

EXTRACTOR

The Metallurgical and Materials Engineering Newsletter of Montana Tech

Each year it seems this newsletter gets finished later and later. Our apologies! However, it's not that the year went by fast, which it did; it's not that the year was busy, which it was; it's because Rosalie retired and her replacement, actually replacements, were on a learning curve that put this newsletter temporarily on hold. In this regard, news on Rosalie and her replacements immediately follows and is preceded with a variety of information on the department, campus, and alumni. We hope you enjoy it like the others as all of you have stated. Please note we hope to hear from you so we can include that news in next year's newsletter and share it with all your alumni friends from the department.

Rosalie Murphy Retires

For over twenty years, Rosalie Murphy has serviced the needs of the students and faculty of the metallurgical and materials engineering department. Her cheery disposition and contagious smile have captured the hearts of all those who have frequented the office at the end of the first floor of the ELC building. Needless to say, the faculty and students of the MetE Department will be at a loss come the end of December, when Rosalie plans on closing the books for good. Known to some as "Mother Metallurgy," Rosalie Murphy has played a pivotal role in the development of the MetE department. According to Larry Twidwell, Murphy was instrumental in helping the department to retain students during the early years. Twidwell also states that Murphy has been "a fairly important cog in alumni relations." Her commitment and dedication to the college and community landed her an Achievement Award in 1992. "Rosalie is the most beloved person on this campus. She really bends over backwards to help students," says Twidwell. Not only has she been a major resource to students, she has also been a godsend to faculty. Twidwell states, "Throughout her years at Tech, Rosalie has trained five department heads. As far as I'm concerned, she's the real department head." "If you need help with anything, particularly with software programs, go see Rosalie," says Courtney Young, in describing how Rosalie's expertise and knowledge have saved the faculty of the MetE department both time and wasted effort on a number of occasions. Young, who is the head of the MetE department, also comments on how Rosalie is the type of person who never says no for an answer: "She will drop whatever she's doing to help someone out." Adam House, a senior in metallurgical engineering, states, "She takes very good care of the students and the rest of the faculty. Just about anything you need, Rosalie takes care of. She has always helped all of us register for classes, order chemicals or supplies we need, make sure we will graduate some day, and a million other things. Pretty much everything." Fellow

classmate Jenny Conning agrees. "Rosalie is the one who keeps us going...you can't go into the office without getting a smile and some questions about how your life is going. Rosalie always has time to spare to help us out or to just chat." Although people may have differing takes as to the impact that Rosalie has had on their lives, one thing remains certain: Rosalie will be surely missed by both faculty and students alike. Courtney Young says, "It's gonna be tough for us when she leaves. She may have little feet but she sure's got big shoes to fill." According to Young, her husband Jim, a longtime employee of the physical plant, succeeded Rosalie in retirement. This avid golfer and church-going woman is the mother of four sons, two of whom are Tech alumni. Young states that a big part of Rosalie's retirement will go towards spending quality time with her grandchildren, "She's really into being a grandmother," said Young. The MetE department held a retirement party in December of 2001 to honor the beloved secretary who has touched the lives of so many during her career at Tech. The party was organized by Leslie Bennet (Business Office), Mitzi Daily (SUB), Tami Cashell (CAMP) and Michelle Curran (Foundation) and was held at the Copper King Inn. Round tables were set up, each decorated with tees, golf balls, astroturf centerpieces, and miniature pins, making each table look like a green. Of course, there were 19 tables and Rosalie and her family were seated at, you guessed it, the 19th hole! She and they, though, did not get to sit much since over 200 people attended and everyone had to say more than hello. She received a Montana Tech Print with all attendees signing the frame along with a round for two at the Old Works, Fairmont Hot Springs, and Couer d-Alene Golf Resort including a two-night stay and a river cruise. It was a great sendoff to a very deserving lady! Rosalie, we miss you but hope you and Jim are enjoying retirement and those grand kids. Let us know when you want to play some golf. FOOOOUURRRRR!

Courtney Todaro and Traci Fesolowitz Hired

After Rosalie retired, the administration decided that the department would share an administrative assistant with Petroleum Engineering. This is the way it is across campus. What is unusual though is there is physical separation of the positions; with other positions, the administrative assistant stays put because the departments are in the same building. This is not possible in this case. Courtney Todaro, who was already sharing responsibility with the COT (i.e., the South Campus) and Petroleum, was asked to come up to the North Campus full-time, an offer she quickly accepted to avoid the half-hour travel between. MetE was without the position for nearly two weeks (mostly over Christmas Break) as Courtney had to finish some reports with the COT but she and Rosalie were able to spend two full days introducing her to the department. When she finally arrived, Courtney's impact was immediate. She rearranged the office and made it hers. Life was interesting with the Dept Head and the Administrative Assistant have the same first name but, unfortunately, the fun did not last long. Courtney, who had computers skills both hardware and software, took a position with Computer Geex in town. She is happier putting her

Computer Science degree to work though; yes, she was over-qualified for us. Still, she did a great job in her two-month stint with MetE and also will be missed. A three-week search to replace her ended over Spring Break with the selection of Traci Fesolowitz. Traci is a fresh graduate from U of MT - Missoula's Business Program with an Emphasis in Russian. In the program, students get a degree in business but also seek a couple of years learning a foreign language. She, of course, chose Russian which has a lot to do with her father being Ukrainian. Her ultimate goal is to be a diplomatic translator and own a hotel in Thailand. She is adept at all software which the search committee learned when giving her a skills test, a test that Courtney designed before leaving us. Just like Rosalie did for Courtney, Courtney made herself available for a day to help bring Traci up to speed. It is a great pleasure to note that, after just two months, Traci is over the hump now and well on her way. The department had welcoming cakes for both when they came to the department. It is hoped Traci can fulfill her dreams of owning that hotel but not until she has put in her 20 years like Rosalie. Welcome aboard Traci!

Seminar Symposium and Student Placement

On Wednesday, April 24, 2002 the Metallurgical and Materials Engineering 8th Biannual Seminar Symposium was held from 4:00 to 7:00 pm and followed by a pizza party. The event was organized and chaired by Amy Stepan, a graduating senior who is now employed as a corrosion engineer with Shell Oil in Northern California. Five half-hour presentations were given by Jennifer Conning, Alice Drew-Davies, Adam House, Chris Mc Henry, and Daniel Gutsher. Jennifer talked about her undergraduate research about characterizing a ceramic tile called Alresist and manufactured by Abresist. The tile is composed of aluminum-silicate tile and is used as a lining to protect equipment including chutes, cyclones, furnaces, etc. Her studies yielded some intriguing results which will be given to Abresist. Jennifer was married on May Alice Drew-Davies gave a presentation entitled "Enviro-hydrometallurgical Applications at the Big Hole Water Treatment Plant." Her interest in this stems from her employment at HKM Labs in town where they measure water quality among other things. She gave a brief history of the plant and followed with a detailed description of daily processes. No surprise that she found hydrometallurgy at work! The third speaker, Adam House, explained blast-hole sampling techniques at the Asarco Ray Complex. He briefly discussed the importance and reason behind blast-hole sampling before moving on to clarification on how the sampling

method at Asarco Ray, using a power drill with an auger bit, was ineffective, and thereby suggested alternatives. Subsequent testing showed some to be better. Adam accepted a summer position with ASiMI and will graduate this December only to stay on for graduate school under both Larry's and Courtney's guidance. Chris McHenry presented the last senior talk on "The effect of dissolved hydrogen on the weld solidification cracking in aluminum." The cracking is believed to occur due to trapped oxides in the molten weld pool or through cavitations; however, the concentration of dissolved hydrogen should influence cavitations, if present, and therefore, the extent of solidification cracking. To study this, various amounts of hydrogen were electronically charged into aluminum specimens. A circular patch test (CPT) using gas-tungsten arc welding was then conducted and quantified measuring total crack length and porosity. Chris accepted a position with Micron in Boise, the third student in three years to take a position there. Daniel Gutscher, a graduate student under Carl Cross, gave a presentation about the affect that iron may have on the weldability of A1-2519-T87. He varied the iron content of the alloy and used CPT to produce solidification cracking along the centerline of the weld. Included in his presentation was data derived from patch tests and a discussion of solidification cracking mechanisms. Dan will be

expanding on this research when he defends his thesis in the Fall. He will be among the first to graduate from Montana Tech under the 5-year MS program, a program

designed to get high-GPA juniors and seniors into graduate school prior to getting their BS. The program is seeing some success.

