

# THE MELLOW MET NEWSLETTER

No. 19 – January 1996

An Extraction of the News for  
Metallurgical Engineering  
at the University of Utah



## Professional Society Meetings

Happy New Year! We hope to see you at the professional societies' annual meetings, which will be held at the following locations this year.

TMS Annual Meeting — 4–8 February 1996,  
Anaheim, California  
SME Annual Meeting — 11–14 March 1996,  
Phoenix, Arizona

No alumni mixer will be held at the TMS Meeting this year due to a lack of attendance in previous years.

At the SME Meeting in Phoenix the alumni will meet as part of the College of Mines and Earth Sciences Alumni Social scheduled for Tuesday 12 March 1996 from 5 to 9 p.m. in Navajo C, Crowne Plaza.

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## A Message from Dr. Gerry Byrne, Department Chairman

Dear alumni and friends of the department:

Everyone in the department wishes you a most happy and successful 2008. We welcome Megan Wilson to our office staff. Megan is pursuing a degree in Political Science.

Dr. K. S. Ravichandran (Ravi) joined the faculty as an Assistant Professor in the area of physical metallurgy last spring and is engaged in research on nanostructural laminates, Ti alloy fatigue, and functionally graded materials for ballistic applications. Quite soon we hope to advertise for Assistant Professor openings in extractive metallurgy.

In the last week of December we acquired a very versatile, slightly used, electromechanical Instron facility from the Physics Department at a small fraction of its normal cost. In addition, a used ion sputtering unit was obtained from industry at no cost. Both of these were possible thanks to the sharp eye of Dr. Guruswamy.

The old Phillips X-ray unit has been converted so as to be able to determine pole figures for texture studies. This

required automation of the motions of a pole figure goniometer.

By now you probably have received a letter from Dean Frank Brown initiating a major campaign for your financial assistance with our student scholarship fund. Please respond generously to this request. Dr. Ram Natesh is the current champion, having added a second \$1,000 gift to his earlier gift of the same amount. Our recent drop in undergraduate enrollment can be overcome if we can add to the very small number of scholarships now available since the loss of the MMRRRI funds which were used for this purpose. So if you can contribute, especially with company matching, that wonderful. All help is appreciated. Our faculty have been asked to lead the way, and results so far are encouraging.

Thank you for your ever-present loyalty and support.

Again, all here wish you a great 2008.

Gerry Byrne

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## Alumni Activities

Since last year we have heard from a number of you, and many alumni have commented that they enjoy reading about what their former classmates are doing. If you haven't responded recently (in the past two years) to our questionnaire, please do so this year.

**Max J. Kennard** (BS '33) passed away December 19, 1994 in La Mesa, California. He was born May 1, 1934 in Salt Lake and in June 1936 married Marion Pearl Blakemore (d. 1971). They had four children. His professional career spanned over forty years in the mining and metallurgical industry, from working on a "bull-gang" in a gold mining camp, working on the construction of the Boulder (Hoover) Dam in Nevada, to executive position in mining, engineering and construction. He held the position of Vice President and Manager of Business Development for Parsons-Jurden Corp. and Senior Vice President of the Mining and Metallurgical Division of the Ralph M. Parsons Co. He received an honorary degree of Doctor of Engineering from

Montana Tech and gave the commencement address in June 1973. In 1974 he married Constance Gervais (d. March 1993). He was transferred to Pasadena, California, where he retired in 1978. He was an avid golfer, duck hunter, and fisherman.

**Henry Theodore Sumsion** (PhD '49) passed away July 20, 1990. He was born March 7, 1912 in Chester, Utah, and married June Hayes August 1938; they had four children. He received a BS in 1938 and an MS from the University of Alabama in '39. He worked at Knolls Atomic Power Lab, Generic Electric, 1951–57; Lockheed Missiles & Space Co., '57–62; and most recently, a Research Scientist, NASA—Ames Research Center, Moffett Field, California.

He had 28 publications, 1 edited book, and 2 patents. He received a USN Commendation for Metallurgical Achievements, 1959, and NASA Apollo Achievement Award, 1969.

