



THE CHEMISTRY DEPARTMENT 2000 – 2014

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Awards to Dept. Faculty 2001-2014

2001	Stang, Peter J.	Election to U.S. Academy of Science membership
2002	Stang, Peter J.	Becomes Editor of the Journal of the American Chemical Society
2002	White, Henry	Becomes Associate Editor of JACS
2002	Poulter, Dale	Becomes Editor of the Journal of Organic Chemistry
2002	Burrows, Cynthia	Becomes Associate Editor of the JOS
2002	Harris, Joel	Becomes Editor-in-Chief of Applied Spectroscopy
2002	Stang, Peter J.	Elected to membership of American Academy of Arts and Sciences
2004	Breckenridge, Wm.	University Distinguished Scholarly and Creative Research Award
2004	Louie, Janis	NSF Career Award
2004	Poulter, Dale	ACS James Flack Norris Award in Physical Organic Chemistry
2004	Burrows, Cynthia	Bea Singer Award
2005	Harris, Joel M.	ACS Award in Analytical Chemistry
2004	Miller, Joel M.	Governor's Medal of Science and Technology
2004	Miller, Joel	Utah Award
2004	Voth, Greg	IBM Faculty Research Award
2004	Voth, Greg	John Simon Guggenheim Memorial Foundation Fellowship
2004	Sigman, Matt	Pfizer's Creativity in Organic Chemistry Award
2004	Sigman, Matt	Camille Dreyfus Teacher Scholar Award
2004	White, Henry	ACS Division of Analytical Chemistry Award in Electrochemistry
?	Breckenridge, Wm.	University Distinguished Teaching Award
?	Breckenridge, Wm.	University Distinguished Research Award
~2006	Anderson, Scott	Elected Fellow of American Physical Society
2005	Burrows, Cynthia	University Distinguished Research Award
2005	Harris, Joel M.	NSF Creativity Award
2005	Harris, Joel M.	Fellow of AAAS
2005	Poulter, Dale	Elected to American Academy of Arts and Sciences
2005	Richmond, Tom	Perlman Faculty Award for Undergraduate Counseling
2005	Louie, Janis	NSF Faculty Early Career Development Award
2005	Rainier, John D.	Chaired 39 th National Organic Chemistry Symposium at Utah
2005	Simons, Jack	Rosenbladt Faculty Prize at Commencement, May 6, 2005

2005	Voth, Gregory	Designated a Distinguished Professor of Chemistry
2005	White, Henry S.	Frontiers in Chemical Research Leadership at Texas A&M University
2005	Burton, Marilyn	Chemistry Outstanding Staff Award
2005	Driscoll, Jerry	Chemistry Outstanding Staff Award
2006	Harris, Joel M.	ACS Utah Award
2007	Miller, Joel S.	2007 James C. McGroddy Prize for New Materials (Joint with A.J. Epstein)
2007	Louie, Janis	Sloan Research Fellowship
2007	Louie, Janis	Arthur C. Cope Scholar Award
2005-2006	Owens, Greg	Early Career Teaching Award (University of Utah)
2007	Pugmire, Ronald	Henry H. Storch Award (ACS Division of Fuel Chemistry)
	Simons, Jack	Elected Fellow of the American Physical Society
2007	Stang, Peter J.	2007 ACS Award for Creative Research and Applications of Iodine Chemistry
2007	Zharov, Ilya	NSF Career Award
2009	Burrows, Cynthia	Elected Member of American Academy of Arts and Sciences
2009	Poulter, Dale	Elected Member of National Academy of Sciences
2009	Armentrout, Peter	Franklin H. Field and Joe L. Franklin Award for Outstanding Achievements in Mass Spec.
2009	Keck, Gary	University Distinguished Teaching Award
2009	Molinero, Valeria	Beckman Young Investigator Award
2009	Shoemaker-Parry, Jenifer	NSF Career Award
2009	Zharov, Ilya	IUPAC Young Observer Award
2009	Miller, Joel S.	Elected Fellow of AAAS
2011	Stang, Peter J.	National Medal of Science
2012	Molinero, Valeria	Camille Dreyfus Teacher-Scholar Award
2012	Eyring, Edward	2011 Academia Governor's Medal of Science and Technology
2013	Stang, Peter J.	ACS Priestley Medal
2014	Harris, Joel M.	University Distinguished Teaching Award
2014	Keck, Gary	ACS Cope Scholar Award
2014	White, Henry	2014 Governor's Medal of Science and Technology

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I. Peter Armentrout Takes Charge

In the latter half of the year 2000, Professor Peter B. Armentrout was appointed University of Utah Department Chair of Chemistry. He earned a B.S. degree in 1975 at Case Western Reserve and his PhD. Degree in 1980 at Cal Tech. Peter has also done postdoctoral research at Bell Labs and had been an assistant professor of physical chemistry at the University of California, Berkeley for a few years before his appointment to the Utah faculty in 1987. While at Berkeley, Peter began his ion-beam mass spectrometry studies of metal molecule ions that continue to produce many national awards for Peter and his students. A recent representative example of Peter's knack for identifying and fostering extraordinary student talent is the Distinguished Alumni award made by Utah in April 2014 to Professor David Clemmer, who is located at Indiana University. David earned his PhD degree (1992) working with Peter at Utah. While working since then at Indiana, David has successfully extrapolated Peter's gas phase studies into the elucidation of protein folding issues. The challenging questions raised by Peter in student oral examinations and in visiting faculty seminars are hallmarks of what has made the science of chemistry at Utah first-class in recent years.

The election of Professor Peter J. Stang in 2001 to the U.S. National Academy of Sciences was very big news for the Department of Chemistry at Utah. Up to them there had been only one previous chemist, Josef Michl, who had begun his professional career in Utah and remained long enough at Utah to be elected an Academy member before leaving Utah. We will report the names below of more Utah Chemistry faculty members who have followed Peter Stang into the ranks of the NAS. (The late Henry Eyring and Cheves Walling were elected to NAS membership before joining the Utah Chemistry faculty, and their most notable chemical discoveries during long lifetimes were made before they moved to Utah.)

One of Peter Stang's major chemical discoveries prior to 2001 was how to synthesize molecular structures containing metal-complex units that self-assemble into tiny machines with potential practical applications. Prof. Stang is also very highly valued for his extraordinary ability to teach young people at every level how to do creative new chemical science by his example in his laboratories and his classrooms. His skillful editing of the scientific work of other chemists preparing their discoveries for publication in the most prestigious "journal" (magazine) of the chemical profession which he edits, the Journal of the American Chemical Society (JACS), continues to have a huge positive impact on the chemical profession.

Joel S. Miller, another year after year well-funded full professor, was honored at the San Francisco national ACS meeting for his pioneering development of molecule-based magnets that will eventually replace iron and other metals in practical applications of magnetic fields. His ACS recognition is called the Chemistry of Materials Award. In addition to being one of the star scientists on the faculty, Joel has an impressive collection of science toys and covers of magazines featuring his firsts in science that make a visit to his office in the chemistry building, a rewarding pit stop. (Call ahead to make sure Joel is around before stopping by. His extensive world-wide scientific collaborations may very well have him in Japan, Israel, or elsewhere temporarily if you impulsively come calling by his office.)

The transition in the chairmanship of the Chemistry Department from Dale Poulter to Peter Armentrout was seamless. Challenges of keeping the Utah faculty young and competitive for national research dollars include recruiting new faculty who teach well, write winning research proposals, and at least tolerate living conditions in drought-stricken Salt Lake City. Dale and his colleagues had added 3 green assistant professors (John Conboy [analytical], Eric Hegg [inorganic], Matthew S. Sigman [organic]) and an experienced teacher/researcher (Greg Voth [physical]) to the faculty by the time Peter Armentrout took charge of Chemistry.

In mid-summer of 2001, Millie Trevithick passed away from Alzheimer's. She was the ultra-dependable Chemistry Department secretary for many years when Dave Grant and later Ted Eyring were chairing the Chemistry Department.

To put the events noted above in context we recall that on the morning of September 11, 2001, terrorists used three commercial airliners to kill almost three thousand innocent people in New York, Washington D.C., and Pennsylvania. A dark undertone in the subsequent pages of this Chemistry history is the diminution of federal funding available for chemical education and chemical research since 9/11, arising from fiercely competing social and military national priorities. This task of chairing the Chemistry Department has become very challenging indeed, from the financial point of view subsequent to September 11, 2001.

II. The Salt Lake Winter Olympics

In 2002, the Salt Lake Winter Olympics played a dominating role in the first three months of the calendar year in the life of the Utah Chemistry Department. While skiing competitions took place in the mountains around Park City and skating events took place out beyond West Valley, the colorful parades of the opening and closing ceremonies took place in the renovated Rice-Eccles "Olympic" Stadium a few feet south of the Henry Eyring Chemistry Building.

Many University of Utah students, faculty, and staff volunteered for temporary ushering assignments which helped make the Olympic Experience a resounding success for Utah. We seemed to see everywhere windbreakers, hats, and other paraphernalia bearing Olympic symbols. Security concerns were sometimes intrusive, but Chair Peter Armentrout correctly declared "having the Olympics in our backyard was the experience of a lifetime."

On the science scene, Joel Miller's "Light-Tunable Plastic Magnet," Matt Sigman's "New Catalytic Reaction," and Henry White's "Reinvention of the Battery" all made positive technical news.

Additions to the faculty included Peter Flynn (nuclear magnetic resonance) coming from the University of Pennsylvania, Janis Louie (inorganic and organic chemistry) from Cal Tech., and Jon D. Rainier (organic synthesis) from the University of Arizona.

The Department regretted the loss arising from Wes Bentrude changing to Emeritus status, Tom Beebe moving permanently to the University of Delaware, and Fred West moving to the University of Alberta. On February 1, 2002, Distinguished Professor David M. Grant began phased retirement.

Visibility of the Department in the international chemical community was greatly enhanced by Peter Stang becoming Editor of the Journal of the American Chemical Society with Henry White as one of his Associate Editors.

