
THE OREGON STATE UNIVERSITY ENGINEER

*Fall
1995*

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The OSU Engineer
Fall 1995



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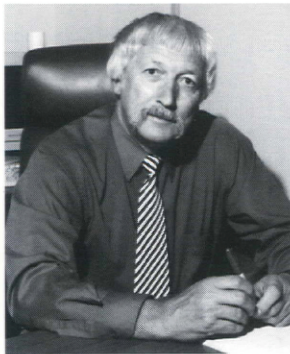
Chemical engineering emeritus professors (left to right) Charles Wicks, Octave Levenspiel, and James Knudsen with department head Jim Frederick in front of Gleeson Hall. These distinguished emeritus faculty maintain ties with the department, even through their retirement.

Gleeson Hall has housed the Department of Chemical Engineering since it was built in 1955.

Gary Tarleton Photo



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LETTER FROM THE DEAN

scope ecology, and global change are mirrored in many departments and colleges at OSU, including science, engineering, forestry, agricultural sciences, oceanography, etc. Throughout the interview process, he articulated with great clarity the vision both of the modern land grant institution and of the myriad of changes needed to ensure the future of higher education in all its facets.

For the past eleven years, Oregon State University has been fortunate to have as its president, John Byrne, who will be retiring at the end of the fall term, 1995. Oregon State University has seen considerable change during Dr. Byrne's tenure. In particular, our reputation as a Carnegie Research I and Land Grant Institution, with a commitment to maintain strong undergraduate programs, has grown. International relationships continue to prosper with increased emphasis on the Pacific Rim. Most of all, and a tribute to John Byrne's patient leadership, is that the institution is demonstrably stronger despite suffering through a succession of drastic budget reductions. Recognized as the leading statesman of Oregon's university presidents, John Byrne has added much needed stability to the operations of the State System of Higher Education.

Our new president, Paul Risser, comes to Corvallis from Oxford, Ohio, where he was president of Miami University of Ohio which is nationally recognized for the very high quality of its undergraduate programs. Prior to becoming president at Miami, Dr. Risser was provost and formerly vice president for research and graduate studies at the University of New Mexico. As a distinguished botanist and soil scientist with a Ph.D. from the University of Wisconsin, Dr. Risser's research interests in grassland and forest ecosystems, environmental planning, and management, land-

In welcoming Dr. Risser to OSU, we share his enthusiasm for enhancing our undergraduate and graduate programs, our research, our outreach activities, and our commitment to serve the state of Oregon to the very best of our abilities. We believe the College of Engineering will continue to grow in importance as the economy base of the state embraces the rapid deployment of our high technology within and beyond the Willamette Valley. As befitting our land grant tradition, we aim to serve the whole of the state.

This newsletter will be read by our alumni, our faculty, our staff, our students, our colleagues in other universities, and our many industrial supporters. You are all very important to the College of Engineering, and we thank you for your continued encouragement and support.

S.J.T. Owen
Dean
College of Engineering

STUDIES AT THE AVIATION HUMAN FACTORS LABORATORY AIM TO INCREASE AIRLINE SAFETY

Commercial air transportation has an admirable safety record, yet each year hundreds of lives and millions of dollars worth of property are lost in air crashes. About two-thirds of these aircraft accidents are caused, in part, by pilot error. While many of these errors are ones of judgment or communication, a large percentage are activity mismanagement errors (e.g., misprioritizations) and failures to follow standard operating procedures. Although additional training or improved cockpit design might reduce the incidence of some errors, the effectiveness of such approaches is limited by inherent human perceptual and mental characteristics. Certain advanced technologies offer an alternative approach through the augmentation of human capabilities.

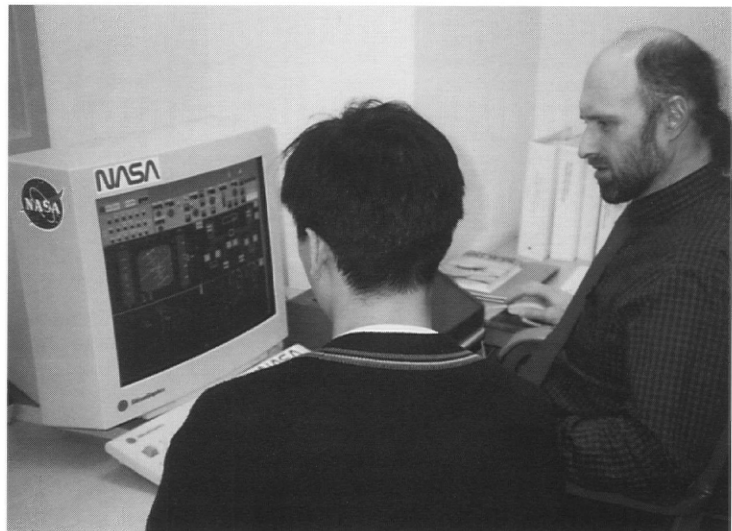
Ken Funk, assistant professor of industrial and manufacturing engineering (IME), and three IME graduate students, are working on a National Aeronautics and Space Administration (NASA) grant to develop a computer-based aid called the AgendaManager, which is being developed on a part-task flight simulator in the IME department's aviation human factors laboratory. The AgendaManager accepts spoken declarations of pilot intent, monitors pilot actions, assesses the state of the simulated aircraft and its equipment, and then helps the pilot initiate, prioritize, and perform tasks correctly by displaying appropriate information. After preliminary evaluations at OSU, the AgendaManager will be moved to NASA's Advanced Concepts Flight Simulator, located at the NASA Ames Research Center at Moffett Field, California. The design of the AgendaManager is being guided by the results from another related project. Funk and

a second group of students are working with Research Integrations, Inc., Honeywell, Inc., and America West Airlines on a Federal Aviation Administration (FAA) grant to study the human factors of aircraft automation.

Recent incidents and accidents involving highly automated commercial transport aircraft have raised concerns about the overall safety effects of advanced autopilots, flight path management systems, and other cockpit automation. While several recent studies have attempted to address some of these automation issues, until now no one has systematically identified all issues concerning cockpit automation. The objectives of this project are to collect and compile a comprehensive list of cockpit automation problems and concerns, to verify or refute them, and to present a prioritized list of verified problems to the FAA. In Phase 1 of the study, the scientists compiled a list of 114 perceived problems with or concerns about cockpit automation that have been raised by pilots, scientists, engineers, and flight safety experts. They are currently compiling evidence for and against these perceived problems or concerns from the scientific literature, accident reports, incident reports, and other sources. Where data are lacking, they will conduct full-mission flight simulator experiments at America West Airlines to develop their own evidence to

confirm or refute the perceived problems and concerns.

When the study is complete, the scientists will prioritize the list of verified cockpit automa-



tion problems and present the list to the FAA so that solutions may be developed and, where necessary, further research may be conducted. The results of the study—as well as the solutions ultimately developed in response to them—will be useful to the FAA for further research and for aircraft certification and flight standards regulation, to manufacturers for aircraft and equipment design, and to the airlines for aircraft operation. Funk and his colleagues are optimistic that the net effect of their work will be significant improvements in flight safety.

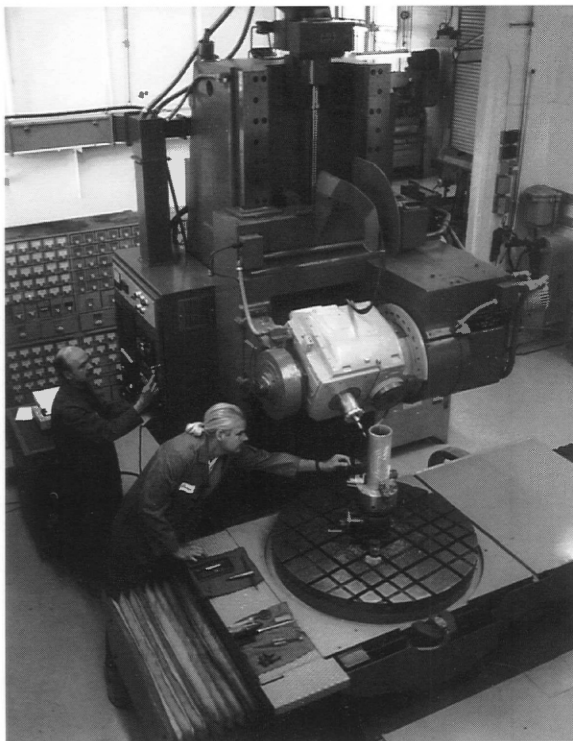
WooChang Cha, a PhD student in IME, and Ken Funk discuss a part-task flight simulator being used in the development of an experimental aid to facilitate activity management in commercial transport aircraft cockpits.

For more information contact Ken Funk at:

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MECHANICAL ENGINEERING DESIGN AND MANUFACTURING FACILITY OPENED FOR HANDS-ON ENGINEERING



Manfred Dittrich and Chuck Meitle setting a part in the five-axis CNC machining center donated by The Boeing Company.

