

# NEWSLETTER

## Department of Metallurgy and Mining Engineering

University of Illinois at Urbana-Champaign

January 1980

### NEW MATERIALS LAB

An open house was held last December to introduce the public and prospective participants to the excellent facilities of the Materials Engineering Research Laboratory. The laboratory is housed in Talbot Lab, and is an interdisciplinary effort involving more than 40 faculty from different engineering departments doing work in processing, joining, and mechanical behavior of materials and their response to the environment. Prof. Fred Lawrence is the coordinator of the laboratory's activities.

A major facility is a 10-kilowatt continuous-duty laser, one of only 11 in the world. It provides an intense energy source for research ranging from metal cutting to developing new ceramic materials, as well as for exotic treatments using rapid thermal cycles. The

laboratory also has two smaller lasers, a scanning electron microscope, and a battery of machines for tensile, creep, fatigue, fracture, and other tests.

The mission of the laboratory is practical and applied research, which complements the basic and theoretical research in materials science and solid state electronics of the Materials Research Laboratory and the Coordinated Science Laboratory. Current areas of research are corrosion fatigue, advanced materials processing, mechanical behavior at temperature extremes, fracture and toughness, and prediction of the fatigue life of materials.

Activities are supported by grants from industry and industrial groups, the University, and Federal agencies.

### Alumni Award to Czyzewski

Harry Czyzewski, '43, received the College of Engineering Alumni Honor Award at the college Honors Convocation last April in Urbana. Harry's citation read: "To Harry Czyzewski, consulting engineer, teacher, adviser to government, for his many applications of the science of metals and materials to engineering practice, and for his leadership and contributions in education, business, and service to the engineering community through professional societies."

This is clearly a most-deserved recognition of the illustrious career of the president of MEI-Charlton; each year these columns record another facet of Harry's varied accomplishments. We were especially pleased that Harry's wife and daughter were able to be here for the presentation.

Also in this convocation, Bob Bohl received the Everitt Award for teaching excellence. Earlier, Bob was one of four faculty selected to receive the Campus Award for Undergraduate Teaching. This award was accompanied by a grand shower of tangibles: \$1000 check, a similar salary augmentation, and another \$1000 to the department for equipment.

forts of Dick Gaydos '53 has raised the level of their annual support from \$500 to \$2000.

Graduate enrollment is difficult to maintain, as BS grads find employment offers so attractive in comparison with graduate school stipend, and prospects still in the future. As a result, our graduate enrollment declined this year to 59 students compared to 64 the year before.

### Admissions, Salaries Are Up

The intense demand for engineering graduates continues to result in soaring starting salaries as well as great pressures for admission to the college.

To confirm that you were born too soon, the average starting salary for BS mets in May '78 was \$1513/month, went to \$1686 last May, and will be well over \$1800 for the December graduates. Mets are getting about 10% higher offers than other engineering graduates. Master's and Ph D's are receiving offers about \$2000 and \$2250, resp.

In order to restrict enrollment to conform to college funding levels, very high standards of admission are being practiced. The flood of applications are such that admissions close the same day they open in mid-November for the following Fall admission. Cut-offs reject

a large number of extraordinarily well-qualified applicants. A student with an ACT score as "low" as 25 (that's in the top 15% of college-bound students) had better rank in the top 1% of his graduating class to be admitted. No wonder recruiters recognize that any graduate of the U of I is a highly selected individual.

Since the college does not admit on a basis of curriculum, we must continue a strong recruiting campaign to insure that we get our share of top students. We managed about a 5% increase this year, and now have 95 undergraduates. We continue to use industry-sponsored no-need financial aid grants to attract top students, and are pleased that ARCO/Anaconda have joined our list of sponsors with an annual grant of \$1000. Republic Steel, through the interest and ef-

# DEPARTMENT NOTES

## HAMISH FRASER

Prof. Hamish Fraser resigned his position as Assoc Professor to accept a position with United Technologies in East Hartford. Hamish has been with us for seven years, and in that time had established himself as an institution with his unbounded energy and enthusiasm, close relationship with his students and colleagues, technical expertise, and the fluid mechanics seminars at his home and the local pubs. Hamish played a key role in expanding our capabilities in the area of electron microscopy, and his shoes will be difficult to fill. We wish Hamish, his wife Marion, and menagerie of hounds well in their new career at UTC.

## DAVID LIEBERMAN

David S. Lieberman has left the department to take a position at the University of Oklahoma in Norman. Dave came to the department in 1954 when Tom Read became head, and was widely known for his contributions to the understanding of phase transformations in metals.