Also in 2002, Dale Poulter became the Editor of the Journal of Organic Chemistry with Cindy Burrows as an Associate Editor, and Joel Harris was reappointed as the Editor-in-Chief of Applied Spectroscopy. There is no doubt that some of our best chemistry classroom teachers are made less available to our undergraduate chemistry students by this exemplary service by some of our faculty to the chemical profession. However, the quality of new research being done in the department by undergraduates, graduate students, and postdocs is greatly enhanced by having many notable chemists visiting the University of Utah editorial offices in person or electronically and keeping some of our star Utah chemistry faculty/editors apprised of the hottest new developments in chemistry. One of the key ingredients required to make Utah a hub for editing great scientific periodicals continues to be gifted reader-writers-word-processors who cheerfully convert sloppy English into scientific literature. Charlotte Sauer, Julie Westwood, ... are a few of the stars at Utah who have successfully practiced this demanding witchcraft. They were or are paid by the journal in question with salaries passed through the University by the journal business offices.

On October 5, 2002, Professor Stang was inducted into membership in the American Academy of Arts and Sciences at a meeting of the Academy in Cambridge, Massachusetts. This is an honor shared by other notables such as George Washington, Benjamin Franklin, Thomas Jefferson, Alexander Graham Bell, and Albert Einstein.

Peter Armentrout continued as Chair in 2003. Thus Peter A. was running the show when Ilya Zharov, a Ukrainian doing postdoctoral research in Josef Michl's lab, accepted an Assistant Professorship in Chemistry at Utah.

In January 2003, Gretchen J. Domek was identified as a prestigious Rhodes Scholar bound for Oxford University. During her time as an undergraduate at Utah, Gretchen had done research in the Biology Lab of Professor David Goldenberg, had particularly enjoyed course work with Professors Rick Ernst and Joel Harris, and had been a member of the Utah intercollegiate cross country ski team for two years.

III. Peter Armentrout Creates Monthly Brown Bag Lunch Tradition

One of the important administrative innovations of Peter Armentrout's tour as Department Chair was the creation of monthly "brown bag lunches" attended by the full department faculty. Customarily, two faculty members are deputized by the Chair to talk for about 25 minutes each about their current research. No slides, overheads, handouts or movies are allowed. The speaker may write on the blackboard (or white board) in the course of the talk, but questions from the audience and answers from the speaker get the main emphasis of each performance. Faculty members bring their own sack lunch and drink soda water and eat cookies provided by the Chair.

This sort of preview of "amazing scientific discoveries" can be the means of encouraging publication in peer reviewed journals that head off "cold fusion" type papers before they reach the popular press.

Providing adequate space for laboratory research was a special concern in 2003. What was probably unforeseeable was how much the space needs would change as the composition of the faculty would change and the physical size of NMR high-field research instrumentation would also decrease. In spring 2003, Dave Grant and a small army of NMR research coworkers were using then state-of-the-art spectrometers with wide magnetic fields. The design of the new David M. Grant NMR facility with huge open bays for 2 new NMR spectrometers that would avoid overlap of magnetic fields moved forward.

Since the mid-1980s, Professor Arthur J. Epstein at Ohio State University and Joel Miller at Utah had been developing plastic magnets that conduct electricity. In 2003, a new kind of electronics called spintronics based on a plastic called vanadium tetracyanoethanide, or TCNE, seemed very promising. Spintronics can let computers store and transfer twice as much data per electron as in a traditional semiconductor such as silicon or gallium arsenide. A bonus is that once a magnetic field pushes an electron into a direction of spin, it keeps spinning the same way until another magnetic field causes the spin to change. This property facilitates quick access of magnetically stored information during computer operation even if electrical power to the computer is switched off between uses. Thus data can be stored permanently and is available instantly at any time. Perhaps most remarkably, plastic TCNE works all this magic at temperatures as high as 100°C.

As we embark now on a consideration of what transpired in the Utah Chemistry Department in the year 2004 it may be helpful to pause first to consider briefly the dramatic change in the flavor of what was happening in the classrooms and laboratories over the half century between 1954 and 2004. In 1954, Bill Burke and his faculty of a dozen profs were teaching in what is now the Widtsoe Building on Presidents Circle and in several World War II era refurbished wooden barracks buildings. There was no refrigerated air conditioning and freshmen laboratory students sweltered in a big top floor lab with no fume hoods. All the lectures were delivered to students in poorly illuminated lecture halls with the instructors writing on blackboards. The saving grace was that the lecturers (Lloyd Malm, Jim Sugihara, Jim Horton, Henry Eyring, and Austin Warhaftig, to name a representative few) were bright minds with great enthusiasm for their subject matter. Chemical research was being carried out largely by talented graduate students. The eight Ph.D.s who graduated in 1954 included Cal Giddings who went on to become the international star of his generation of chromatographers. Cal's conception and execution of several "field flow fractionation techniques" continue to find practical applications among practical chromatographers worldwide. Returning our focus to chemistry at Utah in 1954, calculations were done by physical chemistry graduate students and postdocs on mechanical calculations and slide rules. Biochemical research was being carried out mostly in the Medical School. Only one woman, Marilyn Grace Alder, had graduated in Chemistry with a Ph.D. degree (in 1951).

In 2004, Peter Armentrout was beginning his second three-year term as Department Chair. He had a faculty of about thirty professors housed in a complex of modern, well-ventilated classrooms and laboratories called the Henry Eyring Building. Striking changes at the fifty-year mark included many more women students at every level in 2004, and four truly gifted women on the tenured or tenure track faculty. Back in 1954, the modest reputation of the Department rested largely on the research achievements of Henry Eyring and the bright young physical chemistry Ph.D.s (Ransom Parlin, Bruno Zwolinski, Rufus Lumry, Bill Cagle) who had gathered around him. In striking contrast, in 2004, the research reputation of the Department rested on the achievements of a balanced team of organic, inorganic, analytical, and physical chemists. In 2014, the balance was further improved by the research achievements of faculty members who are now focused on biological chemistry problems.

IV. The Emphasis on Biochemistry Grows

The Spring 2004 issue of the U. of Utah Department of Chemistry "Alumni Newsletter" reported important advances being made by Professor Sheila David and independently by Professor Cynthia Burrows in the understanding of DNA damage arising from oxidative chemical reactions. In the same issue of the newsletter, the use of a laser "tweezer" to hold in place particles as small as 1/100th the diameter of a human hair in water done by Professor Joel Harris was reported. Further along in the same newsletter the assembly of a "metacluster" supercomputer (by Julio Facelli, David Grant, and Greg Voth) for advanced simulations of biological processes is also described.

Among the many news items in the Spring 2004 issue of the newsletter are the following: Professor Bill Breckenridge won the University's Distinguished Scholarly and Creative Research Award; Dale Poulter, Peter Stang, and Cynthia Burrows authored articles on chemical elements in the September 8, 2003 story "It's Elemental: The Periodic Table" in C&E News; Janis Louie won an NSF Career Award to discover the untapped chemistry of CO₂; Dale Poulter won the ACS James Flack Norris Award in Physical Organic Chemistry; Jack Simons authored a 461 page book "An Introduction to Theoretical Chemistry" published by Cambridge University Press in 2003; Rosemary Laufer took early retirement from her long held post as Administrative Assistant to the Department Chair and was succeeded in the post by Debbie Olson [Considering Rosemary's excellent memory of where all the bodies are buried, some may await with anxiety the possible publication of her memoirs]; Ron Ragsdale ran out of breath at 18,000 feet of elevation on Mt. Kilimanjaro, but his daughter Krista made it to the 19,340 foot summit; Dr. Ilya Zharov, born in Russia, joined the faculty at Utah after postdoctoral work with Josef Michl in Boulder, CO; Dr. Kevin E. Ashley (Ph.D. 1987) has weathered the embarrassment of a role in the "Cold Fusion" episode and has a responsible job with NIOSH in his home town of Cincinnati, OH.

V. Faraday Christmas Lectures

Way back in December of 1981, Professors Ron Ragsdale and Jerry Driscoll started their popular version of the annual Faraday Christmas Lectures. Michael Faraday, born in London in 1791, was one of the most celebrated scientists of the 1800s for his discoveries of the laws of magnetism and his discovery of several chemical elements. As the Director of the Royal Institution, Faraday popularized science for Londoners by dazzling one hour practical demonstrations of chemical principles such as the loud ignition of large soap bubbles containing hydrogen gas. These original Faraday lecture demonstrations in the 1800s were performed by Faraday and by other scientists visiting the Royal Institution who shared Faraday's enthusiasm for science and showmanship. The Ragsdale/Driscoll version of the Faraday Christmas lectures was held for two or three consecutive evenings in the largest lecture hall of the Henry Eyring Building. Ragsdale and Driscoll wore dressy black suits, starched white shirts, and black bow ties with a tall, dressy top hat on each man's head. As the years between early December sped by, the ritual back and forth patter between Ragsdale and Driscoll portraying Faraday and his assistant steadily improved in humor and scientific insight. Ron Ragsdale and Jerry Driscoll are talented comedians. The performances were well advertised and consistently drew turn away crowds of 300+ students and friends of Chemistry. The two stars of the Ron and Jerry [Faraday] show retired gracefully after the December 2004 show, and Peter Armentrout and Chuck Wight were deputized to take their places in the December 2005 Faraday Christmas Lectures. Jerry has since retired from the

University faculty and is farming with his wife on the beautiful island of Kauai. driscoll@chem.utah.edu is still an e-mail address for Jerry.