**John R. Weeks** (MS '50, PhD '53) married Barbara Brewster in 1951 and has two grown children (no grandkids yet). He was on the scientific staff at Brookhaven National Laboratory for 42 years and started gradual retirement (80%) September 1994. His current activities include acting as secretary to the DOE Tanks Structural Integrity Panel, reviewing life extension of research and commercial nuclear reactors and feasibility of low-enriched uranium fuels for advanced research reactors.

**Jack T. Webster** (BS '52) is married to Judy Webster; their three children Scott, Bryon, and Anne are all married. They have six grandchildren. He has been Works Manager of Alcoa Die Cstg Operations, Hillside, Illinois, a 30 MM operation, and is owner or CEO of Webster-Hoff, Glendale Hts, Illinois, with sixty employees and 5 MM sales worldwide. He is past chairman of Workmans Comp Trust of Illinois; Pres Family Service of Du Page; and Elder in the First Presbyterian Church. He enjoys biking, cross-country skiing, and swimming.

**Robert S. Hope** (BS '59) is married with six children (two girls, four boys) and seventeen grandchildren. He has done hotcell work at Hanford nuclear site; designed and built in-reactor capsule experiments at Hanford, Washington; co-representative for in-reactor experiments at INEL ('64-71); designed a transport system to replace the beryllium reflector in Advanced Test Reactor at INEL ('72-77); operations manager for a 5-MW generating plant at Raft River Geothermal Site, Malta, Idaho ('77-82). Retired to farming south of Malta after geothermal project was completed in 1982. Presently farming 150 acres. Other responsibilities include the serving as President of the Board of Directors for the Raft River Rural Electric Co-op (two years of an eight-year tenure), precinct committeeman, watermaster, church positions, husband, father, and grandfather. He received a "Certificate of Participation" for successful generation of electricity using hot geothermal water at the Raft River site; the project was directed by EG&G Idaho at Idaho Falls.

**Timothy E. Moss** (BS '60, MS '62) is married with four grown children and three grandchildren. He spent 32½ years with Inland Steel Co. in Chicago, Illinois and East Chicago, Indiana. He retired January 1, 1994 as Manager, Quality Dept. He is now employed as Director, Development of Laity Leadership, with the General Board of Discipleship of the United Methodist Church in Nashville, Tennessee. He is a rockhound and builds (and uses!) fishing rods.

**Paulette Bogdanow Altringer Lym** (BS '70) happily married John Lym in February 1994 and moved to Jeremy Ranch where they live with John's oldest son and five-year-old grandson. The closing of the U.S. Bureau of Mines brought an early retirement in January 1996. Her duties at the Bureau consisted of Technology Transfer/Marketing Officer (1993-present), where she established a business office for the "reinvented" Bureau's Center for Pollution

Prevention and Control; and Group Supervisor (1984-93) for a biotechnology group in the areas of bacterial remediation of cyanide, selenium, and arsenic. She served as a Congressional Science Advisor to Congressman D. L. Ritter (1982-84) and developed, drafted, and evaluated environmental, hazardous waste, and risk legislation; Group Supervisor, USBM ('75-82) for the team that earned the IR-100 Award in 1981 for inventing the ion exchange resin used to recover tungsten from Searles Lake Brines; Statistician, U.S. EPA ('73-75); and Metallurgist, USBM ('70-73). She received an MS in Engineering Administration in 1982.

**Randy H. Craig** (BS '72) and wife Betty have children Wendy, Rachel, and Jonathan, and two grandchildren, Jacob and Jenica. He worked for Arthur D. Little, Inc., as a Metallurgical Consultant, '72-75; NL Magnesium, Director, Capital Projects, '75-77; Birtley Engineering, Manager, Business Development, '77-80; STM Associates, Senior Associate, Executive Search, '80-83; and J. Fielding Nelson & Associates, President/Owner, '84-present. He engages in water sports, snow skiing, camping, and scouting.

