umbrella group which coordinates the annual Northwest Regional A.C.S. Meetings in June.

**JOHN W. MACKLIN** (Inorganic):

## FACULTY UPDATE

Macklin continues his collaboration with colleagues at Stanford University and the NASA-Ames Research Center on photovoltaic surfaces and vibrational spectra of micrometeorites, respectively. He also continues his activity with the College Board's Advanced Placement program in chemistry and the Educational Equality Project.

### DONALD R. MC ALISTER

(Inorganic): Having concluded that his present interests focus more on teaching than on research, McAlister has submitted his resignation, to be effective at the end of his present contract year. Outside the Department, he pursues horticultural interests with night classes at a local community college. His "friend" Ann Browder purchased the "Pike Place Cinema" and reopened it as the "Market Theater." Chemistry Department personnel have been known to receive free popcorn when McAlister works concessions.

**BEAT MEYER** (Inorganic): Meyer's work on formaldehyde has been the subject of invited lectures at the Association of Food and Drug Officials' annual conference this past year, as well as at the Air Pollution Control Association's national meeting. He was the official American representative at the World Health Organization's Indoor Air Quality Conference in Sweden last summer. He presented a short course for Federal Regulatory Agency scientists of the Dutch Federal Government in Den Haag, as well as participated in workshops for the Bonneville Power Association and the Washington State Energy Extension Service. Meyer serves as a consultant to the E.P.A. on formaldehyde risk assessment.

**JOE G. NORMAN, JR.** (Inorganic): Norman has given invited lectures at Vanderbilt and Tulane Universities this past year. In addition to travelling to Australia for pleasure, he attended conferences in Toronto and Monterey. As Associate Dean for Academic Programs and Research in the Graduate School, Norman reviews graduate degree programs for the entire University and administers state funds for research.

**YESHAYAU POCKER** (Organic and Biophysical): The A.A.A.S. has appointed Pocker to its Board of Reviewing Editors of *Science*, and he has also been named a Program Consultant to the National Heart, Lung and Blood Institute. Pocker has been an A.C.S. National Speaker this past year in Michigan, Wisconsin, and Indiana, as well as a guest lecturer at the University of Florida. During a recent tour of the Far East, Pocker gave invited lectures at the Universities of Kyoto, Nagoya, Tokyo, and Hong Kong. While in Kyoto, he delivered a Congress Lecture and presented a paper at the

International Symposium on Fast Reactions in Biological Systems. Pocker was elected this past year to the Research Society on Alcoholism, and presented two papers at the Second Congress of the International Society for Biomedical Research on Alcoholism in Santa Fe, New Mexico.

### B. SEYMOUR RABINOVITCH

(Physical): Last year, Rabinovitch's grant renewals marked 33 continuous years of support from the N.S.F. and 36 years of uninterrupted funds from the Office of Naval Research. He spent a week last summer reviewing the chemistry department at the Technion in Haifa, Israel, and another week as a guest of the Chemical Institute of the Hungarian Academy of Science in Budapest. There, he gave an invited talk. Rabinovitch also gave the Polanyi Medal Lecture at the 8th International Kinetics Conference in England, and the Debye Award Lecture at last year's A.C.S. meeting in St. Louis.

**STANLEY RAUCHER** (Organic): The recipient of a five-year Research Career Development Award from the National Cancer Institute of the N.I.H., Raucher continues to conduct research directed toward the synthesis of chemo-therapeutic agents. He was one of 20 invited participants at the 15th annual N.S.F. Workshop on Organic Synthesis and Natural Products Chemistry. Raucher gave seminars at the University of California at Davis, Western Washington University, the Philadelphia Organic Chemists Club, and Smith Kline & French Laboratories. During this past year, he also pre-

sented recent research results at the Fifth International Conference on Organic Synthesis in Freiburg, West Germany, and attended the Gordon Conference on Natural Products Chemistry.

**BRIAN R. REID** (Organic and Biochemistry): During 1984, Reid gave invited talks on his nucleic acid NMR studies at symposia in Oxford, Taipei, the Ampere Congress in Zurich, and the International Conference on Magnetic Resonance in Biological Systems in Goa, India. In addition to his N.S.F.-funded work on transfer RNA, Reid was awarded a 5-year N.I.H. Program Project grant to study DNA structure and dynamics by NMR.

**DAVID M. RITTER** (Emeritus Professor of Inorganic Chemistry): Although officially retired, Ritter still maintains a research program on boron hydrides in his re-established, first-floor Bagley Hall laboratory. He served as chairman of the 1984 Pauling Medal Award Committee. Victor Williams, chairman of the chemistry department at Chapman College in Orange, California, is spending his 1984-85 sabbatical year with Ritter furthering their studies on silicon hydrides.

**NORMAN J. ROSE** (Inorganic): At the XXIII International Conference on Coordination Chemistry at Boulder, Colorado last summer, Rose presented a poster on research done with U.W. colleagues Richard Norman and Ronald Stenkamp. This work was also the subject of a seminar he gave at Western Washington University. Rose continues to consult for Abbott Labo-

## HOW GOOD IS YOUR MEMORY?

This photograph, taken around 1920, pictures men who once played important roles in the Department of Chemistry. Their names can be found on page 15.



## FACULTY UPDATE

ratories and the Georgia Pacific Corporation, and it anticipated that next year he will participate in a new three-quarter chemistry sequence for non-science majors.

**VERNER SCHOMAKER** (Emeritus Professor of Physical Chemistry): After his June retirement, Schomaker and his wife, Judy, vacationed for a short time in Alaska. Two months later, they travelled to Switzerland, and then on to Hamburg, where he presented a poster at the XIII International Union of Crystallography. Schomaker has continued his research at the U.W., and is spending six months in residence at the California Institute of Technology working on crystal structures with colleagues there.

**J. MICHAEL SCHURR** (Biophysical): Schurr gave invited lectures this past year at U.C.L.A., U.S.C., the University of Nebraska, and the University of Missouri at

Kansas City. At the inaugural meeting of a new Gordon Research Conference last year on Dynamics of Macromolecular and Polyelectrolytic Solutions: X-Ray, Neutron, and Light Scattering, he presented a lecture on the "Translational Dynamics of Polyions in the Presence and Absence of Electric Fields." This Conference was organized by U.W. alumnus Ken Schmitz. Also in attendance were alums Jim Martin, Stuart Allison, and Roger Porter, who serves on the Gordon Conference Directorate.

