

Augustana

Augustana College
Sioux Falls, SD
57197

Department of Chemistry Alumni pHilter

Spring 2000

<http://inst.augie.edu/~viste/>

<i>Current Chemistry Staff</i>		<i>E-mail Address and Phone*</i>	
Gary Earl	Organic, Industrial, Dept Chair	earl@inst.augie.edu	605-336-4811
Duane Weisshaar	Analytical	dew@inst.augie.edu	605-336-4812
Arlen Viste	Inorganic, Physical	viste@inst.augie.edu	605-336-4813
Marty Lindbeck	Inorganic, Phys Sci, Physics	lindbeck@inst.augie.edu	605-336-4814
Milt Hanson	Organic, Polymer	mhanson@inst.augie.edu	605-336-4815
Jetty Duffy-Matzner	Organic	duffy@inst.augie.edu	605-336-4822
Roy Kintner	Organic, Emeritus	kintner@inst.augie.edu kintner@robles.callutheran.edu	805-493-3684
Betty Viste	Safety, Stockroom	bviste@inst.augie.edu	605-336-4827

*Sometime this summer the campus prefix will change from 336 to 274

Department Under New Leadership

Gary Earl has been appointed as the new Department Chair. He began his duties on August 1, 1999, succeeding Duane Weisshaar. We know that Gary is a capable leader and we wish him the best as he undertakes this demanding job.

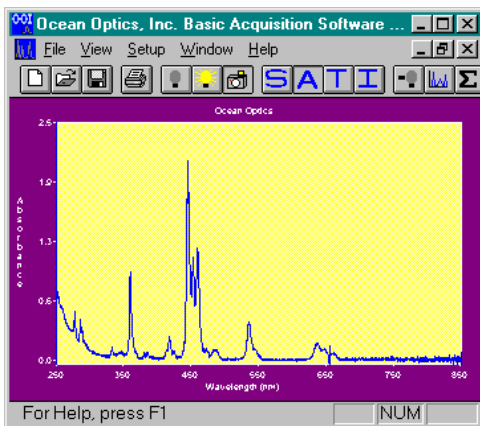
Arlen Viste Appointed Stanley L. Olsen Chair of Moral Values

CONGRATULATIONS, ARLEN! This endowed Chair was created with a successful matching grant from National Endowment for the Humanities in 1982. It is named in honor of Dr. Stanley L. Olsen, a wise and beloved faculty member (1937-71) in the areas of philosophy and religion. The appointment is for three years and the recipient is charged with raising awareness of moral issues on campus and in the wider community. Arlen has created a Home Page for the position at <http://inst.augie.edu/~values/>, where you can view a bit of the history of the position and the list of this year's activities - check it out.

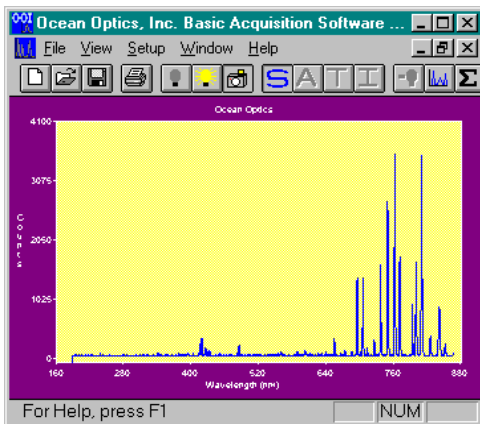
Department Purchases Two New Instruments

In July, 1999 we took delivery on a new visible-ultraviolet spectrometer, the Ocean Optics PC2000-UV-VIS-ISA. Then, in September, 1999 we took delivery on a new Raman spectrometer, the Ocean Optics R-2000. Both are compact instruments, based on fiber optic and CCD technology on an interface board which plugs into a PC. Visit URL <http://www.oceanoptics.com/>

The PC2000 quickly acquires UV-VIS spectra of solutions. It also does a good job with emission spectra. Here are some examples.