**Keith Bailey** (BS '73) and wife Flo have been married twenty years and have children Brian 19, Kevin 18, Sharon 17, and Brenda 12. He got an MaSC and PhD at the University of British Columbia in 1977, then worked as Principal Engineer, Kennecott Research 1977-85; Manager, Waste Management Chemical Technology, Kerr McGee, 1985-94; and Director, Engineering/Technology and Facilities, Safety and Environmental Affairs Division, Kerr-McGee Corp., 1994 to the present.

**Chris Owen** (BS '76) and wife Wanda ("almost 40") have a daughter Tara, 5, and a son Grant, 1. He said they would be spending February and March 1995 in Brazil adopting Grant. He got an MS in Materials Engineering and an MBA at Rensselaer Polytechnic in 1978; from then till 1993 he held what he describes as a "bunch of jobs" with Alcoa. From 1993 to the present he has been Manager of Metallurgy & Quality Systems at Warrick, Indiana Operations. He was on the 1994 Board of Examiners for the Malcolm Baldrige National Quality Award, and was waiting for news on 1995 when he wrote us last January. A few years back he went over his bike handlebars and had to have his shoulder bolted back on.

**Charles Shultheis** (BS '76) is married to Harriett, with a daughter Jennifer, 13, and a stepson Ryan, 12. He was with the US Navy as a Communications Officer, USS Turner Joy (DD-951), San Diego, California, 1976-80; got an MS in Electrical Engineering in June 1982, Naval Postgraduate School, Monterey, California, specializing in microwave satellite communications systems and propagation; Satellite Systems Project Officer, Defense Communications Agency, Washington, DC, '82-85; EHF Communications Satellite Systems Prog Mgr, Space & Naval Warfare Systems Command, Washington, DC '85-88; Navy Plant Representative, Hughes Space and Communications Co., El Segundo, California, '88-90, and retired in December 1990. Since then he has been Lead Systems Engineer, Space Communications Dept, E-Systems Inc., in St. Petersburg, Florida, '92-94; and Staff Satellite Communications Earth

Terminal Systems Engineer, Unisys Corp/Communication Systems Div., Salt Lake City, Utah, June 1994 to present. He says it's great to be back in Salt Lake. He has done Professional Bass Tournament fishing since 1984, full-time 1991 to fall 1992, and coaches the Utah Jr. Jazz basketball team.

**Linn Tucker** (BS '79) passed away March 25, 1993. He had been living in Pleasant Grove, Utah. Our condolences to his friends and family.

**Tanya Letham** (BS '84) and husband Laurence's fifth child was due April 1995 [we hope all went well]. She is not currently working in industry but is applying her knowledge to homeschooling her children. After having lived in California, Pennsylvania, Wisconsin, Mississippi, and New Jersey, they currently make their home in Arizona.

**Bruno Deplanque** (MS '85) is still single. He worked 1986–88 for SA Deplanque as CEO (turnover 1 M \$); '89 for SA Delaporte, Executive Manager (turnover 6 M \$); spent 1989/90 in the MBA program at HEC School; 1991 Societe des Vins de France (turnover 700 M \$), as Manager of the Operational Internal Audit Department; and since 1992 has been CEO of TILL in L'Hay les Roses, France

(turnover 7 M \$).

**Linda M. Storm** (BS '86) has been married for 25+ years to LaMont and has two children, Owen, 22, and Ian, 17. She was a Junior Engineer, 1986–87, and Assistant Lab Supervisor, '87–89, with Chevron Chemical, Rock Springs, Wyoming, and an Assistant Metallurgist with Chevron in Vernal, Utah, '89–92. She was involuntarily severed in May 1992 and unemployed since that time.

**Rohit Verma's** (MS '93) wife Amita completed an MS in Materials Science from the U in 1995. He has been a Teaching Fellow with the Department of Management at the U, September 1991 to June 1995.

**K. C. Bowles** (BS '65) has two sons, one daughter, and four grandchildren. He has been a Process Supervisor and Processes Engineer for United Nuclear, and Chief Q.C. Engineer and Q.A. Manager for Sandvik Special Metals. He got an MS in 1993. He enjoys blacksmithing, backpacking, and fishing.

**Cory Topham** (BS '94) has been married to Lisa since 1992; no kids. He is Control Room Supervisor at Kennecott Utah Copper's new smelter.