Senior Design Presentations

Two days later, the graduating seniors presented their senior design projects at the 2nd Annual MetE Senior Design Symposium. Two talks were given. Adam House and Amy Stepan teamed up to examine ways for remediating sulfate, a project that will eventually become Adam House's MS thesis courtesy of the MWTP. They gave an excellent review and presented some preliminary results on using novel cementation and precipitation processes. They confirmed much of their results using STABCAL, the equilibrium computer program developed by Huang (more on that later). Jennifer Conning and Chris McHenry teamed up on a Boeing-sponsored project for heat-treating of aluminum. They were asked to develop a process to avoid a step in

their proprietary aging process; unfortunately, all their work showed that the existing process had to be used. The good news is they received some great industrial experience and Boeing did not have to put a large group of engineers on the project. These are examples of win-win situations so if you have projects for our students to consider, please let us know; they do not have to be senior design either but rather could be undergraduate and graduate research at all levels including being brought through Corby Anderson and the Center for Advanced Mineral and Metallurgical Processing (CAMP). Please note that these presentations, including the seminars, are open to the public and your attendance and input is helpful and encouraged!

Advisory Board Attends Presentations

This year, several advisory board (AB) members were able to attend the presentations. Steve Busby, who was elected the AB Chair at last year's meeting, attended both along with Tom McIntyre and Jerry Harrington. Mary Ann Harrington Baker attended the Seminars and Dave Dahnke and Ray Beebe attended the Design talks. Feedback from the AB members suggested the presentations were well done and organized. Students were also given the time to interact with the AB in the absence of faculty. Both sides agreed that MetE 4920 Senior Design should be a year-long course which, in fact, was recently approved but only following a year-long discussion over the matter. Next year, graduating seniors will register for 1 credit in the Fall and 2 in the Spring. This type of contact with our students has allowed the AB to gain direct information as to the education MetE students are getting which in turn allows them to give advice (not dictate) about suggesting changes to the program. In this regard, the AB is now acting similar to what ABET does with its accreditation visits. With AB Chair now being an outside person (the Dept Head used to serve that position), other changes will be forth coming. If you are interested in serving on this board or know someone who might be, please send your nomination to Courtney Young. He will bring the nomination to the AB for approval. Approval is dependent on a number of factors pending the current make-up of the AB but includes area of expertise,

experience, current and past positions, influence, etc. but does not include having to be an alumnus. Five nominations have been received to date. The MetE department is very thankful for the advice and support of all AB members. Their time and travel costs are volunteered. However, this year, the department decided to at least pay for a dinner (Copper King Mansion) and a social gathering (bowling) using unrestricted accounts in the Foundation. Both were successful and allowed additional time for students to mingle with the AB. I think all agree that the AB is now fully engaged which will be a tremendous help to the department. Other AB members could not attend the presentations due to prior commitments. Also several were still in transit to the AB Meeting to be held on the following day on Saturday from 8:30 am to 1:30 pm. Listed alphabetically, AB members include Corby Anderson, Frank Aplan, Ray Beebe, Steve Busby (Chair), Dave Dahnke, Edward Dowling, Jerry Downey, Mike Eiselein, Mike Garska, Ron Glovan, John Hager, Ken Han, Jerry Harrington, Mary Ann Harrington-Baker, Bob Johnson, Debbie Laney, John Mansanti, Jerry May, Tom McIntyre, Don McMillan, Greg Roset, Wally Shultz, Rob Stephens, Rick Sutherlin, Laurie Tahija, Patrick R. Taylor, Bruce Tippen, and Gary Tuss. Sincere gratitude is also extended to Kathleen Kitto, Milt Wadsworth and Jay Waterman for their past service; the three retired from the board over the past few years.

A Bit of Old News Worth Reporting

Three years ago, Courtney was approached by the Montana Standard about obtaining copper from an anode

they heard that the department had in storage but was cast by the old Anaconda Copper Company in their

smelter. The idea was for them to obtain authentic Montana Copper and use it to mint Millennium coins. However, the anode, once on display in the old Metallurgy Building, had since been given to a museum in Anaconda. Fortunately, back in the corner on some dusty storage shelf sat some higher purity copper cathode which Vern Griffiths and Bill Huestis somehow remembered placing there when the department moved into the ELC Building back in 1987. Courtney let the Standard know and soon enough, the senior design team of that year took on a project to demonstrate how copper was extracted by leaching and eventually cast into coins. The students started with concrete copper obtained from

Montana Resources leaching and cementation processes. In order to make copper product, they had to separate the copper from the scrap iron contaminant. They examined pyrometallurgical and hydrometallurgical approaches and eventually decided on ammonia leach. The students used SX/EW to purify the copper. Although the seniors didn't actually cast the coins in the lab, they toured the Sunshine Mint in Idaho to observe the process. Larry Twidwell, Corby Anderson and Courtney Young oversaw the project. In addition, Courtney helped judge the art contest for the coin faces. Copper and silver coins are still available from the Montana Standard.

MetE Students Research Abroad – International Program

Last fall Tim McInerney, as part of Montana Tech's Thesis Abroad program, worked at the Federal Institute for Materials Research and Testing Lab in Berlin, Germany. Tim worked with a number of other students as well as doctoral engineers. Another MetE grad student, Jason Gauer, spent his spring semester in Sidney, Australia at the University of New South Wales. He is currently researching the remediation of metal complexed cyanides and thiocyanates. Joe Figueira, Vice Chancellor for Research and Graduate Studies, directs the foreign exchange program which was started to help ease graduating students into the workplace. The program also gives the students much needed contacts for future internships and permanent jobs but also serves as a faculty exchange and student exchange. It first sent several professors from Tech to Puno, Peru, to help with the problem of mercury contamination from mine wastes. Courtney is a part of this team and visited Puno at 12,000 feet asl; Riconada at 17,000 feet asl and where much of the mercury pollution is; and then Lima where he met up with Carlos Plenge and his rather large family. Carlos received the Distinguished Alumnus Award this past graduation as noted later. The International Program, as it has since become known, has expanded across the campus giving students and faculty similar opportunities to work in China, South America, India, Canada, Germany, Egypt, The Philippines, Sweden, and Australia. MetE and six other departments on campus

are participating but others will join in next year. Aside from the students mentioned above, other MetE beneficiaries have included the faculty. Carl visited Germany to work with Tim for two weeks and additionally traveled to Graz, Austria with Tim to present a paper on his work. Tim continues this work at Montana Tech in pursuit of his MS degree. Corby, Larry and Courtney are both traveling to Lulea, Sweden to present papers at a recycling conference in mid-June and to establish relationships with Lulea University. The conference is co-sponsored by EPD of TMS. Corby and Courtney are both traveling to Australia to attend the ALTA conferences in late May. Corby will present at Co-Ni and Courtney at Cu and both will visit the AJ Parker Hydrometallurgy Center as well as Murdoch University with whom an agreement has already been made. Corby will additionally establish relationships with Monash University. Courtney will visit with Tam Tran at UNSW as well in order to continue their relationship on cyanide/thiocyanate research which allowed Jason to travel there in the first place. Courtney also traveled to The Philippines last November to establish contact with the University of San Carlos in Cebu City and the University of Santo Thomas in Manila. Both MOU's are still being considered. Finally, both Joe and Courtney traveled to Vancouver, BC to make contact with UBC but that MOU too is under consideration.

Phonathon and MESEP Bigger and Better

The 2001 phonathon was a tremendous success, producing close to eighteen thousand dollars. This is two thousand dollars more than last year and has allowed our scholarship pool to grow in order to attract additional freshmen into MetE. Once again, the department gathered for one night in the Foundation and made some calls. Another night, MetE students did the same. Courtney called the first few weeks of the phonathon but left for The Philippines at the end. Carl

made it in a few additional nights as well. Students continued to call even when it was officially over to make sure all of you were contacted. I just hope you were home to hear what has been happening and how excited we are about the changes going on. MetE is moving along greatly and as noted already is being helped with the AB and you, our alums. You will be pleased to know that, because you gave "restricted" to the Metallurgical & Materials Engineering Student

Excellence Program (MESEP) or some fund or scholarship within the program, your support helped recruit 20 students last year and has so far recruited another 20 this year. Like last year, the students are of high caliber with an average GPA of 3.77, slightly above last year. As long as these students can be retained, MetE will no longer be considered a low-enrollment program and Vern Griffiths position may soon be replaced. MetE owes this great news to you, our generous alumni, so thank you for your support. Thanks can also be extended to Courtney Young as well as the Admissions Office; both worked hard and effectively together, a point that will change only for the better in the years to come. Now that the students are once again being attracted into the program at good numbers, your continued help is needed more than ever. All goes to the

benefit of MetE students in one form or another but usually in the form of scholarships unless otherwise specified. The key will be to retain the students. Consequently, challenges will be sent in the Fall fundraising letter prior to the phonathon which MetE hopes you will accept and even beat! If you do not recall, MESEP is comprised of several outstanding endowed and annual scholarships but also consists of funds such as the Mineral Processing Fund, Ted and Gloria Jordan Fund, the Bender Lecture Series in MetE, and the Metallurgical Engineering Fund. Please contact the Julie Crnich (JCrnich@mtech.edu) or Jerry Harrington (JHarrington@mtech.edu) in the Foundation if you would like to give at times other than the phonathon (1-800-984-4683). Thanks again for your help.