The formal dedication and open house of the Department of Mechanical Engineering's modernized design and manufacturing facilities was held on May 11, 1995. Industry sponsors—The Boeing Company, The IBM Corporation, Mitutoyo Corporation, and AccuFab Systems, Inc.—and the mechanical engineering department were recognized at this ribbon-cutting event.

The mechanical engineering student and research shop facilities comprising 3800 square feet on the first floor of Rogers Hall, were completely renovated and now provide a fabrication area with conventional turning and milling machines, metal saws, and drills, a welding area with oxyacetylene TIG and MIG capability, and a large open area with student work stations and manual tools to accommodate 25 teams (3 students per team) of students. The renovation

provides facilities for hands-on student projects associated with mechanical design courses as well as other projects throughout the department. The objective of these facilities is to provide a safe working environment, ease of access to tools and equipment, and exposure to a realistic shop environment to complete hands-on projects.

Simultaneously with the shop renovation, an integration of design and manufacturing has been accomplished through the acquisition of unix-based engineering workstations, computer-aided design (CAD) and computer-aided manufacturing (CAM) software. A table top computer numerically controlled (CNC) machining laboratory, a metrology laboratory with machine vision and a CNC coordinate measuring machine, and a 5-axis CNC production machining center have been established to provide hands-on experience.

The design and manufacturing software applications are integrated so that computer-designed part models are imported directly to the manufacturing application where code is automatically created to drive the CNC milling ma-

chines. The CNC milling machines communicate directly with the CAM application. Students use their programs to cut parts on the CNC table top machines. The same application is used to cut parts on the 5-axis machining center under the close supervision of the laboratory technician. Verification that the parts manufactured comply with design tolerances and specifications is accomplished in the metrology laboratory. A production CNC coordinate measuring machine is used to directly verify feature mea-

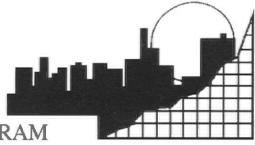


Mechanical engineering students running a part program on a tabletop CNC milling machine

surements against drawing dimensions and tolerances. These facilities provide students the experience of part design, part manufacture in a numerically controlled environment, and part measurement with modern measurement equipment.

For more information on specific capabilities of the integrated design, fabrication, or metrology facilities, please contact Dr. William F. Reiter, Jr., Boeing Professor in Design/Manufacturing:

Phone:: (541) 737-7035
Email: reiterw@ccmail.orst.edu



THE MECOP SUCCESS STORY

The Multiple Engineering Co-operative Program (MECOP) has a mission to *“Enhance and expand a manufacturing-based engineering cooperative program at Oregon State University which is of the highest quality and meets the needs of industry in the Pacific Northwest.”*

As we begin MECOP's eighteenth year, it is all the more evident that our internship program is successfully fulfilling its mission to become one of the premier cooperative education programs not only in the United States but in the entire world! Believers include Joe Cox, Oregon's Chancellor of Higher Education, as well as participants of the international symposium on cooperative education held in South Korea this spring at which Gary Petersen, College of Engineering MECOP coordinator, presented the MECOP story. No other cooperative education program has the degree of active participation from industry as does MECOP and no other program sacrifices some of each company's individual interests for the long-term educational development of the student. Industry also funds the program, sets its strategy, selects and places the engineering interns, and provides timely feedback to the College of Engineering concerning course curriculum.

MECOP was inaugurated in 1978 with three companies: Boeing, Freightliner, and Tektronix. The program now has forty-one, primarily Northwest-based companies of various size, covering all types of industry (heavy manufacturing, light manufacturing, electronics, wood products, food processing, and software development). Other industry types may soon be added to this robust list including material handling and utilities. MECOP may have as many as fifty companies by the year 2000.

In 1980, MECOP placed seven students into six-month manufacturing-based internships. Last year 118 were placed and this year the number increased to between 120 and 140. Growth projections for the year 2000 reach as high as 200. A MECOP alumni association was initiated last year which will grow with every commencement ceremony.

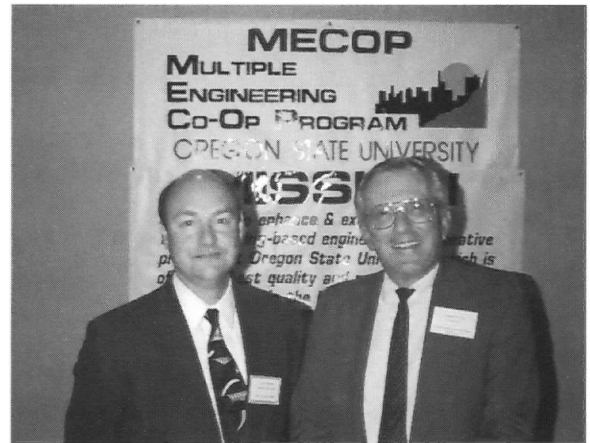
MECOP is also aggressively working to develop a graduate program. We believe that this extension will rapidly expand as its popularity grows and the program becomes more mature. We have established contacts between a German university and one of our MECOP member companies as the first step in initiating an international internship.

As recently as 1991, MECOP was comprised of and coordinated by only the Department of Industrial and Manufacturing Engineering. Since then, MECOP has grown steadily to one now coordinated by the College of Engineering. Six dis-

MECOP is an industry-driven cooperative program in partnership with the College of Engineering to place industry-screened and -placed junior and senior engineering students into two separate six-month working internships (once during their junior year and once during their senior year).

ciplines (industrial and manufacturing, mechanical engineering, electrical engineering, electrical and computer engineering, chemical engineering, computer science) are now actively involved and other disciplines are being considered for future participation, including environmental engineering, industrial engineering, and engineering physics.

Under the expert coordination by Gary Petersen and the experienced leadership of our subcommittee chairs (Promotions—John Vandecoevering, Warn; University Relations—Fred Vetter, Oregon Freeze Dry; Industrial Relations—



Art Pugh, Merix; Student Relations—Ken Shaw, Freightliner; Operations—Randy Leonard, A-dec) a firm tactical base is being developed from which to attain MECOP's growth objectives for the year 2000.

This is indeed a very special program, one which has been carefully nurtured since its inception in 1978 by scores of visionary managers from a wide breadth of industry types, geographical regions, and company sizes.

Larry Martin and Joe Cox, Chancellor of the Oregon State System of Higher Education, at the 1995 MECOP banquet. Chancellor Cox was the keynote speaker.

I am looking forward to this year as MECOP continues to fulfill its mission, further proving why MECOP is the best cooperative education program there is—period.

TELEDYNE WAH CHANG

Larry G. Martin
MECOP Chair

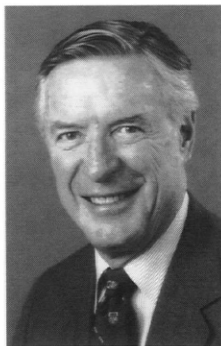
CHEMICAL ENGINEERING AT OSU: A CONTINUING TRADITION OF EXCELLENCE

In areas fundamental to chemical engineering—fluidization, chemical reaction engineering, heat transfer, and thermodynamics—the Department of Chemical Engineering excels. This has now been expanded beyond its initial focus to encompass the emerging areas of biotechnology, the environment, materials, microelectronics, and supercritical processing. The department is responding to the changing world and the realization that chemical engineering can play a critical role in solving complex problems.

The breadth of the current fields in the department indicates an evolution that provides a stimulating environment for research and intellectual growth.

OSU's Department of Chemical Engineering—the only chemical engineering department in Oregon—awarded its first degree in 1917, making it one of the oldest and most respected departments of its kind in the western United States. Each year, 190 undergraduates and 50 graduate students benefit from the expertise of young, exciting, international faculty and the knowledge and experience of still-active emeritus faculty whose accomplishments over the years are still considered pioneering in chemical engineering worldwide.

