

CHEMISTRY NOTATIONS

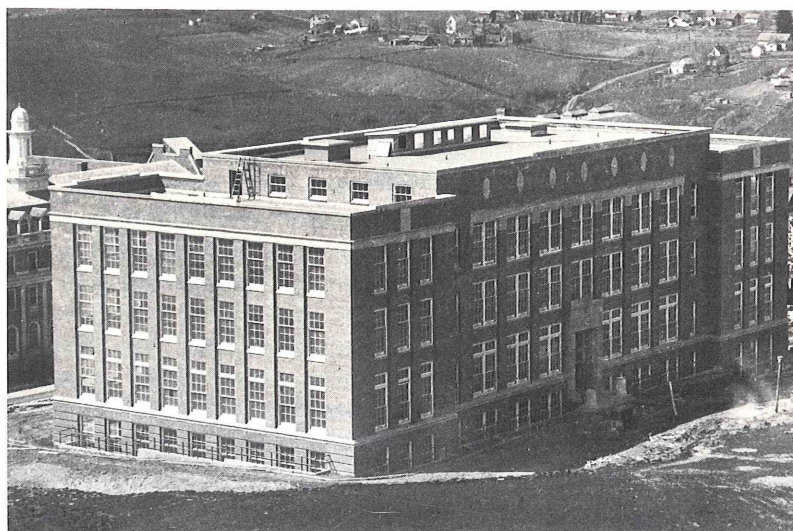
Washington State University Department of Chemistry, Program in Biochemistry/Biophysics and Program in Chemical Physics

Oh How We Have Grown Over the Years...

by Dr. Royston H. Filby
Chair, Department of Chemistry

Welcome to *Chemistry Notations*! This newsletter replaces the old *Fulmer Alumni News* which last appeared in the Spring of 1987. Much has happened since that date and for a variety of reasons we have not kept up this regular communication with our alumni. It is appropriate then that we start our new publication, *Chemistry Notations*, in 1990, the centennial year of Washington State University and of the chemical sciences at WSU. We hope to keep you informed about our activities, and yours, twice a year over the next century!

The Department of Chemistry with the Programs in Biochemistry/Biophysics and Chemical Physics continues to be one of the outstanding departments in the University. Considerable change has occurred over the



Some of you may remember Fulmer Hall after completion in 1935.
Washington State University Libraries, Historical Photograph Collections

past three years, that has, in general, served to strengthen the instruction and research programs.

Changes in Facilities

Nineteen-ninety is a good time to look back on the first century of chemistry at WSU, and the enormous changes that have taken place. Chemistry was a required course for the first students enrolled at WSU in 1892 and the Department of Chemistry was one of the first departments. The B.S. in Chemistry was approved in 1897, with the first Chemistry graduates in 1898 (two women out of a graduating class of 8 students!). The first building specifically for chemistry was Morrill Hall (1903) and the department later moved to Fulmer Hall which was completed in 1935 at a total cost of \$350,000. Since that time, Fulmer has grown progressively larger as the chemical sciences have grown. Fulmer Annex was completed in 1961 and, in more recent times, various phases of remodelling have upgraded our laboratories and classrooms. In our centennial year two impressive new facilities were completed and provide approximately 35,000 square feet of state-of-the-art research space. A single story underground

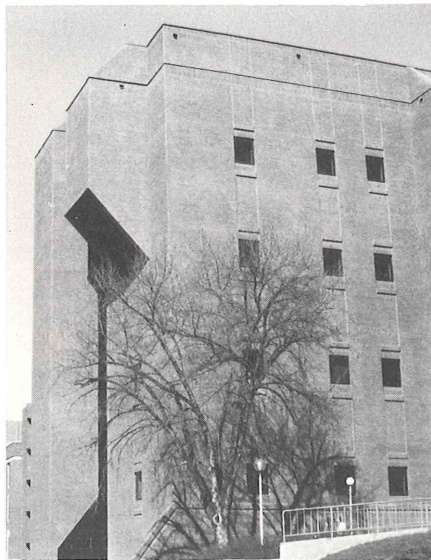
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vibration-free building (VIF) provides space for physical chemistry and chemical physics researchers and the departmental spectroscopy laboratory while the new six story synthesis (SYN) building houses organic, inorganic, and biochemistry faculty. Analytical chemistry remains in Troy Hall (close to Ferdinands!) and plans are to expand and remodel that space in the 1991-93 biennium. Our final spasm of building activity (we hope!) should be a final remodelling of Fulmer spaces that need to be brought up to code, etc. Students in chemistry laboratories at WSU in the 1890s would be amazed at the change! Much of the credit for the outstanding new facilities goes to Roger Willett,



Fulmer Synthesis Building

chairman of the building committee and to the other members of the committee who saw the project through from design to realization. The Opening Ceremony for the new buildings was held during the Division of Sciences Centennial Week (October 1989) and was attended by many of our distinguished alumni (see page 5).