Distinguished Alumni Recognized

During the graduation ceremony on May 4, 2002, the Distinguished Alumni Award were given to three MetE Department alumni, Terry McNulty, Carlos Plenge and Frank Bowdish. Please note, that you or anyone out there can nominate an alumni for this award. Please contact Chris van Nuland for details by e-mail CVanNuland@mtech.edu or call him on the phone at 1-800-445-8324.

Terry McNulty, obtained his M.S. in Metallurgical Engineering in 1963 from the Montana School of Mines. He went on to receive his D.Sc. in Extractive Metallurgy from the Colorado School of Mines in 1966. From 1960 to 1965, Dr. McNulty worked at The Anaconda Company as a research and testing engineer. Some duties while at The Anaconda Company included providing startup/temporary operating supervision in plants producing copper, lead, and zinc concentrates, electrolytic zinc, refined copper, ferromanganese, sulfuric acid and phosphoric acid. Starting in 1966 and continuing into 1970, he became the Senior Research Engineer at The Anaconda Company. This time, he participated in project recovery and refining of beryllium oxide, recovery of alumina from clay and the hydrometallurgy and pyrometallurgy of copper. In mid-1970, Dr. McNulty became Concentrator Superintendent for Anaconda Canada Ltd. During the next two years, he supervised the design, construction, startup, and operation of a 1,000 ton per day copper/zinc/gold/silver floatation concentrator with an acid leaching/cementation circuit. Until the end of the decade, he returned to The Anaconda Company where he worked as the Manager of Research and Technical Support before becoming Vice President of Technical Operations at Kerr-McGee Chemical Corporation. While at the latter, he was responsible for overall direction, for licensing of in-house technology, for the evaluation of acquisition

candidates. Beginning in 1983 and ending in 1988, Dr. McNulty became President and CEO for Hazen Research, Inc. During this time of a mineral industry depression, he increased employment and increased profits to record proportion. He was active in 1400 projects which included precious metals, yttrium and rare earths, heavy minerals, coal, brine chemicals, uranium, most nonferrous base metals, nonmetallic minerals, and industrial wastes to name a few. His extraordinary employment history is concluded by his current position that he has held since 1989. Currently, Dr. McNulty is President of his own company, T.P. McNulty and Associates, Inc. His company has seen nothing but growth and success. The company has grown to 27 associates and conducted business for over 200 clients ranging from mining companies to utility/chemical producers to law firms. This doesn't include the numerous domestic and international government agencies or educational institutions in countries like the United States, Mongolia, Switzerland, Colombia, Chile, Venezuela, Brazil, Canada, Australia, and the U.K. The work done at the business has included: evaluation of acquisition candidates and expert testimony, management consulting and strategic planning, project management, process engineering in base and precious metals, nonmetallic minerals, and industrial chemicals, direction of research programs, plant audits, and assistance in commercialization of new technologies. He also holds two patents in copper metallurgy and 38 publications in the fields of mineral processing. He is the director of two corporations, acts as Trustee Emeritus for the Colorado School of Mines, and a member of the Advisory Board to the College of Science at the University of Arizona. He has remained a member of AIME, TMS, AME, the Mining and Metallurgical Society of America, Colorado Mining Association, Northwest Mining Association, Clear Creek

County Metal Miners' Association, and the Mining Club of the Southwest.

Carlos Plenge is a warm and kind man who graduated from Tech in 1941 with a M.S. degree in Mineral Dressing. Courtney personally met with him while traveling through Lima on the way to Puno and Riconada. Following graduation, he worked at Cerro de Paseo Corp. for 12 years as a Mineral Dressing Engineer in the Research Department and as a Field Engineer in the Concentrator Department. In 1954, he was an Assistant Manager with Cuerpo de Ingenieros del Peru. He soon began his own business, C. H. Laboratories, which became Peru's first ore dressing and assay laboratory. He expanded into mining engineering and design by founding Lima Manufacturing. Both are still a huge success today and serve all facets of mining and minerals research and development in Peru. After 45 years, C. H. Laboratories is still the largest of its kind with numerous customers who use it exclusively. Carlos is an active member on each Board of Directors for C. H.

Laboratories and Lima Manufacturing. Just the same, he is an Alternative Director of Cia Minera Yonacocha and elected member of Colegio de Ingenieros del Peru. He has always remained a member of TMS and AIME in the United States. Currently he is working with certain members of the MetE Department to organize a scholarship allowing students from the University of Altiplano in Puno to come to Tech. We will keep you posted.

Frank Bowdish was the third honoree in the spotlight at the graduation ceremony was. He was supposed to receive the award last year but was unable to attend the ceremony due to heart surgery and thus opted to receive it this year. Please see last year's newsletter for his biography. Frank graduated from the Montana School of Mines with honors in Metallurgical Engineering in 1939 at age 22. It was indeed an honor having 3 of the 4 Distinguished Alumni Awardees being alumni of MetE. The department took them out to dinner following graduation.

Alumni Recognition Awards

On September 28, 2001 a banquet was held to honor Tech Alumni for their contributions in their field. Two metallurgy alumni were honored Tim Walsh, 1981 graduate of MetE, and Steven Lloyd, a 1981 graduate of M.P.

Tim Walsh came from a well-known Butte family: his father was Joe Walsh who served on the MTech Local Executive Board for many years and still resides in Butte. Tim's brother Steve Walsh also lives in Butte and is the current manager for Montana Resources. Tim received a BA in Education from MSU in 1969. He was going to be a teacher but he couldn't get a teaching job at that time in the Northwest area so he ended up headed in an alternative direction; toward Metallurgical Engineering. Tim worked as a Boilermaker and welder for the Anaconda Company for 9 years after receiving his Education degree from MSU. This is when he began taking engineering courses at Montana Tech, a few at a time. At that time he had an interest in steel making and due to Larry Twidwell's friend at ARMCO steel in KC, he ended up with an engineering job there. He ended up spending 20 years there. Tim's tenure at ARMCO included: Serving as an entry level Associate Engineer for only a year before he advanced to the Melt Shop where he supervised the operation of two 165 T electric furnaces. Tim also was ARMCO's steel making consultant. He served in that capacity for ARMCO's domestic properties and for their international properties in Japan, Germany, Italy, and Mexico for many years. Due to this, Tim's expertise in steel making is well recognized by the steel making industry. Tim was a

friend to Montana Tech. He was instrumental in initiating a coop program between GST Steel and Montana Tech. We have had at least five metallurgical engineering students spend anywhere from a summer to a full year at GST, two of whom later joined GST steel as full time employees. Tim was also exceptionally active in helping our recruitment effort in the KC area and was a supporter of our MTech Foundation. Tim's education degree served him well because not only was he a practicing and innovative engineer but he was an educator for others in the steel making business and for summer interns and new employees for 20 years. Tim recently passed away from cancer; his obituary will be in next year's newsletter. He will be greatly missed.

Steve Lloyd went to work for ASARCO at the Troy Copper/Silver mine as their Mill Metallurgist and shift foreman immediately after receiving his B.S. Two years later, Steve was transferred to the ASARCO Couer Project at Osburn, ID, where he was the Mill Superintendent until 1986. At that time, he returned to Montana to work at Montana Tunnels operations owned by Pegasus Gold, now known as Apollo Gold. Steve held a number of positions there including Mill Metallurgist, Chief Metallurgist, and Maintenance Superintendent and is currently the Ore Processing Manager in charge of crushing, grinding, gravity separation, flotation, thickening and filtering unit operations. Steve has been instrumental in helping the Metallurgical and Materials Engineering Department (MetE) in many ways. Steve contracted and continues to contract with CAMP to conduct research projects. MetE

and other students across the campus were and are employed on many of the projects giving them hands-on industrial experience as well as finances to support their academic endeavors. Through his fifteen years at Montana Tunnels, Steve has also helped MetE students gain summer internship experience as well as permanent employment. Finally, Steve unselfishly gives annually to the Montana Tech Foundation and serves the local

mining community by being an officer in the Montana Section of the Society of Mining, Metallurgy and Exploration (SME).

Due to their valued contributions to Montana Tech, next year's honorees will be Dr. *Corby Anderson* (MetE 1984) and *Mike Garska* (MP 1985). Their biographies will be presented in next year's newsletter.

Alumni News and Honors

William D. Trethewey, an alumnus of Montana Tech (BS 1940 Metallurgical Engineering and MS 1942 Mineral Dressing) was recently inducted into the Hall of Fame of the U.S. Army Engineer Officers' Candidate School, an annual award to outstanding graduates of the Fort Belvoir, Virginia school. Colonel Trethewey's plaque is on display with other honorees in the hall. Bill, as he was called at The School of Mines, was commissioned a second lieutenant in November 1942 and served four years on active duty during World War II, two years of which he spent in the European Theatre commanding an Engineer Company. After the war, he spent twenty-seven years in the Army Reserve, droning which he attended the major schools of the Army, and the Industrial College of the Armed Forces. During his final years in the Army, Trethewey was much sought for his unique ability to write, organize and control field-training exercises for Army Brigades and command post exercises for National Guard divisions. He credits his education at Montana Tech for Building his foundation on both engineering and communication. "I really learned ho to write and be organized in addition to the excellent engineering training I received while at the School of Mines." Trethewey was born and raised in Butte, graduating form Butte High in 1934. In 1934 he married Rita Lowney, a Butte girl, and they have two children, Donna Lynn and Richard Lee. For thirty-five years, he was a senior research scientist at the University of Minnesota, retiring in 1981 with the title of emeritus.

