

Mudslinger

A departmental newsletter for UM-Rolla Ceramic Engineering Alumni and Friends

INSIDE

The Year in Brief	2
Annual Banquets	3
Survey Results	3
15th Univ. Conf. on Glass Science	4
Picnic	4
Alumni News & Memoria	5
2000 ACerS Convention	5
Giving Partners	6
Virtual Department	7
Faculty News	7
Where Gifts Are	8
Grads & Notices	9
Your Turn	10

News from the Chairman

Hi! These are very unusual times for us at UMR, as we will describe. Frankly, we are going to need your financial help more than at any time before. The basic problem is that we are caught in a demand-supply time warp. Let me explain ...

First, here's some great news. These are exciting times for Ceramic Engineering students and for new graduates. Starting salary offers have increased 30-60% over five years ago – and, jobs are going begging. Entry level salaries have begun to cross \$50K for some employers – and these are repeat customers. Our grads are being sought by both the traditional ceramic industries and high tech companies. Nearly 200 companies came to the career fair in the spring, with some having to be turned away. We are producing highly respected graduates!

But, here is some worrisome news. In spite of the unprecedented quality of the job market, **engineering enrollment throughout the country continues downward** as UMR is painfully experiencing. These enrollment declines are creating prolonged budget crunches in the UM System and are resulting in extensive internal organizational reviews on the campuses, which

could alter the structure of low-enrollment departments. The University of Missouri Curators have resolved to pare the costs of operation for the next five years. One way that impacts us is in the plan to reduce the levels of university-funded scholarships.

What we need to do: While we are not one of the inadequately-enrolled departments, we are below our averages of the last fifteen years. Freshman enrollment is primarily affected by the number and amount of scholarships we can offer, and here we are at a distinct disadvantage relative to other departments due to insufficient scholarship funds available for qualified Freshmen. This deficiency will be magnified by the reduction in campus scholarship funds mentioned earlier. Thus, scholarship fund development is a high priority focus area for us as we are asking our alumni to help us during these difficult times. In a companion article, we hope you will see that we have been good stewards of your previous gifts, but we covet your generous support at this time! (See "Where Your Gifts Have Gone"). We urgently need our alumni to consider making gifts of \$200 or more to us during the February Phonathon – or sooner!

Make sure to read on. We intend to report on the many positive things happening at this time in separate articles in this newsletter. Make sure you read them all. See who's retired. See who's been hired. But before I close this message, let me share some general feedback from tear sheets you sent back. First, our alums want more *feedback about their classmates* – and this we will do, but you have to help us. In this issue we have expanded the alumni news to include all we have at this time. If you send us news, we'll attempt to publish it. Second, the alums would like to *hear from us more often*. So, we are going to try to get two or three smaller newsletters issued each year, focusing on different topics. But, that also means we need to hear from you more often.



Wayne Huebner
Department Chairman

The Year in Brief

Greetings from your Alma Mater ! This has been another exciting year for the department. I won't repeat here what is contained in this issue, except for a few highlights:

The Keramos chapter at UMR won the **James E. Mueller Outstanding Chapter Award** for a record **FOURTH consecutive year** ! This beats the previous record held by Alfred University. With the hard work and determination of this year's student groups I predict we will win a fifth time. Dr. Brow is the Keramos Faculty Advisor, and I know he's enjoying beating up on his Alma Mater (Alfred).

We celebrated the 67th anniversary of the student branch of the ACerS (originally the Orton Society) and the 52nd anniversary of Keramos with our 3rd Annual Homecoming BBQ. (see report)

21 B.S., 2 M.S. and 2 Ph.D. students graduated from the department this year - all have jobs !

James Fleming and Charlie Sorrell were honored with Professional Degrees at the December Commencement.

We have another new faculty member ! Dr. Bill Fahrenholtz, from the University of New Mexico, joined the faculty in July.

Drs. Ownby, Day and Anderson all "retired" this year. Fortunately for the department, all are still here working hard on their research.

At the ACerS Convention in St. Louis this year we will have a dinner honoring **Dr. Charles Sorrell** on Monday night. Those of you who had Dr. Sorrell as a professor know what a positive impact he had on many alumni. We hope you can make the dinner, and bring along a few stories to share. We're looking for volunteer speakers who can roast / honor Dr. Sorrell. The registration form for the dinner is on the pull-out sheet. **Please return the insert to the Department before April 20.**

The students groups have had another banner year, performing a wide variety of outreach activities, running the University Open House, Parent's Day, etc. Pictures and details follow.

