



CHEM-NEWS

North Dakota State University
Department of Chemistry

Volume 3 Number 2

Summer 1996

Chemistry Department Salutes '96 Graduates

On May 11, 1996, several NDSU chemistry majors joined the procession of graduates in commencement ceremonies held at the Fargodome.

Below is a list of graduates, as well as several photos taken that day. We encourage all of you to check in with Linda Stoetzer in the chemistry office so we can continue to stay in contact with you. A hearty congratulations to all!

Master's Degrees:

Greg Oswald	Scott Payne
Kyli Martin	Dean Seidler
Tim Splinter	

Doctor of Philosophy Degrees:

Bret Ludwig (P&C option)	Robert Quandt
Bor-Juin Niu (P&C option)	Mark H. Van Benthem

Bachelor's Degrees:

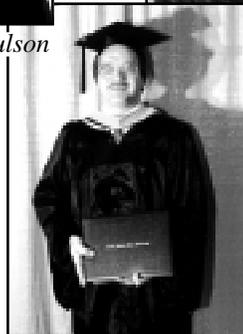
Brian Boss	Raquel Paulson
Becky (Diegel) Benz	Robert Sailer
Peter Elliot	Christopher Walls
David Fouquette	Bruce Wilcox
Lee Haeuser	



Raquel Paulson



Dr. McCarthy and Ph.D. recipient Bret Ludwig



Greg Oswald



Bruce Wilcox, Rob Sailer, David Fouquette, Brian Boss, and Chris Walls

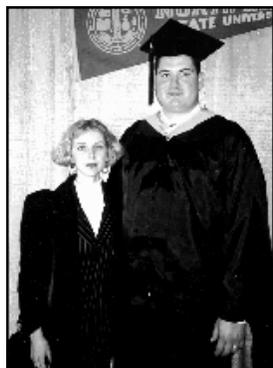
Graduation photos continued on page 2...

The following is an observation about graduation from "Star Trek" actor Patrick Stewart:

"It is what you do from now on that will either move our civilization forward a few tiny steps, or else...begin to march us steadily backward."

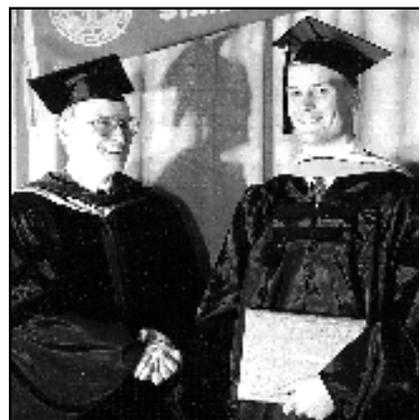
Graduation photos continued...

In last year's graduation edition of *Chem-News*, we printed a photo of Kyli Martin with his wife, Ligia, at her graduation.



This year, Kyli and Ligia switch roles. Kyli received his Master's last summer, and the couple made a trip to Fargo this spring so he could participate in commencement exercises. He is a graduate of Professor Atwood's research group.

Currently, both Kyli and Ligia are employed by Bayer Corporation, located outside of Pittsburgh, Pennsylvania.



Dr. McCarthy congratulates Scott Payne

Megan Kirsch is Local Media Darling

"Somebody somewhere gave them my name."

This is how NDSU biology major Megan Kirsch explains how she became the subject of a local bank's advertising.

About a year ago, First Bank decided to put together an advertising campaign that focused on the accomplishments of local students. As Megan was sitting in class at Shanley High School, she was visited by First Bank representatives. They conducted a quick interview and took some photos of her.

"About a month later, I got a phone call saying they would like to include me in their ads, and they wanted to focus on my five years of experience in sunflower fields." (Megan was employed by Cargill Hybrid Seeds in their sunflower fields north of Dilworth.)