Bud Gale carried on the family tradition at Montana Tech, following his father, Robert Gale Jr., and uncle George Gale. Bud originally wanted to attend Montana State University in Bozeman. However, Robert Gale's mining professor, Arthur Adami, convinced him to attend Tech instead. Bud graduated in 1964 with a Bachelors of Science degree in metallurgical engineering and then went on to earn his masters in 1966. While attending Tech, he worked in the Anaconda Company mines, the Anaconda R&D, and Anaconda Aluminum. After graduating, he moved to Spokane, and then to Albany, OR working as the Project Engineer for a titanium smelter and production manager for magnesium recovery and titanium tetrachloride production. After Oremet closed in 1971, Bud began work for Teledyne

Wah Chang in Albany, and later moved to NL Magnesium in Utah. Bud moved around some working in Arvida, Quebec and then joined the founding partners of Western Zirconium in Ogden, UT. In 1984, Bud started work for a small equipment and engineering company in Salt Lake. Bud and his wife Janet started Summit Valley Equipment and Engineering in 1990. Bud's company is based in West Bountiful, UT where they design precious metals recovery plants and equipment. The business is doing quite well, with clients in Russia, Africa, the U.S., and Venezuela. The company operates on markets in gold, silver, mercury, waste recovery and remediation. In 1994 Bud was honored by Tech with the Distinguished Alumni Award for his contribution to the advancement of his profession. As Bud was honored with the award, his daughter, Michelle, graduated from Tech with him handing his daughter her diploma for a BS in Environmental Engineering. Michelle Gale Lee is the youngest of Bud's children and returned to Tech for her master's degree in Metallurgical Engineering in 1996. She currently works for MSE in Butte and is involved in a project to remove heavy metals form water. One of Bud's other kids, Byron Gale, graduated in 1986 with a Bachelor's of Science degree in Petroleum Engineering and is working for Tom Brown. Byron is a senior production/operations engineer. During the summer of 2001, Bud was elected as chairman of the Montana Tech Foundation's Board of Directors, a position which he currently enjoys and will continue in until at least the Summer of 2003.

Dan Rovig, Chairman of the Board for Glamis Gold Ltd., was inducted into the American Mining Hall of Fame on Saturday, December 1, 2001. Dan earned a B.Sc. in Mining Engineering in 1961 and a M.Sc. in Mineral Dressing Engineering in 1965 from the then Montana College of Mineral Science and Technology. Dan worked for W.R. Grace and Company, Kennecott Copper Corporation, as well as serving as Assistant Professor of Mineral Dressing Engineering at Montana Tech. In 1975 he was appointed general Manager, of Butte Mining Operations and in 1979 he moved to Denver as Senior Vice President, Minerals Operations, for the Anaconda Minerals Company. In 1983 he went

to work for British Petroleum PLC as Technical Director, BP minerals International Ltd., in London, England. In 1985 he was promoted to President, Amselco Minerals Inc., a subsidiary of BP in Denver, CO. When Amselco and Kennecott merged in 1987, Don was named Vice President of Gold Division, BP Minerals America, in Salt Lake City, UT. Don began working for Glamis Gold Ltd. In 1988, and has played a key part in maintaining Glamis' profitability and growth even with gold prices plummeting. Mr. Rovig was the President and CEO of Glamis, until his appointment as Chairman of the Board of Directors in 1998.

Jerry Harrington was recently hired by the Montana Tech Foundation as its new Major Gifts Officer. Jerry Harrington began work on February 1, 2002 with the responsibility of raising funds for Montana Tech of the University of Montana. Jerry was born and raised in Butte and graduated from Montana Tech in 1970 with a degree in Mineral Dressing Engineering. He then began a 30-year career in mining that took him to Nevada and South Carolina before returning him to Montana. During his career, he worked at mines owned by Kennecott Copper Corporation, Anaconda Minerals, Pfizer, Placer Dome, and others. In 2000, Jerry and his wife of 31 years, Cathy, decided to settle in one place permanently. Butte was the easy choice; they purchased and moved into their home in December 2000. This was due to the attractiveness to raise children and eventually, a place where grandchildren can visit. Jerry sees his father, who died in 1995, as a continuing influence in his life. His father, successful and humble at the same time, respected everyone. He gave Jerry ease with decision making because his only advice was to do something very well; no importance put on the 'something'. He used to say if you're very good at digging a ditch – then you're very good. Then he would say, "but I think you could be President if you wanted to". His mother is his model in the world for the ability to love unconditionally based on being non-judgmental. Growing up in Butte gave him a deep regard and affection for the working people and merchants who form the backbone of our great community. Jerry embraces his father's lesson well. When he was elected – without even running – Senior Class President at Montana Tech; or, when he was chosen to be a mine general manager, he looked at the honor with a sense of hoping to 'do it very well' as his dad would have insisted. This provided the energy for enthusiastic effort. And, Jerry is emphatic that that was not enough. For the successes that Jerry has enjoyed, what made the difference? In the words of his good friend Kevin Shannon – "Jer, you married well!" Jerry has spent a large portion of his first month and a half at the Foundation learning how the Foundation operates. To prepare him for asking for donations, Jerry

has also gone to training in Missoula and Chicago. Now that his training is complete, Jerry will be visiting individuals and corporations seeking their support.

Ed Duncan, graduate BS 1954, was honored at the College of Mines and Earth Sciences Convocation, the University of Utah's Commencement in 2001. He was awarded the Outstanding Utah High School Teacher in math and science. According to Ed, "I believe that my thirteen years experience as a Metallurgical Engineer gave me a real background for teaching physics." "I can spin yarns about the real world; most teachers never have this experience." Ed said that his physics background came from one of the best teachers he had ever had, Dr. Nile.

Shanda Meloy and **Jarred Sundberg** (MetE 1999) were married August 4, 2001 in Anaconda, MT. The double ring, candlelight ceremony was held at Hope Lutheran Church with Pastor Ted Hamann officiating. The couple honeymooned in Las Vegas, NV. The bride will receive her Bachelor of Arts in Psychology in May 2002 from the University of Arizona. The groom received his Bachelor of Science in Metallurgical Engineering from Montana Tech in 1999. The couple will make their home in Tucson, AZ.

Leslie Monahan of Metairie, LA and **Mark Peterson** (MetE 1985) of Salt Lake City, UT, were married in Traverse City, Michigan, October 13, 2001. The ceremony took place in St. Luke, the Evangelist Catholic Church in Bellaire, Michigan. Leslie is a graduate of Montana Tech with a Bachelor of Science degree in Petroleum Engineering. She works as a Petroleum Engineer with the Minerals Management Service in Houma, LA. Mark received his Masters Degree in Metallurgical Engineering from Montana Tech in 1985. He works as a consultant Engineer with EIMCO Process in Salt Lake City. The couple will make their home in both Metairie, and Salt Lake City. The couple will honeymoon in Paris during April of 2002.

In a candlelight ceremony November 14, Maureen Roche and **John Tomich III** (MetE 1986) joined together in marriage at the Immaculate Conception Church. After the exchange of vows, cocktails and a dinner was served at the Red Lion Hotel, followed by dancing. The bride earned a bachelor's degree in business from Montana State University and a bachelor's degree in pharmacy from the University of Montana. She is a pharmacist at Kmart. The groom received a bachelor's degree in engineering from Montana Tech and works for Touch America. Following a honeymoon trip to the Mexican Yucatan, the bridal couple plans to make Butte their home.

MetE Faculty and Staff News

Courtney Young, Department Head and ASARCO Distinguished Professor of Metallurgical Engineering.