**WILLIAM F. TRAGER** (Adjunct Professor of Chemistry and Professor of Medicinal Chemistry): Trager relinquished chairmanship of the Department of Medicinal Chemistry to go on sabbatical last Winter quarter at the U.C. San Francisco's School of Pharmacy. He is a member of the N.I.H.'s Pharmacology Review Committee and was an invited speaker at the regional

A.C.S. meeting in Moscow, Idaho last summer. This month Trager will speak to the American College of Clinical Pharmacology's Fifth Frontiers of Pharmacology Symposium on "Applications of Stable Isotopes in Pharmacology" in Philadelphia.

**ROBERT VANDENBOSCH** (Physical): During the late summer, Vandenbosch went to Japan where he gave the Summary Talk at the International Conference on Heavy Ion Induced Fusion Reactions. He also presented three lectures at the University of Tsukuba.

**DARRELL J. WOODMAN** (Organic): Woodman continues as Director of Undergraduate Studies in Chemistry. He is also chairman of the Arts and Sciences Discipline Committee and the College of Education's Natural Science and Mathematics Field Committee for Secondary Teaching.

## CHEVRON FELLOWS SELECTED FOR SUMMER SUPPORT

In a venture that dates back over 25 years, the Chevron Corporation has once again provided support for promising chemistry graduate students through its Fellowship Program.

The 1984 chemistry recipients, Stephen W. Hadley, Steven D. Hartenstein, and Donald S. Kaufman, joined U.W. graduate students in the Department of Chemical Engineering and the School of Business Administration in accepting these awards, which are part of 95 domestic fellowships provided by the California-based oil company. Of these, five are directed exclusively towards the support of graduate students in chemistry.

Hadley hopes to complete his doctoral work this coming fall. His research presently involves the synthesis of elephan-topin, a member of the germacrane

class of sesquiterpenes, in Stanley Raucher's laboratory. Hadley received his undergraduate degree from the University of Maine in Orono, and plans to work in industry upon completion of his studies.

Even at Indiana's Wabash College, Hartenstein was receiving awards. While working towards his bachelor's degree, he earned a full-tuition honors scholarship, and was selected for the Lubrizol Scholar Award. His graduate research with Gary D. Christian deals with sample introduction methods for an inductively coupled plasma atomic emission spectrometer. Hartenstein will finish his work this summer and like Hadley, will seek employment in industry.

Also believing he's destined for industrial work, Kaufman has spent the last few years studying the helium diffraction technique useful in determining surface structures and atom surface potentials with Tom Engel and other members of his group. A Berkeley B.S. alumnus, Kaufman hopes to finish his thesis by August.

The Chevron Fellowship provides a fixed stipend for the students' living expenses, a smaller unrestricted grant to the Department, and sufficient funds to cover tuition and fees.

The company leaves the distribution of support money up to the discretion of the Department, which decided several years ago to split it between three students during the summer months rather than support only one during the regular academic year.

Serving as the Chevron sponsor to the Chemistry Department for the last several years has been W. Alan Sweeney, himself a U.W. chemistry alumnus. Sweeney received his 1954 Ph.D. under Fred Schubert's direction.



Pictured left to right are Hartenstein, Sweeney, Kaufman and Hadley.

## DEPARTMENT PARTICIPATES IN I.B.M. "OLYMPUS PROJECT"

The University of Washington and I.B.M. have entered into an agreement calling for I.B.M. to give \$8 million worth of computer hardware to the U.W. over the next three years.

Among science departments which will benefit on this campus, the Department of Chemistry is receiving a substantial share of the equipment, and plans to utilize the PC's, XT's and AT's to enhance undergraduate education.

Nationally, I.B.M. has selected 17 public and private universities for participation in similar ventures, nicknamed the "Olympus Project" at the U.W.

The Department's efforts to compete for these I.B.M. resources were spearheaded by Bruce H. Robinson, at the request of the chairman. Internally, four clusters of academic disciplines submitted proposals to a campus committee, which determined how the microcomputers would be allocated. Robinson reports that the Departments of Astronomy, Geological Sciences, Geophysics and Physics will also receive I.B.M. support.

Chemistry's most immediate challenge is to develop a computing facility to support a new lecture course on data acquisition and interpretation. Divided into three major parts and taught by Robinson, Bruce R. Kowalski and J.D.S. Danielson, the course will first discuss how computers interact with laboratory equipment such as a variety

of spectrometers and gas chromatographs.

Next, the class will focus on elementary data gathering, placing emphasis on the signal-to-noise ratio, data averaging, dynamic range, and rates. Robinson plans to also cover data processing, using FTIR and FTNMR, as well as autocorrelation techniques as examples.

In the third section of the course, the lecturers will develop various data handling techniques, including experimental design, multilinear regression, and nonlinear modeling, using gas chromatography as the modeling system.

The Department has plans to use the I.B.M. hardware in other capacities. Eventually, computer-based techniques will be incorporated into selected experiments in all of its upper-division laboratories. Pending the approval of additional proposals submitted to the governing Olympus Committee, it is hoped that lower level courses will additionally benefit. A particularly attractive feature will be the creation of a data base to accommodate more than 45,000 molecules which can be dynamically displayed in lectures using high resolution color graphics monitors.

As is so often the case, there is not enough money to support all of the projects developed by the University. The Washington State legislature will be asked for an additional \$8 million to continue the Olympus Project.

## OF CHEMISTRY AND CAMERAS

Barney Nist is spending his retirement years in anything but a retiring way—travelling the world and taking pictures for pleasure and profit.

Barney originally walked down the corridors of Bagley Hall in the early 1940's, came back in 1948 after a stint working in industry for the war effort, and began work on the mass spectrometer. In 1962, he earned his Master's degree under Professor Kenneth B. Wiberg's supervision and was instrumental in the development of the CHEM 463 (Spectrometry) laboratory. He eventually assumed control over this class in the 1970's, and continued in this capacity until his retirement in January of 1982.

Not being the sort to just sit around and take things easy, Barney and his wife of fourteen years, Claudine, left four weeks later for Africa, where they concentrated their time in Tanzania, shooting approximately 70 rolls of film. This trip was followed approximately a year later by a month in Alaska, where about 3,500 frames were used to capture the beauty of such places as Mt. McKinley and the Pribilof Islands in the Bering Sea. Last spring saw the Nists in Japan, Hong Kong and China, and they have just wound up two and a half months in New Zealand and Australia, and the Islands in the South Pacific.