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## New Faculty Appointments

**Dr. K. S. Ravichandran** joined the Department of Metallurgical Engineering as an Assistant Professor in April 1995. Prior to joining the department, he was a research scientist at Universal Energy Systems, Inc., Dayton, Ohio, performing contract research for the U.S. Air Force at Wright Patterson Air Force Base.

He received a Ph.D. in Metallurgical Engineering from the Indian Institute of Science, Bangalore, in 1988. He was a National Research Council Fellow of U.S. National Research Council at the Materials Behavior Branch, Wright Patterson AFB, during 1989–1991, performing research on fatigue and fracture of aircraft gas turbine materials. He has over ten years of experience in microstructural aspects of mechanical behavior, especially deformation, fatigue, and fracture. His expertise in the metallurgical area includes microstructure and the physical metallurgy of titanium alloys and nickel-based superalloys, fracture micromechanisms, fractography, failure analysis, and electron microscopy. His expertise in mechanics includes experimental techniques in fatigue and fracture, and mathematical techniques for crack problems and small cracks. At Wright Patterson AFB, Ravi developed a novel technique using a laser interferometric and photomicroscopic system to continuously measure shapes of surface cracks in fatigue. He is the author of over forty publications and ten presentations and is a reviewer for leading technical journals. Presently he is broadly interested in mechanical behavior of materials, including deformations, fatigue, fracture, and creep. Specific interests are in intermetallics, wear-resistant and thermal-barrier coatings, functionally graded materials, finite-element analysis, composites, and multilayer materials.

He is married to Mohana, and has two children, Sandhya, 10, and Surya, 1. His nontechnical interests include photography, music, and philosophy.

**Dr. Jaroslaw Drelich** was appointed a Research Assistant Professor in the Department of Metallurgical Engineering in July 1995. He is involved in fundamental and applied research on surface chemistry phenomena and phase separation processes with application for mineral processing, fuels engineering, and environmental engineering.

Dr. Drelich earned his M.S. degree in chemical technology in 1983 at the Technical University of Gdansk (Poland) in the Department of Chemistry. Subsequently he worked at the Institute of Inorganic Chemistry & Technology in Gdansk, Poland, for six years and was involved in design and testing of new equipment used for the cleaning of waste water.

Dr. Drelich joined our department in November 1989 as a Ph.D. student. After graduation in June 1993 he worked with Prof. J. D. Miller as a postdoctoral fellow for two years. At the University of Utah, Dr. Drelich's research activities included several projects related to mineral processing, fuels, and environmental engineering. He contributed to the development of a moderate-temperature water-based process for bitumen recovery from Utah oil sands. In addition he was involved in the development of technology for co-processing of crumb rubber from spent tires with bitumen from Utah oil sands.

His recent research concentrates on the deinking flotation of waste paper and plastics recycling using a flotation technique. Dr. Drelich is very active at the University of Utah in the basic science of wetting and surface/interfacial phenomena. In particular, his new concepts on the analysis and significance of line tension and surface heterogeneity in wetting processes have provided important insights into the understanding of wetting and interfacial phenomena. During Autumn Quarter 1995 Dr.

Drelich taught a course of surface interfaces for graduate students in the department. He has published 43 technical papers in recognized technical journals, including *Journal of Colloid and Interface Science*, *Colloids and Surfaces*, *Langmuir*, *Fuel*, and *Energy and Fuels* and in the conference proceedings of several international meetings.

**Dr. M. Rao Yalamanchili** was also appointed as a Research Assistant Professor in the department in July 1996 after working as a Postdoctoral Fellow with Prof. J. D. Miller for two years. He received his M.Tech. degree from the Indian Institute of Technology, Bombay, India, in 1982 and subsequently was appointed as a Lecturer in the Department of Metallurgical Engineering at the Regional Engineering College, Warangal, India. During his tenure from 1983 to 1988, he offered courses both at undergraduate and graduate levels in the area of process metallurgy and was involved in the development of corrosion-resistant thin films during this period.