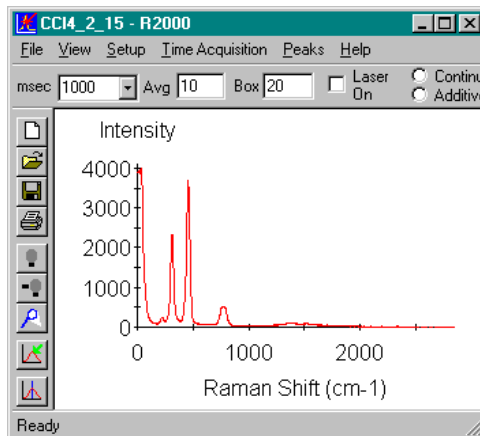
Holmium Oxide Absorbance



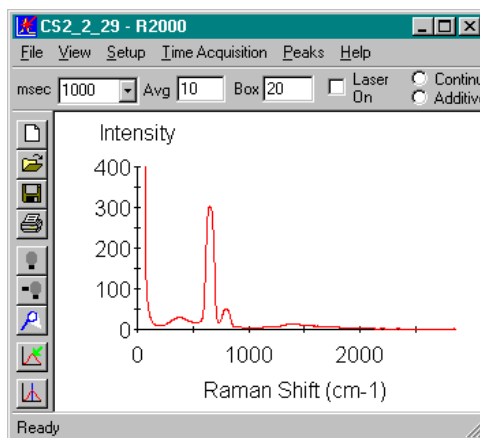
Argon Emission Spectrum

The R2000 efficiently acquires Raman spectra of liquids, solutions, and solids. Here

are some examples.



Carbon Tetrachloride



Carbon Disulfide

Both instruments were purchased with funds from the Roland Wright Chemistry Endowment and gifts to our department from alumni and friends. We express our sincere thanks to all whose generosity helped with this project. We also appreciate an Ocean Optics Grant Contract (Program B), Grant Award # OOI99-407 which applied to the Raman system. The acquisition of the Raman helped fulfill a longtime dream of Arlen Viste. We are busy getting started using both instruments in classes and in independent study/research. Deanna Donohue, a senior chemistry major

from Helena, Montana is particularly active in the work with the Raman.

Weisshaar Taking Sabbatical

Next year Duane Weisshaar will be on Sabbatical Leave working with Dr. Marc Porter at Iowa State University in Ames, IA. Duane's last leave (1991-92) with Marc was interesting and fruitful, so they decided to do it again. Since Marc has several "irons in the fire," Duane won't know exactly what he will be working on until he gets there.

Student Presentations, 1999

Ten students made the following presentations at the South Dakota Academy of Science meeting held at Dakota State University, Madison, SD on April 16, 1999:

"Quantitative Analysis of a Solid Solution Using Fourier Transform Infrared Spectrometry: An Instrumental Analysis Experiment" Rachel L. Kloos, Dianna M Wineinger and Duane E. Weisshaar.

"Multinuclear FT-NMR using the Anasazi EFT-60 Instrument." Steven R. Moeckly, Gary Earl and Arlen Viste.

"Explorations in Medicinal Chemistry through Molecular Modeling with HyperChem." Aimee J. Edwin, Gary Earl and Arlen Viste.

"Use of ATR and Circle Cell in the FT-IR Spectra of Polymers and Micelles" John Gilbertson and Arlen Viste.

"Laser Light Scattering from Silver Sols and Micelles" Jennifer Bjergaard and Arlen Viste.

"Exploring Glasses and Glazes in the History of Chemistry and the Undergraduate Laboratory" Greg Honsbruch and Arlen Viste.

"More Biofriendly Quaternaries: Synthesis of a Dihydrogenated Tallow Methyl Ammonium Methyl Carbonate and Replacement of the Anion with Other Anions" Steven R. Moeckly and Gary Earl.

"Quaternization of Dihydrogenated Tallow Methyl Amine, the Synthesis of Ester Amines, and the Quaternization of these Ester Amines" Drew J. Paulson, Gary Earl, Steve Moeckly and Dianna Wineinger.