Many of our graduates have achieved national and international prominence and include Linus Pauling (B.S., '22), the only individual to have been awarded two unshared Nobel Prizes in chemistry and world peace; Paul Emmett

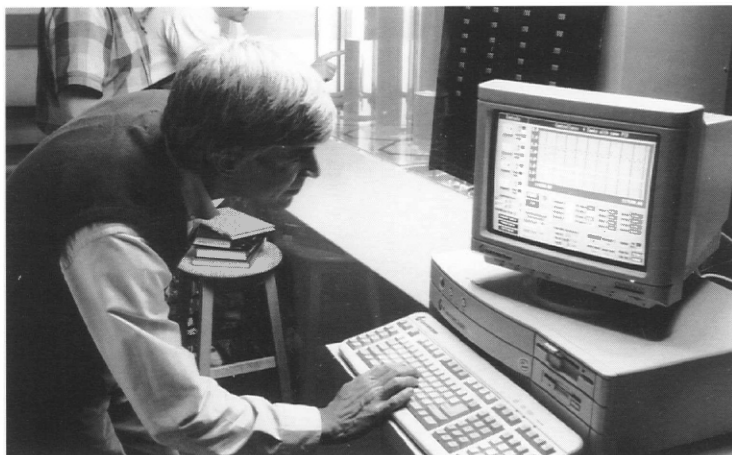


chemical engineering at Oregon State. Certainly much of the personal success I had in later life can be directly attributed to both his teaching and his thoughtful personal counseling." **Robert Lundeen**

(B.S., '22), a pioneer in surface science and catalysis, best known as the "E" in the Brunauer, Emmett, and Teller theory for gas adsorp-

tion; Robert Lundeen (B.S., '42), retired CEO of Dow Chemical Company and former Chairman of the Board of Tektronix; James R. Kuse

research provide continuity with faculty who have joined the department over the last ten years. All eight full-time faculty are "new-



Dr. Keith Levien helps students run new experiments in process control which utilize the improved speed and graphic capabilities of new computers.

(B.S., '55), Chairman of the Board, Georgia Gulf Corporation; Norman Weinstein (Ph.D., '56) founder of Recon Systems Environmental Corporation; and Dr. Dale Laurance (B.S., '67), Executive Vice President and Senior Operating Officer of Occidental Petroleum Company.

A faculty dedicated to teaching has helped build the reputation of the department over the last 50 years. Several faculty have written textbooks widely used by chemical engineering departments nationally and internationally: Octave Levenspiel has written four textbooks, including *Chemical Reaction Engineering* and *Fluidization Engineering*; James Knudsen co-

authored *Fluid Dynamics and Heat Transfer*; Charles Wicks co-authored *Fundamentals of Momentum, Heat, and Mass Trans-*

fer. The continuing loyalty of these emeritus professors to the department and its goals in teaching and

comers" to OSU and bring with them a wide range of experience in industry and academia to the teaching and research programs.

Department head *Dr. Wm. James Frederick, Jr.* has led the department since 1992, after nine years on the faculty. Ten years of industry experience prior to 1983 provide an excellent perspective on preparation of students for their careers. Frederick has distinguished himself in the research areas of combustion and gasification of biomass fuels, and waste minimization in industrial processes.

Dr. Frederick is leading the department in its goal of remodeling and refitting laboratories to afford students the tools to learn by "hands-on engineering," which incorporates "real-world" experiences with industrial situations and environmental issues while maintaining the traditionally strong core curriculum in chemical engineering. The recent dedication of the new Joe Schulein Computer Laboratory, celebrated on page 8 of this issue of *The Engineer*, is only the

first of several planned laboratory improvements.

Associate Professor Gregory L. Rorrer came to the department in 1989 after completing his Ph.D. at Michigan State University. He has already established himself as a valued instructor by being selected by upper-level undergraduate students to receive the College's 1993 Carter Award for outstanding and inspirational teaching. Dr. Rorrer's research program falls into the broad area of biochemical engineering, focusing on plant cell culture, biopharmaceuticals, removal of heavy metals from groundwater, and diffusion and reaction of glucose in molecular sieving catalysts.

Kristiina Iisa received her Ph.D. in chemical engineering from Åbo Akademi University in Turku, Finland. She joined the department as an assistant professor in 1993 with interests in the chemical processes taking place when harmful airborne compounds are formed during combustion or when air pollutants are captured from gas streams. One aim of her work is to find ways to reduce the air pollution generated in combustion processes either by finding methods to prevent the pollutant formation or by developing better methods to remove the pollutants.

Professor Goran Jovanovic joined the department in 1993 from Belgrade (Yugoslavia) University where he taught for 11 years in chemical engineering. He also served five years as associate dean of the School of Technology at Belgrade University in charge of scientific research and cooperation with industry. Dr. Jovanovic's goal is to research, describe, and incorporate effects of "new forces" into existing knowledge of multiphase systems. Once this task is accomplished, he feels, many exciting applications in material processing, biochemical production, waste minimization, and environmental protection will "easily" follow.

Dr. Skip Rochefort brought experience from industry research laboratories—Dow Chemical Company, AT&T Bell Laboratories, and Kodak—with him when he joined

the department in 1993. While at Dow, he worked on the rheology and processing of lyotropic liquid crystal polymers for high performance films and fibers, which resulted in the granting of three U.S. patents in the processing area. Dr. Rochefort's work at OSU continues to be in the area of rheology and characterization of polymers and complex fluid systems with an emphasis on processing and applications. He was also the recipient of a one-year National Science Foundation Post-doctoral Research Fellowship at Ecole Supérieure de Physique et de Chimie in Paris, France. Dr. Rochefort has taught at Northwestern University, UC Santa Barbara, San Francisco State University, and UC San Diego—where he helped establish the chemical engineering undergraduate program and supervised the undergraduate laboratory.

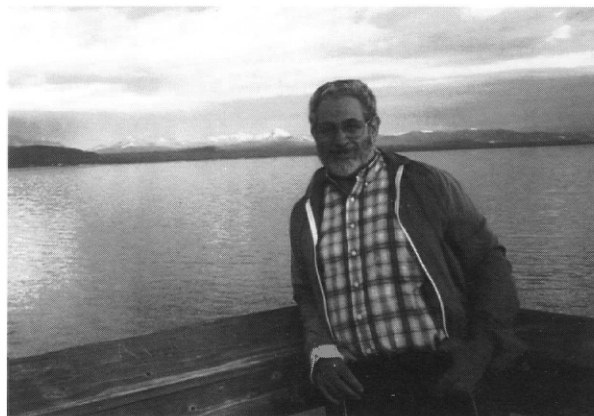
Prior to joining OSU in 1989, *Professor Shoichi Kimura* was a faculty member in chemical engineering at Osaka University in Japan where he worked on the development of many different kinds of chemical equipment: distillation

ceramic powders by new methods using aerosol and CVD technologies.

After receiving his Ph.D. in 1991, *Milo Koretsky* served as a lecturer in chemical engineering at the University of California-Berkeley, before joining the faculty at OSU. His research focuses on the chemical processing of thin films for high technology applications and, in collaboration with faculty in the Department of Electrical and Computer Engineering, Dr. Koretsky's group is examining processing issues in depositing thin films of electroluminescent phosphors for flat panel display applications such as notebook computers and high-definition television.



Kristina Iisa



"My graduate education in chemical engineering fundamentals at Oregon State enabled me to make significant contributions in the field of environmental technology over a period of more than 30 years. I was fortunate to be taught by or associated with Octave Levenspiel, Jim Knudsen, Charlie Wicks, Joe Schulein, and Jess Walter. Future generations of students must be given similar opportunities to work in their chosen fields." Norman Weinstein

trays, fermenters, and bubbling columns, as well as performing development work. He is the holder of 18 patents in France, Japan, the United States, and the United Kingdom. He is a 1991 Carter Award winner, carrying on an outstanding tradition of excellence in teaching.

Dr. Kimura's current work centers on establishing mass production processes for high temperature materials such as silicon nitride and silicon carbide. His research group is also investigating chemical processes to produce nano-meter scale oxide-non-oxide

Dr. Keith L. Levien joined the faculty in 1985. His interests include investigating better ways to operate chemical processes using improved computational methods and computer tools. Projects are typically in the areas of process modeling, control, and optimization.

What's great in the Department of Chemical Engineering? New, exciting faculty carrying on a tradition of excellent teaching and research established by our emeritus faculty who continue to be an inspiration to our students and our current faculty.

GENEROSITY OF AN ALUMNUS RESULTS IN STATE-OF-THE-ART COMPUTER LABORATORY

"Common sense" was the recurring theme when some of Professor Joe Schulein's former stu-

the day, Pete Johnson had committed to making that dream a reality.

The storage room has been converted to a state-of-the-art computer laboratory with installation of ventilation, lighting, electrical power, and network links, and is handicapped accessible. It houses 30 computers and 3 printers, available to approximately 240 chemical engineering students. Card-key security has been installed to allow 24-hour access.

One small room has also been constructed in this space for producing presentation materials and contains computers, a scanner, and color printer.

Mr. Johnson recollected high school experiences in Triangle Lake, OR, to explain the naming of the laboratory. One of the only radio stations with a receivable signal was the OSU station, KOAC, on which Joe Schulein had a weekly half-hour program called, "What's New in Science." He listened throughout high school and eventually found himself at OSU taking a class on nomographs from the same Joe Schulein. On the first day of class, Professor Schulein asked each student to look at the student on their right, and announced that only one would complete the course, a prediction that would prove accurate. He explained that only half the class would succeed because the chemical engineering degree took hard work, dedication, and intelligence. After his first less-than-distinguished term in the class, Mr. Johnson ended up taking it three times, eventually being asked to assist Professor Schulein in grading papers.