In 1993 Dr. Rao completed his Ph.D. in Metallurgical

Engineering at the University of Utah and stayed on as a Postdoctoral Fellow for two years prior to his current appointment as Research Assistant Professor. A number of significant contributions came from his thesis research on soluble salt flotation, not the least of which was the estimation of the surface charge of soluble salt particles by a nonequilibrium electrophoresis technique.

Dr. Rao's current research activities include mineral processing, specifically interfacial phenomena involved in flotation separations including surface chemistry and particle interactions, aqueous interfacial phenomena at high ionic strengths, spectroscopic characterization of interfacial water, interparticle force measurements in environmental systems, the electrochemistry of thin films, and advanced analytical instrumentation for surface characterization. He has over thirty publications/presentations to his credit, and his hobbies include science, literature, and sports.

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## Student Activities

Kendall Oliphant was named one of the ASM International Scholars for this year, and Craig Thomson was the recipient of an MPD Scholarship from SME.

The department was awarded the ASM Handbook series (previously the Metals Handbook, tenth edition; eighteen fat volumes) in recognition of Courtney A. Young, 1995 winner

of the Graduate Student Paper Contest. Courtney graduated last year with his Ph.D. and accepted a faculty position with Montana Tech.

Congratulations to all our students for their scholastic achievements!

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## International Visitors

During the past two years it has been a pleasure to collaborate with Japanese colleagues from NTT, Tokyo, Japan on the surface analysis of a new water-repulsive composite coating. Dr. Goro Yamauchi was a visiting scholar in the department during this time, and Mr. Yasutaka Imori was appointed as an international representative on our departmental advisory committee.

The College of Mines and Earth Sciences Distinguished Lecture Series featured Professor Alban Lynch, University of Queensland, on 13 November 1995. Professor Lynch's lecture, entitled "World-Wide Evolution of the Mineral Production Industries," was well received by those in attendance. The lecture was preceded by a tour of our laboratories and discussion of current research projects.

Dr. Mehmet Celik of the Mining Engineering Faculty,

Mineral Processing Section, Istanbul Technical University, spent the summer doing research as a Visiting Scholar in our surface chemistry laboratories. We were pleased to have Mehmet with us, and a collaborative research program has now been initiated.

Prof. Hu Yuehua of Central South University of Technology, Changsha, P.R. China, joined us in September as a Visiting Scholar. Prof. Hu will be doing flotation chemistry research during this academic year.

During the past academic year (August 1994–March 1995), it was our pleasure to have Dr. Josef Pitel of the Slovak Academy of Sciences, Bratislava, Slovak Republic, as a Fulbright Scholar. Josef's research focussed on magnetic separations in a centrifugal field, and efforts are being made to continue our collaboration.

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## Other International Visitors Included:

Neville Lockhart from CSIRO Coal and Energy Technology, Sydney, Australia

Yi Liu from CSIRO Division of Minerals, Sydney, Australia  
Cheng Deming and Zhang Zhoyhan from Guangzhou Research Institute of Nonferrous Metals, People's Republic of China

Prof. Shuji Owada from Waseda University, Tokyo, Japan

Dr. Kazuo Suzuki from the National Industrial Research Institute, Nagoya, Japan

Dr. Gareth Brown from the University of Nottingham, United Kingdom

Jaakko Leppinen from VTT Technical Research Centre of Finland, Outokumpu, Finland

Dr. Tomas Sverak of Sverak International, Czech Republic  
Dr. A. Parviainen, President, and Dr. P. Taskinen, Research Director — Pyrometallurgy, of Outokumpu Research Company, Finland

Dr. M. Kyto, Vice-President of Outokumpu Engineering Company, Finland

Dr. Soung S. Chun, former President of KAIST in Korea, now Senior Research Fellow at Kennedy School of Government Center for Science & International Affairs, Harvard University

Dr. Sunil Jayasekera, Parker Center for Hydrometallurgy, Waterford, Western Australia, Australia  
 Dr. Alan Buckley, CSIRO, Sydney, Australia

## Program Status

Our enrollment during the past years is as follows:

Year	Under-graduates	Graduates
1977-78	53	36
1978-79	53	33
1979-80	50	46
1980-81	61	58
1981-82	71	40
1982-83	62	41
1983-84	40	42
1984-85	36	42
1985-86	37	40
1986-87	28	38
1987-88	36	50
1988-89	37	46
1989-90	47	48
1990-91	53	49
1991-92	63	46
1992-93	53	42
1993-94	54	43
1994-95	45	43
1995-96	25	38

As of June 1995, the following degrees were awarded, and the Mellow Met Alumni increased their ranks by 18 new Utah metallurgists (three below are double alumni). Our alumni records indicate that you now number 738.