"Development of an HPLC Method for the Analysis of Quaternary Ammonium Compounds with New Anions" Dianna Wineinger, Duane Weisshaar and Gary Earl.

"The Use of FT-IR for the Analysis of Quaternary Ammonium Compounds with New Anions" Dianna Wineinger and Gary Earl.

On May 19, 1999, senior Dianna Wineinger made a presentation at the Minnesota Chromatography Forum in Minneapolis, MN: "Development of an HPLC Method for the Analysis of Quaternization Reactions of Tertiary Amines with Dimethyl Carbonate" by Dianna Wineinger, Gary Earl and Duane Weisshaar.

On May 9-12, 1999, three students presented posters at the American Oil Chemists Society's meeting in Orlando, FL. Each of the presenters was present for the three-day meeting.

"More Biofriendly Quaternaries: Preparation of Methyl Carbonate Quats from Diesteramines" Drew J. Paulson and Gary Earl.

"More Biofriendly Quaternaries: Development of an HPLC Method to Follow Quaternization of Tertiary Amines with Dimethyl Carbonate", Dianna M. Wineinger and Gary Earl.

"More Biofriendly Quaternaries: Replacement

of Methyl carbonate Anion by Other Anions”
Stephen R. Moeckly and Gary Earl.

Summer Research, 1999

Seven Augustana students participated in Summer Research within the department last summer. One was a half-time lab assistant for the laboratory, one worked only half the summer but the others were full-time research students.

Jenny Bjergaard, a rising Senior, actually continued some of the work she had done the summer before working with the laser light scattering to determine critical micelle concentrations of quaternary ammonium compounds. Her work was sponsored by the NSF/EPA grant. She and the other students whose work is described below will be presenting the results of their work at the SD Academy of Science meeting being held this year as a joint SD/ND/MN tristate meeting at Moorhead State U. in Moorhead, MN in late April.

Dianna Wineinger, who had just graduated last May, spent the month of June re-checking her work on the HPLC establishing the rates of reaction of dimethyl carbonate with tertiary amines, a method she had developed the previous summer. At the end of the month, the summer researchers helped her, her husband, and two daughters pack their worldly goods as the Wineingers headed to the University of Oregon where Dianna began her graduate work last fall.

Drew Paulson, another rising Senior, perfected a method to make tertiary amines with two ester groups in the alkyl chains using long chain acids and methyldiethanolamine. The process was conducted in the Parr high pressure reactors. The tertiary amine was then quaternized to hopefully enhance the biodegradability of the quaternary compounds.

Steven Moeckly, another Senior, worked full-time trying to perfect a method to prepare the hydroxide quaternary from the methyl

carbonate quaternary. Initial attempts at ion exchange were very involved. When direct displacement using a mixed solvent system was used, nearly complete conversion to hydroxide resulted. Weak acids such as benzoic or p-toluic acid reacted with the hydroxide quaternary and produced the expected benzoate salt or p-toluate salt. Steve characterized these by PMR.

David Stone, a Junior this fall, attempted to take the hydroxide quaternary that Moeckly had perfected and converted it into the borate and phosphate salts. One of the exciting features of this research was the fact that David learned to work with P-31 NMR looking at phosphorous in its various environments in what appears to be the mono and bis-quaternary phosphates. He also learned B-11 NMR in taking spectra of the borate quaternary.

John Gilbertson, a Senior, worked with some support from the Augustana Research and Artists Fund as well as some NSF funding. He began a whole new area of research to prepare more-biodegradable surfactants based on carbohydrate starting materials. During the course of the 10 weeks, he worked on glucose, adding alkyl groups to decrease hydrophilic interaction via esters and ethers. Later he worked on 2-aminoglucose and prepared long-chain esters which could then be quaternized with ethyl iodide.

Levi Stanley, a rising Junior, assisted laboratory half day and worked on the sugar surfactants half time. His funding came from the Summer College as well as some from the ARAF and NSF budgets. Levi converted starch into small oligosaccharides and then substituted them with long-chain esters. He also used butylene oxide to form ether groups on the glucose moieties. His work is now continuing.