Academic Program Changes

Academic programs have also undergone transition, particularly in the past three years.

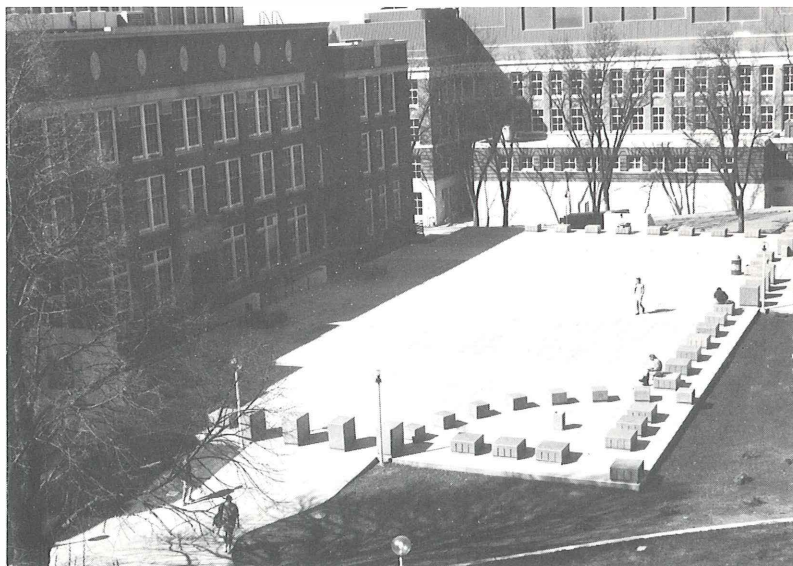
Our departments are at the center of the major research focus of WSU, the molecular sciences initiative, that was announced recently by President Sam Smith. Biochemistry had its origins in the chemistry department and eventually became a program in 1972. This program developed strengths to the point that a separate Department of Biochemistry/Bio-physics will be created this fall from the cur-

rent program (see next page). The overlap between chemistry and physics was recognized as a separate discipline at WSU through the creation of the Chemical Physics Program in 1967, formed jointly with chemistry and physics faculty. This is now undergoing another major transition and is in the process of becoming the Materials Science Program (see next page).

New Instrumentation

Several exciting developments in instrumentation for the chemical sciences have taken place in the past three years. An NMR Center is being established with 500 MHz solutions, 400 MHz solids and 300 MHz routine multinuclear instruments. This center will be directed primarily by two outstanding new faculty, James D. Satterlee, professor of chemistry and Jeremy N. S. Evans, associate professor of biochemistry. A Center for Visualization, Analysis and Design in the Molecular Sciences (VADMS) has been established to provide state-of-the-art capabilities in molecular modelling. The center, directed by Professor Keith Dunker, is also playing a major role in several courses at the graduate and undergraduate levels. A Laboratory for Bioanalysis and Biotechnology (LBB-I), funded by the M. J. Murdock Charitable Trust, was recently established to provide advanced protein and DNA sequencing. A second phase (LBB-II) is being planned for the analytical chemistry of small molecules of biochemical and environmental significance. These developments are

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Underground Vibration-Free Building

BC/BP Grows and Prosperes

by Gerald Hazelbauer
Acting Chair of Biochemistry/Biophysics



The Program in Biochemistry/Biophysics has grown and prospered. Our unit currently consists of twelve faculty members with most or all of their appointment in the program plus four others with fractional appointments. Our graduate program, which includes seven additional faculty from the Institute of Biological Chemistry, has over 50 students this academic year. We have approximately half as many undergraduate majors. Our research space has expanded from the fifth and sixth floors of Fulmer Annex to include two floors in the new Synthesis building. With the additional space, we have been able to house almost all our faculty in the same building complex and to accommodate several new faculty members. Some of these appointments (Bertrand, Kim and Postle) further strengthened our representation in molecular and cellular biochemistry, and others (Evans, Ichiye and Satterlee) have begun an expansion into the area of macromolecular structure.

The level of activity in the program is high. Our research programs are supported by approximately \$2.5 million in outside funding and we will publish close to 100 papers this year. The prominence of individual faculty and of the unit continues to increase. Subsequent newsletters will note some of the honors and acknowledgements we have received. I will mention only a few representa-

tive ones here. The Faculty Excellence Award in Research was won in consecutive years (1988 and 1989) by Biochemists Linda Randall and Ralph Yount. Randall gave this year's Distinguished Faculty Address. Our faculty is also serving WSU in various leadership roles. For instance, Mike Griswold has served as acting dean since July 1989 when Bob Nilan retired (which is why I am acting chair), Keith Dunker is director of VADMS (see page 2), and I direct the Biotechnology Training Program (see page 9).