Nist never carries a gun, and feels that while his trip to the "down under" could have been fraught with danger because of the large number of poisonous snakes there, he just needed to be more conscious of where he stepped. There were a few tense moments in Africa as Barney and his wife listened to hippopotami grazing on grass outside their tent at night, but Barney says that if you just stay calm, most potential problems will never materialize.

Nist's work may be more familiar to you than you may realize. In addition to co-authoring an illustrated book depicting the seashores of the Pacific Northwest (*Living Shores*) and serving as the primary photographer for *Pacific Search* (now *Pacific Northwest Magazine*), Nist has sold his photographs to travel agencies for use in brochures, to R.E.I. and other companies for calendars, and to businesses producing children's learning games such as flash cards.

## RETIREEES HONORED AT DINNER



Edward C. Lingafelter and Verner Schomaker congratulated each other at their joint retirement dinner at the Faculty Club on May 29, 1984. Feting a combined professional career of over 91 years (64 spent at the University of Washington), nearly 130 people gathered to honor the two physical chemists. Out-of-town guests who joined in the celebration included James M. Stewart from the University of Maryland, Northwestern University's James A. Ibers, Bernard D. Santarsiero from the California Institute of Technology and Alejandro (Sandro) A. Aruffo from Harvard University.

## DANIEL BAGLEY: THE MAN WHO STOLE THE UNIVERSITY



Daniel Bagley was a man with a lot of plates in the air.

In his lifetime, Bagley was a minister, abolitionist, teacher, real-estate agent, Mason, journalist, coal miner, college president - and if it had not been for the help of influential friends such as Arthur Denny, a convicted land-fraud swindler, as well.

Bagley's beginnings were humble enough. He was born in 1818 in Pennsylvania, married in 1840, moved to Illinois, and ordained as a Methodist minister in 1842.

Ten years later, he was tapped for missionary work by the elders of his church. In the company of Thomas Mercer, Dexter Horton, Aaron Minor, John Pike and their families, the Bagleys made the five-month wagon-train ride, eventually settling in Salem, Oregon.

For the next eight years, Bagley established scores of churches, exhausting work which took its eventual toll. During all their married life, Suzannah Rogers Whipple Bagley had been an invalid, and so in 1860, the family moved to Seattle, hoping that the change of climate would benefit them both. Their arrival in the *Emerald City*, as it would later be called, brought the total number of families in the village to an even 20.

For most of the Civil War, Bagley was the only clergyman in Seattle. His activities and interest in the community were not limited to the spiritual or educational, however. Dur-

ing this time, he and a group of associates began the first commercially successful coal mining operation in King County, and he was for a number of years the superintendent of the mining operations of the Lake Washington Coal Company.

Bagley is, of course, best remembered for his support of the University of Washington. This was an era when communities fiercely contended for the prestige and economic value of state-supported institutions. The capital was regarded as first prize, and no less than four sites for the University were authorized by the territorial legislature before Bagley became involved.

At the expense of fastidious bookkeeping, Bagley's chief goal was to get the University built - and that he did within one year of being named chairman of the Board of Commissioners. This three-man group had been established by the legislature to locate and clear land for the University, erect buildings, and develop the curriculum.

Because of shoddy fiscal management, Bagley was eventually accused of misappropriating \$14,000 of University funds for his private use. He was charged with selling endowed lands to his friends on credit. There are recorded instances where the same section of land was sold twice. Bagley purchased University lumber and stone as frequently with endowment lands as with cash, and there were those in the legislature who suspected that the prices were higher when land was used for payment. There were complaints that the land had slipped away too cheaply or conversely, that the buildings had cost too much.

At one point, it appeared that in excess of 6000 acres had been sold on credit, and the regents found themselves plagued with bad debts and disputes over contracts. Bagley approached the endowment not as a matter of putting capital reserves to work but rather as a credit transaction by which those might acquire land who had not the cash to pay for it.

In 1865, the fortunes of the University reached their lowest ebb. Cash on hand was reported to be as little as \$1500 and the school closed down entirely between February and October. There was talk of indicting Bagley on charges.

It was ironic that the man who had done so much to get the University built should afterward be identified with the dissipation of its assets to such an extent that the

institution was left without a means of support.

At the direction of the legislature, a special commission was established in 1868 to investigate Daniel Bagley. The committee report eventually offered no judgement on the general issue of mismanagement, but in the areas of personal gain and honesty, Bagley was exonerated. Bagley's friends interpreted these findings as a complete vindication.

All things considered, history has dealt kindly with Daniel Bagley. There is a Seattle street, a Seattle public school, the U.W. chemistry building, and Masonic Lodge #238 all bearing his name. Bagley, who died in 1905, and his wife are buried in Mt. Pleasant Cemetery on Queen Anne Hill in Seattle, where their monument bears the simple legend: "Missionaries to Oregon."

## ALUMNA PICKED BY IΣII AND A.C.S.



Chemistry alumna Jean'ne M. Shreeve had a successful 1984.

Last year, she was not only named the 1984 National Honorary Member of Iota Sigma Pi, she was also elected for the first time to the A.C.S.'s Board of Directors by beating out two other Region VI opponents in November.

The IΣII distinction is the highest honor the women's chemistry organization bestows. Shreeve delivered an address related to her research in fluorine chemistry at the group's national convention last summer.

Shreeve's election to the A.C.S. post is a natural extension of her Society involvement. She has served on numerous Committees at national and local levels, including Chairman of the A.C.S. Fluorine Division.

Professor and head of the Chemistry Department at the University of Idaho, Shreeve is also a member of Sigma Xi, Phi Kappa Phi, and the American Association of University Women. She received the A.C.S. Garvan Medal in 1972, and the A.C.S. Fluorine Division's award for Creative Work in Fluorine Chemistry in 1978.

Shreeve earned her 1961 Ph.D. from the U.W. for studies carried out with Professor Emeritus George Cady. In 1980 she was featured as an outstanding alumna in the *Chem Letter*.

## SENIORS HONORED BY MERCK COMPANY AND UNIVERSITY

The 1984 co-winners of the Merck Index Award, John E. Fankhauser and William H. Thompson III, have more in common than outstanding scholastic and research records. Both are from small towns, both intend to become physicians, and both have fathers who teach high school math and science, including chemistry.