### B.S. Degree

Paul Cook	Mark A. Niederhauser
Diana Doan	Susan Ritz
Nephi Taylor Harvey	Gregory L. Schick
Michael Voss Hoffman	Joel D. Sommer
Justin Spencer Jewkes	Clayton Walker
Zahari Muda	

### M.S. Degree

Patcharin Poosanaas

### Ph.D. Degree

Arturo B. Cortes	Woo-Hyuk Jang
Avimanyu Das	Kang Jung
Michael L. Free	Satyam S. Sahay
Carlos A. Garcia	Courtney A. Young
Somsak Homdee	

## Faculty and Staff

Department staff includes Ms. Kay Argyle, Ms. Megan Wilson, and Mrs. Eva Aoki.

These efforts are complemented by the Communion Center staff of Mrs. Karen Haynes. Fulltime technicians include Mr. David fitzGerald and Mr. Jim Davis.

The faculty now totals seventeen, which includes seven research appointments.

J. G. Byrne	Ivor Thomas Professor & Chair
W. D. Cho	Asst. Professor
D. A. Dahlstrom	Research Professor
J. Drelich	Research Asst. Prof.
S. Guruswamy	Assoc. Professor
J. A. Herbst	Research Prof.
W. Hu	Research Prof.
R. P. King	Professor
C. L. Lin	Res. Assoc. Prof.
Y. Lo	Res. Professor
J. D. Miller	Professor
F. A. Olson	Professor
C. H. Pitt	Professor
R. K. Rajamani	Professor
K. S. Ravichandran	Asst. Professor
H. Y. Sohn	Professor
M. E. Wadsworth	Professor

M. R. Yalamanchili Res. Asst. Prof.

Professor H. Y. Sohn visited Chile in November at the invitation of the University of Concepcion where he delivered a short course on Fluid-Solid Reaction Analysis. While in Chile he also presented a keynote lecture at FORMINOR '95 in Antofagasta and attended COPPER 95 in Santiago.

Congratulations to Prof. Milton Wadsworth for being selected to receive the first Honorary Doctor's Degree to be given by Central South University of Technology, Hunan, P.R.C. Professor He Sishan, President of CSUT, announced that a grand ceremony will be arranged either here at the U of U or at CSUT.

This past academic year, Prof. R. K. Rajamani received the Mellow Met Teaching Award. In particular, the students praised Prof. Rajamani's teaching style, noted that he made the material fun, and expressed appreciation that he used both men and women in his examples. Congratulations Raj!

The faculty is undergoing significant change. Professors Olson, Pitt, and Wadsworth will go on full retirement effective 30 June 1996, and their formal involvement in departmental affairs will be sorely missed. I know it's hard to imagine any of these gentlemen really retired. Nevertheless I'm sure you will join us in wishing them all the

best in the years to come. The department won't be quite the same with their retirement. In view of this, we now are making plans for the future and a new era for Metallurgical Engineering at the University of Utah is taking root.

Again we are able to distribute the Mellow Met Newsletter without charge. The cost for publication and distribution is paid by the Department. I'm sure you recognize the financial squeeze on higher education budgets during the past years, and, in this regard, we request your financial support of Department activities by making an appropriate donation to the Department Development fund.

Thank you for your generosity. Please make your check payable to Department of Metallurgical Engineering Development Fund.

The faculty and staff wish you a prosperous year and hope you will visit us when the opportunity arises.

Your faithful correspondent,  
J. D. Miller

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Professor of Metallurgy