The sum of all these developments have lead to the most recent stage of the evolution of biochemistry/biophysics. In the coming academic year we will become the Department of Biochemistry/Biophysics. For several years, we have operated in essence as a department. The name change reflects this reality and provides us the opportunity of serving as an active link between biological and chemical sciences at WSU. The new title will not alter our close links and continued cooperation with chemistry — graduate student recruitment and education will continue as a mutual effort. With our faculty's desire to build in the area of macromolecular structure, a field with strong roots in chemistry, we expect a natural expansion of cooperative research and joint faculty between the Department of Chemistry and its offspring, the Department of Biochemistry/Biophysics. ❖

New PhD Program Replaces Chemical Physics

by Dr. Ron Poshusta,
Chair of
Chemical Physics



After more than 20 years, during which it has set a high standard of excellence in research and graduate education, the Chemical Physics Program is about to undergo a profound organizational change: it will be expanded and renamed as the Program in Materials Science. The faculty of the reorganized program will include all the members of our current Chemical Physics Program as well as faculty from the Materials Science and Engineering Programs. The new program will offer degrees in materials science with options to specialize in sub-disciplines: chemical physics, materials physics and chemistry, and materials engineering. The new program will have support from both the College of Arts and Sciences and the College of Engineering, to perform its expanded mission.

The move to establish a Ph.D. in materials science reflects: 1) members of the Chemical Physics Program growing involvement in re-

search areas tied to materials science, 2) increasingly strong ties between materials science and engineering disciplines and advancements in experimental and theoretical physics and chemistry, 3) a dramatic increase in state, federal and industrial interest in the need for basic and applied interdisciplinary research in the area of materials, and 4) a need to develop and offer new knowledge systems in materials science which are both intensively scientific and technological for a wide spectrum of students. An intensive effort is underway to recruit students into the new academic program and prepare them for the many materials related niches in the job market.

Graduates of chemical physics will always be welcome in the Materials Science Program where they will feel at home and will find familiar faculty and staff. The program office

(New PhD continued on next page)

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a far cry from the situation in 1898 when Elton Fulmer, the first chairman of the WSU Chemistry Department, requested a microscope from President Bryan and the request was denied!

Faculty Update

The past three years have also been a time of considerable changes in our faculty. Twelve outstanding new faculty members have joined chemistry and biochemistry in the past three years (see page 7). We have been extremely fortunate in recruiting highly quali-

We have been extremely fortunate in recruiting highly qualified faculty and our success reflects the quality and national reputation of the department.

fied faculty and our success reflects the quality and national reputation of the department. Several of our "veteran" faculty retired — Gardner Stacy, former ACS president and professor of organic chemistry (1988), Bob Foster, associate professor of biochemistry (1988), Jack Nyman, former dean of the Graduate School and professor of inorganic chemistry (1989), and John Hunt, professor of inorganic chemistry (1990). All were long time members of the department and will be remembered by all of you. They have made outstanding contributions to the University and richly deserve an enjoyable retirement! Sadly, we lost several of our valued colleagues. Jim Magnuson's unexpected death in 1987 was a tragic blow to all of us as was the death of our administrative secretary, Sherry Funk in 1988. Carl Stevens passed away in 1988 after a long illness. Carl will be remembered as a former chairman who did much to build the excellence that is characteristic of the department today. He is remembered through the Prestigious Carl Stevens Lectureship — the 1988 lecture was given by Nobel laureate Roald Hoffman and the 1989 lecturer was Professor Harry Gray of Cal Tech. Brooks King who many of you may remember passed away at his home in Florida in 1989.

The chemical sciences have been very successful in graduate recruiting over the past two years, despite an increasing competitive national demand for the dwindling number of chemistry graduates in the U.S. Our suc-

cess is in large measure due to our aggressive recruiting committee and to the highly popular Open House that is held each spring for prospective graduate students. Potential graduate students are invited to the two-day Open House (expenses paid!) to review our programs, talk with faculty and students and sample the pleasures of Pullman (provided it's not snowing!). Although this is an expensive program, it has become a very effective tool to recruit outstanding students who are the core of our research programs and who teach in our undergraduate laboratories. The department has new buildings, some excellent new equipment (e.g., NMR, IR, FTIR, Raman spectroscopy, mass spectroscopy, etc.), a highly motivated faculty and an increasing number of excellent graduate students. A concern, however, remains the low number of B.S. majors and we must work harder to increase the impact of our excellent undergraduate program.