The Merck prize annually recognizes top graduating chemistry seniors. The students receive an engraved copy of the Merck Index, and their names are added to a plaque which hangs outside the Chemistry Department main office.

Fankhauser is a 1980 graduate of Richland High School in Richland, Washington. He attended Oregon's George Fox College before transferring to the U.W. as a junior. Here, he spent two years in Paul B. Hopkins' laboratory working on amino acid synthesis, and co-authored four papers while as an undergraduate. Fankhauser, who lived in the Sudan doing medical missionary work, is spending a year working in the Infectious Disease Division at the Veteran's Administration Medical Center before entering medical school next year.

Thompson is a 1980 graduate of Concrete High School. He was the recipient of the 1982 Hyp J. Dauben and 1983 P.C. Cross awards, which recognize the outstanding students in organic and physical chemistry, respectively. He also won a 1983 prize for being the best undergraduate in analytical chemistry. Thompson graduated Phi Beta Kappa and summa cum laude, and spent over a year researching enzyme kinetics in Yeshayau Pocker's laboratory. He is a first-year medical student at Johns Hopkins Medical School.

\* \* \*

In an unrelated honor, Thompson was named the University of Washington's 1984 Presidential Medalist.

Thompson was cited for having the most distinguished academic record among the 5,200 graduating seniors receiving bachelors degrees at the U.W.'s 109th commencement ceremony in June 1984.

The President's Medal, awarded since 1932, is not just based on the highest grade point average among the graduates. Also considered are the number of honor courses, number of credits per quarter, number of upper-division courses, number of withdrawals and incompletes, transfer credits, and the spread of courses to include the humanities and social sciences, as well as natural sciences.



Chemistry chairman Alvin L. Kwiram is flanked by Fankhauser, left, and Thompson at last spring's awards ceremony.

## ASSISTANT PROFESSOR NAMED SEARLE SCHOLAR

Some people spend the night dreaming about vacations along the Riviera. Others doze off fantasizing they've struck it rich in Las Vegas. Assistant Professor Paul B. Hopkins dreams about the synthesis of new molecules which bind to DNA in an effort to halt the growth of cancer cells.

His dreams haven't exactly led him to stays in warmer climes or to the employ of a tax-shelter consultant. They have, however, resulted in research which has, so far, earned him the distinction of being named a 1984 Searle Scholar, and one of *Science Digest's* "brightest young scientists under 40" in its December 1984 issue.

"Toward Synthetic Enzymes" is the title of Hopkins' proposed Searle-supported research. He and his team of five graduate students are interested in designing new molecules which exhibit high sequence specificity in the covalent modification of DNA. Approaching this biomimetically, he envisions these "synthetic enzymes" as molecules which contain functionality capable of noncovalent sequence-specific interaction, thus allowing a "search" for the

desired sequence information. When this sequence is recognized, covalent modification will be effected by a second, pendant functional group.

Hopkins credits Peter Dervan at the California Institute of Technology with having made the pioneering observations in this field. Hopkins proposes to further this research by utilizing a fundamentally new kind of intercalation, which he refers to as intercalative displacement.

With this approach, it is hoped that chemicals intended to modify gene structure can be directed to any chosen site. At this point, site-specific cleavage of double helical DNA is restricted to certain locations chosen by Mother Nature, pointing to the need for a more fundamental method of directing the reactive moiety.

The Procter & Gamble Company also believes Hopkins' work shows promise. In 1982, it named him one of only three yearly recipients of its University Exploratory Research Program. This grant of \$120,000 supports related work in the synthesis and binding to DNA of small molecules capable

of sequence recognition. The specific aim of this research is to prepare several examples of a new class of molecules "tethered" purine-pyrimidines, which may be capable of a fundamentally new interaction with duplex DNA.

Since its 1980 inception, the Searle Scholars Program has awarded over \$10,000,000 to 67 individuals who have recently received tenure-track appointments at the assistant professor level. Established under the terms of the will of John G. Searle, who was president of the research-based pharmaceutical company G.D Searle, the program annually invites no more than 100 universities to sponsor two applicants each for the awards.

Hopkins is the first recipient of this honor at the U.W., and joins 19 other young scientists at 19 other U.S. institutions in accepting the individual \$52,500 yearly grants. In 1984, there were over 130 applicants for the 3-year awards, which are designated to support "research of newly established investigators in medicine, chemistry and biological science."

## OUTSTANDING ALUMNI



W. Chemical Engineering alumnus Theodore R. (Ted) Beck is a member of the Elderly Birdwatchers Hiking and Gripping Society. Perhaps the most discriminating of all Beck's affiliations, the EBHGS's select membership of four vintage mountain climbers has, for the past fifteen years, made backpacking expeditions into the wilds of the Cascades a regular part of their summer.

Beck is an outdoor enthusiast who used to ski and climb, and lists Mt. Rainier, Mt. Adams and Glacier Peak among his conquests. Today, he limits his recreation to hiking, occasional cruises in British Columbia waters, and swimming one-half mile every weekday morning at 6:15 a.m.

The Departments of Chemistry and Chemical Engineering were still one when Beck earned his B.S. in 1949, his M.S. in 1950 and his Ph.D. under Wells Moulton two years later. It was Beck's love of Pacific Northwest splendors which eventually led him back to Seattle after first gaining valuable work experience elsewhere.

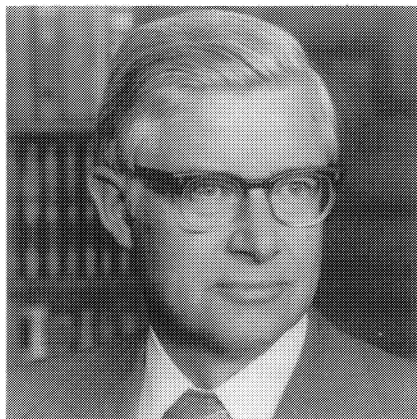


PHOTO: ROWLAND STUDIO

Beck felt that his doctorate would largely be a one-way ticket away from his native Seattle, but after nine years of process development with DuPont, Kaiser Aluminum and American Potash in New Jersey, California and Nevada, he returned home to join the Boeing Aerospace Company. He initially had responsibility for battery and fuel cell technology, and when he moved to the Boeing Scientific Research Laboratories in 1965, he did work in stress corrosion cracking. Beck remained with the BSRL until 1972, when this corporate facility was dissolved.