Like last year, Courtney's research efforts continue to involve cyanide destruction and acid-rock drainage (ARD) remediation. He has paired up with Tam Tran of the UNSW in Australia to examine cyanide/thiocyanate species for management purposes, both for recycling and destruction purposes. Jason Gauer, the student on the project, landed in Australia for the Spring Semester and completed most of his research there. He will graduate this summer. Tom McMillan graduated last May and worked on a MWTP project aimed at selectively recovering metal values in Berkeley Pitlake water. Courtney and Huang are writing a proposal to follow-up on this successful work. Two of his other students, Krag Filius and Dave Fowler continue to juggle work with MSE and school but are expected to finish in May of 2003. Diane Jordan, another MSE employee, is gearing up to do the same. Heather McLoren, who is now with DOT in Alaska, is working on a project there to maximize the adhesivity of tar to road materials; although not metallurgy, it is applied surface chemistry and that is what flotation is all about. Speaking of flotation, Courtney is also working with 6 undergraduates to improve recovery and con grade using a novel approach through the Undergraduate Research Program. Two of the students are seniors and will likely use it for their senior design project as well. As you know, Courtney worked intensively with Corby and Larry to organize and edit the Cyanide symposia and proceedings for the TMS annual Meeting in New Orleans. In there, he presented and published two papers: *Remediation Technologies for the Management of Aqueous Cyanide Species* and a plenary on *Cyanide: Just the Facts*. He also presented and published two papers on the Recycling of Spent Potliner Materials using a novel technology he developed with MSE: NWMA in Spokane, WA, and ICMR 2001 Symposium in Akita, Japan. He will present a follow-up to that paper at the Meeting on Recycling and Waste Treatment in Mineral and Metal Processing: Technical and Economical Aspects in Lulea, Sweden, in June. The process he developed drew the interest of Ron Johnson, a graduate student who is working on the DOE project Courtney has with Tom Moon on "Coal-Content Ore-Grade Analyzer" project. Ron became interested in it while looking for a project to do while taking the Flowsheet Design course from Larry. The project grew into a phase two when he then took Huang's Extractive Metallurgy II course. As a result, Courtney, Larry and Huang are working together on revising the SPL technology and hope to work with MSE as well as CFAC to take the project to the pilot scale level. MSE is expected to apply for a patent as well. Keep your fingers crossed! Finally,

aside from managing seminar and senior design courses, Courtney taught 5 courses: Mineral Processing Technology, Size Reduction and Classification, Process Instrumentation and Control, Coal Processing and Materials Handling.

Hsin-Hsiung Huang, Professor. Huang has taught 7 courses and 1 lab this past year: *Momentum and Heat Transport, Metallurgical Kinetics, Hydrometallurgy, Extractive Metallurgy Lab, Hydrometallurgy Fundamentals, Advanced Extractive Metallurgy I and II, and Mechanical Thermodynamics*. Huang has been working with Larry on Andy's thesis project as well as with Courtney and Ces Fabian, a friend of theirs in Australia, using STABCAL to calculate high-temperature E_H -pH diagrams of copper-sulfur-water system to simulate autoclave leaching of ores at an Australian operation. Courtney presented their well-received paper at the 2002 SME Annual Meeting in Phoenix and will be presenting it again at the Alta Cu Conference in Perth, Australia. In addition, Huang took the lead and presented a paper at the 2002 TMS Annual Meeting in Seattle with Courtney and Larry as co-authors. The paper was entitled "Utilization of Computational Programs for Teaching Hydrometallurgy" and appears in *EPD 2002*. Huang continues to work on the corrosion problems that ASiMI has been experiencing. The work as well as that of Andy involves using the computer-controlled potentiostat/galvanostat as well as STABCAL. STABCAL, as you may recall, is world-renown and can be used to calculate speciation diagrams such as E_H -pH, $\log a_i$ -pH, and $\log a_i$ - $\log a_j$; determine adsorption isotherms; and simulate titration experiments; each with or without mass-balanced constraints and, just recently, in three dimensions if so desired (e.g., E_H -pH- $\log a_i$). If you are interested in this PC-compatible, Windows-based program, contact Huang at (406)496-4139 for purchasing details and check out CAMPs and MetE's websites on the Montana Tech homepage at www.mtech.edu for additional details. Courtney and Huang continue to work with Bob Robins to incorporate the use of STABCAL into a one-week short course on *Chemical Speciation and Equilibrium Modeling*. If you are interested in this course, please let us know by contacting Courtney via e-mail (cyoung@mtech.edu). If enough people are interested, discussions will be pursued eventually to settle on a date. Let us know!

Bill Huestis, MetE Lab Director. Same story, verse 30 for Bill. Students love working with him in the labs and no matter the courseload or the maintenance problem, Bill is there with a smile. He simply loves preparing for and then teaching the students. Consequently, Bill

remains to be the laboratory work-horse, keeping busy with the two mineral processing labs, the two metallography labs, and the analysis lab. Five labs spread throughout the year is busy and will only get busier as the FTEs grow. His analytical skills and services continue to be invaluable to everyone's research as well. Clearly, he is an important cog in what we do.

Carl Cross, Associate Professor. Carl is an avid supporter of the physical metallurgy and materials courses in the department, has over-watched the graduate studies of four students. After having established an international exchange program with the BAM, a federal materials laboratory in Berlin, he arranged for one of his students to spend the summer performing welding research in Berlin. Dr. Cross at the International Weld Modeling Conference in Graz, Austria presented results from this work in September. This work investigated the effect of restraint on metal movement around a weld pool and its effect on weld ability. Results from another welding research project, sponsored by the US Office of Naval Research, were recently presented by another graduate student at the Trends in Welding Research Conference held in Pine Mountain, Georgia. This on-going work is characterizing the weld heat-affected zone liquation of aluminum 2519, to be used on the new US Marine Advanced Amphibious Assault Vehicle.

Larry Twidwell, Anaconda Distinguished Professor of Metallurgical Engineering. Larry has taught eleven courses during the past three semesters, has directed the research of two graduate students (Travis Orser and Andy Hadden), and is presently attempting to get three other graduate students to complete their theses (Ray Ziolkowski, Steve Thurmond and Lauren Cockhill). Larry's other recent accomplishments include: helping to organize a TMS symposium with C. Young and C. Anderson (February 2001) titled *Cyanide: Social, Industrial and Economic Aspects*. During this time he also chaired a session and presented a paper, "Cobalt/Nickel Separation by Cyanide Complexation" written with a co-author, S.A. Schuey. This was the first of several coauthored papers: *Utilization of Computational Programs for Teaching Hydrometallurgy*, written with H. Huang and C. Young for the 2002 TMS Symposium; another with R. Thompson for JOM, *The Recovery and Recycle of Mercury from Chlor-Alkali Plant Wastewater Sludge* (January 2001); and a third with D. Dahnke for EJM&EP, *Treatment of Metal Finishing Sludge for Detoxification and Metal Value Removal* (January 2002). There are two current papers in the works for presentation during the 2002 year. The first will be presented in Lulea, Sweden in June 2002 and consists of two parts. Part one, *Technologies For Removing Thallium From Wastewater to Achieve*

Environmental Standard, is written with coauthor Catherine Williams-Beam, and part two, *Recycling and Waste Treatment in Mineral and Metal Processing*. The second presentation, *Hazardous Constituent Removal from Waste and Process Water* (coauthors J. McCloskey and M. Gale-Lee), *Mineral Processing Plant Design, Control and Practice*, will be delivered in Vancouver, Canada during October 2002. Over the past year, Larry has received funding for three Mine Waste Treatment Program research projects: two presently funded (one with H. Huang, one with C. Young), and one being reviewed for funding (with C. Young). In the same respect, Larry has submitted four research proposals with MSE personnel for potential funding to the MWTP for pilot scale demonstrations. Larry has received the AIME Educator of the Year 2001 Award in Denver at the Annual SME Symposium and has recently received the Distinguished Researcher Lifetime Award at Montana Tech, April 2002.

Tami Cashell, CAMP Administrative Assistant. Five years has gone by very fast! As CAMP continues to grow, Tami continues to be an integral part of CAMP and MetE. Tami served on the hiring committee to replace Rosalie with Traci Fesolowitz. She continues to maintain the CAMP web page and promote CAMP through various marketing materials. The Fire Assay Course will again be offered in August and Tami is gearing up for that. She has mastered the art of "holding down the fort" when Corby is out of the office on business, as it seems to be more and more common these days.

Corby Anderson, Research Faculty and CAMP Director. Corby is heading into his 4th year as Director of The Center for Advanced Mineral and Metallurgical Processing. Under his leadership, CAMP has flourished. Over the past year, CAMP has carried out approximately 40 projects with industrial clients utilizing several students in MetE and other departments as technicians on the projects. Under this program, the students get practical experience and earn some of the highest wages on campus! Corby has continued to be actively involved in various professional organizations including IPMI, SME, SMA, CIM, NWMA, MMSA, TMS and has presented papers and chaired committees at several national conventions. He participates with the National Materials Advisory Board, The National Research Council and the National Academy of Engineering. In 2001, he was co-organizer with Larry Twidwell and Courtney Young for the International Symposium on Cyanide held at the TMS Annual Meeting in New Orleans. He is a Co-editor and Organizer for the Mineral Processing Plant Design Practice & Control International Symposium to be held in Vancouver, BC, Canada in 2002. He is a Section Co-organizer for

Mineral Processing – 2002. He and Courtney Young are organizers for HYDRO 2003, an international Hydrometallurgical Symposium held every ten years. This symposium will honor Professor Ian Ritchie, retired director of the AJ Parker Center for Hydrometallurgy in Perth, Australia. He also continues to assist in advising undergraduate research projects, senior design teams, and sits on several thesis committees. In August of 2000, CAMP held the 1st annual Fundamentals and Applications of Fire Assay Short Course. Corby, Courtney Young and Larry

Twidwell, facilitated the 5-day course which included 2.5 days of classroom and lab instruction and 2.5 days of mine tours including: Stillwater Mining Company, Placer Dome's Golden Sunlight Mine, Apollo Gold's MT Tunnels Mine, and ASARCO'S East Helena Smelter. CAMP held the second one last year and plans on holding another course in August 2002. Check it out on the web (www.mtech.edu/CAMP). Furthermore, CAMP and METE continue a successful and fruitful relationship. Contact Corby if you have projects that you just can't get to; it's truly a win-win situation for all!