In recent years, Dave became interested in the societal problems of technology, and the interplay of economics, politics, environment, and industry. He will be able to follow this interest at Oklahoma, where his appointment is shared between the metallurgy department and their Science and Public Policy Program.

We will miss Dave's cheerful personality and wide knowledge, and wish him well in his new positions.

## PHILIP GEIL

Dr. Philip Geil joined the staff last Fall as Professor in the polymer science area. Phil came to us with a reputation as one of the outstanding teachers and researchers in the physics, morphology, and mechanical properties of polymers in the country. He had been most recently on the staff at Case-Western Reserve. He is a creative and inspiring person and his presence on our faculty, together with Richard Gaylord (whose promotion to Associate Professor was recently approved) and Richard Wool

represents the basis of a strong program in polymer engineering and science.

## DAVID PHILLIPS

Dave Phillips is now Asst Professor in metallurgy, following an outstanding academic record at Case-Western, where he received his Ph D in materials science, and a year's post doc in France (CNRS, Bellevue). Dave is an electron microscopist and his major research work has been in the microstructural characteristics of oxide systems. Dave's knowledge of dislocation theory and TEM contrast theory will make him a very important member of our faculty.

## JAMES MICHAEL RIGSBEE

Another new Asst Professor this Fall is Mike Rigsbee. His educational background is in metallurgy and materials science at North Carolina, with a post doc appointment at Michigan Tech following his doctorate. Mike was a staff scientist at Republic's corporate research center in Cleveland before joining us. He has done important work in the areas of phase transformations, defect structures in electronic materials, TEM studies of hydrogen embrittlement of stainless steels, and in the structure and properties of dual phase steels. Mike's ability to apply such tools as electron microscopy and computer modeling to engineering problems will make him invaluable to our program.

## RONALD HUTCHINGS

We have continued to maintain our connections with the mother country with the arrival of Ron Hutchings as Asst Professor this Fall. Ron took his Ph D at Birmingham as a student of Mike Loretto, and has had a year of industrial experience and a post doc at Brown Boveri in Switzerland. Ron is an excellent electron microscopist and physical metallurgist. He held a three-year University Fellowship at Birmingham following his doctorate working on applications of STEM, particularly on x-ray microanalysis. He has also worked on problems of oxidation of intermetallic compounds.

Harold "Abe" Kruse died December 28, 1979 at the age of 81. Harold had been with the department from the beginning, joining the staff in 1937. He was a one-man shop for a number of years, then foreman as the shop grew to as many five men. In the years until his retirement in 1965, he was the friend, aide and counselor to generations of students, who will long-remember the ever-present cigar butt and Abe's unique brand of dry humor. He had been in poor health in recent years, and was preceded in death by his only son, Bill, and his wife.

Prof. Gert Ehrlich has received the Welch Award of the American Vacuum Society for "contributions to our understanding of the microscopic force laws by which atoms residing on solid surfaces interact with the substrate and each other." Gert received a gold medal and a \$1000 together with the distinction accompanying the award.

Prof. Marvin Wayman has had another typically busy year. He was elected to the editorial advisory board of METALLOGRAPHY, secretary of the ASM Publication Council, second vice chairman of the Sangamon Valley ASM Chapter, and phase transformations chairman of ASM's Materials Science Division. Marv has also presented a number of invited lectures: two in Japan on shape memory alloys last Fall; on Martensite-1979 at the international conference on phase transformations in York, England; and has been invited to be the 5<sup>th</sup> Golick Lecturer at the University of Missouri-Rolla and at the 1980 Case Centennial Celebration. The Golick lectures are to show how fundamental research finds applications in modern metallurgical problems. At Case, Marv will be designated a Case Centennial Scholar.

Prof. Marvin Metzger spent last Spring and part of the summer on sabbatical leave, as Marv was Senior Visiting Fellow at Imperial College in London.

# ALUMNI NOTES

Forty alumni and faculty enjoyed a delightful evening together last Nov. 13 during the ASM Materials and Processing Congress in Chicago. Charlie Wert and Bob Bohl, who issued the invitations, were unable to attend, and solemnly promise not to miss the next alumni gathering. Carl Altstetter and Marvin Metzger, with their wives, represented the department. The evening was distinguished by the presence of Chuck Squarcy, representing the first graduation class of 1936, and Jeff Moore, from the latest class of 1979.