VI. How Good is the U. of U. Chemistry Department?

Our friends with a taste for quantitative information sometimes ask: “How ‘good’ is the University of Utah Chemistry Department compared to other departments in the U.S. which are granting Ph.D. degrees in Chemistry?” One reasonably objective answer lies in a comparison of the following quotient Q for as many departments as you have the patience to make the calculation:

$$Q = \frac{\text{sum of federal research dollars awarded in a year to the department}}{\text{the number of tenure track faculty members in the department in the same year}}$$

The supposition here is that the author of the most innovative research proposal receives the most federal research funding. Chemical & Engineering News, July 21, 2003, page 29, reported federal research dollar awards to the University of Utah for Chemistry for the year 2001. The number of tenure track faculty members for Utah in 2002 is found on pages xiii to xix of the 2003 ACS Directory of Graduate Research. Combining these two data sets, one obtains:

Rank

- | | |
|-----------------------------|--|
| 1. Johns Hopkins University | 8. Columbia University |
| 2. Harvard University | 9. Univ. of Colorado, Boulder |
| 3. Stanford University | 10. University of Illinois, Urbana |
| 4. M.I.T. | 11. Univ. of Pennsylvania, Philadelphia |
| 5. Cal. Tech. | 12. Univ. of Utah, Salt Lake City |
| 6. Northwestern University | 13. Univ. of California, Berkeley |
| 7. U.C.L.A. | 14. Univ. of North Carolina, Chapel Hill |

The year 2001/2002 in terms of federal research funding was about average for the Utah Chemistry Department for the interval between 2000 and 2010.

The big good news of the Spring 2006 Newsletter was that Peter Armentrout was still chairing the Department and progress was being made on construction of the David M. Grant NMR Center casually called the “Gauss House.” With the 20/20 hindsight of 8 added years of experience it is now evident in 2014 that the huge bays in the Gauss House designed to accommodate an 800 MHz and a 900 MHz NMR spectrometer were unnecessary. New equipment designs mitigated the detrimental effects arising from overlap of intense magnetic fields from neighboring MHz NMR spectrometers.

Prof. William H. (Bill) Breckenridge retired early from the Utah faculty on July 1, 2005 after 34 years of exemplary service as a notably successful classroom teacher of Honors freshmen chemistry classes and an internationally acclaimed researcher on “van der Waals” bonding between metal atoms (and ions) and rare-gas atoms. His Utah awards include the Hatch Teaching Prize, the University Distinguished Teaching Award, and the University Distinguished Research Award. Only two other Utah faculty members have collected all three of these top prizes. Bill won a J.S. Guggenheim Postdoctoral Fellowship to do research in France in 1985. Over the years Bill won many other awards. Bill has a long standing enthusiasm for French culture, language, and wine as well as science. In retirement Bill spends much of his time collaborating with English and French scientists in the laboratories abroad. In managing the human resources of a first rate Chemistry Department one must accept the reality that some of our most gifted scientists will move out of Utah in the middle of a brilliant career as Josef Michl, Greg Voth, and Bill Breckenridge have done. On the other hand, more of our notable faculty members have come to Utah well into their brilliant careers as, for example, Henry Eyring, Bob Parry, Cheves Walling, John Gladysz, Peter Armentrout, Cindy Burrows, Scott Anderson, Henry White, and Joel Miller. Perhaps

the single greatest strength of the Chemistry faculty has been a core of home run hitters who have performed well year after year without ever changing uniforms. The heaviest hitting all stars in this category are Peter Stang, Dale Poulter, Jack Simons, Gary Keck and Joel Harris.

In Spring 2006, the comparative newcomer to the Utah Chemistry faculty was Professor Michael H. Bartl. He had come to Utah from a 3-year postdoctoral stint in the lab of Prof. Galen Stucky at the University of California, Santa Barbara. His degree education had been entirely in his native Austria, and he spoke excellent English. He was a materials scientist. Among many strengths, he knew how to synthesize semiconductor nanocrystals and how to characterize them with advanced optical/laser spectroscopy. He uses photons rather than electrons as the main information source in studies broadly called Nanophotonics-Nanotechnology that involves sub-micron spatial resolution and picosecond time resolution.

Newsmakers mentioned in the Spring 2005 and 2006 Newsletters include:

Marilyn Burton and Jerry Driscoll received Chemistry Outstanding Staff Awards in 2005

Professor John Conboy made excellent publicity for Utah Chemistry by an imaging technique showing the distribution of chiral molecules on a solid surface [Chem. Eng. News, Feb. 14, 2005, 83(7), pp. 47-55.]

Prof. Richard D. Ernst and coworkers discovered that SF_6 is not "extremely inert"

The late Henry Eyring was honored in "The Days of '47 Parade" (but not for his foot racing)

Prof. Jon D. Rainier chaired the 39th National Organic Chemistry Symposium at Utah, June 12-14, 2005

Dr. Regina F. Frey (Ph.D. 1986, with Jack Simons) is a Senior Lecturer in Washington Univ., St. Louis, MO

Mrs. Carolyn Brady with her husband Rod Brady are responsible for the annual Robert W. Parry Teaching Award

Dr. Steve Brown successfully defended his Ph.D. dissertation at Cal. Tech.

Dr. Dale Brugh (Ph.D. 1997, Morse) given tenure in Chem. Dept. at Ohio Wesleyan University

Gretchen Domek won the mark of "distinction" for her MPhil thesis concluding her 2 yr. Rhodes Scholarship

Prof. Steven M. Kuznicki (Ph.D. 1980) appointed endowed chair professor of Chem. Eng. At Univ. of Alberta

Steve Hamilton (B.S. 2005, Matt Sigman) studying medicine at Mayo Clinic on a full scholarship

Keith Jacobs (B.S. 1992) Faculty Fellow at Univ. of Montana-Missoula in business finance

Andrew J. Leavitt (Ph.D. 1994, Tom Beebe) is professor of chemistry at Univ. of West Georgia, Carrollton, GA

Dr. Mandy Hosford (Ph.D. 2005, Burrows) and Prof. Chuck Wight completed the Wahsatch Steeplechase

Ryan Julian (B.S. 1999) is faculty member at Univ. of California, Riverside

Dr. Christopher R. Lloyd (Ph.D. 1996) detects microbial contamination in food, water, and medical diagnostics

Dr. Tim Newbound (Ph.D. 1988) troubleshooter for Saudi Arabian American Oil company

Dr. Jeffrey D. Owen (Ph.D. 1971) owns a five-acre business park near Seattle, WA

Kirk Ririe (B.S. 2005) is a co-founder and CEO of Idaho Technology Inc.

Mark Thomson (B.S. 1987) earned a Ph.D. at Colorado State in 1995 and has taught since in Louisiana and Arkansas

Matthew Thorum (B.S. 2005) has begun Ph.D. work at Univ. of Illinois at Urbana Champaign

Teresa Jasmine Tuan (B.S. 2006) her precocity is described in a Daily Utah Chronicle article published Tuesday, June 8, 2006, Vol. 116, No. 7, entitled "Sixteen Going on 30"

Prof. George F. Uhlig (Ph.D. 1973, with Henry Eyring) mentor of talented undergraduates at College of Eastern Utah

Prof. Dan W. Urry (Ph.D. 1964, with Henry Eyring) entrepreneur/inventor of contractile protein-based machines

IN MEMORIAM

Melvin George Jacobsen (1924-2005) loyal shipping and receiving clerk, Chemistry Stockroom

Maria Ana Curelaru (1967-2005) (B.S. 1989) (Ph.D. 1994, Univ. Texas, Austin) began working at Kemin Nutrisurance in Des Moines, Iowa in February 2005

Robert Walter Parry



Robert Walter Parry 10/1/1917 ~ 12/1/2006 Robert W. Parry, 89, passed away December 1, 2006 in Salt Lake City, Utah. He was born October 1, 1917 in Ogden, Utah to Jeanette (Petterson) and Walter Parry. He graduated from Utah State Agricultural College in 1940 receiving a bachelor's degree in chemistry. He received a masters degree from Cornell University in 1942, and a PhD in chemistry from the [University of Illinois](#) in 1946. He married Marjorie Joyce Nelson July 6, 1945. They had two children, Robert Bryce Parry and Mark Nelson Parry. Robert Parry was a Professor of Chemistry at the [University of Michigan](#) from 1946-1969. In 1969, he came to the University of Utah as a Distinguished Professor of Chemistry, where he served in this capacity until 1997. From 1997 until his death, he was Professor

Emeritus at the University of Utah. He was an extraordinary teacher, teaching chemistry to thousands of undergraduate students. In 1970 he co-authored a high school chemistry text, *Chemistry Experimental Foundations*, which was widely used throughout the United States. In 1972 he received the Manufacturing Chemists Award for College Teaching. He was also an excellent research scientist, directing research groups at both Michigan and Utah. His graduate students serve on chemistry faculties at universities throughout the country. In 1980, he received a Senior United States Scientist Alexander Von Humbolt-Stiftung Award, taking him to West Germany for a year. In 1980, he received the first Governor's Medal of Science from the State of Utah. His unique gift, however, was his ability to interact with people. He was a husband, father, teacher, consultant, and colleague. Robert Parry was extremely active in the American Chemical Society. He served as its president-elect in 1981 and president in 1982. He was a member of the Counsel of the American Chemical Society more than 45 years. He served on the Board of Directors of the American Chemical Society from 1973-1983. From 1969-1980, he was a member of the Board of Editors of the *Journal of the American Chemical Society*. He was the founding editor of *Inorganic Chemistry* from 1960-1963. He was chairman of the Board of Trustees of the Gordon Research Conferences from 1967-1968. In 1993, Robert Parry received the Priestly Medal, the highest honor given by the American Chemical Society, for lifetime achievement in chemistry. He received the Distinguished Service to Inorganic Chemistry Award in 1965, the Distinguished Service to Chemical Education Award in 1977, and the Utah Award for Service to Chemical Education in 1978. He received Honorary Doctor of Science Degrees from Utah State University (1985) and the University of Utah (1997). He is survived by his wife of 61 years, Marj; two sons, Bryce and Mark; and his grandchildren, Russell, Marelle, Lauren, Kristie, and Robert. He is predeceased by his parents; two brothers, Dean and Edward; and sister, Jeanette. A memorial service will be held 3 p.m. at the Evans & Early Mortuary, 574 East, 100 South, Salt Lake City, Utah, Saturday, December 9, 2006. In lieu of flowers, contributions to the University of Utah Women's Club Scholarship Fund would be appreciated.