Much has happened in the past three years and we look forward to the second century of WSU with the knowledge that the chemical sciences will continue to play an important role in educating students for a technological world. Because we had so much news to catch up on, we have not included a section on what our alumni are doing — we plan to include this feature in future issues and request that you let us know what you are doing — we promise to do much better at keeping in touch with you! ❖

(New PhD continued from previous page)

will occupy the former chemical physics space in Fulmer 104.

Nostalgia for the old Chemical Physics Program will be felt by many, but the spirit of chemical physics will continue in the new program. The tradition of excellence established by chemical physics in 1967 will be carried forward into materials science. I am sure that great achievements will result from the new program as readers of the newsletter will see in future issues. ❖

Centennial Alumni

Dr. Philip H. Abelson

Dr. Abelson received his B.S. in chemistry in 1933 and his M.S. in physics in 1935 from WSU. He earned his doctorate in physics at the University of California, Berkeley, in 1939. He is best known for his work during the Manhattan Project in uranium separation processing, fission products identification, with E.M. McMillan for the discovery of neptunium, and nuclear submarine design. Though a physicist, his research interests spanned numerous other fields. He has made significant contributions in geology and performed pioneering studies in molecular biology.

Editor of the magazine *Science* for 22 years and president of the Carnegie Institute for eight years, Dr. Abelson enabled many other scientists to push the frontiers of scientific knowledge forward. Recipient of the WSU Distinguished Alumnus Award he has also been honored with the President's National Medal of Science, the UNESCO Kalinga Prize, the National Science Foundation's Public Service Award, plus many others, including six honorary doctoral degrees. An advisor to the American Association for the Advancement of Science, he continues to learn and contribute to the sciences. ❖

Dr. Neva M. Abelson

Neva M. Abelson obtained her B.S. in Chemistry from WSU in 1934 and later received her M.D. degree from Johns Hopkins University in 1942. She is a pediatrician and was the first woman in charge of pediatric nurseries at Johns Hopkins Hospital. Dr. Abelson achieved recognition as co-developer of the test to determine the Rhesus (Rh) factor in blood which resulted in higher survival rates at childbirth. She worked extensively on blood group antibodies, blood transfusion reactions, and the pathogenesis of rheumatoid joint inflammation. Dr. Abelson was recognized at WSU for her contributions to medical science through the 1989 WSU Regents Distinguished Alumnus Award. ❖

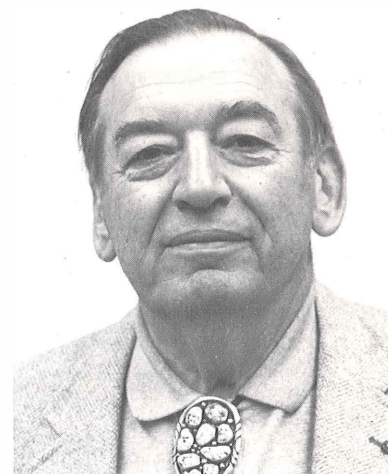
Dr. Jacob Bigeleisen

Dr. Jacob Bigeleisen, a WSU Distinguished Alumnus Award recipient who received his M.S. in chemistry from WSU in 1941, is known for his work in isotope chemistry. This work was recognized by the presentation of the U.S. Atomic Energy Commission's E.O. Lawrence Memorial Award in 1964. His research established the fundamental bases for the differences in the chemical behavior of isotopes. Dr. Bigeleisen's work in the formulation of the theory of kinetic isotope effects won for him the American Chemical Society's Award for Nuclear Applications in Chemistry in 1958.

Dr. Bigeleisen joined the newly formed Brookhaven National Laboratory in 1948 where he spent the next twenty years. In 1968 he joined the faculty of the University of Rochester and served from 1970 to 1975 as chairman of the chemistry department. In 1978 he accepted an invitation to join the State University of New York at Stony Brook where he is currently vice president, dean of graduate studies, and professor of chemistry.

Dr. Bigeleisen has been particularly active in affairs of the National Academy of Sciences. He served as chairman of the Assembly of Mathematical and Physical Sciences (AMPS) in the National Research Council during the formative years 1976-80. ❖

To Our Alumni: We would love to hear from you! It has been three years since we have published a newsletter and we have lost touch. Each issue will report news from our alumni so please use the enclosed envelope to inform us of what you and your families have been doing.



Dr. Jacob Bigeleisen

Dr. Christopher E. Nelson

Dr. Nelson received a B.A. in biochemistry and molecular biology from Northwestern University. He received his Ph.D. in biochemistry and biophysics from WSU in 1980 under the direction of Bud Ryan.