The May and December graduates enjoyed another outstanding recruiting year. All of the graduates accepted offers and every week employers are calling, looking for graduates, and we have none to offer ! This is particularly disappointing to me. We could use a few more undergraduates. If you're looking for a career change, a good place to look is the Ceramic Engineering Department web page. A section of the website is dedicated to job opportunities.

The faculty are productive as ever in research. At UMR the average faculty research productivity is \$40K; in our department the average this past year approached \$200K. See the highlights in the Faculty News section. Over the course of this year the curriculum was changed

dramatically. This process is part of continuing efforts to improve the content and quality of the education our undergraduates receive. Responses to last year's survey played the key role in our decisions - **thanks for your input** ! Differential Equations is now a technical elective instead of a requirement; we have substituted Statistical Design of Experiments. EE 282, Electrical Circuits, is history. We've added two new courses: Cer 300: "Organic Additives to Ceramic Systems," and Cer 101: "Introduction to Ceramics." The latter will be offered during the freshmen year as a substitute for the cancelled FE 015.

In the year 2002 we will be reviewed by the Accreditation Board for Engineering Technology (ABET), using an entirely new set of criteria. Important to this process is information from our alumni regarding the value of their education, and suggestions for improving what we do. Our success is in large part due to our outstanding undergraduates, who work hard to maintain a professional attitude but at the same time have a lot of fun. The quality of our students is still well above UMR average. The average incoming ACT score is 29.4, and the average GPA=3.195. Both are highs in the School of Mines and Metallurgy. Campus-wide, only the applied Mathematics and Physics departments were better.

The Phonathon is coming up on Feb. 27th through March 1st, and I hope you won't vacate the premises on those nights. We'll have a hard-working group of students calling for your help. Last year the department raised a record \$17,166. Thank you for helping future generations of UMR Ceramic Engineers ! Thanks also to all the alumni who visit us regularly. Believe me when I say how great the impact on the students is when you come to our Keramos banquet, attend the reception at the convention, and talk to them in the hallways when you're on campus.

Wayne Huebner

[TOC](#)

Phonathon Dates



**February 27 -
March 1, 2000**

Keramos and ACerS/NICE Annual Banquet

The annual Honors Banquet was held this year at Aussie Jacks, a new restaurant in Fort Leonard Wood. A good time was had by all, and the following honors were given out:

Honorary Keramos:	Dr. Ken Goretta, Argonne Ntl. Labs
Distinguished Alumni:	Mike Koenigstein, Roesch Enamel
Outstanding UG:	Julie Crow
Outstanding Senior:	Sarah Vehige
Outstanding Graduate :	Chad Essary
Outstanding Faculty:	Richard Brow



Annual Alumni BBQ

The student branches of Keramos and ACerS put on the third alumni-student BBQ on Oct. 1, 1999, and as usual, the afternoon was marked by perfect weather. Begun as a last minute idea by the students, the attendance at this event is

growing. While the faculty really look forward to the alumni visits, this occasion means a great deal to the current students. For many, it's their first chance to meet practicing ceramic engineers. We've structured it so that it's not an evening's commitment, but a good fun time – and as someone has said, we're always ready to "meet and eat". Please, put this on your schedule when you return for homecoming. It'll mean a lot to us. [TOC](#)



Survey Results

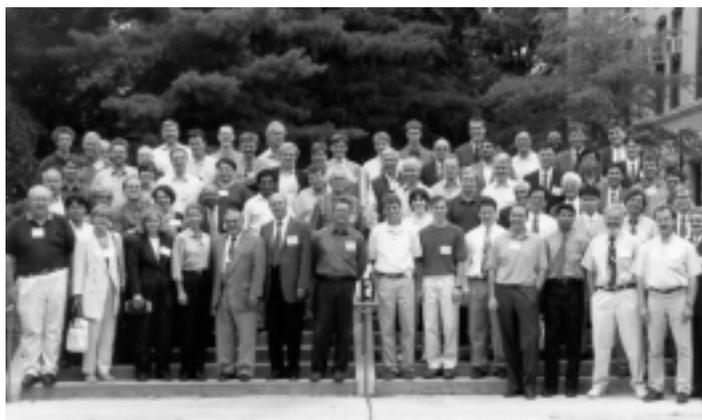
Thank you so much for your survey feedback last year. We have looked over every response very thoroughly and with much interest. We are happy that the vast majority of respondents are pleased with their education and would recommend others to UMR. Out of 39 respondents who have completed their education, about 75% work in manufacturing, sales or consulting. Another 25% report they work in R&D. We conducted a discrepancy analysis, to determine where a difference of two opinion points or more were observed between the importance of a topic and how UMR served that need. Below are the results of that analysis ranked on decreasing consensus. The number of responses indicating discrepancies between importance and UMR training are shown in parenthesis. For example, 24/39 felt communication skills should have been emphasized more.