Published in Salt Lake Tribune from Dec. 3 to Dec. 8, 2006

Excerpt of Robert W. Parry obituary in S.L. Tribune 12/3/2006

(See also "IN MEMORIAM" at back of Spring 2007 Newsletter, pp. 18,19)

The Spring 2007 Chemistry Department Newsletter:

Peter Armentrout announced that he would be succeeded as Department Chair by Henry White. He also reported that the David M. Grant NMR Center had been dedicated. With justifiable pride Peter announced the addition of Dr. Ryan Looper to the faculty. Ryan had recently been a postdoctoral research associate with Prof. Stuart Schreiber at Harvard University. Peter also noted that he had been instrumental in bringing Janis Louie, Jon Rainier, Peter Flynn, Ilya Zharov, Jennifer Shumaker-Parry, Mike Bartl, Vale Molinero, as well as Ryan Looper to the Utah Chemistry faculty. Peter also noted that Shari Zinik and Debbie Olson had been "super" staff members for him to work with.

One of the best ways of measuring the impact of the U. of Utah Chemistry Dept. faculty is to read letters from former students and colleagues. Below you will find abbreviated summaries of correspondence reported in the Spring 2007 newsletter:

Charles Finell (B.A. 1934) at age 97 [in 2007] still lives in Carmel Valley, CA. Has set up a charitable remainder trust with the Chem. Dept. as beneficiary because he was "a poor farm boy who received help with his education."

Art Ruoff (Ph.D. 1955, Henry Eyring Group) Cornell Univ. Prof. Emeritus with a spectacular list of awards for his studies of materials such as diamond and tungsten under high static pressures as high as 560 GPa.

Terry Anderson (B.S. 1958; Ph.D. 1962, Henry Eyring Group) Retired from Kerr-McGee in Oklahoma City, OK in 2001 where he was Principal Chemist for electrochemical industries; resides now in Riverton, UT.

Prof. Zoltan Schelly (postdoc 1969-70, Ted Eyring lab) long standing faculty member at U. Texas, Arlington researches transient electrophysics of unilamellar bilayer vesicles.

Prof. Milton Lee (B.S. 1971) long standing faculty member at BYU-Provo investigates microfluidics, hand-portable GC-MS, liquid chromatography, and ion mobility spectrometry.

Dr. Alan D. Eastman (Ph.D. 1975, Parry Group) retiree from ConocoPhillips in 2003, now lives in Salt Lake and consults mostly for ChevronPhillips Chemical Co. about on-line Raman and NIR spectrometry.

Dr. John W. Kennedy, III (Ph.D. 1979, Jack Simons) researches high pressure spectroscopy in diamond anvil cells, now Prof. of Chemistry and Chemical Physics at Concordia Univ., Irvine, CA.

Prof. Alec M. Wodtke (B.S. 1981) Berkeley Ph.D. in 1986 with Yuan T. Lee; Dept. Chair at U.C. Santa Barbara, 2003. Now Prof. at Geog-August Univ., Goettingen, Germany; potential energy surface for atomic H scattering on Au(s).

Prof. Joseph A. Gardella, Jr. (postdoc 1982, Ted Eyring Lab) U. of Buffalo Distinguished Professor; recipient of Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring from the NSF.

Dr. Jozsef Beres (postdoc 1982-84, Bentrude Lab) lives in Budapest, Hungary where the Beres Pharmaceutical Co. was founded in 1989. Jozsef is the director since 1993. There are 220 employees.

Dr. Bill McKenna (Ph.D. 1985, Ted Eyring Lab) was Program Manager of Light Management Films for the Display Science and Technology Center in the Eastman Kodak Research Laboratories in Rochester, NY.

Dr. Darryl Spencer (B.S. 1991) earned his PhD. In [the] lab of Nobel laureate Mario J. Molina at M.I.T. Got into software development for mass spectrometer products and in 2007 was working in Concord, Ontario.

Professor Eileen Spain (Ph.D. 1992, Morse Group) at Occidental College, Los Angeles, CA and has NSF funding for her research in the area of interfacial chemistry and recreates with 2 kids and husband in Utah.

Jane Marie Behm Arrington and Caleb Anthony Arrington (Ph.D. 1994 and Ph.D. 1995) are married and think back fondly on some of the best years of their lives in Utah.

Prof. George Richter-Addo (Postdoc 1992-93, Gladysz lab) was recently appointed Chair of the Department of Chemistry and Biochemistry at the University of Oklahoma.

Dr. Scott Waite (Ph.D. 1993, Joel Harris Lab) Director of Labs for Dept. of Chemistry at University of Nevada, Reno. Also manages safety and chemical hygiene programs and departmental instrumentation.

Dr. Andreas Fechtenkoetter (M.S., Peter Stang's lab, Ph.D. 1995, Mainz, Germany in 2001) Wife Chrys is U of U alumna in Chemical Engineering; Dept. Head for BASF Centre in Singapore in ~2006.

Dr. Christopher Lloyd (Ph.D. 1996, Ted Eyring lab) Director of R&D at MicroBioSystems in Logan, UT. Developed portable equipment to detect microbial contamination at low levels in milliseconds.

Dr. Yanlong Shi (Ph.D. 1996, Ted Eyring lab) and Ms. Lian Shao (M.S. 1998, Morse lab) They reside with their two children in Boston area. Yanlong is a fuel cell expert. Lian is a manager of a network operation center.

Dr. Edward Orr (Ph.D. 1997, Ted Eyring lab) Manufactures representative for photoresists used in patterning Si wafers in semiconductor manufacturing. Resides with wife and daughter in Vancouver, WA.

Dr. Chuck Story (postdoc 1997, Ted Eyring lab) Senior research chemistry for the Lubrizol Corporation, Wickliffe, OH, largest manufacturer of lubricant additives. Chromotographer. Amateur astronomer.

Ms. Kelly Erickson (executive secretary, 1998) Worked for Joel Miller, Ted Eyring and another faculty member. Kelly and her husband Rinar live in Henderson, NV where she acts in plays and runs marathons.

Dr. Jamie Manson (Ph.D. 1999, Joel Miller lab) Did postdoctoral work at Argonne National Lab and at Oak Ridge National Lab before joining the Chemistry Department at Eastern Washington University.

Dr. David Van Horn (Ph.D. 1999, Cindy Burrows) Did inorganic chemistry postdoctoral work at U.C. Berkeley, now an Assistant Professor at the University of Missouri at Kansas City studying heavy-metal transport in biological systems.

Dr. Rico E. Del Sesto (Ph.D. 2002) First a postdoc and now a regular staff member at Los Alamos National Laboratory studying ionic liquids, water detection, nanomaterials, and radiation detection.

Dr. Jamie K. Pero (B.S. 2002) will begin working as a Ph.D. research assistant at the Clorox Technical Center.

Dr. Coby B. Carlson (Ph.D. 2002, Peter Beal lab) Did postdoc. With Laura Kiessling, Wisconsin-Madison. Employed by Invitrogen in Madison. He and wife have two small children.

Robin Barrios Seely (B.S. 2004) Did theoretical chemistry research with Jack Simons. Now in Pharmacy School at Northeastern Univ., Boston. Glad she chose professional school.

Dr. Roger A. Leach (Ph.D. 1984, Joel Harris Lab) currently a Research Manager with Corporate Analytical Science Group at DuPont.

Dr. Robert Bennett (Ph.D. 1989) Managing Propellants, Explosions and Pyrotechnics Research Department at ATK Launch Systems (formerly Thiokol).

Dr. Brian Rasmussen (B.S. 1993) has come back to Salt Lake City and now works as a physician in town. "It's good to be back."

Dr. Michael Weibel (Ph.D. 1999) married in December 2004 and moved to Maryland in 2004 where he works in OSD's Program for Chem. & Biological Defense.

Dr. William B. Rothwell (B.S. 2000) Graduate in 2004 of Tulane Univ. Med. School. Became a third year resident at Baystate Med. Center, Springfield, MA in Medicine/Pediatrics.

Ryan D. Roberts (B.A. 2001) Pursuing an MD/Ph.D. degree, studying tumor immunology, received a 3-year training grant.

Dr. Christopher Kuehl (Ph.D. 2001) Accepted a research chemist position in the Medical Products Division of W.L. Gore and Associates in Flagstaff, AZ.

Peter W. Anderson (B.S. 2003) currently a third year medical student at Saint Louis University.

Ryan W. Hart (B.S. 2003) completed an M.S. degree at U.C. Riverside and is working at IM Flash Technologies.

Bryant Roth (B.S. 2003) now a chemist at Johnson Matthey in Salt Lake City.

Dustin Mortensen (B.S. 2004) Working for Battelle at Tooele Chemical Disposal Facility.

John Brailsford (B.S. 2004) working on a Ph.D. degree at University of California, Irvine.

Erin Umbriaco (B.S. 2004) medical student at Baylor University in Houston, TX.

Dr. Matthew Kriech (Ph.D. 2004, Conboy lab) employed by ATK Launch Systems Group working on chemical aging of solid rocket propellants.

Teresa Jasmine Tuan (B.S. 2006) selected as one of twenty-six graduating seniors inducted into the Beehive Honor Society.

Maurine Liddiard (1984) now in Durango, CO working at Fort Lewis College. She loved her time in the Chem. Dept. (running the show) more than any other job she ever had.

Gordon Hale (1985) former manager of the Chemistry stockroom and purchasing activities. At age 86 (in June 2006) he still bubbled with enthusiasm for family and traveling.

Prof. Tsutomu Masujima (former postdoc in Ted Eyring lab) still has his home in Hiroshima, Japan. Sells a nanospray top for MS analysis. Developing new type of microscope & mass spectrometer.

Prof. Bill Guillory (1985) former Chem. Dept. Chair who was instrumental in securing funding for the 2nd wing of the Eyring Bldg. Started the Hurricane Katrina Support Group. Writes books.

Louise Traper was a mainstay of the David Grant NMR research operation who has subsequently created a successful intimate apparel business for women and has a Fox Trotter horse in competition.

Prof. Jean Futrell (1986) is an international research star in ion chemistry and mass spectrometry, some of whose former graduate students at Utah have achieved great fame in their own right.

Sam Cole (former manager of Chem Computer Center, 1986-1990) now is Principal Software Engineer with CyberOptics Semiconductor in Beaverton, Oregon.