One of Professor Schulein's course requirements was that students build a slide rule, calculating how to do the scales. Fittingly, Mr. Johnson pointed to a plaque commemorating the dedication, noting that he had supplied the slide rule affixed to the plaque, "...for all students who haven't seen one." A spring, 1955, photo of Professor Schulein shows him conducting a boron experiment under a glass bell jar.

Emeritus professors Jim Knudsen and Charlie Wicks described Joe Schulein as a very strict teacher who believed that engineers do not have room for mistakes or for a lack of common sense. Both fondly remembered final problems given to graduating chemical engineers which, when "solved by the book," were unworkable. Because of Joe Schulein, "There are excellent engineers out there." Professor Knudsen remarked that Schulein and Professor George W. Gleeson were instrumental in encouraging the Bureau of Mines to locate in Albany in 1945. Schulein was also described as an environmentalist, inventor, expert in patent law, consultant, and owner of an establishment across the street from OSU which sold donuts and coffee.

Dr. Frederick said, "This computer laboratory will greatly enhance the quality of education chemical engineering undergraduate and graduate students receive, and will provide hands-on computing experiences to increase their competitiveness in the job market after graduation. We are grateful to Pete and Rosalie Johnson for recognizing a student need and making this possible."



CbE Alumnus Pete Johnson (left) with Dr. Jim Frederick at the lab dedication.

dents presented warm reminiscences at the dedication of a chemical engineering computer laboratory bearing his name.

The Joe Schulein Computer Laboratory was formally dedicated on Thursday, October 19, 1995. The laboratory was made possible through a donation by chemical engineering alumnus Peter Johnson and his wife, Rosalie. Mr. Johnson graduated in 1955, and honors his former professor for inspirational teaching, research, and life experiences.

Dr. Wm. J. "Jim" Frederick, head of the Department of Chemical Engineering began the ceremony describing the tour taken by the department advisory board through Gleeson Hall to room 002, which at the time was used for storage. He remarked that his dream was to convert that area into a student computer lab and, by the end of

THE DEPARTMENT OF CHEMICAL ENGINEERING, A PARTIAL HISTORY . . .

- 1932 As a part of a reorganization under the State System of Higher Education, chemical engineering, which had operated as an autonomous department, was brought into the School of Engineering of Oregon State College.
- 1942 Chemical engineering was accredited by the Engineers Council for Professional Development.
- 1955 Gleeson Hall was completed.

NUCLEAR MEDICINE AT OSU'S DEPARTMENT OF NUCLEAR ENGINEERING

Scenario: A 60-year-old female with an inoperable brain tumor. The cancer is too advanced for chemotherapy or radiation treatments to be expected to be successful. Is there any hope?

Based on experiments conducted over the past decade in Japan, there may be. Several hundred such terminally diagnosed patients have been treated in Japan by a technique called Boron Neutron Capture Therapy (BNCT). Life expectancy has been extended, in some cases by over five years and counting. Researchers in the U.S. began Phase I human clinical trials in September, 1994.

Conceptually, BNCT is a treatment wherein a boron-containing compound is administered into the body where it concentrates in a tumor. The tumor region is then irradiated with neutrons. The neutrons are captured by the boron and the resultant particles deposit their energy in the same cell, causing its death.

Researchers in the OSU Department of Nuclear Engineering teamed with endocrinologists at Oregon Health Sciences University (OHSU) to apply BNCT to tumors in organs that have specific receptors to boron-loaded hormones. Although primarily the pituitary was studied, the pancreas, prostate, and breast are other organs to which BNCT might be applied. Experiments were conducted to demonstrate the efficacy of this technique. Research work involved faculty, graduate students, and undergraduate students.

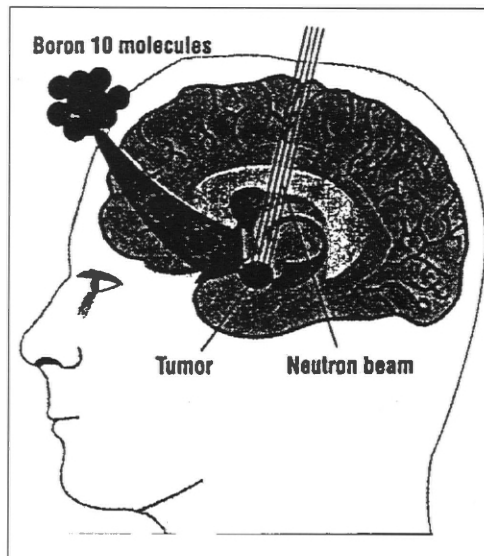
The OSU/OHSU research team worked on the BNCT project for over three years. The project was funded by the U.S. Department of Energy through the National Center for BNCT Measurement and Development at the Idaho National Engineering Laboratory. The effort was split between cell culturing and tests for biologic activity at OHSU and cell irradiation and plating to determine survival fractions

at the OSU Radiation Center, using the Oregon State TRIGA Reactor (OSTR). Dr. Barry D. Albertson of OHSU was the principal investigator for the project, and Dr. Stephen E. Binney directed the OSU portion of the work. The OSU/OHSU collaboration resulted in presentations at several international symposia.

The Department of Nuclear Engineering has also been involved in other nuclear medicine-related research in the past. In collaboration with Dr. Robert E. Schenter of Westinghouse Hanford Company, Richland, WA, Dr. Binney has investigated the production of fluorine-18 (^{18}F) by a double projectile reaction in a nuclear reactor, production of tungsten-188 (^{188}W) and measurement of associated reaction probabilities by a double neutron capture reaction, and production of copper-67 (^{67}Cu) from enriched ^{67}Zn . All of these radioisotopes were produced in the OSTR. ^{18}F is used as a radioactive source for Positron Emission Tomography (PET) scans. ^{188}W decays to produce rhenium-188 (^{188}Re), which is currently being studied for use in monoclonal antibody therapy. Rhenium's chemical similarity to technetium makes it a promising medical radioisotope due to the numerous applications of technetium-99m ($^{99\text{m}}\text{Tc}$) which have been successfully utilized around the world. ^{67}Cu is being researched for cancer treatment and diagnosis applications.

The Department of Nuclear Engineering also offers a pre-med

track in its Radiation Health Physics (RHP) program. Through a careful selection of technical and non-technical electives, a student ma-



Schematic of Boron Neutron Capture Therapy for treatment of brain gliomas. BNCT is a bimodal procedure involving localized radiation dose from neutron capture by a tumor-seeking boron compound.

joring in RHP can also complete all the course requirements specified for pre-med majors at OSU. The field of nuclear engineering is slowly moving away from the traditional focus on nuclear reactor systems toward radiation protection and nuclear radiation applications.

At OSU, there is a conscious shift to stay in step with current nuclear science and engineering practices and to train graduates accordingly. Nuclear medicine is an important component of our continuing commitment to quality programs.

For more information about nuclear medicine at OSU,

Write:

Department of Nuclear Engineering
Oregon State University
116 Radiation Center
Corvallis, OR 97331-5902

e-mail:

nuc_engr@ne.orst.edu

WorldWide Web:

<http://www.engr.orst.edu/NUCLEAR/>

Call:

(541) 737-2343

ENGINEERING DAY, 1995, AT THE COLLEGE

College of Engineering faculty and staff met on September 19, 1995, to mark the beginning of the new academic year and to recognize colleagues with the annual awards ceremony.



Austin-Paul Award

Dean John Owen presented the Austin-Paul Award to mechanical engineering assistant professor **Robert Paasch**. This award honors faculty who develop student relationships "...in which they lead, encourage, and stimulate students in the pursuit of creative and innovative engineering ideas."

Dr. Paasch receives the Austin-Paul Award from Dean Owen.



Alumni Professor Award

Two faculty members shared the 1995 Alumni Professor Award, honoring them as outstanding faculty members. The Alumni Professor Award is funded by contributions from alumni and friends and is accompanied by a \$10,000 grant to be used in support of research and teaching.



Dr. Chris A. Bell joined the faculty of the Department of Civil Engineering in 1982 and has developed a national and international reputation in transportation materials and heavy vehicle monitoring and management. He was the recipient of the 1993 Austin-Paul Award.

Dr. Bell receives congratulations from civil engineering department head Wayne Huber.

Dr. Tim Kennedy, professor of mechanical engineering, has long been recognized for his excellent teaching and contributions to research both on an individual and team basis. He joined the Department of Mechanical Engineering in 1980. His research interests include composite materials and applications in finite element and continuum mechanics.

Dr. Kennedy and Dean Owen



Research Award



The College's Research Award was presented to **Mike Kassner** for the "terrific impact" he has had in the college. Professor Kassner joined the Department of Mechanical Engineering in 1990, and has already earned an excellent reputation for his work in material science.

Dr. Kassner receiving the Research Award from Dean Owen.