The work of Gilbertson and Stanley was to set the stage for another NSF proposal. That proposal has been submitted and we recently received the news that it will not be funded. Perhaps it is a bitter lesson to learn that as the

funding goes, so goes research. We are not sure how many students will be working here this upcoming summer - perhaps two or three who will be partly supported by working as laboratory assistants. It is once again recognized that one of our pressing needs is some way to endow summer research so we know we will be involved - with or without NSF!

New First Year Chemistry Majors

In Fall, 1999 we were joined by 14 new chemistry majors: **Alicia Berger**, Canby Minnesota; **Shannon Brantley**, Havre, Montana; **Erin Frierichs**, Lincoln, Nebraska; **Gina Furman**, Britton, South Dakota; **Nathan Gonseth**, Brandon, SD; **Keith Hartman**, Rochester, MN; **Katie Hoffman**, Harrisburg, SD.; **Jennifer Johnson**, St. Cloud, MN; **Julie Kennedy**, Fargo, ND; **Autum Moschell**, Sioux Falls, SD; **Karin Shafer**, Sioux Falls, SD; **Denise Steffl**, Worthington, MN; **Nick Thompson**, Mason City, IA; **Megan Wolle**, St. James, MN. As you can see, they are from a wide variety of Upper-Midwest communities and we find they are well-prepared students. Two started in the first organic course and four were in the 120 Honors course!

Rachel Kloos Wins Trip to Pittcon '99

In Fall, 1998, Augustana was invited to select one of our chemistry students to enter an essay contest promoted by *Laboratory Equipment* trade publication with first prize (actually the only prize) being an expense paid trip to the Pittsburgh conference. Rachel Kloos, then a student in Advanced Analysis, was selected as our representative. Essays were published in *Laboratory Equipment* and readers elected Rachel as the winner.

As the winner, Rachel received an all expense paid trip to the 1999 Pittsburgh Conference in Orlando, Florida.

1999 Chemistry Graduates

Eight chemistry majors graduated in May, 1999, and two more finished up in December, 1999.

May, 1999

Rebecca Aden graduated with majors in Chemistry and French. She worked for Grand Laboratories in Larchwood, Iowa until this fall. She is currently a substitute teacher of French at O'Gorman High School in Sioux Falls while the regular teacher is on maternity leave. Next year she plans to attend graduate school in French but has not decided where.

Zachary Beecroft is working for Nova where he is teaching English as a second language in Japan this year and thinking about the future - perhaps medical school for next year (zjbeecroft@yahoo.com).

Jason Bormann is working as a chemist in the Food Science Lab at John Morrells.

Dan Denevan is attending graduate school in Chemistry at Purdue University (denevan@purdue.edu).

Greg Honsbruch is working as a Tech Support Professional at Gateway in Sioux Falls (gjhonsbr@inst.augie.edu).

Rachel Kloos is working as a chemist at Walling Water Management in Sioux Falls.

Eric Lauer has been accepted to medical school at Emory University, but he deferred for a year and is working in Minneapolis. Excerpts from e-mail (elauer@hmodata.com):

It looks like things are still going to go pretty much according to the plan I had for myself when I graduated. I'm accepted at Emory, but I chose to defer for a year so I could spend some time near my loved ones and take a break from school. I also wanted time to apply for an Air Force Health Professions Scholarship Program. I'm doing

that right now. I've been fortunate enough to work with a wonderfully helpful recruiter, MSgt. Thomas Stilin. He's helping me to put together an application package consisting of reference letters, a questionnaire, a painfully detailed background check, and transcripts/scores. Together, we'll present all of that stuff to a board that meets in January to decide who will be accepted to the program. I'm one of only a couple students he has under his wing right now, so he's been extremely attentive.

I'm writing you from work right now. I found a job working as a research assistant for a publishing company called InterStudy Publications. We put out market research data on the HMO industry. I started here in June. So far, I've co-authored two books, but it's not exactly the kind of stuff you'd want to take home and read. I like it here, though. It's a small company (only 13 people), everyone is young and ambitious, and it's just a very nice work environment. Nevertheless, I have no doubt that I still want to go back to school. I already miss it. I miss the mental challenge of it, and I miss learning. If you had told me in the middle of May that I'd feel this way by November I would have told you that you were crazy.