Lynell Gardner worked for Professors Armentrout, Beebe, and Eyring before graduating with a B.S. in Psychology in 1994. She now runs Alumni Relations at Weber State University.

Dr. Hua ("Bonnie") Huang (1998) (Postdoc. Ted Eyring's lab) Now a Senior Scientist at Allergan, Inc. in Irvine, CA where she characterizes protein structure using MALDI-TOF mass spectrometry.

VII. Gauss House is renamed after David M. Grant

Chemistry Faculty News in the Spring 2007 Alumni Newsletter:

Distinguished Prof. David M. Grant was honored Sept. 8, 2006 by having the Gauss Haus named after him.

Earlier in 2006 a special issue of Magnetic Resonance in Chemistry (Vol. 44, #3) was published honoring Dr. Grant on his 75th birthday and celebrating his many contributions to the methodology and applications of Carbon-13 Nuclear Magnetic Resonance spectroscopy. Building a great Chemistry Department is very much a community enterprise, but a strong case can be made for identifying David M. Grant as the one person who did the most to bring the Department from obscurity to true prominence.

Dr. Valeria Molinero (Ph.D. 1999, University of Buenos Aires) joined the Chemistry faculty on August 16, 2006 as an Assistant Professor. She uses powerful computational methods to model the transformation between amorphous phases and crystalline matter, teaches physical chemistry, and is making an excellent reputation for herself with path-breaking publications.

Dr. Jon Rainier was promoted to the rank of Full Professor.

Dr. John Conboy was promoted to Associate Professor with Tenure.

Dr. Janis Louie was promoted to Associate Professor with Tenure.

Henry White was elected to the rank of Distinguished Professor by other Distinguished Professors. With the approval of the central administration, College of Science Dean Pierre Sokolsky selected Distinguished Professor Henry White to be Chair of the Chemistry Department beginning July 1, 2007, following Peter B. Armentrout.

The casual reader of this history may be interested to know that the Chair of a department at the University is not required to be a Full or Distinguished Professor. David M. Grant began Chairing the Chemistry Department when he was a young Associate Professor. What a Chair must have is exemplary leadership qualities. There is no room in a first rate university for a Chair who "leads from behind."

The jump in academic rank from Assistant to Associate Professor with "Tenure" at the University of Utah is very important because the "winner" after no more than seven years of "involuntary servitude" does not need to search immediately for some other paid employment. Over the past fifty years fewer than fifteen percent of the young people joining the Utah Chemistry faculty have been denied promotion with tenure. However, it should be noted that "Tenure" does not guarantee employment until age 65 or later. If a "tenured" faculty member frequently fails to teach her/his assigned classes acceptably or does not perform faithfully other assigned duties such as committee work, counseling of students, participating in oral examinations of degree candidates, etc., she or he may be fired for cause after review by the central university administration.

Back now to the happy success stories of the Chemistry faculty reported in the Spring 2007 Alumni Newsletter:

Prof. Joel Miller was selected to appear on Thomsen Scientific's ISIHighlyCited.com because of his "exceptional citation count in the field of Material Science."

High School student Lindsay Hubley drew favorable attention to the research lab of Prof. Sheila David by winning Third Place at the 2006 International Science and Engineering Fair in Indianapolis.

TITLE IX ISSUES

On September 19, 2006, Prof. Richard Zare of Stanford University delivered the Cal Giddings Lecture on "Making It Count: Quantitation of Low-Copy-Number Proteins in Single Cells." That Spring he had written an article [Chemical & Engineering News, May 15, 2006, pp. 46-49] about ways to grow the participation of women in U.S. academic chemistry. Zare recommended collecting several "Title IX measurables" annually. In the Spring 2007 Chemistry Alumni Newsletter his "measurables" are listed with the performance for academic year 2005-2006 by the Utah Chemistry Department shown in parentheses:

Percentage of undergrads. majoring in chem who are women (102/277 or 37%)
Percentage of grad. students in chem. who are women (71/164 or 43%)
Percentage of postdocs. in chem. who are women (7/46 or 15%)
Percentage of lecturers/instructors in chem. who are women (1/3 or 33%)
Percentage of assistant professors in chem. who are women (2/5 or 40%)
Percentage of associate professors in chem. who are women (1/4 or 25%)
Percentage of full professors in chem. who are women (2/22 or 9%)

Thus among our younger faculty (assistant and associate professors), 30% were women.

On June 19, 2007, Distinguished Professor Cheves T. Walling (1916-2007) passed away peacefully in Peterborough, New Hampshire. He had tremendous favorable impact on the reputation of Chemistry at Utah before becoming an Emeritus Professor in 1991.

On July 25, 2008, Dr. H. Tracy Hall, the “father” of manmade industrial diamonds, passed away in Provo, Utah. He was Henry Eyring’s first Ph.D. student, graduating from the University of Utah in 1948. Tracy became Director of Research at BYU-Provo in 1955 and fathered many diamond producing companies world-wide as well as in Utah.

The Spring National Meeting of the American Chemical Society was held in Salt Lake City for the very first time during the interval March 22-26, 2009. The Utah Chemistry Department was well represented at this meeting by students and faculty of the department delivering technical talks to the meeting attendees. Dr. Jan Hayes, the Chair of the ACS Division of History of Chemistry at the time, had secured funding for a half day symposium honoring the legacy of the late Henry Eyring. Invited speakers included Prof. Douglas Henderson (BYU-Provo), Prof. Josef Michl (Univ. of Colorado, Boulder), Prof. Dan Urry (Univ. of Minnesota and University of Alabama, Birmingham) and Prof. (Steven Kuznicki (University of Alberta, Edmonton). One of the highlights of the symposium was a graphic prepared by Dr. Amy Dambromovitz (University of Alberta) showing that Henry Eyring’s 700+ scientific papers continue to generate citations in the scientific literature at a high level even thirty plus years after his death.

VIII. NIH Awards Funds for an Enlarged Chemistry Building

In the spring of 2009, the University was notified that \$8M from the NIH had been awarded for construction of a major addition to the so-called “south tower” of the Henry Eyring Chemistry Building. At the time of the new NIH award it was clear that at least \$10M additional [funds] would be required beyond the \$8M in NIH funds to complete the project. Associate Professor Greg Owens was promptly deputized as “Director of Development” to lead this ambitious fund raising campaign.

On April 15, 2009, the College of Science hosted an “Eyring Legacy Event” in collaboration with the University Office of Development. The main event was a dinner in the Tower of Rice Eccles Stadium. Attendees included fourteen of the late Professor Henry Eyring’s former research students, members of Henry Eyring’s family, the three members of the LDS Church First Presidency, notable local political figures, members of the Chemistry faculty, and many other invitees.

In Fall 2009, The Catalyst Alumni Newsletter of the Chemistry Department, no volume number, had morphed into THE CATALYST CHEMISTRY NEWSLETTER, Volume 1, Number 1, Fall 2009 with a dazzling array of color photographs not found in the issue of the defunct Newsletter. Prof. Henry White was continuing as Department Chair and noted that Chemistry was still accomplishing much despite draconian State of Utah budget cuts.

The “Faculty Profile” story was about Assistant Professor Kenneth Woysechowsky who had come to Utah from upstate New York via a B.S. at Penn State, a Ph.D. at U. Wisconsin – Madison, and a postdoc. at the ETH in Zurich, Switzerland. One of Ken’s research foci continues to be issues related to icosahedral capsids (“soccer balls”) commonly found in viruses.

One of the challenges of having strong Utah Chemistry faculty is the inevitable competition with other strong departments for our chemists at every level of development. Examples of this problem in the history of the U. of Utah Chemistry Department abound. Josef Michl leaving Utah for Austin, Texas immediately after his election to the National Academy of Sciences is a particularly painful example. Another troubling example was the departure of Jean Futrell, bound for the University of Delaware. Just as unexpected was the decision of John Gladysz to leave in 1998 for a Chair in Germany after 16 very fruitful years elevating the prestige of inorganic chemistry at Utah. More recent disappointing losses include Greg Voth departing for the University of Chicago, the husband-wife team of Peter Beal and Sheila David decamping for the University of California, Davis, and Eric Hagg joining his wife at Michigan State University. What these and many other lateral transfers within academic chemistry have in common is more resources immediately available to the transferee at the far end of the move. If the Chair of the Utah Chemistry Department had had the endowment funds enjoyed by the Departments with which we were competing some of these unhappy losses could have been avoided. That reality makes stories about large donations to endowments particularly encouraging news.

The Thatcher Company in Salt Lake City made a multi-year pledge to create a four-year full tuition undergraduate scholarship in Chemistry or Chemical Engineering. The first recipient was Natascha Knowlton of Magna, UT. She was also the 2009 Cyprus High School Sterling Scholar in foreign language.

Dr. Rebecca Uhlig, a practicing optometrist working in Portland, Oregon was mentored in the Utah Chemistry Department by Professor Laya Kesner. Rebecca created in 2009 the Laya Kesner Award to be given to an undergraduate chemistry major who has demonstrated teamwork and support of her/his fellow students' learning experience while in the classroom or lab.

Life sketches of three prematurely deceased Chemistry Department students are also given in the Catalyst, Fall 2009, Vol. 1, No. 1 issue. Their names are Jennifer Alexander, Christopher Nielsen, and Masaaki Tamayama.

Recognitions of Faculty Members mentioned in this Catalyst issue include the following:

Prof. John Conboy promoted to rank of Full Professor

Prof. Gary Keck received the University of Utah Distinguished Teaching Award

Prof. Joel Miller was elected Fellow of AAAS

Prof. Valeria Molinero received the Beckman Young Investigator Award

Prof. Peter Armentrout was given the Field and Franklin Award for Outstanding Achievement in Mass Spectrometry

Prof. Jennifer Shumaker-Parry received an NSF Career Award

Prof. Matthew S. Sigman received the Robert W. Parry Teaching Award endowed by the Brady Foundation

Prof. Ilya Zharov was promoted to Associate Professor and received the IUPAC Young Observer Award and was named University Distinguished Honors Professor

Debbie Olson, Department Secretary, received the W. W. Epstein Outstanding Educator Award

Prof. Holly Sebahar also received the W. W. Epstein Outstanding Educator Award

There is a gap in copies of the Catalyst (University of Utah) Chemistry Newsletter between Volume 1, Number 1, Fall 2009 and the Biannual Catalyst Newsletter, Fall 2012, that has no volume number and no issue number.