Classified/Management Employee Award

Peggy Blair, word processing technician in the Engineering Research Office, was an obviously popular choice of both faculty and staff for the Classified/Management Employee Award. This award is in its third year and recognizes a staff member for performing his or her duties in an exemplary manner. Dean Owen commented that Ms. Blair was "as productive as anyone I've been associated with."

Dean Owen presents the Classified/Management Employee award to Peggy Blair.



Burgess/Tektronix Award

Computer science student **Maureen Cheshire** was the recipient of a plaque and a check for \$500 as the Burgess/Tektronix Award winner for 1995-96. This award is presented annually to an outstanding senior in the College as judged by a variety of activities including academic performance, leadership activities, and potential for contribution to the electronics industry.

Walter Rudd, head of computer science remarks that, "Maureen is one of the best students I have known in my twenty-some years of teaching. And she is an extraordinary person, too. She makes us all proud she was one of our students."

Dean Owen congratulates student Maureen Cheshire



Graduate Research Assistant Award

Graduate Teaching Assistant Award

The Graduate Research Assistant Award was presented to **Roger Ely** of the Department of Civil Engineering. **Damian Kaslakev** also of civil engineering received the Graduate Teaching Assistant Award.

Ely's advisor, Professor Ken Williamson, said, "Roger was able to overcome a difficult basic research questions related to pollutant degradation by bacteria. His research will have a significant impact on a variety of applications related to Superfund remediation. The College of Engineering can be proud of this addition to our engineering knowledge base."

Kaslakev's ability is described by Professor Chris Bell. "Those undergraduate students who have interacted with him have no doubt received a superior level of help and guidance."



Damian Kaslakev receives the GTA award from Dean Owen.



The Carter Award

The 1995 Carter Award for outstanding and inspirational teaching went to **Shib-Lien Lu**, associate professor of electrical and computer engineering. Owen labeled this award "the most important in the College," and remarked that Dr. Lu had joined a list of talented and dedicated faculty chosen to receive this award which is determined by a vote of upper division undergraduate students.

FACULTY NEWS

Computer Science

Sherry Clark won an OSU Women's Center Woman of Achievement Award for her work as chair of the Benton County Health Department's Breast Cancer Task Force.

Tom Dieterich and Prasad Tadepalli were awarded \$380,000 from the Office of Naval Research for their three-year project, "Hybrid Computational Methods for Skill Acquisition."

Bruce D'Ambrosio reports that he and graduate students Peter Dudey Drake and Masami Takikawa will be working with the Oregon Commission on Families and Children to help them develop an advanced tracking and evaluation system for social services projects within the state.

George Beekman was the featured speaker ("Navigating Tomorrow's Technology") and a workshop presenter ("HyperCard in a Hurry") at the Northwest Council for Computers in Education Conference in Bellevue, WA, in March, 1995. He also presented the keynote speech at the Pennsylvania Association of Computer and Information Sciences in April, 1995.

Electrical and Computer Engineering

Mario Magaña was invited by the Mexican government to lead the design team for the automatic control system of the largest radio telescope that will be built between the U.S. and Mexico. Magaña spent the summer of 1995 in Mexico working on the preliminary design with a team of five engineers. He is now serving as an advisor. Installation will take place at a site in Mexico because of its high mountains and ideal latitude for astronomical observations.



Mario Magaña

Stephen M. Goodnick was supported by the Japanese Ministry of Education, Science and Culture as a Distinguished Professor at Osaka University, August 22-Sept. 23, 1995. He gave an invited talk at the Progress in Electromagnetics Research Symposium (PIERS) 1995, in Seattle, WA, on "Dynamical Modeling of Terahertz Radiation Generation in

Semiconductor Microstructures," July 24-28, 1995, and several other talks including the Hot Carriers in Semiconductors IX Conference, July 31-Aug. 4, 1995, Chicago, Illinois, "Nonequilibrium

Transport and Current Instabilities in Quasi-1D Quantum Waveguides" and "Hot Electron Excitation of Luminescent Impurities in AC Thin Film Electroluminescent (ACTFEL) Devices. He presented several seminars in Europe on "Transport at the Silicon/SiO₂ Interface" at the Technical University of Munich, June 2, 1995, "Transport in AC Thin Film Electroluminescent (ACTFEL) Devices," at the University of Marburg, Germany, June 26, 1995, and

"Nonlinear Transport in Quantum Waveguides," at the Technical University of Vienna, Austria, July 6, 1995.

Thomas K. Plant has been working on a DAAD grant at the Heinrich Hertz Institute in Berlin during April-June 1995 on research on SrS:Ce EL devices. He continued his research on SrS:Ce EL devices in the chemical engi-



THOMAS WEST RECOGNIZED FOR PROFESSIONAL ACCOMPLISHMENTS



Dr. Thomas M. West

Dr. Thomas M. West, associate dean and professor of industrial and manufacturing engineering, was honored by the Institute of Industrial Engineers (IIE) for his "significant accomplishments and service to the industrial engineering profession" during its annual international conference in Nashville, Tennessee, in May of this year.

The Fellow Award was presented to Dr. West and confers on him the highest level of membership in the industrial engineering professional society.

Prior to Dr. West's appointment as associate dean, he was head of the Department of Industrial and Manufacturing Engineering (IME). In this position, he was instrumental in the development of the cooperative undergraduate manufacturing program which has evolved into the MECOP program comprised of six engineering disciplines.

His professional and research expertise is internationally recognized in the areas of engineering economics and multi-criteria decision making. Dr. West has brought his abilities to the IIE through his active participation in numerous

activities at the national level, including membership on the Board of Trustees and serving as regional vice president.

In his educational capacity, Dr. West has been involved with the American Board of Education Technology, the accreditation body for colleges of engineering.

Deborah Hanlen, Westinghouse Hanford Co., says, "Dr. West has made original contributions in the areas of engineering economic analysis, modeling, sensitivity analysis, and integrated manufacturing."



neering department at Helsinki Technical University, Finland, from July-September 1995 and will be giving a 2-week short course from Aug 28-Sept 8, 1995 on "Electrical and Optical Characterization of EL Devices" to 20 graduate students in the electrical engineering, physics and chemical engineering departments. His joint NSF grant with Prof. M.G. Raymer at the University of Oregon was renewed for another \$35k for this year.

Richard Schreier was a session chairman at the IEEE International Symposium on Circuits and Systems and presented two papers, "Proving stability of delta-sigma modulators using invariant sets," by M. Goodson, B. Zhang and R. Schreier, and "A decimation filter architecture for GHz delta-sigma modulators," C. Kuskie, B. Zhang and R. Schreier. He attended the 1995 SIAM conference on Dynamical Systems held in Snowbird, Utah, in May 1995 where a paper by M. Goodson, B. Zhang and R. Schreier, on "Computational Geometry Finds Invariant Sets and Proves the Stability of High-Order Delta Sigma Modulators" was presented. Schreier and S.-L. Lu received a three-year grant from Westinghouse Electric Corporation for \$210,000 for research on high-speed decimation filtering.

Molly Shor received a \$25,000 grant from the GE Foundation for support of remote-access real-time engineering laboratory development. She also received a REU supplement to her NSF grant.

Vijai Tripathi was the general chairman and organizer of an Advanced Technology Workshop on Emerging Wireless Communication Technologies sponsored by the International Society for Hybrid Microelectronics at the Resort on the Mountain near Mount Hood, OR, on August 16 through 18, 1995. Andreas Weisshaar and Vijai Tripathi organized and chaired special sessions on high speed optoelectronics and package design, respectively, at the Progress in Electromagnetic Research Symposium held in Seattle during July this year. In addition to Tripathi and Weisshaar, Stephen Goodnick, Kate Remley, Alok Tripathi and Ravi Kollipara from the department were invited to present papers at the conference.

John Wager hosted the quarterly meeting of the Phosphor Technology Center of Excellence, Sept. 11-12, 1995, at OSU. The focus of the meeting was a workshop on thin-film electroluminescent devices. **Wager, Steve Goodnick, and Tom Plant** also received third year funding of \$224,000 from the Advanced Research Projects Agency for thin-film electroluminescent display research.

Industrial and Manufacturing Engineering

Eugene Fichter is associate editor for the American Society of Mechanical Engineers (ASME) *Journal for Mechanical Design*. He is also program committee chair for the ASME 1996 Design Engineering Technical Conference.

Mechanical Engineering

Lorin Davis was an invited speaker at the 4th U.S./Japan Seminar on Thermal Engineering for Global Environmental Protection in San Francisco on July 9-12. He spoke on "Thermal Dispersion in the Environment—Atmosphere and Aquatic Plumes."

Michael Kassner and Tim Kennedy were awarded a grant of \$145,500 from the National Science Foundation for a three-year study on "Ductile Fracture in Constrained Thin Metal Films."