After graduating he went to work for Kemin Europa as a group technical manager in charge of quality control, technical sales support, and research and development in Europe, Africa and the Middle East. Chris is cur-

(Alumni continued on page 8)

Faculty and Staff News



Kirk D. McMichael, chemistry faculty, was one of 310 scholars elected Fellows of the American Association for the Advancement of Science at the organization's annual meeting in New Orleans. He was cited for his contributions to science teaching and administration. McMichael also won a 1989 Burlington Northern Faculty Achievement Award from WSU. He came to WSU in 1962 and has been one of the department's most popular professors. Currently, he is associate chair of the chemistry department, responsible for the coordination of undergraduate and graduate programs. McMichael has been instrumental in developing both programs aimed at serving minority students and a new experimental chemistry course for non-scientists.

Chemistry Professor **Roger D. Willett**, has been appointed to the editorial advisory boards of two major scientific journals. *Inorganic Chemistry* is the most prestigious international journal in the field, and the editorial board includes some of the most renowned inorganic chemists in the United States. *Materials Engineering* is a new journal which will focus on the chemistry and applications of new materials. Willett, a member of the faculty since 1962, served as chair of the Chemical Physics Program, coordinator of the General Chemistry Program and chaired the building committee for the University's new multi-million dollar chemistry complex. His research has been funded extensively by the National Science Foundation.

Royston H. Filby, professor and chair of the Department of Chemistry, was one of 11 scientists recently recognized as new Fellows of the American Nuclear Society. The honor was published in the January issue of the society's ANS News. Filby's selection was based on his "extensive contributions to the literature on the application of nuclear and analytical methods of geochemical and environmental problems and for his dedication to nuclear science education." A member of the WSU faculty since 1967, he served for several years as director of the University's Nuclear Radiation Center.

Irene Hinrichs retired from WSU on December 31, 1989. Irene served the University for more than 20 years, most of them as secretary of the Chemical Physics Program. In that time, Irene made many friends among students, staff and faculty; she will be greatly missed. When asked what her plans were,

Irene said she will enjoy traveling and staying active at home.

Jenni Keith is the new secretary for the Chemical Physics Program. She and her husband moved to the area from Seattle seeking a more relaxed, small town environment. They bought their first home in Palouse; what could be more different than Seattle?

Paula Nelson was promoted from biochemistry to chemistry administrative secretary following **Margaret Kelnhofer's** resignation last August. Margaret married postdoc **Bill Wacholtz** and moved to Oshkosh (By-Gosh), Wisconsin where Bill accepted a position at the University of Wisconsin.

Karen Libey was promoted to the biochemistry secretary IV position vacated by Paula and **Cindy Neal** filled the technical secretary position vacated by Karen. Jenni and Cindy are Texans while Paula, Margaret and Karen are all products of our farm team, the University of Idaho.

Gracie Levi (formerly Gracie Franklin), the chemistry receptionist, was married to Tom Levi January 27. Many chemistry friends wished Gracie and Tom happiness on their wedding day.

Herbert Hill, chemistry professor, received the Keene P. Dimick Award for Analytical Chemistry by Chromatography at the 40th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy. The award recognizes threshold research in chromatography. Hill's research, which focuses on ion mobility spectrometry (IMS) as a chromatographic detection method, is important to biology, industry, agriculture and the environment. The award is named for and presented by Keene Dimick, the first person to commercialize chromatography in the 1950s, and carries a prize of \$5,000.

Glenn A. Crosby, professor of chemistry and chemical physics, has been appointed Chair of the American Chemical Society Committee on Education, one of the most powerful education committees in the U.S. Crosby holds two WSU Faculty Excellence Awards (Instruction, 1984 and Public Service, 1989) and is the only person to win this award twice. He was recently named Distinguished Professor by the WSU Mortar Board for his excellence in teaching physical chemistry! The Washington Foreign Language Teachers Association also presented him its Public Awareness Award. ❖

Dr. Kevin P. Bertrand

Dr. Kevin P. Bertrand received his B.A. from Cornell University in 1971. He did his graduate work with Dr. Charles Yanofsky at Stanford University and received his Ph.D. in 1977. After two years as a postdoctoral fellow at the University of Wisconsin, Madison, he joined the faculty of the College of Medicine at the University of California, Irvine. While there he received an NIH Research Career Development Award (1981-1986). He joined the faculty at WSU in 1987 as an associate professor of biochemistry/biophysics and microbiology. He is a molecular geneticist who studies the process of transcription as well as the organization and functions of certain membrane proteins. ❖

Dr. Karen J. Brewer

Dr. Brewer's undergraduate work was completed in 1983 at Wofford College in Spartanburg, South Carolina. From there she went to Clemson University in Clemson, South Carolina to study inorganic chemistry under the direction of Dr. John D. Petersen. After receiving her Ph.D. in inorganic chemistry in 1987, she spent one year as a postdoctoral fellow in the Nobel laureate laboratory of Dr. Melvin Calvin at the University of California, Berkeley. Dr. Brewer joined the inorganic division here at WSU in the fall of 1988. Work in her laboratory concentrates on the design, development and synthesis of novel transition metal containing complexes as well as the study of their useful characteristics and properties. ❖