Communication Skills (24)
 Business/Finance (23)
 Materials Science (10)
 Engineering Economics (9)
 Math (-10)

Many of you will be glad to know that for the last ten years, we have been greatly increasing the writing and presentation requirements of our students, and the improvement is striking. The negative number in math means that 10/39 felt they were over-trained in math. [TOC](#)

15th Univ. Conference on Glass Science:

Structure, Properties and Applications of Phosphate and Phosphate Containing Glasses, June 20-23, 1999, at the University of Missouri-Rolla.



Prof. Richard Brow organized the 15th University Conference on Glass Science, held June 20-23, 1999 at UMR. This conference is a series that is rotated between different universities in the United States. The series began as the 'Rolla Conference on Glass Science' in 1969, initially organized by Profs. Norbert Kreidl and Delbert Day. The topic for the 1999 conference was '*Structure, Properties and Applications of Phosphate and Phosphate-Containing Glasses*'. The conference opened with a dedication to the memory of Prof. Kreidl, recognizing him both on the thirtieth anniversary of the University Conference series as well as for his important contributions to the foundation of phosphate glass science. The technical program consisted of 64 papers, of which 37 were presented in five oral sessions and the rest in a lively poster session. Over eighty scientists and students representing Brazil, China, Croatia, France, Germany, Japan, Liechtenstein, Sweden, and the United States were in attendance (see the group photo). The Conference Proceedings will be published by the *Journal of Non-Crystalline Solids* in March 2000.

[TOC](#)

Scenes from Spring Picnic 1999



Hey! When's this picnic start.



Great food! Limited Seating.



A dangerous way to roast marshmallows.

[TOC](#)

Alumni News

Raymond B. Jones, '46: K&R Jones, Bay Village, OH.

Donald C. Griffin, '50: Retired from Electronic Products, Inc. which he helped start in 1960. Still consulting.

Bill Denk, '60: 1999 Harry E. Ebricht Award, Fort Worth, TX.

Clarence J. Phillips, '59: President of Alcatel NA Cable Systems, Inc.

Robert M. Sommerkamp, '64: Technical recruiter for Sommerkamp & Associates.

Dennis L. Zullig, '70: Chief Operating Officer at Ran-Paige Co., Inc.

Bob Doerr, '72: "Had a great trip to Germany last fall, visiting numerous relatives, all found by family-history research."

Fran (Venable) Erickson, '79: "I've been polishing up my manufacturing skills by assisting my husband, Kelvin (UMR Prof.), in teaching short courses on controllers for Factory Automation."

Tom Wetteroth, '83: "Chasing the periodic table for that killer semiconductor application. Last year was SiC, next is GaN and Fe/Ni MRAM. Expecting some growth in Materials Engineering needs by the semiconductor industry as combinational products emerge from systems on a chip. Where on earth is John Schelnutt, the Geology major with the killer tennis serve?"

Patricia A. (Peick) Daluga, '84: "Tom & I were married November 7, 1998 in St. Louis."

Paul M. Pericich, '86: "I've moved back to St. Louis and am working in Quality Assurance at MEMC. I've enjoyed my 1-1/2 years."

Linda (Voellinger) Harrell, '88: "I'm happily married to Russ (Met Engr.). We have three boys- the oldest just started kindergarten. I've gone to a more flexible work schedule where I'm in the office for four, eight-hour days and I work an additional eight hours from home--whenever! It's a great arrangement."

Eric G. Wilkins, '90: At re-named CoorsTek, Benton, AR. One year old daughter, Celia.

John Witham, '90: "I have been busy with two classes after work (LabVIEW programming and digital microprocessors) and of course with work itself. Since my project has been put on hold here at SMC, they have been slowly converting me into an instrumentational software engineer! Ugh! Still this is a good opportunity for me to learn programming and data acquisition. I can later put this to good use when I get back to working on piezoelectric actuators and motors."

Martin Carmody, '91: Private Consultant, Festus, MO.

Chris Leach, '92: "I enjoyed the newsletter, interesting reading. I would suggest circulating it twice a year, if time and money permit." Noranda Aluminum, Sikeston, MO.

Joe Tutka, '94: Sales Engineer for Kyocera, Arlington Heights, IL.