Dianna Wineinger is attending graduate school in Chemistry at Oregon University. Excerpts from several e-mail messages (diwine@darkwing.uoregon.edu):

I really enjoy teaching organic chemistry lab. I have 38 students. I did not realized how wonderful it was for a teacher to see a student's excitement once they finally understand something you've explained to them. And it's amazing how much more you begin to understand things when you have to teach them. I am so thankful that you encouraged us to speak in group meetings and seminars; there is sure a lot of that in grad school! As for research, I am working for a physical chemist who is doing biochemical research. Graduate research is sure a lot like the work Dr. Earl had us doing. It is nice to

have experience!

Ron is working evenings as a janitor so that he can watch the kids during the day. He really likes that and the kids really benefit. He is also getting ready to study. The plan is that next year he will start attending a few classes at the Bible college.

Saleah loves school. Her teacher has asked me to do a chemistry demonstration for Saleah's kindergarten class. I'm not sure what kind of demonstration is good for kindergartners. I will have to do some searching, but I think it will be fun. Saleah wants to be a volcanologist. Cambrai is just happy to be staying home with dad. We have moved into a nice little duplex. The girls now have a yard to run and explore in, and Ron has a garage. We are in a real nice neighborhood close to Saleah's school. Saleah now want's to be a kindergarten science teacher. She sounds about as indecisive as I first did at Augie. I am doing pretty good. I got an "A" in biochem last term, and the department really liked my research presentation. I have really enjoyed my teaching assignment. I wish the students could do more with the instruments (I always thought that was the most enjoyable part of lab), but since the U of O is such a large school it's hard for students to get the same advantage we had at Augie. Now that it is second term the classes are a lot smaller, so we have more time to get to know my students (also there are fewer papers to grade, horaay!).

December, 1999

Jesse Domino - is working for AFLAC Insurance in Sioux Falls.

Bernadette Kenney - has been accepted at Hamline Law School at USD and is currently working somewhere in Sioux Falls.

News From Former Faculty

Roy Kintner and his wife Helen are still at Thousand Oaks. This year Roy is handling one section of the Organic Major's Course Lab

along with the General Chem Labs, so whoopee, I get to catch up on what's new in Organic!

It appears that the Kintner's stint at Cal Lutheran will come to a close at the end of this year. We are waiting to hear what plans they have for next year.

(kintner@robles.callutheran.edu)

Wayne Gildseth will be retiring this year after 10 years at Southern Arkansas University. His wife, Carolyn and he will be relocating to Red Oak, IA, where Carolyn's father lives and near where her brothers and sister live. They intend to build a new home there with space in the basement for a workshop for Wayne's woodworking interests. (wmgildseth@saumag.edu)

Walter Johnson, Class of 1933, died Oct. 27, 1999, at the age of 88 in Annapolis, MD; funeral services were held in Sioux Falls with burial in St. Paul Lutheran cemetery in Garretson, SD. He worked as a thermochemist at the National Bureau of Standards in Washington, D.C., for 37 years. He is survived by his wife, Alvena, and two children, Bradley who lives in PA and Gail Andrews who lives in VA.

Alumni News

Susan Lyman, Class of '89
slyman@riscm.scripps.edu
Dr. Susan Lyman
The Scripps Research Institute
10550 N. Torrey Pines/IMM10
La Jolla CA 92037

(Susie's letter was received too late to be included in last year's newsletter with the "Alumni: Class of '89")

It pains me to come to the realization that it's been a decade since I graduated from college, but since I've stayed in school for much of that decade, the '89-'99 period has been one continuous blur of higher education for me. I took off for grad school at UC Berkeley (which is across the bay from San

Francisco) right after college. When I arrived at the Berkeley campus, almost the first thing I saw was four black-robed people chanting in Latin and carrying a funeral bier on which sat a stuffed monkey wearing what appeared to be a beanie made of tinfoil. I knew immediately that love it or hate it, I would never be bored in Berkeley (they turned out to be animal rights protesters...). I got my Ph.D. in Molecular and Cell Biology after 7 interesting years in Berkeley and now I'm doing postdoctoral study on mechanisms of nucleocytoplasmic transport at the Scripps Research Institute in the rather more sedate city of La Jolla (in CA, near San Diego).