Summer and Short Courses

This summer the metallurgy department is offering two classes: Fire Assay for two credits during the last week of Summer and Physical Chemistry of Iron and Steelmaking for three credits during all of the Summer. Fire Assay, as noted above, is a one-week class for eight hours a day. This is a comprehensive course designed to provide fundamental, laboratory, and industrial training in fire assay. The class will be hosted at Fairmont Hot Springs Resort and runs from August 18 through the 23. It is open to both technical and non-technical personnel. The class is two and a half days of sampling lectures, fundamentals of Au, Ag, and PGM fire assay lectures, also a comprehensive fire assay lab session. The class also includes a tour of Industrial Primary and Secondary PGM, Au and Ag Fire Assay Facilities also an underground mine tour at Stillwater Mining Company's

PGM Mine. Other proposed industrial tour sites include Placer Dome's Golden Sunlight Mine in Whitehall, MT and Apollo Gold's Montana Tunnels Mine in Jefferson City, MT. Physical Chemistry of Iron and Steel Making examines physical chemistry principles to describe the unit operations of iron and steel production, which includes coke making, sintering, iron making, and steel making. The class also emphasizes environmental issues. It is offered on a self-taught basis. Plans are in the making to conduct the JKSimMet and JKFloat short courses as well as developing a course to integrate STABCAL and the course once taught by Bob Robins on Chemical Speciation and Equilibrium Modeling. If you are interested in any of these courses, please contact Courtney Young and/or Corby Anderson as soon as possible.

Campus News

VCAAR. Associate Professor of Mining Engineering and PE, Dr. Susan Patton, was named interim-VCAAR by Chancellor Frank Gilmore last year following the retirement of Dan Bradley when he accepted the Chancellor position at WVU. Recently, the search committee presented a list of three acceptable candidates to Chancellor Gilmore for selecting permanently to the position. Montana Tech's new VCAAR is Susan. Although her announcement for the interim position came as a surprise to many because she had no Dept Head or Dean experience, the last year she has proven her worth with her endless energy and enthusiasm for the job. Her selection is met with unanimous approval across not only the campus but the city of Butte and the State of Montana. She is a Southern lady with all the hospitality, people skills and intelligence to boot. Send her a welcoming and give her your undying support.

VCIAD. A search has also been ongoing for this new position entitled Vice Chancellor for Institutional Advancement and Development. The VCIAD will essentially be chief officer in the Foundation but will report to the Chancellor. Five finalists have been

identified and interviewed with a list of acceptable candidates being passed on the Chancellor for selection. No decision has been made but the ideal candidate will possess a Bachelor's Degree (Master' preferred); a record of successful and extensive non-profit philanthropic fund raising (higher education preferred); experience in developing, implementing and concluding a successful capital campaign and other fundraising initiatives; proven ability to lead a professional advancement and development team; superior communication skills; skill in building supportive, successful relationships and working with diverse constituencies, including volunteer boards; and a willingness to make a commitment to the institution. Traveling related to these responsibilities is required.

Theta Tau Psi. The professional engineering fraternity, Theta Tau Psi, regained their status as a colony on December 8, 2001. The fraternity is currently working on chapter status. Members inducted into the fraternity include: Justin Hohn, Eli Rice, Jason Bomar, Glibert Tauscher, Ben Johnston, Sarah Holm, Well Cale, Scott McKnight, Marie Boggess, Andrea Holm, Jennifer

Olsen, Michelle Schumaker, and Jessica Johnston. Theta Tau is trying to re-establish its involvement on campus and in the community, recruit new members, and contact alumni. Sarah Holm is Theta Tau's contact and can be reached at SJHolm@mtech.edu. The Greek group is raising funds for a scholarship in honor of Henry McClernan (see below).

Health Care Informatics. The Montana Board of Regents of Higher Education granted approval to Montana Tech to offer the first undergraduate degree program in the United States for this program. The program will be offered at the Bachelor of Science and Associate of Applied Science levels. Developed in direct response to a significant need that exists in the health care industry, this emerging specialization in Health Care Informatics (HCI) joins the disciplines of health care, information technology, and communications. Individuals with this unique combination of skills, referred to as health informaticians, are in high demand throughout North America as current demand far exceeds the available supply. According to Pat Dudley, Human Resource Director for St. James Healthcare, "The modern health care industry is struggling to integrate the vast amount of information that surrounds the patient. Better management of health care data will not only improve the quality of health care, it will

ultimately result in a more efficient and cost effective industry." Health care informaticians will be trained to understand health care and information technology issues and help bridge the growing technological gap between the health care provider and the patient. The newly approved degree program in Health Care Informatics is schedule to start during Fall semester 2002 but enrollment will initially be restricted to 50 students. For more information, please contact Ray Rogers, Director of College Relations and Marketing, (406) 496-4178 or rrogers@mtech.edu.

Nursing Degrees. Like HCI, there is a huge need across the country for nurses in the health care industry. A few years ago, the COT nursing program was recently expanded from a Licensed Practical Nurse (i.e., two-year) program to an Associate of Science Registered Nurse (i.e., three-year) program. The change helped Montana Tech increase FTEs on the campus. Approval is currently being sought to further develop the program into a Bachelor's of Science in Nursing (i.e., four-year) thereby giving nursing students the option to pursue a variety of degrees depending on their interests. In the words of Chancellor Gilmore, "Montana Tech is only bringing back what used to be here but, now, the St. James Nursing Program and our Engineering Programs are under the same roof."

Campus and MetE Alumni Obituaries

It is unfortunate that death is part of life. It is also unfortunate that it also has to hit home. In this regard, we hate to report that two great professors from the campus recently passed away (Dave Westine and Lester Zeihen), that we forgot to report to you the deaths of two other important cogs (Henry McClernan and Fred DeMoney), and that several MetE alumni also passed away (John Murphy, Leo Abell and Adolp Zezula). Each of their obituaries is shown below. Our sorrow is expressed to the surviving members of all of their families.

David Westine, Ph.D. of Butte, died Monday, December 31, 2001, after a four-year battle with cancer. David was born October 11, 1952 in Billings, MT. He lived as a young boy in Spokane and Everett, WA. He attended high school in West Fargo, N.D. After graduating high school, David joined the North Dakota Air National Guard. He attended Bemidji State University and the University of Florida receiving a bachelor's degree in mechanical engineering and his master's and doctorate in electrical engineering from North Dakota State University in Fargo. David worked for IBM and on research in wind engineering and biomedical engineering before becoming an associate professor at Montana Tech in 1991. He also served as head of the

general engineering department from 1996 until 2001. In 1994 he began a wind energy research program at Tech, funded by U.S. government and industry grants. His program has provided research and study projects as well as career opportunities for many graduated and undergraduate engineering students. David served on the board of directors for the Rocky Mountain Bioengineering Symposium and was a member of the IEEE. He was founder and an active member of the Butte Citizens for preservation and revitalization. David was an avid cross-country skier and telemark skier and a member of the Nordic Ski Club. The Montana Tech Foundation has established a memorial scholarship in his honor to which the MetE faculty and staff gave \$100.

Lester Gregory Zeihen was born in Stevensville, MT February 8, 1913. He attended Montana Tech's School of Mines after graduating high school. He received a Bachelor of Science degree in geological engineering in 1935. He worked for the Bureau of Mines on campus until 1938, when he received his master's degree. He began work with the Anaconda Co. as a stope geologist and sampler. In 1938 he moved to Chile to work for the Anaconda Co. Chile branch in Chuquicamata. He left as chief engineer after fourteen years. He returned to Butte working as a research geologist for the Anaconda Co.

from 1952 until 1979, during which time he worked as a consultant. In 1979 he became an adjunct professor and curator of the mineral museum for twenty years at Tech. He was a member of the Butte Rotary Club founding member of the humane society, served on the Butte school board for eight years, two of which he was chairman of the board. He was also the secretary and treasurer for the Montana Tech Alumni Association for twenty-five years. He belonged to a number of professional geological related societies including the Mineral and Gem Club. Mr. Zeihn was also very involved in helping Butte's future by serving on the Butte Sheltered Workshop board and Model Cities project. In 1999 he received the Uuno M. Shahineh Award for his contributions to the Montana Mineral industry. The Montana Tech Foundation has established a memorial scholarship in his honor to which the METE faculty and staff gave \$100 as well.