Joshua M. Sabec, '97: Howmet, Newport News, VA. Married last year.

Dr. Weiming Zhang, '97: left UMR in December, and is now working for Heraeus in Philadelphia,

PA.

Brian Gilmore, '97: Ph.D. candidate, UMR. Brian and Kristi, proud parents of Lauren (11/17/99).

Cathy Edwards, '97: Mkt. Manager, Engineered Ceramics, Gilberts, IL.

Gary Ross, '97: CoorsTek, Benton, AR.

Amy Barnes, '97: Ph.D. candidate, Penn State.

Kelly (Schmid) Rowden, '97 & Brian Rowden, '97: Married July 16, 1999 and now working at Dielectric Labs, Inc., Cazenovia, NY.

Matthew Hall, '98: M.S. candidate, Alfred University (bio-ceramics).

Chuck Lofton, '98: University of Florida, bio-ceramics.

Elizabeth (Hinton) Chambers, '00: Married 1/1/2000.

Sarah Vehige, '99: Motorola, engaged December 1999.

Sam Conzone, '99: Working at Schott Glass, PA.

Josh Wojcik, '99: Employed at NRL, Washington, DC.

Vic Gonzalez-Tait, '99: Motorola

[TOC](#)



In Memoriam

We are sad to report the following deaths of alumni and friends.

Paul Combs [99(posthumous degree)] died in an automobile accident in 1999.

Roberta Jones, wife of Ray, April 1998 after 50 years of marriage.



INTRODUCING

We would like to introduce **Ami Willett**.

She has replaced Patty Smith as our department Secretary. Ami started with the department in September 1999. She will be doing all the purchasing and accounting for the department. Patty Smith left in

August to work with Dr. Anderson in the Electronic Materials Research Center and we wish her the best.

The ACerS Convention – St. Louis – Rolla

This will really be a special year for ACerS Convention goes since it will be held in St. Louis on April 30-May 3, 2000. For many alums and students this will be a unique opportunity for all our students to attend and mingle with alumni. We are making special plans for an alumni dinner at **Mike Shannon's** in downtown St. Louis this year and expect attendance to reach up to two hundred. We will be honoring Dr. Charles Sorrell. We will do everything we can to "bring" the Department to you this time. Put it on your calendars and put in your requests to travel well in advance so that we can see you there. **Be sure to fill out the [registration form](#) for the dinner and mail prior to April 20.**

[TOC](#)

Thanks to so many ...

We want to do more to acknowledge those who have stood by us over the years through their financial gifts and support. As we put a recognition program into place we recognize how future acknowledgements may unweight the generous past gifts of our alumni. So, at the outset, we would like to honor all known living donors with a special recognition page. This page says, "Thank You," from the bottom of our hearts.

We hope to continue to publish this list in the new millennium, enhancing the recognition by additional notations. Without any intentions of diminishing the generosity of gifts in the past, we would like to annotate this list in the future by recognizing four classes of donors. (Tell us if we missed you---we will acknowledge in the future.)

In the future, we would like to recognize recurring givers by printing their names in bold print. We plan to recognize all whose annual gifts total \$200 as "Silver Partners". Those whose annual gifts reach the \$500 dollar level will be recognized as "Gold Partners" and those making a gift of \$1,000 will be recognized as "Platinum Partners." Your feedback on these plans is earnestly solicited.

[TOC](#)