Although Beck could have remained at Boeing Aerospace, he chose a more adventurous course with a dozen other BSRL expatriots at the newly formed Flow Research, Inc. (now Flow Industries). Seeking further

autonomy, Beck left three years later to form Electrochemical Technology Corporation (ETC) in 1975.

Today, Beck's company employs nine people, and does business worldwide. ETC provides electrochemical consulting and development support in industrial synthesis processes, corrosion and corrosion control, anodizing and electroplating, batteries and fuel cells, electrochemical devices and mathematical modeling.

ETC has done pioneering work ranging from development of nerve stimulating electrodes for the National Institutes of Health, to engineering a rapid electrochemical bacteria counter for food and clinical use for a private client, to helping Boeing solve an expensive hydraulic valve erosion problem in commercial airplanes.

ETC's industrial clients have included Exxon, W.R. Grace, Weyerhaeuser, Boeing and Rohrbach Technology Corporation. Government agencies who have contracted for Beck's services include the Department of Energy, the N.I.H., and the Navy.

He has been active in more than ten professional scientific and engineering societies, serving as a past Chairman of the A.C.S.'s Puget Sound Section, a past president of the Electrochemical Society, Inc. and as a current member of the Chemistry Department's Industrial Advisory Committee. Beck has also been a board member of the Seattle Youth Symphony Orchestra and the North Cascades Conservation Council.

Beck, whose mother was Icelandic and father Danish, met his wife, who is of Germanic descent, at the Scandia Folkdance Club while in college. Beck and his wife, Ruth, who is ETC's business manager, have raised two daughters. Their oldest is a second-year student at the Loyola School of Medicine, and their youngest has just graduated with a B.A. in economics from Wellesley.

His record of 63 journal publications and six U.S. patents will likely grow during the decade or so he plans to remain active in business. Upon retirement, Beck would like to do more foreign travelling, but until then, he plans to continue traversing the trails of the Cascades with his birdwatching colleagues.



Between 1968 and 1972, twenty-four individual Americans went to the moon. Chemistry alumnus Richard F. (Dick) Gordon, Jr. was one of them.

Gordon, who received his U.W. bachelor's degree in chemistry in 1957, is the departmental alumnus who has literally

gone the farthest. In a career which spans the military, athletics, and now business, Gordon has risen to the top in each field.

Gordon credits a high school teacher for sparking his educational interests in science. While chemistry never played a central role in his work, a strong overall science background was essential at the earlier stages of his career.

During his undergraduate years, Gordon was a "Weekend Warrior" in the Naval Reserves at Sandpoint. He received his aviator wings in 1953, and subsequently attended the Navy's Test Pilot School, from which he graduated in 1957. (His chemistry coursework was completed in 1951, and electives from the Navy's program were transferred back for his degree.) During his tour of duty, he did flight work on the F8U Crusader, F11F Tigercat, FJ Fury, and the A4D Skyhawk. He was the Navy's first project test pilot for the F4H Phantom II, and it was in this fighter jet that Captain Gordon set a transcontinental speed record of two hours and 47 minutes, winning the Bendix Trophy Race, in 1961.

Two years later, Gordon was selected by NASA for its third astronaut group. In September of 1966, he piloted the three-day Gemini XI mission, which is remembered



PHOTO: NASA

for its successful first orbit rendezvous and docking with the Agena target rocket. This was used to propel the Gemini to an earth orbital altitude record of 850 miles and was later used for tethered flight experiments. During this flight, Gordon performed two space walks, retrieving a nuclear emulsion experiment packet and attaching the tether between the Gemini and Agena spacecraft.

He subsequently piloted the command module of Apollo XII in November of 1969. While colleagues Charles Conrad and Alan Bean performed experiments on the moon's surface, Gordon remained in lunar orbit aboard the "Yankee Clipper", obtaining

## OUTSTANDING ALUMNI

mapping photographs of tentative landing sites for future missions.

At the completion of the Apollo XV flight in 1971 (for which he served as backup spacecraft commander), Gordon became Chief of Advanced Programs in the Astronaut Office, where he made contributions towards the design and testing of the Shuttle Space Transportation System. He wholeheartedly agrees with NASA's plans for the "Discovery", "Challenger", and "Columbia" to carry military payloads and for average citizens to be included in future flights. Unless he could personally fly one of the shuttles, however, he would decline an invitation to go along.

The end of the Apollo program signalled a wait of at least five years to fly again, so Gordon, a self-described "opportunist", retired from NASA and the Navy after 22 years of military service in 1972. Taking advantage of an invitation to join the New Orleans Saints Football Club, he served for five years as executive vice-president and was responsible for the administration and fiscal operation of the Saints.

Gordon's move to industry came in 1977, when he went to work for a company involved in, among other things, the development of a liquid chemical explosive for use in the oil and gas industry. From there, he became president of REDCO (Resolution Engineering and Development Company) which designed and operated wild oilwell control and firefighting equipment for large semi-submersible vessels operating in the North Sea. For two years, Gordon was the managing director of Scott Science and Technology in Los Angeles, and then became president and chief executive officer of Astro Systems and Engineering in 1982. This company provides a diverse range of engineering services to military and aerospace giants, including tactical air and electronic warfare consulting.

Most recently and in his spare time, Gordon served as a technical adviser for the Gemini and Apollo portions of the mini-series "Space", a Dick Berg/Stonehenge production, that will be shown on CBS in April. Gordon has a cameo role as a "capcom" (capsule communicator) in the show, which is based on James A. Michener's best-selling book of the same title.

Gordon is married and has six children. Of his three grandchildren - all girls - he feels that no career opportunity is closed to them, and he would support any of their efforts to join the space program, the military, or the business world. Even the Seattle Seahawks.



Betty E. Hawthorne recalled her mother's words of advice with a smile: a woman should make sure she works for a time and have her own money.

Today, Hawthorne can look back on a professional career that spans over 40 years - the last 18 as Dean of the College of Home Economics at Oregon State University - and claim that she listened to her mother.



PHOTO: OREGON STATE UNIV.

As the United States was entering World War II in 1941, Hawthorne was earning her Bachelor of Science degree in chemistry at the University of Washington. Three years later, she received her Master's in nutrition, minoring in education for "insurance purposes." Ten years later, after one year as a nutrition field representative for the American Red Cross, service in the Navy's Supply Corps where she became a lieutenant (jg), and teaching at Oregon State, Hawthorne received her doctorate at Michigan State University. Her major work was in nutrition, and her minor concentrations were in physiology and chemistry.