Henry G. McClernan died in his Butte home on June 8, 2000 of a heart attack. Henry was born on September 22, 1945 in Long Island, New York. He attended elementary and high school in Butte as well as obtained his Bachelor's and Master's degrees from Montana Tech in 1967 and 1969 in the field of Geological Engineering. He obtained his PhD in Geology from the College of Mines at the University of Idaho in 1977. He was happy to proclaim himself "a doctor of rocks," and was a proud lifelong member of the American Society for Engineering Education. Dr. McClernan had a passion for teaching, his students, and knowledge. He taught upper division and graduate courses in advanced mineral deposits and other geo-science topics. Dr. McClernan was an extremely active man. It was quite common for him to take classes on large road trips to small mine operators or gold prospectors and hobbyists who dealt with small mine development. He was constantly researching metallic minerals. One of his favorite projects was writing the history of placer gold mining in Montana. For over 31 years, Dr. McClernan was an integral figure in the operations and instruction at Montana Tech. Through out his entire career, he served as an undergraduate and graduate teaching and thesis advisor. Dr. McClernan began working for the Bureau of Mines in 1969 and continued till 1986. During these 17 years, he held a variety of positions that include: Economic Geologist (1969-1984), Senior Research Geologist, Acting Deputy Director, and Acting Director (1984-1986). Beginning in 1984 and continuing through his death, he was heavily involved in fiscal, personnel, and program management. He researched and wrote over 20 reports, which were published in renowned journals and magazines. Dr. McClernan was an honorary speaker to the International Conference on Mississippi Valley Type Lead - Zinc Deposits in 1982. During 1986 to 1989, Dr. McClernan became Montana Tech's Director

of Graduate Studies and Research. Through out this time, Dr. McClernan was also Acting Dean and Director of Alumni and Institutional Affairs. While at these positions, he administered external faculty and graduate research programs, the Montana Mining and Mineral Resources Research Institute, and alumni relations. Beginning in 1989 and ending in 1993, Dr. McClernan served as Director of Institutional Research. In 1994, Dr. McClernan became Acting Director of the Tech Library and in 1995, University Associate Dean and Director of Libraries. Dr. McClernan held this position until his death. His love for libraries began early on. He accepted the Montana Library Association Trustee of the Year Award in 1980. He served as a member and Chair to the Montana State Library Commission from 1981 to 1990. In 1994, Henry was a participant in the Montana Library Association Special Friends of Libraries. Dr. McClernan was also an avid Democratic Party Activist. He served as a legislative lobbyist from 1982 to 1991 and was successful in obtaining supplemental funding for bureau operations during this time. Dr. McClernan also lobbied on behalf of the bureau and as a result, he was able to gain support for the Earthquake Studies Office. During 1989 to 1993, he acted as a legislative liaison and added a million plus dollars to Tech's operating and capital improvement budget. For the year 1993/1994 he was a member of the state Senate. From 1980 until his death, he served as a political campaign consultant to individuals or corporations and was a National Defense Executive Reservist for FEMA. Dr. McClernan is survived by his daughter, Maria McClernan of Missoula; son and daughter-in-law, John and Suzy McClernan of Butte; and his younger sister, Mary Lou McClernan of Missoula. He will be greatly missed and forever honored in memory. As noted above, a scholarship is being created in his memory.

Fred W. DeMoney, died in a Butte hospital at age 78 on September 27, 1998 of an unknown lung disease and heart failure. He was born November 25, 1919 in Oak Park, IL, where he grew up. After high school graduation in 1937, he studied at the Illinois Institute of Technology and received a Bachelor's of Science in Fire Protection Engineering in 1941. After working at a couple of engineering firms in the area, including in the position of Engineer for Kimberly Clark in Minneapolis, he returned to school during the years of 1950 thru 1954 at the University of Minnesota. Here, he received a MS in Physical Metallurgy and in 1954, PhD in Physical Metallurgy. While attending the university, he worked at Twin City Testing and Engineering Lab in Minneapolis and in 1954, he became an Engineer at Dow Chemical in Midland Michigan. He remained here for only one year before moving on up. From 1954 to 1972 he served as the Technical Supervisor and Program Manager for Kaiser Aluminum in Spokane, Washington and

Pleasantan, California. Once again however, he found himself back at school. This time though, he attended the Harvard Institute for New Management, ACE and the Institute for Education Management during the summer of 1973. Fred De Money was very active in school. He remained a member of Tau Beta Pi, Salamander, Gamma Alpha Pi, Delta Epsilon, and Sigma Chi fraternities. During his post-college days, he became involved with numerous education, professional, and government advisory boards which include: AIMME, ASM, ASME, the Mining and Metallurgy Society of America, and for close to twenty years, on the Montana Energy Research and Development Institute's Board of Directors. He was also involved on international boards. In Pittsburgh, PA in 1993, he received one of the most honored international awards, the ASMI Fellowship Award. There is so much more which can be said about Dr. Fred De Money such as he was an innovator in the areas of cryogenics and engineering properties with 11 publications to his credit. His engineering achievements also include design, production, and supervision of projects for piping systems to manufacturing and assembly development activities. Beginning in 1972, Fred DeMoney became President of Montana College of Mineral Science and Technology. Through out the 1970's, he served on the Governor's Steering Committee of Montana and Economic Development Project. Dr. DeMoney taught an Engineering Graphics Class during 1977-1978. He held this position until 1985 which, is not only one of the longest tenures in the history of Montana Tech, but also the most lucrative. He oversaw the development of ABET for all eight engineering programs, implemented two new degrees: Society and Technology and Business, increased the faculty by 300% and budget five-fold, doubled research volumes, five major new structures were completed and two were remodeled, and operated the institutions first successful fundraiser which pulled in 4.5 million. Upon his retirement in 1985, he moved to Freeland, WA where he served as President of De Money and Associates, a engineering consulting firm, and as a visiting professor at the University of Washington. De Money and Associates specialized in determining the strength of the hulls of catamaran. During 1992 to 1995, this company was the key component to key Indonesian nationals attending Tech. He returned to Butte in 1996 with his wife, Ione. They were married in Cannon Falls, MN on June 3, 1944. His wife, siblings and numerous grandchildren, children, nieces, and nephews in California, Montana, Minnesota, and the East Coast survive him.

John Emmett Murphy, who graduated in 1948 with a Bachelor's in MT, passed away at the age of eighty-five on Monday, December 31, 2001. John was born in Butte and attended St. Patrick's Boys' Central and later

went on to college at Carroll College in Helena, MT. He enlisted in the army and attended Officer Candidates School near Washington, D.C. He received his commission as lieutenant in the Corps of Engineers and married his grammar school classmate Rita Kelley on December 15, 1945. John served in Germany during WWII. After being discharged from the Army, he and Rita settled in Butte where he earned a degree in mining and metallurgy from the School of Mines. He also received an honorary degree in professional mining in 1971. John worked for the Anaconda Co. for thirty-eight years. He was past president of the Montana Tech and Butte Central alumni associations and served on the St. James Hospital Advisory Board for twenty years, he also volunteered at the Butte food bank.

Leo M. Abell, who received his Bachelor's of Metallurgical Dressing in 1972, died on January 18, 2001, at Pleasant Hill, CA. He was ninety-four. He was a native of South Australia, and obtained a scholarship to the South Australia School of Mines and in 1926 graduated with a degree in Mining Engineering. Leo worked for eighteen months as a metallurgist at the Broken Hill's Central Mine. Leo moved on to Vancouver, B.C. to work for Cominco. He progressed from underground miner, to laboratory research, to concentrator technical assistant to being seconded to work on start-up problems at Hudson's Bay's new copper-zinc treatment plant at Flin Flon. In 1934, Leo was sent to Butte to work at the Montana School of Mines under Professor A.M. Gaudin to improve treatment performance for Sullivan lead-zinc ores. He was successful. Leo met Lucille Thomas, who was employed by the School of Mines. They were married on January 1935. Leo spent two years with a commonwealth agency based in Adelaide, S.A., then accepted a position as Metallurgist at the Mount Morgan Mine in Queensland. In September 1941, Leo was named Mill Superintendent for the Emperor Gold Mines at Vatukoula, Fiji. While at the mill, Leo worked to increase the mill recoveries from seventy four percent to ninety four percent. Leo also volunteered for the Fiji Defense Force, organized to repel an expected Japanese invasion. In February 1949, Leo and his family arrived on the island of Cyprus. Leo had accepted the position of Concentrator Superintendent with Cyprus Mines Corporation. Within Six months he had created a new processing plan that increased copper production through improved flotation recoveries. This process was so efficient that it approximately doubled the operating margins. In 1955, Leo and his family moved to the United States where Leo was appointed Concentrator Superintendent at Phelps Dodge's Morenci Mine. Leo enhanced mill performance and other improvements at the plant. In 1966, Leo accepted a position with Bechtel Corporation and one year later became Chief

Metallurgical Engineer for the Mining and Metals Division. Leo's extensive operation experience was of great value, he contributed sound design ideas the resulted in ease of operation for a number of Bechtel's plants. Leo retired form Bechtel in November 1971, but continued work as a consultant for eleven years. In 1972 the Montana School of Mines awarded Leo the honorary degree as a Professional Mineral Dresser. In 1980, the American Institute of Mining and Metallurgical

Engineers awarded him the title of Distinguished Engineer.