Previous Partners

Charles E. Achuff '33	Brian K. Flandermeyer'76	Laura (Vrabel) Lowe '93	Narayan M. Sedalia '62
Terry L. Adams '84	Aaron Todd Freese '87	George MacZura '52	Everett W. Sharp '40 (P)
Larry A. Addington '70	Ronald C. Gaus'71	Walter E. Mason '82	James E. Shelby '65
Gerald W. Allmon '58	Brian L. Gilmore '97	Eric S. Mast '87	Andrew Jay Skoog '86
Brent M. Babyak'84	Carl M. Gioia'73	Douglas M. Mattox	Erica Marlene Skouby '84
Paul A. Baker'77	William H. Grant'58	Ronald A. McCauley'64	Cathleen Renee Smith
John R. Banks '64	Maurice E. Green'64	Willie E. McCullah '68	Ellis Jean Smith '55 (P)
John G. Bartel '52	William R. Griffin'51	Sarah M. McGee '98	Gerri E. Smith '83
Daniel Joseph Beck '86	Mary Elizabeth Grimm '96	Erin B. McLaud '94	Harlan D. Smith '48
John H. Bender'53	Gene H. Haertling'54	Paul McLaughlin '86	Jason Andrew Smith '98
Duane D. Bequette '75	James D. Haffner'63	Philip D. McPherson 'B3	Jeffrey Douglas Smith '91
James S. Blank '50	Scott Arthur Haling '93	Michelle Lynn Melton'91	R. Thomas Smith '58
David S. Blauvelt '75	John W. Halloran '73	Joseph E. Michelotti '52	Russell D. Smith '72
Robert L. Bloome '50	James Russell Hann '90	Christine Marie Miller'98	William J. Smothers '40
Edward N. Boulous '71	Andrew David Hanser'92	Karl D. Miller'64	Christy (Cheeley) Stansifer '93
Thomas C. Browne '51	Robert L. Hart '70	Thomas Michael Miller'91	Roger C. Steinbrueck'84
Julie (Board) Brunner '88	Wendell L. Haubein'56	John F. Mitchell '59	William E. Steinkamp'64
Vernon L. Burdick '67	Enrique S. Heller'50	Robert E. Moore '56 (P)	Everett G. Stevens '52
Kelly Jae Busch '82	James L. Hill.'64	Edward E. Mueller'48	Joseph E. Stevens '32
Bryan E. Byrd '79	Wayne Huebner '82 (P)	Robin A. Murphy'76	James M. Stubbs'71
David W. Carter'64	Orville Hunter'60	Donald R. Orcutt'74	David J. Suiter'74
James E. Cauthom'53	Ann A. (Painter) Ihms '81	Brian K. Osborne '90	George H. Taylor'64
John Andrew Conrad '91	Paul L. Inman '67	P. Darrell Ownby'62	Sean Christopher David
Albert N. Copp '62	Wayne E. Johnson '68	Lee T. Palmer '65	Sean Teitelbaum '97
Patricia (Peick) Daluga '84	Raymond B. Jones '46	Marvin John Pennell '88	Albert L. Tetley '39 0
Julie Ann Davenport '96	Daniel Owen Karraker'92	Paul M. Pericich '86	Tadashi Tsukamoto '75
Lu Gene (Ann) Dawson '42	Vernon L. Kasten '45	Jeffrey A. Phillips '84	James J. Tuzzeo '64
Delbert E. Day '58	Walter H. Kiburz'46	Miriam Planje	James D. Tyler'70
William J. Denk'60	Susan (Means) Knittel '83	Neil S. Portnoff '70	M. William Vance'65
Israel Denlow'70	Karen Sue (Niehaus) '93	Edgar A. Quick '68	Maurice Vandenberg '74
Fred R. Dice '59	Michael Koenigstein '93	Jeffrey R. Ramberg '82	Ernest R. Verebelyi '69
John Ross Dillingham '93	Kara Joyce Kopplin '92	Roy R. Ramey '70	Robert Kent Wade '90
Robert M. Doerr '72	Lawrence David Krull '88	Christopher Ramsay '83	Kent Weisenstein, '60
Clemens P Drag '68	Donald L. Kummer '55	Kevin Lee Reiche '84	Roy C. Werner'43
Theodore H. Dressel '63	Shahid G. Lakhwani '97	Frances (Jenkins)	J. Gregory Wesling '88
Richard C. Drumwright'68	Michael L. Lampe'75	Rensvold '72	Thomas A. Wetteroth '79
Edward C. Duderstadt'58	Glen A. Larsen '70	E. Richard Reynolds '74	Kenneth M. Wilhelms '46
David Lee Dumoulin '66	Leonard N. Larson '43	Lindell G. Rutherford '71	Sara (Folluo) Wilke '81
Thomas E. Dustman'72	Valerie (Butler) Latimer '85	Heidi Leigh Rutz '85	Eric G. Wilkins '90
Roland E. Dutton '76	James G. Lawrence '81	Angela (McEntire) Sabo '87	Matthew W. Willer'98
Robert J. Eoff '70	Billie E. Leach '70	Donald P. Schilling '78	James O. Williams'58
Kelvin T Erickson '78	John W. Lewis '47	Paul E. Schiett '72	Scott M. Williams '97
Chad Robert Essary '98	Timothy V. Lin '91	Keith Eugene Schoby'92	John P. Witham '90
William W. Evans'49	Vincent N. Logan '70	William D. Scott'74	John C. Young '53
Barry G. Fitzgerald '62	Mark Lynn Louder '90	Matthew Seabaugh '94	Frank J. Zvanut '32