Dr. David A. Cleary

Dr. David A. Cleary came to WSU in 1987 as an assistant professor in the physical chemistry division and the Chemical Physics Program after completing postdoctoral work at Cornell University with Professor J.H. Freed. Prior to that, he received his doctorate in physical chemistry from the University of Michigan with Professor A.H. Francis. The major emphasis of his research program is on the preparation and characterization of novel intercalation compounds. The explanation of guest-host interactions constitute the main thrust of his research effort. To that end, he applies ESR and FTIR spectroscopies, as well as magnetic susceptibility and X-ray crystallographic techniques. ❖

Dr. Bruce E. Eaton

Dr. Eaton received a B.S. in chemistry and biology from the University of Oregon and in 1981 an M.S. in organic chemistry. Then he was a research associate with HANA Biologics Inc. working in medical diagnostics. In 1988 he received his Ph.D. in organic/organometallic chemistry from the University of California, Berkeley. Until 1989 Dr. Eaton was a postdoctoral associate at AMOCO Chemical Co. and studied catalysis for, and computer-aided molecular modeling of, polymers. He joined the organic division at WSU as an assistant professor in 1989.

Dr. Eaton is a synthetic organic chemist with research interests in new polymeric organic materials and nucleic acid duplex formation. ❖

(New Faculty continued on page 10)

New Faculty



The Department of Chemistry, Program in Biochemistry/Biophysics, and Program in Chemical Physics, proudly introduces you to the newest members of our faculty.

Pictured here are some of our new faculty (Left to Right) Karen J. Brewer, Bruce E. Eaton, Toshiko Ichiye, James D. Satterlee and Kwan Hee Kim.



(Alumni continued from page 5)

rently the executive director of research and development for Kemin Industries, Inc. in Des Moines, Iowa. Kemin manufactures ingredients for animal feeds encompassing mold inhibitors, natural plant extracts for poultry pigmentation, antioxidants, surfactants, flavors, and enzymes.

The Research and Development Group oversees work in Kemin's foreign laboratories in Herentals, Belgium, Singapore and Mexico. Recent new products from the company include specific stabilized enzymes to increase nutrient availability from animal feeds, a new anti-microbial to control feed quality and a pigmenter from paprika for coloration of salmon flesh. ❖

Dr. Michael Urdea

Dr. Michael Steven Urdea received his Ph.D. in biochemistry from WSU in 1979. His thesis project was under the supervision of Dr. Ivan Legg. He then went to the University of California at San Francisco as a postdoctoral research fellow in the laboratory of Dr. William J. Rutter. In 1981, he began employment with the Chiron Corporation and has continued to excel. He is currently director of nucleic acid systems at Chiron. He is a member of the Industrial Advisory Board for the newly funded Biotechnology Training Program at WSU. Dr. Urdea has been a major figure in the development of technology for manipulating and analyzing nucleic acids. ❖

Dr. James A. Wells

Dr. Wells received his B.A. in biochemistry from the University of California, Berkeley in 1973 and his Ph.D. in biochemistry from WSU in 1979 for work done in the laboratory of Ralph Yount. He continued his work at WSU as a postdoctoral fellow. In 1980 he moved on to Stanford University Medical School, Department of Biochemistry as a Damon Runyon-Walter Winchell Postdoctoral Fellow.

In 1982 he went to work for Genentech, Inc., Department of Biomolecular Chemistry in San Francisco, California and in 1986 became a senior scientist. Since 1988, he has also served as an adjunct associate professor at the University of California at San Fran-

cisco in the Department of Pharmaceutical Chemistry. He is an associate editor for *Proteins: Structure, Function and Genetics*.

Dr. Wells is internationally known for his work on enzyme catalysis in which he has used protein engineering to delineate the roles specific amino acids have in binding and catalysis. His recent work involves engineering new forms of the serine protease, subtilisin, and developing new techniques to map the binding site for human growth hormone. He is a member of the Industrial Advisory Board for the newly funded Biotechnology Training Program at WSU. ❖

Dr. Jack M. Williams

Jack M. Williams graduated from Lewis and Clark College *cum laude*, with a major in chemistry. He received a M.S. degree in inorganic chemistry from WSU and then changed his major to physical chemistry and completed his Ph.D. in 1966, with Roger Willett. He joined Argonne National Laboratory as a postdoctoral fellow in 1968 where is currently senior scientist and group leader.

Dr. Williams has authored many research publications in the field of inorganic chemistry, with particular emphasis on hydrogen bonding studies, synthesis and characterization of metal-chain inorganic electrical conductors and inorganic oxide and organic conductors and superconductors.