Other than science, my main occupation has been saving as much discretionary money as possible so that I can travel. Right after college I went on a 4 week jaunt to Europe with the Augie Brass Choir, and after I got my Ph.D. I took off to Greece for a few weeks. Last January I spent an amazing month in Thailand, Java, and Bali--all of which just whets my appetite to go more places. I only regret that I no longer qualify for student discount tickets, since I'm now in that gray postdoc area between 'student' and 'gainfully employed.' I am, however, hoping for some sort of real job sometime in the 21st century!

So that's it. The PhD process hasn't been easy, but it has definitely been educational, which I guess is all you can ask for. Oh, that, and a job at some point, although there is in truth a palpable air of despair among grad students/postdocs at the current huge oversupply of young eager PhDs and the current dearth of available jobs. It is a problem I will be dealing with in a few years, assuming that I ever get any spectacular data in my postdoc that will convince someone to hire me. Now there's some palpable despair, eh? As much as I love doing research, the matter of employment and grants and funding is a thorny issue for almost everyone these days.

Steve Adams, Class of '70

bibs@infinet.com
Steve and Debbie Adams
5650 Georgetown Verona Rd.
Lewisburg, Ohio 45338

Steve lives in Lewisburg, Ohio, with wife Debbie and daughter, Amanda Kay. He works as a sales representative for Archer Daniels Midland Company of Decatur IL in the animal health and nutrition division. He also has a computer resource and applications business; in his latest work with a local soil and water conservation district he set up a database to fairly assess landowners that benefit from drainage ditch construction and maintenance. Of the two jobs, he finds the computer work to be the more rewarding and challenging. His wife, Debbie, is the payroll manger for the Dayton Daily Newspaper, Dayton, Ohio, where she has worked for the last two years. Amanda is attending her first year at Miami University, Oxford, Ohio and is majoring in the Fine Arts. (No Heisenberg Uncertainty for her.) Steve also enjoys visiting the Augustana website and seeing the campus and learning about the latest goings on.

Paul Hansen, Class of '72

Colonel Paul Hansen retired from the US Air Force in 1996, and is now the director of graduate prosthodontics for the College of Dentistry at the University of Missouri. He has three children, Lisa (12), Kristi (15) and Scott (17), a high school national swimming champion in 400 m freestyle who will compete in the Olympic Trials in August.

Gail Johnson Renner, Class of '82

Gail married Fred Renner in 1990 and currently lives in Fargo. Although she chose to be a stay-at-home mom for her two daughters, Gail has a Master's Degree in Chemistry from NDSU and still hopes to one day to complete a Ph.D. program and perhaps teach at a college.

Steve Johnson, Class of '91
johnson_s@wwwc.edu

Steve has his Ph.D. from Iowa State University and is teaching at West Virginia. Last year he taught his first January-Term class and says teaching lecture and lab every day was quite a shock. He is quite pleased with the winters in West Virginia as they get snow with temperatures around the freezing point, so you know it's winter, but they don't get the real cold temperatures and wind-chills that he was used to in South Dakota and Minnesota.

Allen Miskowiec, Class of '91

Lisaal@netins.net

In April of this year Allen decided to temporarily suspend his career in sales (hazardous waste & water treatment) to manage two gymnastics academies with his wife Lisa. They started TOTnastics in 1996, a proprietary movement education program designed for children walking through age 6. Through TOTnastics, they purchased two existing gymnastics academies and operate them under the name Mississippi Valley Gymnastics Academy. They currently operate in Clinton, IA and Moline, IL. Allen and Lisa keep busy with their three kids: Logan (6), Jaden (4), and Kelvin (1).