Adolph Edward Zezula a 1942 graduate with a Bachelors of Science degree in Metallurgical Engineering passed away. He was 80 years old and died in the town of La Habra, California in April 2000. Unfortunately, an official obituary was not available. If anyone has a copy, please send it to Courtney.

Lost Alumni

We have not been able to reach alumni in the list below. Along with their names is the year in which they graduated and the degree (whether BS or MS) they last obtained. MT is short for Metallurgical Engineering, MD for Mineral Dressing and MP for Mineral Processing. We would appreciate your help in locating

them. Last year this list contained 87 names but has 113, many of which are the same. This increase is not due to losing contact with mobile alumni but rather to the switch to Raiser's Edge, a more efficient alumni tracking database. Hope we can find them all. Thanks for your attention and help.

Name	Year	Degree	Name	Year	Degree	Name	Year	Degree
Nestor Acuna	1967	MT	Salim Akhtar	1963	MD	Ahmet Altinay	1981	MT
Cesar Alvarez-Sanez	1977	MT	Bernardino A. Aragon	1994	MP	Hernando C. Arauco	1981	MD
Juana Arratia	1958	MP	Ruben Arratia	1985	MP	Sheikh M. Aslam	1952	MT
Darin R. Austin	1989	MT	Phillip L. Banfield	1941	MT	William R. Banning	1966	MD
Thomas e. Bartek	1990	MT	Robert O. Bayaert	1963	MT	Robert H. Behrens	1937	MD
Mac Blackman	1939	MT	George W. Boulter	1982	MP	Herbert A. Browne	1986	MT
Guillermo Caffarena	1972	MD	Ko-Lon Chen	1988	MT	Juan Chia	1983	MP
Augusto E. Chung	1991	MP	Robert N. Coppo	1964	MT	Dilip K. Das	1939	MT
Kenneth L. Dodd	1940	MT	John T. Doherty	1944	MT	Patrick O. Dooley	1968	MD
Micheal B. Doolin	1987	MT	Johannes P. Dreyer	1959	MT	Ralph E. Dufrense	1975	MD
Christian A. Eligwe	1977	MP	Bahri A. Ersoz	1943	MT	Jody Escalante	1986	MP
Francis K. Fasuba	1986	MP	Kurt A. Forgaard	1974	MD	Victor M. Galeretta	1965	MD
Micheal J. Galvin	1986	MT	Jesus G. Garcia	1984	MP	Leobardo R. Garcia	1975	MD
Thomas. P. Gibbs	1983	MT	Lyle V. Hallberg	1950	MT	Brent A. Harle	1987	MT
Harry B. Henderson	1930	MT	Robert B. Hill	1965	MT	Johann G. Hoefl	1964	MT
Richilieu V. Hoff	1978	MT	Cesar A. Honores	1992	MT	Tun C. Huang	1970	MT
A.A. Hussein	1968	MT	Jin-Rong Hwang	1975	MT	John M. Jackson	1954	MT
Deborah Johnson-Horne	1986	MP	Kristen N. Jones	1980	MT	Ponciano Jorge	1981	MT
Zackary T. Kelly	1998	MT	Emmitt L. Klebba	1934	MT	Raymond Kotow	1964	MT
Richard J. Kronstedt	1969	MT	Robert R. Kupfer	1949	MT	Mazen H. Labban	1988	MP
Thomas Lahiti	1982	MT	Daniel B. Lebsack	1984	MT	Gerard A. Ligot	1948	MT
Juhao Lin	1995	MP	Cesar C. Loayza	1980	MP	Eric F. Loros	1980	MP
Bin-Fun Lu	1978	MT	Jorge B. Marini	1982	MT	Donald E. McCarthy	1974	MD
Thomas M. McKenzie	1944	MT	William K. Menager	1982	MP	Young T. Mock	1966	MT
Richard L. Moncrief	1934	MT	Mark A. Morrison	1988	MN	Edward W. Mulholland	1969	MT
Perry S. Murray	1990	MT	James C. O'Dea	1943	MT	Claudio Oestreicher	1971	MD
Ogbonnaya Ofor	1973	MD	Reginald Ohab	1974	MD	Samuel N. Olofintuyi	1988	MP
Osman C. Onbulak	1941	MT	Edwin A. Orzechowski	1978	MP	Walter H. Parken	1937	MT
Mario F. Paulsen	1966	MD	Dale R. Philippi	1985	MT	Louis D. Piana	1949	MT
Douglas B. Poush	1978	MP	Bahram Ranjbran	1984	MT	John P Reynolds	1976	MP
Donald W. Robertson	1987	MT	Armando O. Rodriguez	1980	MT	Helio Shinohara	1990	MP
Tammy Stevens	1999	MT	Hari Suharyono	1990	MP	Neil J. Sullivan	1965	MD
Harry Sun	1980	MT	Jack. L Taylor	1941	MD	Mehrad M. Tehrani	1974	MT
Reginald L. Thereault	1978	MP	Albert J. Turk	1950	MN	Benjamin E. Velasquez	1982	MT
Carlos A. Villachica	1976	MP	Guido P. Villena	1965	MD	Walter Vogeno	1936	MD
Jin Wang	1996	MT	William C. Waters	1964	MT	Raymond W. White	1958	MT
Ernest C. Wilson	1998	MT	Sidney E. Worthen	1940	MT	Ronald L. Wyrick	1993	MT
Joseph L. Young	1967	MD	Jian Zheng	1994	MT			

A Message from the Department Head

Much to your disappointment this time, I am sure, we decided not to include pictures. That decision had a lot to do with the time it takes to reformat everything and the simple desire to simply get this oh-so-late newsletter out to you. Of course, it is "Better late than never" but we were just too close to being never. Keeping in touch with each you is just too important. Plus, we want you to know we are quite excited about the future; the campus has gone through some rough times and the leadership that Chancellor Gilmore has brought to the table and his selection of Susan Patton as VCAAR gives us some great and exciting hope. We know that his choice for VCIAD will makes things even better. Having Jerry Harrington in the Foundation working directly with the new VCIAD as well also shines brightly. Understand that without the changes that are happening and the true vision that Chancellor Gilmore has brought to Montana Tech, we may very well have closed our doors several years ago. His perseverance and dedication has been truly remarkable. He is to be congratulated in so many ways. However, there is still the need to get Vern Griffiths replaced. In this regard, it has been made clear that that will only happen if FTEs are increased. I have worked extremely hard to do just that. Next year, we will be graduating only 5 seniors, but with them is as many as 10 MS graduates. Behind them is approximately 15 juniors, 18 sophomores, and 22 freshmen. Adding says we have 70 students in the program. Because we are graduating so few next year, opportunity exists to grow the department by at least 10 and perhaps even 20 to a respectable total near 90. The name change to the department has helped us tremendously but we offer nothing different from what we offered before. However, as already noted, we must be able to retain the students as well. They must see that good scholarships and internships are available and that our graduates continue to be placed at 100% and into jobs they want at salaries that continue to be the best, all without sacrificing a quality product that this department and the school, in general, are known for. In all these areas, you have helped tremendously. Your "restricted" support to the department through the Foundation has nearly doubled in the past four years. This has improved our ability to recruit with scholarships. Good students are knocking on the door. These are the students that we must keep so we can get them to you upon graduation and for internships before. Again, to do this, retention is important. The best way to do this is through retention scholarships particularly since tuition is on the increase. Two years ago, tuition was near \$3500/yr for in-state but 25% increase since then has brought that figure to near \$5000/yr. It will be near \$11,000 for out-of-state. Consequently, even though Montana Tech has among the best scholarship/student ratio in the nation, the scholarship pool needs to increase to cover their additional educational expenses. In this regard, both the Scholarship Committee and the Foundation do what they can but we will need additional help and continued support. I cannot thank you enough for your past contributions because it is clear that, in spite of the efforts of Chancellor Gilmore and VCAAR Patton, we would not be where we are now without you. You truly are among the best of alumni in the world: you donate, you help recruit, you have summer positions, you hire permanently, etc. We hope all is well with each and every one of you. Please allow us to "extract" some news from you; drop us a brief note to let us know what you have been doing; we hope to include it in the newsletter next year. Send it to us by e-mail to either myself (CYoung@mtech.edu) or Traci (TFesolowitz@mtech.edu). The MetE office phone and fax numbers are (406)496-4314 and (406)496-4664 or 4133, respectively. Take Care and Thank You once again!

Montana Tech

215 ELC Building
Dept of Metallurgical and Materials Engineering
1300 W. Park Street – Butte, MT 59701

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