The Curie Club was invented and first convened sometime during this three-year interval. A few events from this interval in the Chemistry Department History are the following:

May 28, 2009, Dr. Bill Jack (Duke Univ. Ph.D., 1983; Native Salt Laker) visited and talked about “Polymerases and Other DNA Enzymes.”

September 21, 2009, Lucy Ziurys, University of Arizona, boss of Kitt Peak and Mount Graham, Astronomical Observatories, spoke on “Molecular Spectroscopy Beyond the Solar System: A Physical Chemist’s Approach to Astrochemistry.”

January 21, 2010. Dr. Bethany Buck-Koehntop, Scripps Research Institute, spoke on “DNA recognition by the Methyl-CpG Binding Zinc Finger Protein Kaiso.” Bethany subsequently joined the Utah Chemistry faculty.

58th ASMS Conference on Mass Spectroscopy in Salt Palace, May 23-27, 2010. Peter Armentrout spoke to an audience of about 4,000 attendees on May 23rd. Dr. Marvin Vestal (Futrell Ph.D.) was an awardee on May 24 for a Distinguished Contribution to Mass Spectrometry. Prof. Tsutomu Masujima (former Postdoc in Ted Eyring lab) brought 20 of his coworkers from Hiroshima, Japan and spoke to a reasonable crowd on Thursday morning, May 27th about “Robotized Video-Mass Scope for Direct and Live Single-cell Molecular Exploration.”

April 6, 2010, Inorganic Colloquium, Dr. Fred Hawthorne, Univ. of Missouri, Columbia, “Polyhedra Boranes in the Biomedical Area,” hosted by Joel Miller.

A retirement reception for Dr. Jerry Driscoll was held on June 15, 2010. His matchless gift for classroom demonstrating chemical principles enriched all our lives. He now resides in Hawaii.

May 9, 2011, John Maier, University of Basel, Switzerland, “Electronic Spectroscopy of Carbon Chains, Rings and Ions of Relevance to Astrophysics,” Host: Prof. Michael Morse.

June 25, 2011, Chair Henry White and a few others from Chemistry attended a polo match at the South Jordan Equestrian Park to see how the College of Pharmacy raises money for a new pharmacy research building. The event was financed by Claudia Skaggs Lutrell, whose daughter was one of the polo pony riders.

The lead story in the Fall 2012 Catalyst is Distinguished Professor Peter Stang receiving the National Medal of Science from President Barack Obama in September 2011 in the White House and the 2013 Priestley Medal from the American Chemical Society. The National Medal of Science is the highest U.S. honor for a scientist or engineer. The Priestley Medal is the highest honor bestowed by the ~164,000-member ACS on a chemist or chemical engineer. The medal is basically a lifetime achievement award and reflects Peter’s contributions to the lively field of supramolecular chemistry in which large molecules build themselves from a mixture of pre-designed chemical building blocks.

Another story with a colorful picture in the Fall 2012 Catalyst is Miss Utah is a Chemist. Kara Arnold, Miss Davis County, was crowned Miss Utah on June 16, 2012. She graduated with a degree in Chemistry from the University of Utah in August, 2012 and aspires to become a physician. Her immediate goal was to encourage youth to discover their potential by STEPPING UP with STEM (science, technology, engineering and math).

Biannual Catalyst Newsletter, Summer 2013 [no Volume Number]

Endowed Chair

Ragsdale Professor Charles “Butch” Atwood is using IRT [“Item Response Theory”] to determine not only which test questions are the best discriminators of student capability BUT ALSO the topics which pose the biggest learning challenges. A new 110-seat computerized testing center in the Marriott Library is the location where his students are experiencing IRT. IRT applied across individual school districts in Utah may yield the knowledge needed to focus teaching efforts and boost student performance. Also, chemical lecture demonstrations will be tested by IRT to determine which demonstrations lead to an intended “Aha!” moment for students in freshman level General Chemistry.

Professor Peter Stang captures the highest award of the Amer. Chem. Soc.

This story draws attention to the long service of Prof. Stang as Editor-in-Chief of the Journal of the American Chemical Society, arguably the most prestigious periodical dealing broadly with chemistry in the entire world.

Greetings from the Chair Henry S. White

The Chair drew favorable attention to the Reese Floor for Advanced Undergraduate Laboratories and the Curie Club Active Learning Center in the new Thatcher Building. Henry expressed extreme gratitude for the support of alumni, friends, and corporations who helped make the new building a reality. He also drew attention to the new Thatcher Presidential Endowed Chair in Biological Chemistry, the Peter J. and Christine S. Stang Presidential Endowed Chair, and the Henry Eyring Presidential Endowed Chair which are critical to success in attracting and holding star teachers and researchers of chemistry to the University of Utah faculty. He announced in closing that his successor as Department Chair is Distinguished Professor Cynthia J. Burrows, a long-time faculty member and an exceptionally gifted chemist and educator.

Curie Club Members Explore the Nano World

Members and friends of the Curie Club teamed up with children and grandchildren in the C. Dale and Susan R. Poulter Lab. of the Thatcher Building to learn from their own experiments about properties of suspensions of colloidal metal particles. Prof. Jennifer Shumaker-Parry provided supervision of this laboratory event and explained that Michael Faraday in the nineteenth century was the first scientist to explain the beautiful colors achieved with suspended metal particles of different sizes.

Follow That Electron!

Professor Ryan Steele is a theorist who uses quantum mechanics and supercomputers to model the transfer of an electron to a heterogeneous catalyst when $(\text{H}_2\text{O})_n$ experiences photooxidation with transfer of a proton to neighboring molecules. A detailed 20 picosecond simulation of a 17-water-molecule cluster undergoing this reaction is estimated to require 9 years now with presently available computers. The Henry Eyring Center for Theoretical Chemistry under the direction of Professor Vale Molinero has lately been moved from the INSCC building immediately north of the Park Building a distance of roughly 200 meters to the 4th floor of the beautiful new Thatcher Building. With the theoretical chemists located much closer physically to the rest of the faculty it will be interesting to see whether or not attendance at Department Colloquia grows significantly as it should. As with most human endeavors, the science of chemistry advances faster when all the participants are talking to one another.

Scholarship Honoring Prof. Edward Eyring Announced at Dept. Awards Ceremony

Dr. Craig V. Lee, DDS was the keynote speaker for the annual Department Awards Seminar. An annual "Edward Eyring Undergraduate Scholarship" was awarded for the very first time to Levon Katsakhyan marking the retirement of Prof. Eyring after more than 50 years of service. Numbered among the many generous donors of this annual scholarship were former students and faculty colleagues of Prof. Eyring.

Doors Opened at Thatcher Building in March 2013

On March 13, 2013, the Thatcher Building for Biological and Biophysical Chemistry was dedicated. The facility is named in honor of the Lawrence E. and Helen F. Thatcher family. It provides much needed space for graduate research and undergraduate teaching laboratories. Photos from the dedication ceremony are available online at <http://giving.utah.edu/events/thatcher-building/>.

Waters Advanced Mass Spectrometry Lab to be Dedicated in September with Symposium

On September 20, 2013, the Chemistry Department and Waters Corporation will hold a symposium on "Innovations in Biological Mass Spectrometry." Included will be a Dedication Ceremony for the new Waters Advanced Mass Spectrometry Lab featuring the new Waters Xevo G2-S QToF instrument. Distinguished researchers speaking in the symposium will include Professor David Clemmer (Indiana University), Julie Leary (U.C. Davis), Joseph Loo (UCLA), John McLean (Vanderbilt University), Natalia Tretyakova (University of Minnesota), and Peter Armentrout (University of

Utah).

Waters Corporation has donated the new mass spectrometer for the new lab in the Thatcher Building. It is designed to be adaptable with any future innovation in the field of mass spectrometry ensuring the instrument remains current.

Professor Ryan Looper Wins Young Investigator Awards

Prof. Ryan Looper won Amgen's Young Investigator Award. This prize recognizes his research on small molecules within biological systems and includes an unrestricted research grant. Three other recipients are Sara Riseman at CalTech, Abigail Doyle at Princeton, and Scott Snyder at Columbia. In 2013 Ryan also received one of only two nationwide Young Investigator Awards given by Eli Lilly & Co. A major unrestricted research grant was included. Looper and his collaborators seek compounds that function as specific modulators of cell signaling events.

Emeritus Professor David Morris Grant Dies

On April 13, 2013, Distinguished Professor David Grant died at age 82 of natural causes. As Chair of Chemistry for a lengthy period, Dave established the practice of steering substantial departmental resources into the hands of young faculty members who were still getting their research programs started rather than into the hands of tenured faculty members who were not writing enough successful research proposals to granting agencies. Thanks to Prof. Grant's powers of persuasion, Prof. Cheves Walling and Prof. Bob Parry brought their established research reputations to Utah at a time when the Department was treading largely on the research reputation of Henry Eyring. Eventually, the enormously productive team of carbon-13 NMR spectroscopists Dave Grant gathered around him in his research lab had a broad impact on the favorable research reputations of the Utah Chemistry Department comparable to that made by the established stars (Henry Eyring, Cheves Walling, Bob Parry, etc.) who got the Utah juggernaut first rolling.

New Presidential Endowed Chair of Biological Chemistry

The Lawrence E. Thatcher family endowed a Presidential chair of Biological Chemistry in the Spring of 2013. Some fraction of the interest from the endowment may be spent each year by the Chairholder on her/his basic research, but not on personal expenses. Thus the Endowed Chair facilitates the Chairholder undertaking high risk/high potential experiments in exploring transformative new scientific ideas. Distinguished Professor and new Department Chair Cynthia J. Burrows was informed by Tom and Kathy Thatcher that she is the inaugural Thatcher Presidential Endowed Chair of Biological Chemistry.