Jeanne Pfaff, Class of '91

jpfaff@VAX2.WINONA.MSUS.EDU

Jeanne recently married Ron Franz whom she met in graduate school. Both are in the environmental field; he is working as the chemist/ environmental person at a coal fired power plant. They are living in Winona, MN.

Mark Viste, Class of '92

Mark received his Ph.D. in Chemistry from the University of Chicago and is now working for Medtronics in the Twin Cities.

James Sands, Class of '93

jsands@mail.arl.mil

James is hoping to obtain a career position with the Army Research Laboratory in Maryland where he has served as a

post-doctoral research fellow for the last year and a half (Apr, 2000 - looks like he will be a member of the Composites and Lightweight Structures Branch of the Army Research Laboratory). He has plans to get married in June 2000. So far, things are looking reasonably promising on that front. At any rate, I still love living in the Maryland area. I would still be pleased to have an opportunity to come and share some of the Army research work that my team and I have been performing over the last year-and-some. If you feel that there will be a good opportunity to do this in the spring, please let me know when the best time to visit would be. My travel schedule is building up, so I need to keep on top of coming events. Also, I have a number of opportunities to pursue students for summer internship appointments here at ARL. We are most interested in students with chemical synthesis or chemical engineering backgrounds with at least Soph. status. I will put together a list of possible benefits for students to come East and work in this capacity, and let you know the details. For now, I wanted to forward an international opportunity to you, in case you have aspiring composites-minded students on-hand there at Augie presently.

Rich Weaver, Class of '94

rnweaver@dtgnet.com

Rich worked at the Ultramar Diamond Shamrock Refinery from April til December of last year. He is now living in Rapid City, SD.

Matthew Leininger, Class of '95

mleinin@slater.ccqc.uga.edu

<http://zopyros.ccqc.uga.edu/~mleinin/Matt.html>

Matt successfully defended his Ph.D. dissertation in theoretical chemistry at the University of Georgia in March, 1999. He plans to postdoc at Georgia Tech. or Sandia National Labs in California.

Jon Wood, Class of '95
wjwood@inst.augie.edu

Jon was accepted at Jefferson Medical College in Philadelphia, PA. Jefferson is his father's Alma Mater and he is excited to embark on his chosen medical career.

Jason Laumer, Class of '96
laumer@hotmail.com

Abigail Grace was born Oct 5, 1999; weighing in at 8 lb 2 oz.

Marnie Hoecherl, Class of '97
MHoecherl@good-sam.com

Marnie says her job in the administration offices of Good Sam in Sioux Falls, SD, is "too good to be true! ...everyone is SO nice!" She finds her job challenging - training staff including doctors, nurses and accounts receivable bookkeepers how to use certain computer software and programs. She is trying to learn as much about Medicare and Medicaid as she can.

John Berdahl, Physics major, Class of '99

He has been accepted for medical school at St. Louis Univ., the U of M in Minneapolis, and the Mayo Medical School beginning in the fall. He seems to be leaning toward Mayo.

Janelle Uilk, Class of '98
janelle.uilk@gte.net>

Janelle finished her masters at George Mason University, and has begun work on a Ph.D. in Chemical Engineering at Virginia Commonwealth University in Richmond, VA.

Aimee Edwin, Music and Psychology major, Chemistry minor. Class of '99.

ajedwin@inst.augie.edu

Aimee has been accepted at the U. of Minnesota and Washington U. medical schools. She writes "I feel very good about getting accepted, and glad that I have options. I have the feeling in my gut that this is the course my life is meant to take."

2000 Alumni File Update

What's v (nu) With You?

Name _____ **Date** _____

Address _____ **City** _____

State _____ **Zip** _____ **Class Year** _____

Fill us in on what's happening in your life. New address? E-mail address? Home page? Married? Children? Change employment? Further education? Degree? Hobbies? Trips? Awards? Prospective student to recommend for Augustana? If you find that any of the information mentioned in this newsletter is inaccurate, please let us know.

Mail to: Arlen Viste
Department of Chemistry
Augustana College
2001 S. Summit
Sioux Falls, SD 57197-0001

Or send e-mail to any of us.
E-mail addresses are on page 1.