Nuclear Engineering

José Reyes was selected by the International Atomic Energy Agency (IAEA) of Vienna, Austria, to provide training to nuclear engineers at the Nuclear Power Institute of China in Chengdu, Sichuan province. The object of the expert mission is to discuss engineering concepts that will improve the safety of China's next generation of nuclear power plants, and is one of the first activities under an IAWA program of technical cooperation to study advanced pressurized water reactor passive safety systems. He also travelled to Japan to visit a "sister" test facility built by the Japan Atomic Energy Agency.



COE ADVISORY BOARD BENEFITS FROM THE ADDITION OF ELECTRICAL ENGINEER

"So much of life is what you think can happen."

Robert B. Johnson (EE, '68).

Bob Johnson joined the College of Engineering Advisory Board in the fall of 1994.

The 1956 Jefferson (Portland, OR) High School graduate earned an electrical engineering degree from OSU. He worked at Tektronix from 1960 until graduation, had a short stint at Texas Instruments,

and joined National Semiconductor Corporation in 1969, where he has been ever since.

Currently, Bob and his wife, Kay Tittle Johnson (Business, '63), reside in Tokyo where he is chief operating and technical officer of National Semiconductor Japan. Their daughter, Meaghan Madden

(Sociology, '88) lives in Santa Barbara, and son, Ryan (University of Oregon, '94) in Seattle.

Bob and Kay plan to retire to their home in Bend in January, 1996.

Robert B. Johnson



CONGRATULATIONS TO ALL FACULTY WHO WERE PROMOTED IN 1995!!

In May, Dean John Owen announced the following promotions in the College of Engineering.

To professor:

- Thomas Dietterich, computer science
- Jonathan Istok, civil engineering
- Wojciech Kolodziej, electrical and computer engineering
- Michael Quinn, computer science
- Sabah Randhawa, industrial and manufacturing engineering
- Thomas West, industrial and manufacturing engineering

To associate professor:

- Çetin Koç, electrical and computer engineering
- James Lundy, civil engineering
- Greg Rorrer, chemical engineering
- Prasad Tadepalli, computer science

The promotion process which begins in the department and continues through the college, ending with the Provost, considers teaching, scholarly activities, and service to the profession. All the faculty are to be congratulated for a job well done.

1995-96 PROFESSORIAL LECTURES

Elevation to the rank of professor marks the culmination of many years of study, research, and teaching. To honor newly promoted full professors, the College of Engineering offers a special lecture series—The Professorial Lectures, at which each of the college's new professors discuss research developments within their field of specialization.

The public is invited to attend the lectures which are held in the afternoon, beginning in January, 1996. For more information, please call (541) 737-3101.

STUDENT GROUP ACTIVITIES

Institute of Industrial Engineers (IIE)



IIE officers (left to right): Mindy Gill, Dr. Kim Douglas, Nicole Murray, Kena Engblom Stryker, Diane Talkington, Amy Miller, Jim Rudig, and Keith Storie

Assistant professor Kim Douglas became advisor to the OSU Chapter of Institute of Industrial Engineers, and is actively involved in redesigning the national chapter development

program for all universities to allow recognition for individuals as well as chapters. During the last year of the existing program, the OSU chapter ranked a respectable 7th out of over 120 student chapters.

Five students travelled to Nashville, TN, in May, 1995, to attend the

International Industrial Engineering Conference. Several OSU faculty presented at the conference, and an OSU student facilitated a session on chapter development strategies.

Society of Manufacturing Engineers (SME)

The SME Education Foundation has awarded scholarships to the following students: Michael Boer received the Wayne Kay Graduate Fellowship Award of \$5,000. He received a B.S. in winter of 1995 and has begun work on a graduate degree. Senior IME student Jason Thompson was awarded the Myrtle and Earl Walker Scholarship of \$500.

American Institute for Chemical Engineering (AIChE)

The OSU chapter hosted the annual Northwest Regional Conference

in April, 1995. The chapter wishes to thank the companies and organizations that supported the conference with donations of prize money and general funds: Intel, Siltec Silicon, Merix Corporation, James River Corporation, Neste Resins, Harris Group, National AIChE, Oregon section AIChE, and the OSU Department of Chemical Engineering.

American Society for Civil Engineering (ASCE)

Brian Nicholas was one of three winners of the Shimizu Essay Contest, winning a \$3,000 prize and a trip to Japan for his essay, "With Change Comes Opportunity: The Impacts of the NII and Changing Environmental Issues on the Construction Industry."

NUCLEAR ENGINEERING'S NEW FACULTY, KATHRYN HIGLEY, AWARD WINNER

Kathryn Higley is a new faculty member in the Department of Nuclear Engineering. She received her Ph.D. in 1994 in radiological health sciences at Colorado State University and joined OSU in the fall of that year as an assistant professor.

Dr. Higley has distinguished herself as being the recipient of the Elda E. Anderson Award, presented to a young (under 40) member of the Health Physics Society to recognize excellence in research or development; discovery or invention, devotion to health physics, and/or a significant contribution to the profession of health physics. To be considered for the award, an individual must be nominated by either a local chapter of the national society or

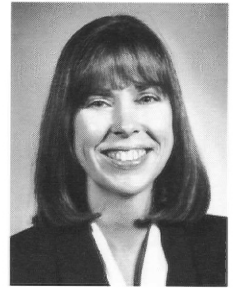
by six individual members; Dr. Higley was nominated by three chapters and several individuals.

Dr. Brian Dodd, Director of the Radiation Center at OSU, remarks that Dr. Higley has joined an eminent list of past recipients, among them eight individuals who went on to become president of the Health Physics Society and also an assistant secretary for energy in the Reagan Administration, heads of national labs, and members of the National Academy of Sciences.

Her career has been a varied one. As a freshman at Reed College in Oregon, she worked as an assistant to the radiation safety officer and earned both a reactor and senior reactor operator's license on the college's 250 MW TRIGA, plus a bachelor's of arts degree in

radiochemistry. Dr. Higley later became an assistant health physicist at Portland General Electric, conducting the Trojan Nuclear Plant's environmental monitoring system. She began her graduate education at Washington State University, using the school's reactor in the analysis of coal and meteorite samples. Subsequently, Dr. Higley joined Battelle as a research scientist. In 1989, she was awarded a Northwest Colleges and Universities (NORCUS) fellowship to attend Colorado State University where she earned both a master's degree in 1992, and her Ph.D.

She then became a member of BIOMOVs II—an international consortium that seeks to verify and validate environmental transport models.



Kathryn Higley

BRIAN PAUL BRINGS INDUSTRIAL EXPERIENCE TO MANUFACTURING PROGRAM

Dr. Brian K. Paul joined the faculty of the Department of Industrial and Manufacturing Engineering as an assistant professor in the fall of 1995.

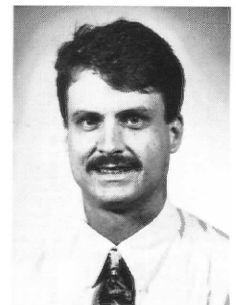
Dr. Paul recently completed his Ph.D. in industrial engineering from The Pennsylvania State University where his research involved the development of new micro-mechanical fabrication and assembly techniques using additive freeform fabrication methods. His

bachelor's and master's degrees in industrial engineering were awarded by Wichita State University and Arizona State University, respectively.

Dr. Paul brings seven years of manufacturing experience with a broad range of companies that include Boeing, McDonnell Douglas, and Honeywell. His most recent industrial experience involved the design of integrated manufacturing systems as a senior

research engineer with the Battelle Pacific Northwest Laboratories.

His research and teaching interests include new product development, rapid prototyping, micro-mechanical fabrication, materials processing, and agile manufacturing system design. Dr. Paul's specific focus at OSU will be rapid production realization.



Brian Paul

DID YOU KNOW . . .

- 1891 **The first recorded classes in engineering were offered.**
- 1906 **The first professional degrees in mechanical, electrical, mining, or chemical engineering were approved by the Board of Regents.**

THE FOLLOWING PEOPLE. . .

...have established funds through gifts to the College of Engineering. We very much appreciate the support of alumni, industry, and friends. We use this page to announce their gifts with pride.

The Daniel W. Applegate Memorial Scholarship



Daniel W. Applegate

The family of Daniel W. Applegate has established a civil engineering scholarship in his memory. The scholarship principal will remain intact and the interest will be awarded annually to a deserving student.

Dan was born into the prominent Jesse Applegate pioneer family on January 11, 1907, at Gold Hill, OR, son of Lon C. and Eva Hedrick Applegate.

While a student at Oregon State University, Dan was a member of the American Society of Civil Engineers; Pi Kappa Phi fraternity; the ROTC Field Artillery; and Scabbard and Blade, a national military honor fraternity. He received his B.S. in civil engineering in 1933. Until the time of his death, Dan was a loyal member of the OSU Alumni Association.