Virtual Department

Have you looked at our web page yet? <http://www.umn.edu/~ceramics>. We are daily bombarded by dot.com stories in the financial sections of the paper. We can tell you from first hand experience that the world wide web is rapidly altering the immediacy and access of advanced education. One of the most exciting aspects of this revolution is its potential to re-connect you with your Ceramic Engineering Department. Currently, Denise maintains an excellent jobs-posting section on our web page. Individual faculty members put more and more of their course materials on the web. Try Dick Brow's course notes for CER103: Introduction to Glass Science at <http://www.umn.edu/~brow/outlineWS99.html>, for example. Too easy? Take the whole phase equilibria course of Dr. Ownby which he has assembled at <http://www.umn.edu/~ownby/phase/phase.html>. This is the changing face of advanced education today and will expand even more. You may soon be able to take courses for credit from UMR without leaving your place of residence. But, wait, there's more!

We want to hear from **you** electronically. Would you send us your e-mail addresses? Would you let undergrads develop an electronic, mentoring acquaintanceship with you? Would you like to have a chat-room to discuss ceramic problems you face? These are eminently feasible. If you're game, send us your e-mail addresses so we can etherially re-register you. (Contact eddings@umn.edu or dmattox@umn.edu) [TOC](#)

Faculty News

A rush of retirement occurred in 1999. In January, Dr. Day retired after 37 years. In May 1999, Drs. Anderson (29 years) and Ownby (31 years) retired. These followed Dr. Moore's retirement in 1997. But, don't worry that you "won't know anybody if you stop in", because the retirements are only technical. Each is fully active and expanding their research programs with Drs. Moore and Ownby continuing to teach as well. We added Dr. Bill Fahrenholtz in the Summer of 1999 to gradually assume the courses taught by Dr. Ownby. This leaves us with a total of ten faculty active in research and teaching.

Dr. Harlan Anderson, with the assistance of UMR, the State of MO and DOE, has a fully operational "clean room" which has improved our capabilities of producing higher quality ceramic dielectrics. This is impacting our programs in high energy density dielectrics. As a result, this activity has developed into an expanding research area for EMARC. In addition to the dielectric research, our past efforts in developing an understanding of the electrical properties and preparation of ceramics has enabled us to sustain very active programs in solid oxide fuel cells, oxygen separation membranes and oxide thin films. Thus the past

year has been a very busy and productive time for EMARC. (harlanua@umn.edu)

Dr. Dick Brow's current research activities involve studies of the properties, structures and applications of glass. His students are involved in projects to a) characterize the dissolution characteristics of platinum into phosphate laser glasses; b) design new glasses for low temperature hermetic seals; c) develop biocompatible glasses that bond to titanium; d) understand the aqueous dissolution characteristics of various glasses, including those that can form hermetic seals with aluminum alloys. He has been involved with projects to upgrade the analytical capabilities on campus. This year, new electron spectrometers (XPS and Auger) will be installed in the Materials Research Center and a new solid state Nuclear Magnetic Resonance probe will be available in the Chemistry Department. (brow@umn.edu)

Dr. Delbert Day and his expanding number of graduate students and visiting scholars are continuing to conduct research on glass. New, is a project to investigate glass microspheres for tagging explosives to identify the manufacturer and detect hidden explosives. This work also involves Ceramics, the Materials Research Center, and Rock Mechanics Center at UMR. Visiting scholars from China and Romania as well as students from Siberia, Turkey, China, France, study iron phosphate glasses for vitrifying nuclear waste, glass microspheres for medical applications and, along with Dr. Chandra Ray, study glass properties in microgravity. After years of Canadian usage, TheraSpheres™, the rare earth aluminosilicate (radioactive) glass microspheres developed at UMR/UMC for the treatment of liver cancer, will receive FDA approval for use in the USA in early 2000. Initially, patients' livers will be injected with the radioactive glass microspheres at 6 to 8 treatment centers now being selected throughout the US. Several thousand patients should be treated in the coming year. (day@umn.edu)

Dr. Bill Fahrenholtz: Joined the Ceramic Engineering Department in July 1999. For the past 7 years he was a research professor at the University of New Mexico working in the UNM/Sandia National Labs Advanced Materials Laboratory. His research interests include ceramic-metal composites, reactions at ceramic-metal interfaces, sol-gel processing, and mullite ceramics. (billf@umn.edu)

Dr. Greg Hilmas joined the faculty in the Ceramic Engineering Department at UMR in March 1998. It's hard to believe that almost two years have gone by already. In the fall of 1999 he had a great time teaching the CER306 - Thermomechanical Properties course for the second time along with a good portion of CER104 - Ceramics in the Modern World. During the Winter Semester of 2000 he will be writing and teaching a new graduate level course on processing/properties/applications of composite materials. His laboratory research continues to go well with external sup-

port coming from DOE, Smith International, and AlliedSignal (Honeywell). These projects involve dispersion of ceramic and metal powders into thermoplastic-based binders and their subsequent extrusion into hierarchical architectures and 2D laminates. Recent research and development on diamond and tungsten-carbide based drilling tools have led to some novel materials that are expected to go into production in the year 2000.