2013 Distinguished Alumni Recognized in April

Three notable alumni of the Chemistry Department graciously consented to visit the Utah campus to accept 2013 Distinguished Alumni Awards in April 2013, visit with current students, and eat an Award dinner with members of the faculty. The three awardees in 2013 were the following:

Dr. Dick Smith completed his Ph.D. dissertation research in the lab of Professor Jean Futrell in 1975. His research at Pacific Northwest National Laboratory (Richland, Washington) has been very fruitful. He uses advanced mass spectrometric techniques to explore proteomics, i.e. how the proteins in a single biological cell interact with one another.

Dr. George Uhlig received his Ph.D. degree in 1972 for research carried out in the lab of Professor Henry Eyring. George retired from active duty in the U.S. Air Force in 1983. He was employed by Hercules Aerospace managing research projects for several years and subsequently taught chemistry at Salt Lake Community College and the College of Eastern Utah (CEU) in Price. At the latter location he created the only science research program in the college. He retired from CEU in 2008.

Dr. Rob Webb completed his Ph.D. in 1982 as the second doctoral student of Prof. Gary Keck. At Bristol-Myers-Squibb Rob worked on drugs to treat HIV/AIDS and cancer. At Arena Pharmaceuticals he helped develop the obesity treatment named Lorcaserin. He is now Vice President at Amplyx Pharmaceuticals.

Two New Faculty Members Joined the Chemistry Department

In August 2013, Dr. Matthew Kieber-Emmons joined the faculty in the rank of Assistant Professor (seeking eventual tenure). His background was a B.S. in Chemistry from St. Joseph's University (2002) and a Ph.D. in Chemistry from the University of Delaware (2008). He came to Utah directly from an NIH postdoctoral fellowship at Stanford University. There he had combined spectroscopy measurements with theoretical calculations seeking electronic structure contributions to chemical reactivity. His mentor at Stanford was Prof. Edward Solomon. Matthew is nominally an inorganic chemist and one of his early research topics at Utah includes design of transition metal catalysts for water splitting.

In January 2014, Dr. Caroline Saouma became an Assistant Professor of Chemistry at Utah and concurrently a member of the USTAR Alternative Energy Cluster. She is an inorganic chemist interested in the mechanism of small molecule activation. Her B.S. in Chemistry was from M.I.T. in 2005, and her Ph.D. in Chemistry was from CalTech in 2011. She has since been an NIH NRSA postdoctoral fellow at the University of Washington in the lab of Prof. James Meyer. She recently won a prestigious ACS Division of Inorganic Chemistry Young Investigator Award. Her future research interests include pathways for CO₂ fixation and various aspects of fuel cells.

Biannual Newsletter (Catalyst) Fall 2013 [no volume number]

XI Letter from the Chair by Cindy Burrows

The new Chemistry Chair, Distinguished Professor Cynthia J. Burrows, nicely summarized the "transformative impact" of Henry White's previous six years of strong leadership as Chair: 11 new professors (one third of our tenure-line faculty), including 4 women, completion of the \$24M Thatcher Building, and establishment of 3 endowed chairs. ["tenure-line" is budget speak for faculty members who have already achieved tenure as well as those who are on track for tenure consideration such as newly appointed assistant professors] She welcomed to the Department of Chemistry two new assistant professors [Kieber-Emmons and Saouma] and a new Manager responsible for all fiscal matters in the Department [Reneé Laws assuming the place of Shari Zinik]. Also welcomed were Willow Toso to the Electronics Shop, and Alyssa Geisler as the new Development Officer for Chemistry.

In the same message to "Chemistry Friends and Families" Professor Burrows sketched immediate challenges facing Chemistry at Utah in 2014:

- 1) The State of Utah model for funding the University of Utah is transitioning from legislative appropriation to tuition-based funding. Thus encouraging students to pursue the "central science" of chemistry as a major or incidental to other studies is imperative, particularly if they are enrolled at the U. of U or are considering enrolling at the U. of U.
- 2) A window of opportunity for doubling the impact of a gift to the Rom and Eileen Ragsdale Scholarship Endowment Fund will close on December 31, 2014!

Unraveler: Professor Bethany Buck-Koehtop

Dr. Bethany Buck-Koehtop works in the Gauss Haus on a good-sized 800 MHz NMR spectrometer. She and her colleagues study a set of three methyl-CpG binding proteins (MBPs) called the ZBTB family. They are associated with cancer progression through their regulation of gene expression at methylated DNA sites. A combination of in vitro biophysical studies and in biological cell genomic studies are used to characterize the activities of the ZBTB family of MBPs in cancer. A goal of such studies is the identification of new biomarkers for improved cancer diagnostics.

Waters Lab Dedication and Mass Spectroscopy Symposium

On September 20, 2013 the new Waters Advanced Mass Spectrometry Laboratory in the Thatcher Building was dedicated before 120 participants with a video-feed overflow room. David Clemmer (Indiana), Julie Leary (UC Davis), Joseph Loo (UCLA), John McLean (Vanderbilt), Natalia Tretyakova (Minnesota) and Peter Armentrout (Utah) highlighted various aspects of biological chemistry revealed through mass spectrometry. Special thanks are due to Waters Corporation for their generous donation of the mass spectrometer. For photos see www.facebook.com/chemistry.utah.

John Gladysz and Janet Bluemel Fund Future Endowed Chair

John Gladysz and his wife Janet Bluemel are both notable chemistry professors at Texas A&M who have happy memories of their wedding in Red Butte Garden in 1997. Because of their striking success in academic chemistry previously in the U.S. and in Germany before settling in College Station, TX they are in a favorable financial position. They have made provisions in their estate plan for a future Endowed Chair in the Utah Department of Chemistry that will support the teaching, research, service, and professional development of the Chairholder. The Chair will be filled by an outstanding researcher in any area of organic or inorganic chemistry. Persons interested in creating a similar legacy are encouraged to contact Department Chair Cindy Burrows at 801-585-7290 or burrows@chem.utah.edu.

Marc Porter: USTAR Professor and Space Cadet

Marc Porter is a Professor of Analytical Chemistry with a USTAR appointment and research laboratory space in the James L. Sorenson Biotechnology Building. He remembers riding on a NASA weightlessness simulation nicknamed the "vomit comet" because it induced nausea in about two-thirds of passengers. He admits he got sick, but the microgravity tests of his device, a water-quality monitor, were successful. The device determines iodine and silver levels in a water sample. Both are used as sterilizing agents in space exploration. Among his many duties, Marc is Director of the Nano Institute of Utah that drives interdisciplinary nanoscale device research and collaboration in Utah. Porter's team keeps in mind a numerical goal: 10^{-24} . That is the concentration at which they would like to detect a target, equivalent to one virus particle in one liter of water.

Curie Club Hosts First Fall Event

On October 22, 2013, the Curie Club presented a panel of four experts presenting career pathways beyond the Ph.D. to about 40 attendees. Dr. Susan Poulter, Ph.D. organic chemistry and retired law school professor, spoke about how her scientific background prepared her for a career in environmental law and intellectual property issues. Prof. Jen Heemstra, Chemistry Assistant Professor, reflected on how combined experiences in academia and industry prepared her for an independent academic career. Dr. Carrie Kelley, instructor at the U. of U. and AMES, described a teaching career that has included the small college atmosphere of Concordia College, the large classrooms of general chemistry at the U. Of U., and the unusual setting of a science oriented charter high school. Dr. Carol George, the Governor's Science Advisor for the State of Utah, gave tips on opening uncommon doors by being willing to look outside her training in molecular biology and stem cell research to a career in public service. One big "take-home" message of the evening was that careers can transition over time, and one should always be open to new opportunities.

New Teaching and Research Instrumentation

A new lab designed to give U. of U. chemistry students access to the latest instrumentation opened in the Thatcher Building under the slogan "Instruments by ThermoFisher Scientific, Chemists by the University of Utah." In the lab are UV and FT-IR spectrometers, liquid (HPLC) and gas (GC) chromatography systems linked to single quadrupole mass spectrometers, an automated solvent extraction system and an ion chromatograph. The idea originated with Utah graduate Arni-Elei Costa, Technical Sales Rep. for ThermoFisher Scientific. He recognized the need for U. of U. students to have lengthy access to the type of modern instrumentation they will encounter when going to work in a chemical industry. (Arni has another notable gift besides his excellent knowledge of chemistry and his engaging personality: he can jump on top of a desk from a standing position just as the late Henry Eyring could do circa 1960. See the photo on page 6 of "The Chemistry Department, 1946-2000" by E. M. Eyring.) Linda De Jesus, ThermoFisher V.P. of Global Strategic Sales, played a key role in making the instrumentation for this new student laboratory happen.

Associate Professor-Lecturer Laya Kesner Retires after Two Decades of Teaching

Laya Kesner started her career at Utah as a graduate student in 1967. She completed a Ph.D. dissertation on field flow fractionation under Prof. Cal Giddings in 1975. After a postdoctoral position with Prof. Richard Boyd in Chemical Engineering she taught chemistry for a while at Rowland Hall-St. Mark's School. Her focus on employment in Salt Lake City was dictated by her husband's faculty position in Psychology. Finally, in 1994 Laya was selected for a job in the U. of U. Chemistry Dept. updating and revitalizing the General Chemistry labs. In the years since she has taught General

Chemistry II, Environmental Chemistry, Pre-Nursing Chemistry, and Quantitative Analysis. She also pioneered freshman Service-Learning lab sources for freshman students interested in detecting Pb in paint in older homes. Her positive impact on chemistry students was noted above in a story about Dr. Rebecca Uhlig, now a Doctor of Optometry.

Dr. Marilyn Alder Marquis, First Woman to Earn a Ph.D. from the College of Science in 1951

Dr. Marilyn Alder Marquis died on August 26, 2013. She was the first woman to obtain her Ph.D. degree from the U. of U. College of Science. Her dissertation supervisor was Professor Henry Eyring. Marilyn did research on a broad range of topics for corporations and government labs including Dugway Proving Ground in the western desert of Utah. Her interests included arcplasma processing of chemicals, synthesis of tetrafluoroethylene, synthesis of polymer intermediates, and mechanism of ozone reactions. In 2012, she was honored as a distinguished alumna of the U. of U. Chemistry Department at a dinner honoring her and two other notable alumni.