At ASM's annual meeting, these alumni became Fellows of ASM: Robert C. Anderson '50 for contributions to failure analysis and product liability; Russell Duttweiler '60, composite technology and metallurgy of nickel and titanium alloys; Harold Gegel '55, manufacturing technology and productivity; Ted Koppenaal MS '58, for neutron radiation strengthening and heat treatment of cannon barrel material for improved toughness and erosion resistance; and Tony Schaffhauser '63, for advances in the development of alloy systems for nuclear powered space missions. Congratulations!

Henry Gross '33 has responded to the Alumni Association's fund drive with a check for the use of the department's program and reports that he and Clyde Smith are looking forward to their 50th class reunion soon, and that J. W. Sherman '37 now lives at Rt 3, Box 40D, Kimberling City, MO 65737. All three of these miners are retired and living in Missouri.

At Imperial, Marv worked on hydrogen embrittlement of aluminum, and also made professional visits to Newcastle, Manchester, and Oxford. Marv and Irene also greatly enjoyed London, and the chance to visit France and the continent and many old friends.

Charlie Wert spent the month of November in Japan visiting engineering colleges and universities. His host institution

Don Roach '42 and Vonne Linse '62 were honored by Battelle for patents awarded during the year. Don developed an improved heat resistant alloy for high temperature applications, while Vonne's work involved explosively welding tubes to tube sheets in heat exchangers. Also from Battelle is the report of the appointment of Jim Perrin, MS '61, as a senior research leader. Jim's area of interest is radiation effects on physical and mechanical properties of nuclear fuels, cladding, and structural materials.

John Mendenhall '42 was a recipient of ASTM's Award of Merit last October. John was cited for his distinguished service in advancing the standardization for production and testing of copper and nickel alloys and the use of these alloys in electronic components. John is technical associate of marketing for Olin's brass group in East Alton.

Joseph Borrino '52 is back at AMOCO's laboratories in Naperville after a stint in England where he was in charge of offshore platform construction.

Paul Shewmon '52 was recently elected to the National Academy of Engineering. Paul was cited for his contributions to metals science and engineering in the areas of diffusion and phase transformations. He is now head of the metallurgy department at Ohio State.

Richard Berry '54 who became corporate vice president of Olin Corporation last year was recently appointed execu-

tive vice president, Olin Brass Group. Dick will continue to act as vice president-manufacturing, while his son follows his footsteps as a metallurgy student here in Urbana.

W. H. "Red" Coutts, '52 has entrusted his daughter, Ann Elizabeth, to us for her education in metallurgical engineering. Red is with Wyman-Gordon in Massachusetts, but will no doubt find reasons to visit the company's operations in Danville during the next few years.

Howard Savage '56 is senior materials and standards engineer for Caterpillar in Joliet and recently presented the ASM Chicago-Western Chapter's educational program with a series of lectures on the heat treating of steel. Howard has also taught metallurgy at Joliet Junior College as well as in ASM's MEI series.

Don Boone, '57, Ph D '62, is back with Airco Temescal in Berkeley after having spent the past 18 months on the faculty of the Navy Post-Graduate School in Monterey, California.

Dr. Shaffiq Ahmed, MS '58, has won ASEE's Western Electric Award. Shaffiq is professor and head of metallurgical engineering at Youngstown State and received the Distinguished Professorship Award there in 1978. He is known as an excellent teacher, and the quality of his research was recognized by being named a Fellow of the AAAS. Shaffiq's research interests are in phase transformations, thermodynamics, X-rays, defect structures and mechanical properties.

was Nihon, based in Tokyo, but having 13 campuses scattered throughout eastern Japan, and with an enrollment of over 100,000 students. During his visit, he enjoyed seeing many of our Japanese alumni and former Illini research staff.

The following alumni have made gifts to the U of I Foundation in response to the College's Alumni Fund Drive.

These gifts are used by the departments designated for program improvements:

LeRoy Westerhaver '18, Henry Gross '33, Charles Squarcy '36, Eugene Maroni '40, Ralph Schark '49, W. H. Coutts '54, Kenneth Eckrote '57, Ralph Leonard '63, Ronald Bailey '64, Larry Happ '68, Robert Walson '74, Richard Skolly '78, and Jeffrey Moore '79.

This interest and support is very much appreciated!



## ALUMNI NOTES (Continued)

Ed Horak '59 is regional manager in charge of Midwest sales and distribution-NCG/Industrial Gases. The Industrial Gases Division of Chemetron, known as NCG, recently merged with Liquid Air, Inc., and as a result Ed's office has been moved to 241 Plainfield Rd., Willowbrook, IL 60521.