After rising through the academic ranks at Oregon State in the Department of Food and Nutrition, she was asked by her University to head her College's six departments.

Under her tutelage, the College significantly increased its percentage of faculty with doctoral degrees, saw its graduate student population nearly triple, expanded its reservoir of endowment funds, and enlarged its faculty by over a third. Hawthorne also instituted changes which resulted in her baccalaureate students becoming specialists at a much earlier point in their educational careers by reducing the number of core hours in the B.S. program from 55 to 21.

Before she made the transition to administration, Hawthorne had published over 15 papers on ascorbic acid and thiamine metabolism, metabolic patterns of overweight, underweight and average weight women, and lipid/vitamin/coenzyme relationships in

human blood and blood fractions. She also served as the director of a federally-funded project for the development of the training program for the Administration on Aging's "Nutrition Program for the Elderly."

During her career, Hawthorne moved from the technological areas of nutrition into the public affairs arena. Because society often looks for the quick fix, there has resulted a proliferation of "quacks" in the health field. Hawthorne has tried, through her talks to non-scientific groups, lobbying of her state legislators and Congressional delegation, and conversations with Oregon governors, to serve in an interpretive capacity for the lay person. Nutrition education of the public became a continuing part of Dean Hawthorne's job.

Hawthorne is a member of 18 professional and scholarly organizations and will assume the presidency of the American Home Economics Association Foundation in the autumn. She has also been president of the Association of Administrators of Home Economics in State Universities and Land Grant Colleges, a consultant to the U.S. Department of Agriculture, an invited participant to a White House Conference on Food and Nutrition, and a founding member of the Niobium Chapter of Iota Sigma Pi on the Corvallis campus.

The community in which Hawthorne lives also benefits by her presence. She has served on the boards of the local hospital and the local United Way, and is a member of the Corvallis Chamber of Commerce. At the corporate level, Hawthorne serves as the only female member on the board of Curtice-Burns, Inc., a food processing and marketing corporation which includes Nalley's Fine Foods in Tacoma, Washington. She also serves on the board of Oregon's Pacific Power and Light.

The list of honors bestowed upon Hawthorne is extensive, and includes the Corvallis Woman of Achievement nomination in 1968, several outstanding alumni awards from M.S.U., and the 1983 Distinguished Service Award from the American Home Economics Association.

Her father's job in the lumber import/export industry meant the family spent time in the Far East. Hawthorne returned this past summer both to visit her old Japanese haunts, and to lecture at Seoul's Yonsei University on the future of home economics. Although her 1983 retirement may mean she slows down some, Hawthorne intends to continue pricking the public's consciousness so that nutrition's role in the quality of life becomes more fully understood.

## ALUMNI TIDBITS

**A** DEAN R. ABRAMS (B.S. 1977) works for the Weyerhaeuser Company as a production team leader in Grayling, Michigan.

**B** ARVID J. BERG (B.S. 1969) is a technical representative in the Engineering Materials Department of American Cyanamid in Renton, Washington....The American Cyanamid office in Princeton, New Jersey is where GERALD BERKELHAMMER (Ph.D. 1957) is employed as the manager of Organic Synthesis in the Agricultural Research Division....CHARLES V. BERNEY (Ph.D. 1962) is head of the Polymer Central Facility at the Massachusetts Institute of Technology. This is an interdisciplinary center with programs in chromatography, calorimetry, microscopy, and mechanical properties. Berney was recently elected president of the New England Gilbert and Sullivan Society....TOM W. BIGGS (B.A. 1972) writes that after two years of teaching chemistry in Bellevue, Washington, he joined Van Waters and Rogers' Industrial Chemical Department in Seattle. He currently serves on the company's national task force on electronic chemicals, in addition to field sales manager duties....For the past year and a half, LARRY C. BUTLER (Ph.D. 1972) has been the National Program Manager for the Superfund Performance Evaluation Program of the Environmental Protection Agency in Las Vegas, Nevada. Quality control information generated by this program is used in support of Agency litigation for recovery costs in clean-up of hazardous waste.

**C** LARRY P. CARSTENSEN (B.S. 1956) is with Satellite Business Systems in Virginia....SALLY CROSS died in California on January 18 after a short illness. She was the widow of the late Paul C. Cross, who was chairman of the Chemistry Department from 1949 to 1961....J. WESLEY CRUM (M.S. 1938, Ph.D. 1950) is involved with future studies of the information/communications era. He is an emeritus professor of education at Central Washington University.

**D** ROSS E. DALBEY (B.S. 1978) went on to earn a Ph.D. in Biochemistry from Washington State University in 1983. He is a postdoctoral fellow at U.C.L.A.'s Molecular Biology Institute....RICHARD O. DAVIDSON (B.S. 1971) works in the Industrial Chemicals and Solvents Division of Van Waters and Rogers in Portland, Oregon....After earning his M.S. in biochemistry from Northwestern University in 1979 DONALD B. DERLACKI (B.A. 1978), went on to the University of Washington Medical School, from which he graduated in June 1984.

**E** ALVIN ENG (B.S. 1978) is completing his post-graduate residency at the U.C. Davis Medical Center's Department of Internal Medicine. Eng graduated from the St. Louis Medical School in 1982.

**F** ROD FORS (B.A. 1975, Chem Engr. M.S. 1979) is a production engineer with the Shell Oil Company in Houston, Texas....CECIL FRIEDMAN (B.S. 1933, Ph.D. 1938) has been retired for the last 14 years. He has lived in Buffalo, New York since the completion of his doctorate.

**G** DONALD GALE (Ph.D. 1957) is president

of the Swish Corporation of America in Spartanburg, South Carolina.

**H** JACK HARRAR (Ph.D. 1958) has been employed at the Lawrence Livermore National Laboratory since leaving the University of Washington 27 years ago. Currently, he is a group leader in the Chemicals and Materials Science Department....DAVID E. HARTNETT (B.S. 1970, M.S. 1976) is vice-president of Benedict Nuclear Pharmaceuticals in Golden, Colorado....RODNEY B. HEARNE (B.S. 1933) earned his medical degree from Harvard in 1937, and is a retired surgeon in Seattle....JOE HIGHTOWER (B.S. 1980) is a process engineer in Sunnyvale, California with the Signetux Company....JOHN T. HIRAI (B.S. Chem/Microbiology 1982) is working on his doctoral degree in the U.C. San Diego's Department of Chemistry....JAMES L. HUMPHREY (B.S. 1972) currently has a private family practice office in Renton, Washington. He received his medical degree in 1980.