Dan was employed by the U.S. Bureau of Reclamation for 42 years. In 1958, he was appointed Superintendent of the Central Snake Projects office in Boise, Idaho. Included in the projects were 11 reservoirs and three power plants which provided irrigation to over 525,000 acres. Dan retired in January of 1972. He was a long-time member of the American Society of Civil Engineers and the Idaho Society of Professional Engineers.

Daniel W. Applegate died on January 30, 1995, in Boise, Idaho. He possessed an agile mind, a keen wit, a great heart, and a generous spirit. He was a gentle man and a true gentleman.

William Stephens

A gift annuity was a good way for Bill Stephens to support freshman students entering civil engineering. A 1940 civil engineering graduate, Mr. Stephens feels that OSU made a difference in his life and he feels good about giving back. He was raised in Klamath Falls, spent his working career with the Bureau of Reclamation and a government agency for international development, and retired to Santa Barbara, CA. An endowment was a way for Mr. Stephens to help future students with a permanent fund carrying his name.

Richard Smith

A call from a stockbroker with an anonymous donor came to our office last fall. As a result, Richard Smith established the Lilo and Richard Smith Endowed Transportation Scholarship in civil engineering. He received a bachelor's degree in civil engineering in 1957 and was a member of Sigma Tau and Tau Beta Phi. Mr. Smith spent 30 years with the California Department of Transportation. This scholarship is in memory of his wife, Lieselotte, who was a first-class travel agent. The scholarship was created to encourage the study of transportation engineering.

Nominations for College of Engineering Distinguished Alumni Award . . .

. . . are sought in three categories:

- **Distinguished Recent Alumnus**, one who has graduated from OSU within the last ten years.
- **Distinguished Service Award**, for a graduate who has provided exceptional service to their community and OSU.
- **Distinguished Alumnus**, for a distinguished graduate who has been out of school for more than ten years.

Honorees will be chosen by a committee composed of faculty, alumni, and industry leaders. For further information on the nomination process, please call (541) 737-3003.

Deadline for submission of nomination materials is **April 1, 1996.**

HIGH TECH MODERN COMMUNICATIONS CENTER OPENS AT OSU

With an initial investment of \$750,000, Intel, Tektronix, and U S WEST joined with the College of Engineering to launch the Modern Communications Center in the Department of Electrical and Computer Engineering. The center is designed to respond to the emerging communications and related technologies by providing new undergraduate and graduate curriculae, technology transfer and joint research programs.

The inaugural ceremony for the Modern Communications Center was held on March 27, 1995, and officials from the three high tech firms participated.

Wojciech Kolodziej, professor of electrical and computer engineering, says that the center, "... will help insure that Oregon universities and industry participate in the development of new information technologies."

The following goals for the center will insure that both the institution and Oregon's economy benefit:

- To bring in new expertise.
- To integrate existing resources.
- To develop an improved research and educational environment in modern communications.
- To create a conducive environment for new high tech industries in Oregon.
- To obtain federal grants jointly with industrial research partners.
- To facilitate information exchange between the university and various industrial labs.

The permanent research and educational program will receive most of its funding from private industry and federal research grants. By the end of the second



(Left to right) Steven McGeedy, Intel Corporation; Tung Bui, U S WEST; Anastasia Czerniakiewicz, Intel Corporation; Vijai Tripathi, head of electrical and computer engineering, and Ajay Lutbra, Tektronix, celebrate the opening of the Modern Communications Center at OSU.

year, it is anticipated that the center will attract more external funding, working towards its eventual goal of being self-supporting.



MECHANICAL ENGINEERING SPONSORS HIGH SCHOOL STUDENT IN APPRENTICESHIP PROGRAM

Annabelle Leeson, a Philomath, OR, high school student, participated in the Apprenticeship in Science and Engineering (ASE) Program this summer with mechanical engineering professor Clancy Calder serving as her mentor. Annabelle was the only apprentice in engineering this year and worked full-time for eight weeks during the summer helping Professor Calder.

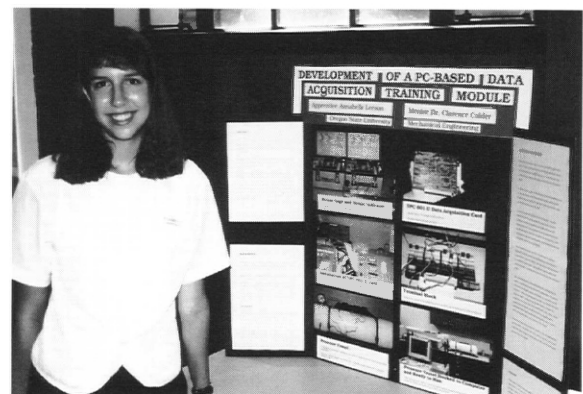
Annabelle's project was to assist in the development of computer-based data acquisition systems to acquire output from transducers commonly used in mechanical engineering such as strain gages, accelerometers, thermocouples, pressure gages, and other voltage output sensors. She installed data

acquisition boards and associated software in five new Pentium PCs to be used in the junior level instrumentation course and for more advanced courses in controls and instrumentation as well as for various graduate research projects. The data acquisition systems were checked out using a pressure vessel instrumented with four strain gages and a pressure gage, and an associated compressor instrumented with an accelerometer and a thermocouple.

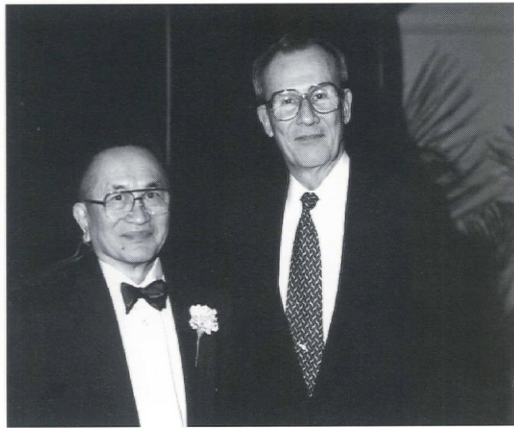
Juan Carlos Valdes, a former graduate student and currently a faculty member at a Mexican university, assisted Annabelle for one month working under an "Adopt-A-Professor" program sponsored by his university.

The program ended in mid-August with a symposium held at OSU which gave the 201 student participants in the region—21 of whom were at OSU—an opportunity to present their results in both a poster session and oral presentation format.

Annabelle Leeson, Philomath High School apprentice, at her poster session following the summer program.



ENGINEER/HUMANITARIAN LAUDED FOR CAREER OF CARING



Dr. Kazuyoshi "Kaz" Kawata and OSU President John Byrne after presentation of the E.B. Lemon Award.

The OSU Alumni Association's top award was presented to Dr. Kazuyoshi "Kaz" Kawata, a 1949 civil engineering graduate, in recognition of his distinguished career in environmental engineering and environmental health.

The E.B. Lemon Distinguished Alumni Award recognizes and honors former OSU students who have significantly contributed to society and whose accomplishments and careers have brought credit to the University. Dr. Kawata exemplifies these qualities through a career dedicated to bettering the lives of people in all parts of the world. Indeed, enthusiastic letters supporting his nomination are filled with examples of unselfish dedication and application of his time and knowledge. Among them, he has helped develop a water purification program in Egypt; developed and taught a course on accepted sanitary engineering principles to medical students in Ludhiana, India; been credited with being instrumental in completion of the first new hospital in Asia after World War II; provided advice regarding water and sanitation problems at Andean Rural Health Care's sites; organized the relief work in a refugee camp at Ramkote following the India-Pakistan war of 1965; advised on sanitation for the Haitian Episcopal Church Hospital in Leogane; and served as

professor of environmental health engineering at in the School of Hygiene and Public Health at The Johns Hopkins University in Baltimore, MD.

Kawata holds two titles: Retired Missionary of the United Methodist Church and Professor Emeritus of Environmental Health Engineering. He first became associated with the church during his internment in a relocation camp in Idaho at the beginning of World War II. It was with the church's Board of Global Ministries that he served in India and Pakistan.

Dr. Kawata—a Portland native—and his wife, Marion, reside in Gaithersburg, MD. Mrs. Kawata is also a graduate of OSU (Home Ec, '49).

Since his retirement from active teaching, Kawata has continued his professional and humanitarian activities. As he reported for the spring *OSU Engineer*, he "...made five visits to the West Bank and Gaza Strip as consultant on ... water and wastewater projects ..." and "...served as adviser on public utilities in Focsani, Romania."

Dr. Kaz Kawata, as described, a "citizen of the world."

ALUMNI NOTES

1930's

Leonard G. Jewett (ChE, '38) resident of Hampton, VA, died on January 12, 1995. He is survived by his widow, Suzzanne Jewett..... **Arthur W. Baum (CE, '38)** retired as a general contractor in 1973 at age 59. Baum reports that he is "...still hunting, playing golf, and enjoying good health." He and his wife live in San Francisco in a house he built in 1958.