Dr. Wayne Huebner's research group has focused on several technologies, including high energy density dielectrics and pulsed power materials. Currently five graduate students are in his group. Brian Gilmore is the senior graduate student now, working towards his Ph.D. on high field, high permittivity ceramics. (He is also a recent father; Lauren Lindsey Gilmore born last November.) Eric Carleton will be completing his M.S. in May on gas discharge switches, and will be heading to Berkeley for his Ph.D. studies. Chad Essary will also graduate with an M.S. in May, and going to the University of Florida for his Ph.D. Xiao Dong is working on his Ph.D., studying nanocomposites for fuel cells. Zach Byars is pursuing his Ph.D., developing materials for low temperature solid oxide fuel cells. Dr. Weiming Zhang left in December, and is now working for Heraeus in Philadelphia. Zhang, Xiao Mei, Jaci and Marvin are all still here and doing very well.

Dr. Doug Mattox is teaching a full course load (Xtal Structures, Economic of Mfg., Microelectronic Process., Mat'l's for Manufacturing, Sen. Design) and completing a research project exploring the use of land-filled municipal waste glass (bottles) and construction/demolition glass (windows) as a batch component in architectural brick and terra cotta products to lower firing costs. (dmattox@umr.edu)

Dr. Robert E. Moore: The refractories Satellite at the Center for Glass Research at Alfred University has completed construction of an oxyfuel-fired melter. The work is supported by CGR members, BOC Gases, Emhart Refractories and ORNL. A new member, Magneco-Metrel is joining this year. The UMR team (R.Moore, M. Velez, M. Karakus, W. Headrick, C. Carmody, D. Robertson, L. Carroll and J. Almanza) was awarded a CGR project grant to monitor combustion space gases in the melter. (rmoore@umr.edu)

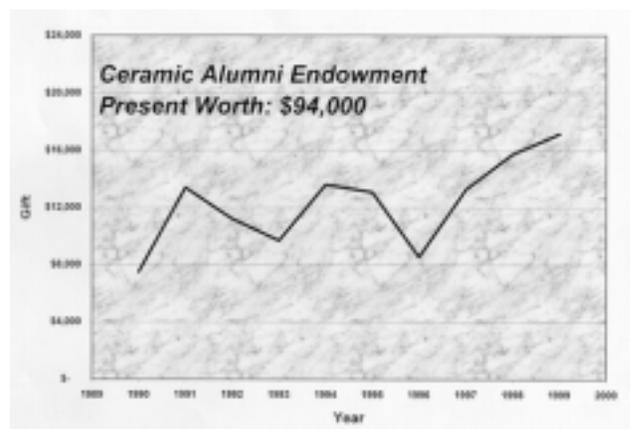
Dr. Darrell Ownby and his students have recently had their work published in somewhat unusual places, indicative of the broad scope of their work. They include the Journal of Adhesion Science and Technology, Optical Engineering, Separation Science and Technology, Infrared Spaceborne Remote Sensing VII SPIE Journal, and the Journal of Mining and Metallurgy published by the University of Belgrade in Bor, Yugoslavia. The cover of the Feb. 2000 issue of the Journal of Materials Science will feature the microstructure of a unique B₄C whisker/Alumina composite described in their article in that issue.

Dr. Len Rahaman's current research is focused in the following areas: (i) microstructural design of self-reinforced mullite with enhanced toughness for applications as thermally insulating engine components and improved refractories; (ii) the low temperature synthesis of fine particles and epitaxial ferroelectric films by hydrothermal processing, (iii) texture and anisotropic microstructure of layered ferroelectrics based on the bismuth titanate system and (iv) the net shape formation of refractory ceramics (alumina/zirconia and mullite/zirconia) by reaction bonding. He has also started the process of revising his textbook "Ceramic Processing and Sintering) for a second edition. (rahaman@umr.edu)

[TOC](#)

Where Your Gifts Have Gone

For the last ten years, your gifts have been predominantly used to create a **Ceramic Alumni Endowed Scholarship Fund**. The campus endowment policy allows us to distribute five percent of these funds each year. From having no such recurring funds in the past, we now can award five to ten scholarships per year for recruiting purposes. We are able to give a few additional scholarships due to the generosity of some alumni like Kent Weisenstein (60) and occasional, non-recurring gifts. Because of current recruiting difficulties, we really need twice this level of funds in the short term. We believe this can happen in two years with the support of our alumni. Three of the departments in the School of Mines and Metallurgy have endowed funds between two and four million dollars. Between our Ceramic Alumni Endowed Scholarship Fund and the J. B. Arthur Scholarship fund, we have approximately \$600,000. This puts us at a recruiting disadvantage, which is why we are asking for special help this time. A gift of \$200 will make an enormous difference at this time.