Loren Vogel '61 has joined Mitchell Energy Corp as senior staff engineer, where he will be involved in reservoir engineering activities in North Texas. Loren previously was with Leclde Gas and Schlumberger.

John Shotton, Jr. '63 has been elected vice-president-Illinois Surface Operations for Consolidation Coal. John has had a series of supervisory positions since his association with Consol in 1970. John is headquartered at Pinckneyville.

Dennis Acuncius '63 has been transferred by Stellite Division of Cabot Corp to Brussels, Belgium to take over their European commercial activities. Dennis and his family are enjoying the opportunity of living in Europe.

Ed Efsic '64 is a senior applications engineer for GE in Columbus, Ohio and is a tool steel consultant in the specialty materials department. He is specifically working with synthetic diamonds and boron carbide as cutting materials. Ed is now living at 6325 Huntley Rd., Worthington, OH 43085.

Ron Bailey '64 is now chief metallurgist at Jessop's Washington, PA plant. Ron had previously been with Universal-Cyclops, and has completed his MS in metallurgy at Carnegie-Mellon.

Gary Semrow '65 is now plant metallurgist for International Harvester in Chicago. Gary held a succession of positions at IH in manufacturing, metallurgy, and product development prior to this appointment.

Charles White '65 stopped by Urbana with his family while en route to the ASEE meeting in Baton Rouge last June. Chuck is an associate professor at General Motors Institute at Flint, and finishing up his Ph D at Michigan. His thesis research concerns nodular cast iron.

Dr. Wayne Y. C. Chen, MS '67, was recently promoted to associate professor at Purdue. He has been on the Purdue faculty since 1974, and was recently honored by Industrial Research for his role in the development of a low-chromium stainless steel.

Don Potter, Ph D '70, has moved from Argonne National Lab, and is now an associate professor of materials science at the University of Florida.

Preston Gale '70 is now Supervisor of chemical development and control at Caterpillar's Basic Engine Plant at Mossville. Pres is responsible for all machine coolants and coolant systems, wash tanks, oil analysis of test engines, and chemical development work. The Gale family, Cathy and three daughters, now live in the home they built at Thunder Ridge, RR #1, Lacon, IL 61540. In the course of his ten years at Cat, Pres has had a variety of responsibilities during which he has reported to no less than five Illinois metallurgy alumni, including his present supervisor, Wally Bott.

Bob Large '70 is chief metallurgist at Wells Manufacturing in Skokie, and visited us last year while on a recruiting effort.

Mike Muntner '71 spent a short time at Rosemount Engineering in Minneapolis but found the winter and cost of living too much, and has returned to New England. He is now with Avco-Lycoming in Stratford, CT, where his responsibilities involve welding and brazing technologies.

Dr. K. K. Chawla, Ph D '71, is now coordinator of the Postgraduate Division of the Materials Science and Engineering Department of the Institute

Militar de Engenharia in Rio de Janeiro, Brazil.

Rick Anderson-Decina '72 is now senior engineer-materials engineering with Cummins Engine in Columbus, Indiana, and lives at 107 Greenwood Trails North, Greenwood, IN 46142. Rick spent a year in the family busir following graduation, then with Universal-Cyclops Research Lab as supervisor of the metallography laboratory before joining Cummins a year ago.

Sanak Mishra, Ph D '73, has been awarded a Humboldt Foundation Fellowship for a year's study in Germany. He will work with Prof. Lucke in Aachen. Sanak is Asst Research Manager, Steel Authority of India, and Editor of STEEL INDIA.

Lance Labun, Ph D '76, and Pat (Birnbaum) Labun, report a busy year. At GE (Cleveland), Lance has been involved in projects ranging from coatings for plastic headlamps to continuous extrusion machines for light metals. Pat had a trip to Europe for a checkout on her Phillips microscope, and later, both combined business and vacation for a trip to Britain. Lance has taken up racing, furniture refinishing, and continuing education: Pat is learning to operate a small business, and Lance is taking a course on auto repair.

Andy Kohler '79 is in quality control for Carlton Forge in Paramount, California. Carlton works mainly with high temperature alloys, and Andy's principal work is trouble shooting and failure analysis. He is living at 6477 Atlantic Ave., Apt. S-108, Long Beach, CA 90805.

Pat Lenahan, Ph D '79, accepted a position with Sandia, but since August has held a position as Visiting Research Fellow at Princeton, working on electronic properties of silicon dioxide. He recently came through Urbana en route to Sandia, where his business address will be: Electron Properties of Materials Division, 5815 Sandia Laboratory, Albuquerque, NM 87115.