1950's

Robert G. Manfull, P.E. (ME, '57), president of Manfull-Curtis, Inc., of Beaverton, has recently been elected vice president of the Consulting Engineers Council of Oregon..... **W. Richard Roberts (ChE, '58)** retired in 1993 after five years in solid rocket analysis and 28 years with GE/Honeywell/Bell in large scale computer technical support.

1960's

Jack Meredith (ME, '61) has been appointed Professor of Management and Broyhill Distinguished Scholar and Chair in Operations at Wake Forest University Babcock Graduate School of Management. He is also editor-in-chief of the *Journal of Operations Management*.

1970's

Mark C. Wirfs, P.E. (EE, '71) was elected 1994-95 president of the Consulting Engineers Council of Oregon. Wirfs is president of R&W Engineering Inc., in Beaverton..... **Douglas D. Gransberg (CE, '74, '79)** retired from Army Corps of Engineers in October 1994. He accepted a position on the faculty of Texas Tech University teaching construction engineering technology..... **James (Jim) C. Carnaban (CE, '74)** is project manager and senior associate with David

Evans and Associates, Inc., in Bend. He has been reelected to a four-year term on the Central Oregon Community College board of directors and received a 'President's Award' from the Bend Area Chamber of Commerce at its annual dinner. Carnahan completed his term as past president of the Chamber at the end of June..... **Thomas S. Wolf (CE, '77)** is chair of the American Society of Civil Engineers Pacific Northwest Council, ASCE's Technical Council on Cold Regions Engineering Awards Committee, and ASCE's Construction Division Inspection Committee..... **Jay N. Boatwright (CEM, '78)** has been employed by Gelco Services, Inc., of Salem since February 1993. He manages the institutions form operations in Sacramento. He has lived in Sacramento since 1981..... **Tony S. Keller (Gen Engr, '78)** joined the Department of Mechanical Engineering at the University of Vermont in 1991. He was awarded tenure and promotion to associate pro-

fessor in 1995. Keller is currently associate director of the Biomedical Engineering Graduate Program, and co-director of the Vermont Space Grant Consortium.

1980's

Susan Kathy Bucy Farnworth (CE, '81) is presently employed at ICF-Kaiser Hanford in Richland, WA. She received an MSCE degree in 1987 from the University of California-Davis..... **Linda G. McNulty (IE, '82)** received her PE in 1991 and is employed as a manager, distribution operations, for the U.S. Postal Service in Portland. She and husband, Matt Simpson, have a son in grade school..... **Margot Yapp (CE, '85, '87)** heads the new Santa Cruz office for Reno-based Nichols Consulting Engineers, a nationally-recognized pavement specialty firm..... **Allen Sanderson (ME, '85)** recently completed his Ph.D. at the University of Utah in computer science with an emphasis on the application of computer vision and graphics techniques to medical imaging. He was awarded a post-doctoral fellowship, "Bourses Chateaubriand" by the French government to spend 12 months studying and working with a research group in Nice, France..... **Cindy Thrush (CE, '86)** reports that she, her husband, and two children moved to the Denver area last

year as part of a major U S WEST re-engineering effort. After a year at home with the children, described as a "wonderful experience," she accepted a job with Arapahoe County in stormwater management..... **Thi Phan (IE, '88)** joined Perkins Consulting, which provides business and system consulting services to Pacific Northwest companies, as consulting manager. He also reports that the current president of Perkins Consulting is **Ken Wiley (IE, '83)**..... **Scott M. Nettleton (CE, '89)** has worked for the Oregon Department of Transportation bridge design for five years. He designed the bridge replacement at Gates, OR, which won "Best Transportation Project" for 1994 from the Oregon Concrete and Aggregate Producers Association/American Concrete Institute Oregon chapter. Nettleton's bridge design has also been recognized by the Precast/Prestressed Concrete Institute, significant because the award is given to only six designs out of 125 entries nationwide..... **George Hamasaki (EE, '89)** has been working at the Boeing Commercial Airplane Group for the past five years. He has been appointed a Federal Aviation Administration (FAA) Designated Engineering Representative (DER), which authorizes him to assume certain responsibilities for determining that type design data for certain electri-



cal components are in compliance with applicable airworthiness requirements..... **Yoshibiro Tanaka (CE, '82, '89)** is the manager of the Civil Engineering Structure Section of Taisei Corporation's Technology Research Center in Yokohama, Japan.

The North Santiam River Bridge in Gates, OR—1995 design excellence winner. Its designer, Scott Nettleton, works for ODOT.

1990's

Garrett Smith (ME, '91) was awarded second prize for his paper, "Energy Resources and the Emergency of Pollution Control Technologies," in the Professional Essay Competition sponsored by the Ethics and Professionalism Committee of the Technology and Society Division of the ASME..... **Keizo Furukawa (OCe, '91)** works for Taisei Corporation in Japan on international construction projects.

College of Engineering Alumni, keep in touch! Bring us up to date.

Have you been promoted, changed jobs, received an award, or returned to school? Do you know of other engineering alumni whose accomplishments are of interest that you wish to share?

Please type or print and return to the College of Engineering.

Name _____

Address _____

City _____ State _____ Zip _____

Daytime Phone _____ email address _____

Year of Graduation _____ Major _____ Degree _____

Current Occupation/Title _____

Spouse's Name _____ Spouse's Employer _____

Children (names and ages) _____

News (Include a page, news clipping, and/or photo.) _____

I am interested in helping my college:

with engineering alumni activities

providing internships

with job placement for graduates

with student recruitment

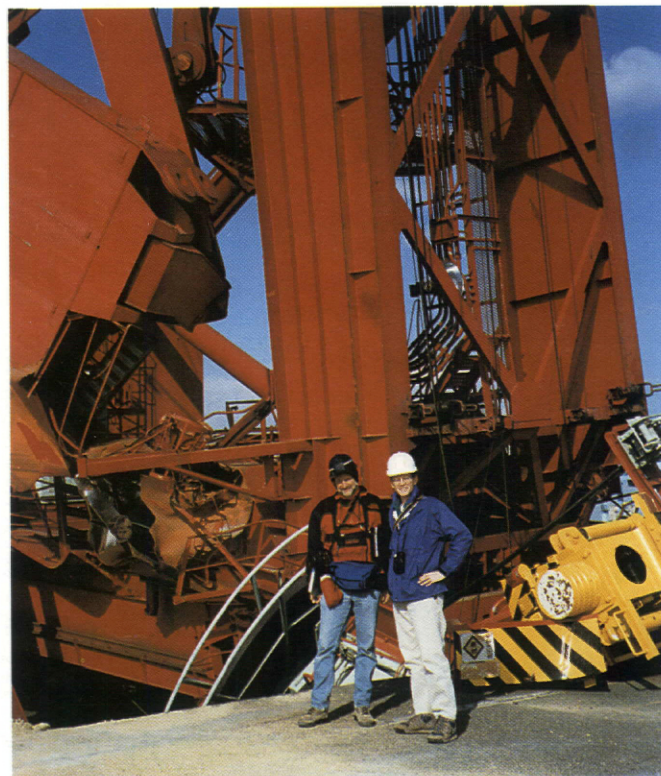
through financial support

COE GEOTECHNICAL ENGINEER VIEWS KOBE, JAPAN, DEVASTATION

Dr. Stephen Dickenson, assistant professor of civil engineering, travelled to Kobe, Japan, one month after the city was subjected to a magnitude 6.9 earthquake. The reconnaissance trip provided firsthand observations of the tremendous damage to buildings, highway systems, and waterfront development.

Professor Dickenson has been invited back to Japan by the Port and Harbour Research Institute, located in Yokosuka, to participate in an international work-

shop that will focus on the influence of soil conditions on the strength of strong ground shaking during earthquakes. The workshop will be held on January 16-19, 1996, coinciding with the one-year anniversary of the earthquake. It will conclude with a two-day field trip to Kobe to observe the recovery efforts achieved by the Port of Kobe.



The January 17, 1995, earthquake hit the highly-populated metropolitan area of Kobe, causing massive structural damage as illustrated in this photo of Professor Dickenson right and his colleague, Mr. Stuart Werner, standing next to a collapsed cargo container crane at the Port of Kobe. Mr. Werner and Professor Dickenson serve as chairman and vice-chairman, respectively, on the American Society of Civil Engineers-Technical Council on Lifeline Earthquake Engineering Ports and Harbors Committee.

Professor Dickenson will be the featured speaker at the Hawaii Regional Event . . .

. . . on March 27 and 28, 1996, held in the Greater Honolulu area. Dickenson's presentation, "Earthquake Engineering Around the Pacific," will focus on the lessons that have been learned by the engineering community following major earthquakes of the past several decades. For further information, please contact Adrienne Flagler at the OSU Portland Center, 220 S.W. Yamhill, Portland, OR 97204, or (503) 725-5757.

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