**J** JUDITH A. JAEHNING (B.S. 1972) has been an assistant professor in the University of Illinois' (Urbana) Department of Biochemistry since 1981. She earned her Ph.D. in Biological Chemistry from St. Louis' Washington University, and was a biochemistry postdoctoral fellow at Berkeley and Stanford....PHILIP M. JOHNSON (B.S. 1962) was named as a Guggenheim Fellow last year for his studies of the interaction of laser light with molecules.

**K** FRANK E. KARASZ (Ph.D. 1958) was a co-recipient of the 1984 Ford High Polymer Physics Prize of the American Physical Society. This Ford Motor Company-sponsored prize recognizes work by Karasz and his colleagues in the Polymer Sciences and Engineering Department at the University of Massachusetts/Amherst on the blending of polymers....LARRY L. KIRK (M.S. 1968) is an associate professor at California State University at Chico. He earned his doctoral degree at U.C. Santa Barbara in 1973.

**L** PUI H. ("MIKE") LAU (M.S. 1970) is a practicing physician in Edmonds, WA....HEATHER P. LAWTON (B.S. 1980) is living in Elgin, Illinois and her sister, LUANN LAWTON CHEN (B.S. 1978, M.S. 1979) is doing her family practice residency in Ann Arbor, Michigan. She graduated from the U.W. Medical School in 1983....THOMAS H. LIDDICOET (Ph.D. 1953) retired from the Chevron Chemical Company after 28 1/2 years, and is now the head of the Science Department at the Armstrong Preparatory School in El Cerrito, California. He is also a real estate agent....SONG LING (B.S. 1983) is currently a graduate student at Indiana University's Department of Chemistry.

**M** LUNA MALLAH LEVY (B.S. 1982) is a graduate student at Hunter College's Department of Chemistry....LANCE A. MATHESON (B.S. 1974) completed his M.B.A. at the University of Washington in June 1984....ROGER J. MEYER (B.S. 1951) has a family and child health care practice at the Rainier School in Buckley, Washington. He earned his M.D. at Washington University in St. Louis in 1955, and his M.P.H. at

Harvard University....YOSHI MOTOYAMA (Ph.D. 1965) resigned in 1973 as vice-president-Asia/Pacific of the Diamond Shamrock Corporation to become president and chief executive officer of SDS Biotech K.K. He writes that he welcomes the opportunity to help anyone develop a market in Asia/Pacific area for agricultural chemicals/animal health/biotechnical products....RICHARD D. MULLINEAUX (B.S. 1948) earned his 1951 Ph.D. from the University of Wisconsin. He retired two years ago from Shell Oil, and has since taken consulting jobs, serving once as an industrial pollution control adviser to the Republic of Indonesia.

**N** PETER C. NALOS (B.S. 1976) is doing his cardiology fellowship at Cedars Sinai Medical Center in Los Angeles, California. He earned his M.D. in 1981 from the University of Washington....PAUL NUTKOWITZ (Ph.D. 1967) is a senior planning engineer in the New Jersey's Department of Transportation's Office of Planning and Research.

**P** ROBERT G. PAQUETTE (B.S. 1936, Ph.D. 1941) retired in June of 1984 from the Naval Postgraduate School in Monterey, California, where he was a professor of oceanography. He expects to do a limited amount of teaching, continue research in Arctic oceanography on a reduced level, and travel with his wife, the former LOIS A. SMITH (B.S. 1939)....RAYMOND J. PAXTON (B.S. 1974) earned his chemistry Ph.D. in 1983 from Texas A & M University. He is a research Fellow at the City of Hope Research Institute in Duarte, California....PHILLIP PHILLIPS (Ph.D. 1982) finished his postdoctoral research at U.C. Berkeley in June and has joined the Massachusetts Institute of Technology's Department of Chemistry as an assistant professor.

**S** KLAUS A. SAEGBARTH (Ph.D. 1957) has responsibility for nearly 1,000 people as Director of Research and Development at Du Pont's agricultural chemical department....CONNIE ALTON SNAPP (M.S. 1938) is retired and living in San Luis Obispo, California.

**T** PETER S. TAM (M.S. 1974) earned his M.S. degree in nuclear engineering at the University of Washington in 1975. He is a project manager at the U.S. Nuclear Regulatory Commission in Washington, D.C....CHARLES W. TURNER (B.S. 1949) lives and works in Seattle, Washington....NORMAN TURRILL (B.S. 1964, M.S. 1970) is a senior software specialist for the Digital Equipment Corporation in New York City. He earned a Master's Degree in computer science from the University of Washington in 1973.

**W** MICHAEL D. WARDINSKY (B.S. 1983) is in the graduate program at Brigham Young University's Department of Chemical Engineering in Provo, Utah....LOREN WILLIAMS (B.S. 1981) is doing his chemistry graduate work at Duke University....JOHN R. WINTERS (B.S. 1952) earned his D.D.S. from the University of Washington in 1956, and practices in Tacoma....KEVIN WOLF (Ph.D. 1969) is a professor at Texas A & M University.

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## DEPARTMENT OF CHEMISTRY UNIVERSITY OF WASHINGTON ALUMNUS REPORT

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Name \_\_\_\_\_ Degree(s) at U of W \_\_\_\_\_ Year(s) \_\_\_\_\_

Home Address \_\_\_\_\_

Other Degree(s) \_\_\_\_\_ Institution(s) \_\_\_\_\_ Year(s) \_\_\_\_\_

Position \_\_\_\_\_ Organization \_\_\_\_\_

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News of Other Graduates:

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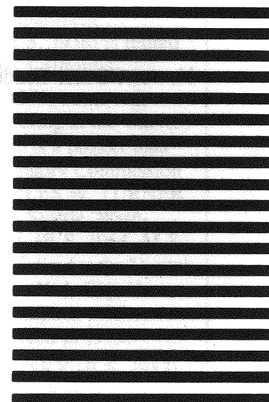
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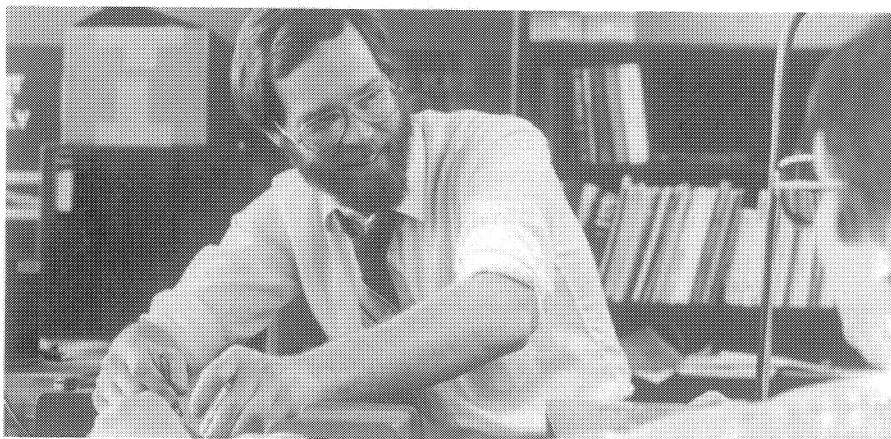
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## 1-D CIRCUITRY STUDIED



Immersion of plastic in water is not normally thought to be hazardous to one's health. However, the recent synthesis of certain organic materials (compounds of carbon and oxygen) has revealed that these polymers are excellent 1-dimensional conductors and semi-conductors of electricity. They may, as a result, have an important effect on the computer industry.

Professor Bruce H. Robinson has, in collaboration with U.S.C. chemistry professor Larry R. Dalton, spent the last two years advancing the theory and technology of these molecular wires. Robinson gave an invited talk on this work at the International Conference of Synthetic Metals in Abano Terme, outside of Venice, Italy, this past summer.

Robinson's initial findings are important, for he has shown that the rates of conduction are slower than previously believed. Additionally, the conducting electrons in these synthesized polymers do not behave as once predicted.

Currently, microprocessors are made by etching silicon wafers, in which conduction electrons can diffuse in any direction. Only by etching and removing the material can the flow of electrons be adequately controlled by the applied voltages.

These new materials are, however, inherently 1-dimensional in their ability to conduct electricity, and should also be good for more specialized applications: as electrodes in lightweight batteries, as diodes in semiconductor chips, as solar cells, and as "wires" in the hulls of airplanes. Given that these polymers could have unlimited industrial applications, they are lightweight, and they are cheap, their importance should not be underestimated.

With the support of the N.S.F. and his group of four graduate students, Robinson has built a fully automated, computer controlled electron paramagnetic resonance

spectrometer. He plans to continue characterizing his synthetic material—how it is conducting electric charge, at what rate the circuitry operates, and what is the minimum amount of synthetic matter needed to complete the conduction.

Robert Schrieffer, a pioneer in the structure of these materials, expressed an interest in Robinson's work at the Abano Terme conference. In addition, Robinson has been invited to share the results of his work with others. He spoke at the 26th Annual Rocky Mountain Conference last summer and at Stanford University last month. Upcoming talks include a lecture at Eastman Kodak, and a seminar for the U.W. Physics Department. Robinson has published extensively in this area, most notably in *Physical Chemistry*, *Solid State Communications*, and *The Journal of Applied Physics*.

Robinson was born in Pittsburgh, and graduated in 1967 from Princeton University with his undergraduate degree. He earned his 1975 Ph.D. at Vanderbilt University under Larry Schaad's supervision, and went on to do consecutive post-doctoral work with Leonard Lerman at SUNY, Albany and Dalton, then at SUNY, Stony Brook. It was during this time that Robinson developed the theory of saturation transfer EPR and found that individual base pairs of DNA move in relation to their neighbors.

He worked as a staff scientist at I.B.M. for 18 months before joining the U.W. in 1980. Last fall, Robinson was promoted to the tenured, associate professor level.

He is a member of the Biophysical Society, active on four University computer committees, and has done recent volunteer work for the Arthritis Foundation.

Robinson and his wife, Diane, had their first baby last month. In the little spare time he used to have, Robinson enjoyed bicycling and downhill skiing.

## CUSTOM DNA MADE

In an exciting new development, U.W. chemists have succeeded in determining the 3-D structure of a DNA molecule in solution at atomic resolution purely from hydrogen-hydrogen distances determined by 2-D NMR spectroscopy.

Dr. Dennis Hare, working in Professor Brian R. Reid's laboratory, developed the computer to calculate the structure from the matrix of NMR distances. This work is part of an N.I.H. Program Project in which Reid, Dr. David Wemmer and Dr. Gary Drobny are using NMR to elucidate the molecular basis of DNA recognition.

Hailing this discovery as a first, Reid also credits members of the Department of Chemistry's DNA Synthesis Laboratory, Dr. Patrick Chou and Dr. Foon Lee, who made the DNA required for this project.

The year-old DNA Synthesis Laboratory was originally conceived as a departmental service operation to provide gene fragment DNA sequences for faculty members working on the DNA structure and dynamics project.

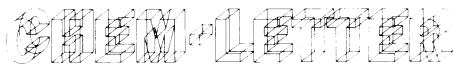
However, the use of an automated DNA synthesizer purchased from Applied Biosystems, Inc. has expanded the Laboratory's operation. Now, Chou, Lee and others provide custom DNA synthesis to a variety of users in the Pacific Northwest and along the West Coast.

At \$20 per residue, scientists from several U.W. Health Sciences Departments, the Fred Hutchinson Cancer Research Center, and the Universities of Oregon and California at Davis are able to purchase the synthesized oligonucleotides within a week of placing an order.

Reid would now like to see Laboratory personnel grow. If funding becomes available an additional chemist would be hired to do program project research on how DNA moves in solution by placing isotopes along the chain at selected positions.

## YOUR MEMORY?

Standing (left to right): George McPhail Smith, professor of inorganic chemistry; unidentified; Tommy Gordon Thompson, professor of analytical chemistry with strong interests in oceanography; Herman Vance Tartar, professor of physical chemistry and chairman of the Department from 1947 to 1949. Kneeling (left to right): Fred Heath, professor of analytical chemistry; Henry Kreitzer Benson, professor of chemical engineering and chairman of the combined Departments of Chemistry and Chemical Engineering from 1919 to 1947.



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