New Presenters Tackled the Annual Christmas Faraday Lectures Tradition

Professors Janis Louie and Tom Richmond were deputized to prepare and perform the traditional Faraday Lectures in December 2013. They lived up to the expectations of the appreciative audience composed largely of high school students, parents, and friends of the University. As is the custom, explosions, combustions, and radical chemical reactions were the order of the day. Michael Faraday was one of the early directors of the Royal Institution located for more than 200 years in downtown London and not supported financially by the British “Royals” as one might mistakenly infer from the title of the Institution. Among the many notable scientists who have occupied the post of Director is the name of Sir George Porter, Nobel Prize Winner for the invention (with others) of flash photolysis methods of measuring fast rates of chemical reactions. Sir George gave the principal invited talk at the dedication of our Henry Eyring Chemistry Building in 1968.

Milestones in Physical Chemistry: The Potential Energy Surface of Eyring and Polanyi

In 2013, the Zeitschrift fuer Physikalische Chemie, Volume 227, Issues 9-11, pages 1207-1655 contains the classic paper, “On Simple Gas Reactions,” by Henry Eyring and Michael Polanyi originally published in German in 1931, but now available in English on pages 1221-1245. Another paper of possible interest to U. of U. chemists is one on pages 1467-1490, entitled “Toward Detection of Electron-Hole Pair Excitation in H-atom Collisions with Au(111): Adiabatic Molecular Dynamics with a Semi-Empirical Full-Dimensional Potential Energy Surface” by Svenja M. Janke and 5 co-authors, including Alec M. Wodtke of Georg-August University at Göttingen, Germany. Alec Wodtke received a B.S. degree from the U. of U. Chemistry Department in 1981. Wodtke was one of two guest editors of this 446 page volume of Z. Physikalische Chem. He was also Chair of the U.S. Santa Barbara Chemistry Department before moving to Göttingen, Germany.

The Spring 2014 issue of *Catalyst*, Biannual Newsletter of the Department of Chemistry, University of Utah reports the following:

Letter from the Chair, Cynthia J. Burrows

The Department graduated 57 undergraduate Chemistry majors this spring and 33 master degree students over the past calendar year. Three former students received 2014 Distinguished Alumni Awards: Professor David Clemmer, Dr. Jerry Murry, and Mr. Thomas Thatcher (see below); Prof. Joel Harris received the University of Utah Distinguished Professor Award; Prof. Jen Heemstra was awarded a College of Science Professorship to develop a new interdisciplinary course – chemical biology; Jeff Statler received the excellence in Education Award from the LDS Student Association; Prof. Gary Keck was awarded the title of Distinguished Professor as well as Cope Scholar by the ACS. Distinguished Professor Peter Stang became the David P. Gardner Presidential Chair holder on July 1, 2014. In Summer 2014, Asst. Prof. Dr. Luisa Whittaker-Brooks will establish a solid-state inorganic chemistry program focusing on solar cell materials and nanostructure design. Asst. Prof. Michael Grünwald will join the Henry Eyring Center for Theoretical Chemistry bringing his expertise in self assembly and nanoscience.

Former Chemistry Chair and Distinguished Professor Henry White began his service as College of Science Dean on July 1, 2014. He is internationally renowned for his research in electrochemistry and last fall received the 2014 Utah Governor's Medal of Science and Technology. Cindy wrote: "Henry will lead the College of Science to great places and leap tall buildings in a single bound!"

Curie Club Sponsors Three Graduate Awards to Women Chemists

The Ronald and Eileen Ragsdale Curie Club Graduate Research Award was bestowed on Anna Wolna. She is a fifth year graduate student in Cindy Burrow's lab. Anna focuses on DNA cross-links using single-molecule nanopore technology.

Two Curie Club Graduate Teaching Awards sponsored by Anthony W. Czarnik and Craig and Linda Lee were given to Kirsten Meek and Annika Pecchia-Bekum.

Additional Prestigious Awards to Women Chemists

Elizabeth Bess won the national Iota Sigma Pi Anna Louise Hoffman Award for outstanding achievement in research. She works in Prof. Matt Sigman's Research Lab on a problem involving directed evaluation of enzymes. Senior Elizabeth Ward is this year's American Institute of Chemists Award winner as the top graduating chemistry major. She works in Prof. David Blair's research lab. Junior Alexandra Kent won a Barry Goldwater Scholarship intended for persons pursuing a STEM research career. Alexandra works in Prof. Jenn Heemstra's research lab.

Research Spotlight on Gary Keck and Bryostatins

Professor Gary Keck reaped well deserved rewards in 2013-2014 for his remarkable achievements in synthetic organic chemistry research and his equally noteworthy success mentoring his undergraduate and graduate students of organic chemistry. The University recognized Gary's outstanding success by according him the title of Distinguished Professor. The American Chemical Society awarded him this year the honor of being an ACS Cope Scholar, a title limited to the very most successful organic chemists of their day. His first Ph.D. student at the University of Utah, Dr. Jerry Murry, was selected to be one of the 2014 three Distinguished Alumni of the Chemistry Department.

Bryostatins are found in marine organisms and for decades have been thought to have cancer fighting potential. The flagship compound, Bryostatin 1, was isolated in only gram quantities from tons of marine animals. This scarcity of a potentially life-saving molecule persuaded Gary and his research group to design and carry out a laborious total synthesis of Bryostatin 1 that was accomplished in 2011. In some encouraging *in vitro* studies Bryostatin 1 induced apoptosis (cell death) in tumor cells, but that effectiveness was not replicated in clinical trials using human patients. Gary and his team have synthesized a family of Bryostatin monologues with a view to finding what minor modifications of the parent compound may yield a more effective cancer fighter. The related compounds are given names such Merle 23 honoring Gary's friend musician Merle Haggard. (Gary's passions include chemistry, music, golden retrievers, and practical jokes.)

2014 Distinguished Alumni: David Clemmer, Jerry Murry, and Thomas Thatcher

On April 21, 2014, the successful careers of three alumni were celebrated with invited talks and an elaborate dinner at the Alumni House.

Professor David Clemmer earned a B.S. degree at Adams State College, Alamosa, CO in 1987 and a Ph.D. degree at Utah under the tutelage of Prof. Peter Armentrout in 1992. He was a postdoctoral student at the Himeji Institute of Technology in Japan and at Northwestern University in Evanston, IL. David joined the Indiana University Chemistry faculty in 1995 and Chaired that faculty from 2002 to 2006. His research accomplishments include development of methods for studying structures of complex, low symmetry systems in the gas phase and complex measures of proteins in what is now called proteomics.

Mr. Thomas Thatcher received his B.A. in Chemistry at the University of Utah in 1985, was Assistant to the President of the LDS Church Mission in Fukuoka Japan (1980-1982), and earned his MBA from Brigham Young University in 1987. Tom worked for 27 years at Thatcher Company and was General Manager of Thatcher Pharmaceutical from 1998 to 2012. He has been a member of Rotary Club since 2006, serving as the Chairman of the International Service Committee and leading humanitarian efforts in Bolivia. Currently, Tom is the founder and CEO of Intuitive Funding, a company focused on helping startups succeed.

Dr. Jerry Murry did his Ph.D. dissertation research with Professor Gary Keck, completing it in 1994. He then completed and NIH postdoctoral fellowship with Professor David A. Evans at Harvard University. In roles of increasing responsibility, he worked subsequently at Pfizer Central Research, then as Director of Process Development at Merck Research Laboratories, and then joined Amgen in 2006 where he is now Vice President Small Molecule Process and Product Development. In these leadership roles he has authored more than 50 scientific publications, contributed to more than 10 patents, and authored more than 30 regulatory filing documents including four New Drug Applications.

The Electronic Lab in its 42nd Year

One of the continuing great strengths of the Utah Chemistry Department has been, and still is, the high quality of the people manning the Electronics Shop, the Machine Shop, and the Glassblowing Shop. Here we focus on the people who presently make the Electronics Shop indispensable to our teachers and researchers in the Department and elsewhere on campus. A vigorous research program in Chemistry stretches back in time to the end of World War II in 1945. Some still remember graduate students of Professor Austin Wahrhaftig monkeying with vacuum tubes in ground floor labs of a wooden converted Army barracks building located along the east side of what is now the Widtsoe Building. Electronic gear that could not be scrounged from War Surplus was assembled by Austin's graduate students and hired undergraduate electrical engineering majors. Eventually, our Chemistry Department Electronics Lab was born in 1972, and it was a going concern when Dale Heisler, the present Director of the Electronics Shop, joined the staff in 1979. The present staff consists of Mike Scott, doing primarily repairs of equipment and computer support, Shawn Laughlin, network administrator, Dennis Edwards, department NMR service engineer, and Willow Toso, who joined the staff in 2013. As a group, these multitaskers provide data acquisition and control systems, signal conditioners, transducers, custom software, repair, and computer support for the Departments of Chemistry, Physics, Biology and other departments in the Colleges of Engineering and Earth Sciences.

Major NMR research programs that produced many widely read scientific papers based on Dave Grant's Carbon-13 expertise never would have seen the light of day without the expert assistance of Dennis Edwards, Dale Heisler, and the other indefatigable workers in the Electronics Shop.

iPhones and iPads have definitely changed (for the good) the way students and faculty much of the information they need for doing innovative research and learning new concepts and skills. However, even the newest electronic gadgetry for acquiring new data fails occasionally, and it is wonderful to have skilled troubleshooters in the Electronics Shop who will come quickly to the "bedside" of a suddenly "ailing" electronic lab experiment. As faculty and students have adapted to typing and transmitting new scientific papers to publishers and other scientists by computer, there has been a dramatic shrinkage of the size of the secretarial staff in Chemistry. Until construction and repair of electronic instrumentation for making chemical laboratory measurements is robotized and cheap, skillful employees in the Electronics Shop have better job security than just about anyone in the Chemistry Department until U.S. government agencies funding research go bankrupt.

History of Utah Chemistry Department hits the Pause Button in August, 2014.