[TOC](#)

Kent Weisenstein ('60) is the recipient of the 2000 Theodore J. Planje Refractories Award which will be presented at the St. Louis Section Meeting on March 24.

May 99 Grads



August Altenbaumer	Kohler Company
Jennifer Carlson	VSM Abrasives
Kenan Fears	Graduate School, UMR
Shawn Hindman	CoorsTek
Tim Miller	Certain-Teed
Courtney Monzyk	Graduate School, UMR
Eric Pringer	Graduate School, UMR
Yi Wong	Malaysia

December 99 Grads



Matt Bourbina	Graduate School, GA Tech
Michelle Buhr	Rosemount
Victor Gonzalez-Tait	Motorola
Katie Hillstrom	Not Available
Kathryn Jost	N/A
Marisa McGregor	Lockheed Martin
Erika Middleton	N/A
Darren Proctor	Litton
Aaron Shipley	N/A
Nichole Sloan	Black & Veatch
Jeremy Spencer	N/A
Sarah Vehige	Motorola

[TOC](#)

St. Pat's Sweatshirts

We will be offering the St. Pat's sweatshirts again this year as part of our phona-thon. They will all be size XL. These will automatically be sent out with your donation of \$200 or more. There will be a limited number available so be sure to get your pledge in early.



Glass Meetings at UMR

Two glass industry based groups will hold meetings at UMR in March 2000, hosted by the members of the Refractory Site of the Center for Glass Research, an NSF-coordinated consortium based in Alfred University. The liaison board of the CGR at Alfred University will meet March 28-30 in Rolla for the purpose of reviewing proposals from the faculty at Alfred, UMR, and Penn State which also has a satellite dedicated to glass surfaces. The focus of the UMR site is refractories for glass melting. There are approximately 35 companies whose technical representatives constitute the liaison board of the Center for Glass Research.

The Glass Manufacturers Industry Council will sponsor a meeting of researchers and industry experts with vital interest in methods of mathematical and physical modelling of glass melting process and its effect on refractories and on the methods of characterization of refractories after service. The GMIC has invited researchers from UMR, ORNL, and Sandia Laboratories to present results of studies to date in these areas. Invitees from industry have also been asked to share results in the topical areas. Jim Shell of Techneglas, Inc. and George Pecoraro of PPG Industries, Inc. are the organizers of this meeting. Pecoraro coordinates a DOE supported consortium addressing the topical areas of the GMIC sponsored get-together at UMR.

[TOC](#)

St. Louis Section of the American Ceramic Society will sponsor the 36th Annual Symposium on the theme "Insulating Refractories: Their Production, Testing and Characterization" on March 24, 2000 to be held at the St. Louis Renaissance-Airport Hotel.

Please contact Patty Smith at the University of Missouri-Rolla for further information:

Phone: 573-341-6265
 Fax: 573-341-6151
 Email: psmith@umr.edu

**Registration Form
Alumni Dinner
Monday, May 1, 2000
Mike Shannon's (downtown St. Louis)**

Please mark one choice for dinner (Note: payment MUST accompany registration form).

All dinners include mixed salad, green beans, Shannon's Irish potatoes, bread, upside-down apple pie (ala mode) and coffee or tea. The total amount also includes taxes & tips. (If you have a special diet, please call Denise at 573-341-4401.) All reservations must be made prior to April 20 to ensure enough food is prepared.

Mark which dinner you prefer: (no changes after April 25)

_____ 16 oz. prime rib (\$32)

_____ 12 oz. Lemon Chicken
Breast (\$26)

_____ Grilled Salmon with Honey Mustard Glaze (\$32)

Mail form and check payable to UMR to:

Denise Eddings
University of Missouri-Rolla
Ceramic Engineering Department
222 McNutt Hall
Rolla, MO 65409-0330
T: (573-341-4401)

Your Name _____ Grad Yr. _____

Daytime phone _____