During his tenure at Argonne, approximately 140 senior undergraduate students, 45 faculty and postdoctoral fellows have worked in his group. He also collaborates with approximately 50 university and industrial scientists from 32 institutions in the U.S. in the areas of X-ray and neutron scattering. He was given a DOE national award in 1982 for Outstanding Sustained Research in Materials Chemistry and the DOE award for Outstanding Scientific Accomplishment in 1985. In 1987 he was awarded the University of Chicago Award for Distinguished Performance at Argonne National Laboratory.

He has served as the treasurer of the Inorganic Division of the American Chemical Society and is presently an associate editor of *Inorganic Chemistry*.

Dr. Williams will be presented with the WSU Centennial Alumni Achievement Award September 13-14 on the WSU campus. ❖

WSU Receives NIH Training Grant



One of nine universities chosen to be part of a new National Institute of Health Training Program in Biotechnology, WSU will receive \$473,000 over the next five years to train graduate students in biotechnology with a particular emphasis on protein chemistry. Other schools selected are the California Institute of Technology; Lehigh University; Massachusetts Institute of Technology; Rutgers University; and the universities of California, Colorado, Kansas and Wisconsin.

"To be traveling with this group of institutions is a distinct honor for WSU and puts us in a very elite group," said President Sam Smith.

Gerald Hazelbauer, who authored the proposal to NIH and will direct the training program noted, "The federal government has recognized that to be competitive internationally in biotechnology, the country needs to improve its scientific manpower

base. Many of the most difficult problems in biotechnology are issues related to the properties of proteins. Scientists trained in the fundamentals of protein chemistry will be needed at all levels of research from basic to applied."

The training program appointed four trainees the first year and an additional six for fall 1990. This number will grow over several years to approximately 30 trainees on a continuing basis. The grant may be extended for additional five-year periods depending on success in the first five years.

The essence of the program is interdisciplinary training that exposes students to both basic and applied aspects of modern biochemical sciences. Members of the Program in Biochemistry/Biophysics make up the core of the 20 designated training faculty. Other departments and programs involved are genetics and cell biology, microbiology, plant physiology, veterinary microbiology and chemical engineering.

(Training Grant continued on page 11)

"To be traveling with this group of institutions is a distinct honor for WSU and puts us in a very elite group."

—President Sam Smith

Help Us Celebrate 100 Years of Excellence



WASHINGTON STATE UNIVERSITY CENTENNIAL

Our WSU Call-A-Coug phonathon has been very successful this year, but we couldn't reach everyone. If we didn't get in touch with you, please get in touch with us. Use the attached envelope to share the significant events in your life.

Consider Including a Gift . . .

- Help the College of Sciences and Arts and your department maintain their tradition of excellence.
- Provide dollars for scholarships and research.

Consider joining one of our gift clubs:
 Tower Club (\$100-\$499)
 Dean's Associates (\$500-\$999)
 President's Associates (\$1,000-\$4,999)
 President's Associates Council (\$5,000 or more)

As you consider the amount of your gift, think about the difference your college experience made in your life. Help make the difference in someone else's life!

(New Faculty continued from page 7)

Dr. Jeremy N.S. Evans

Dr. Jeremy N.S. Evans was appointed associate professor of biochemistry/biophysics in May 1989. He graduated with a B.S. from University College London, and a Ph.D. from the University of Edinburgh in Scotland. He spent two years as a postdoctoral research associate at MIT, and a brief period as a postdoctoral research fellow at the University of Oxford before taking up a position there as university lecturer in organic chemistry and Fellow of Brasenose College, Oxford.

Dr. Evans' research interests include: 1) new methods for determining the structure and dynamics of molecules by solid-state NMR; 2) rapid reaction by solid-state NMR; 3) structure and dynamics of biomolecules by solution-state NMR; and 4) enzymatic reaction mechanisms by NMR. He will be making substantial use of the recently established NMR Center at WSU. ❖

Dr. Toshiko Ichiye

Dr. Toshiko Ichiye joined biochemistry/biophysics as an assistant professor in July 1989. Dr. Ichiye received a B.A. in physics at Rice University in 1978 and a Ph.D. in biophysics at Harvard University in 1985. She did postdoctoral research at the University of California, Berkeley and the University of Utah. Her research involves theoretical studies of biological macromolecules and other condensed matter systems at a molecular level, using a variety of statistical mechanical tools including computer simulations. ❖

Dr. Kwan Hee Kim

Dr. Kwan Hee Kim received her Ph.D. in bacterial genetics from Princeton University in 1982. She was a NCI postdoctoral fellow at the University of Chicago before becoming a research associate and lecturer. In 1987, she came to WSU as a research assistant professor and in 1989, she was appointed to a joint position as assistant professor of genetics and cell biology and biochemistry/biophysics. Her main interest is in the understanding of the molecular and cellular mechanisms by which vitamin A regulates specific target genes during spermatogenesis and neural cell differentiation. ❖

Dr. Bradford B. Pate

Dr. Bradford B. Pate is an associate professor of chemical physics and of physics. He received undergraduate degrees in both physics and electrical engineering at Rice University in Houston, Texas. His Ph.D. work was completed at Stanford University in 1984, on the nature of the diamond surface. His subsequent work at the Stanford Synchrotron Radiation Laboratory involved him in a range of research topics from design and construction of soft X-ray monochromators to electronic structure measurements of heavy fermion systems, superconducting alloys, and carbon materials. Dr. Pate's work at WSU involves the microscopic and geometric properties of impurities in and on diamonds. ❖

Dr. Kathleen Postle

Dr. Kathleen Postle received her undergraduate training at Wittenberg University in Springfield, Ohio and her Ph.D. from the University of Wisconsin, Madison in 1978. She then moved to the University of Washington for one year as a postdoctoral fellow in the Department of Microbiology and Immunology. Beginning in 1980 she was a NIH postdoctoral fellow and then a research faculty member in the Department of Microbiology at the College of Medicine, University of California, Irvine. She returned to WSU as an associate professor of microbiology in 1986. In the autumn of 1989, 25% of her appointment was shifted to biochemistry/biophysics. She is a molecular geneticist who studies the synthesis and function of a membrane protein. ❖

Dr. James D. Satterlee

Dr. James D. Satterlee received his B.A. and M.S. degrees from Central Washington University and his Ph.D. from the University of California, Davis in 1976. He then went to the California Institute of Technology as a research fellow. He was an assistant professor at Northern Illinois University from 1978-81 and an associate professor at the University of New Mexico until 1989. He was a fellow of the Alfred P. Sloan Foundation from 1983-1987 and was awarded a NIH Research Career Development Award for the period of 1986-91. He came to WSU in 1989 as a professor of chemistry, joining the inorganic divi-

(New Faculty continued on next page)

(New Faculty continued from previous page)

sion, but he also has wide interests that span other divisions of the department.

The research activities of his group primarily involve NMR applications to heme proteins and the metabolism of intact cells. A newer aspect of research in his laboratory is multinuclear NMR studies of intact cells. ❖

Dr. James O. Schenk

Dr. James O. Schenk's undergraduate work was completed at Wofford College in Spartanburg, South Carolina. After receiving his Ph.D. in analytical chemistry (and neuroscience) at the University of Kansas, he spent one year as a NIH postdoctoral research training fellow and two years as a postdoctoral research fellow in the Neuro-psychopharmacology Research Unit at Yale University School of Medicine. He stayed on at Yale for an additional year as a postdoctoral associate before joining the WSU faculty in 1986.

The work in his laboratory focuses on the development of micro electroanalytical techniques for application to problems in neurobiology, neuropharmacology, and biological psychiatry. The work involves the construction and characterization of chemical micro-sensors for use in monitoring the biogenic amine neurotransmitters as well as neurobiologically important inorganic ions. ❖

(Training Grant continued from page 9)

Protein chemistry has been a major area of research at WSU for several decades. Currently, a number of the most distinguished researchers are focusing on fundamental questions about proteins in plants, animals and bacteria.

An innovative feature of the program is exposing trainees to biotechnology in action through an internship at a biotechnology firm. WSU is actively seeking firms in Washington and elsewhere interested in participating in this pioneering program. An industrial advisory board has been established to help evaluate WSU's program. The members are BC/BP graduates Micky Urdea and James Wells (see page 8) as well as Marvin Gorman, managing director of Oncogen in Seattle.

Robert V. Smith, dean of the Graduate School and vice provost for research, said the program will help WSU attract the nation's top graduate students not only for the fellowships but for the other programs that will develop around this one. "Ten years from now, people will look back at this training program as a pivotal element in the successes I believe we are going to have in molecular sciences. Our accomplishments in research and training will influence the way the society thinks and acts well into the 21st century," he declared. ❖



Emeritus Dean of Sciences Robert A. Nilen, at microphone, congratulates Gardner Stacy, professor of organic chemistry, at a retirement dinner held in his honor during the spring of 1988.

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The Honor Roll of Donors is our way of saying "thank you" for supporting the Department of Chemistry and our Programs in Biochemistry/Biophysics and Chemical Physics. Your generosity enables us to build programs of distinction and provides direct support to our student and faculty scholars. Because of limited space the honor roll includes the names of those who have made gifts of \$50 or more since we last published a newsletter. Gifts of every magnitude greatly assist our efforts and our warmest thanks go to all our donors.

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