She found out later that they had interviewed more than 50 kids from high schools up and down

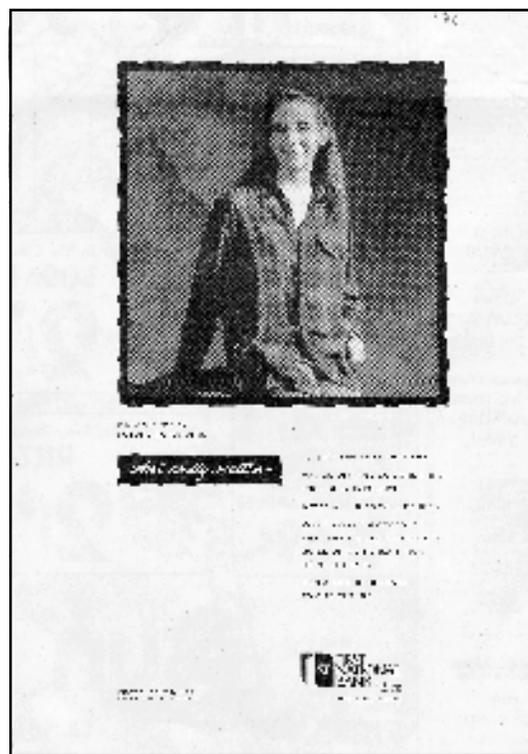
the Red River Valley. Megan, who was in her senior year at Shanley, was one of six students chosen to participate.

The television commercial was shot in February 1995, and for the most part, it was a positive experience for Megan. "It wasn't too bad, except for the 80 pounds of makeup! And I must have walked those same ten steps 30 times, while they played with lighting and made sure things were just right."

The TV and print ads ran for a year, starting last June. She received a small fee for doing it, but that wasn't all...

Ultimately, Megan gets recognized everywhere she goes in Fargo. "I'll have people come up to me in public and say 'Hey—aren't you that sunflower girl?'"

Megan joined Dr. Mukund Sibi's lab in September 1995, where she has been employed as an undergraduate research assistant. She is sponsored by North Dakota EPSCoR's Science Bound program.



This First Bank ad with Megan's photo was placed in Fargo area newspapers.

The Rodgers Research Roundup

Submitted by Professor Kenton Rodgers

•We welcome Brent Reems to the Rodgers Group this summer. Brent will be entering graduate school in our department this fall and comes to us from UND, where he worked in Professor Hoffman's group doing computational chemistry.



While in the Rodgers Group, Brent will be working on the synthesis and spectroscopic characterization of new metalloporphyrin assemblies. He will be using spectroscopic data to guide his synthetic efforts in order to optimize the nonlinear optical susceptibilities of his molecules.

Brent grew up in Killdeer, near the Badlands of North Dakota. He decided to go into chemistry because of the potential for job opportunities. In his spare time, he enjoys hunting, fishing, and all kinds of sports.

•Jason Barron is now a senior chemistry major in our department and continues his work this summer as a ND EPSCoR REU student. Until recently, Jason has been working on our metalloprotein project and has contributed to two extensive papers on the characterization of a bacterial oxygen-sensing protein called FixL. Having chosen to broaden his research experience, this summer Jason will be synthesizing novel metalloporphyrin assemblies.

•Jessie Ebert, one of our sophomore chemistry majors, is also spending some time in our laboratory this summer as an REU student.



Jessie, who is originally from Faribault, Minnesota, will be synthesizing a mineral that occurs only rarely in nature. Her target mineral was first discovered in Hibbing, Minnesota, and is called (not surprisingly) Hibbingite. This is a ferrous hydroxy chloride that is deli-

quescent and oxygen sensitive so Jessie has her synthetic and characterization work cut out for her. However, successful synthesis of this rare mineral will facilitate chemical and physical studies that could yield insights into its genesis.

After spending one year on campus, Jessie has plenty of good things to say about NDSU. "I love the atmosphere of the school, and all of the professors have been really helpful. It will be great to get some lab experience and basically just learn as much as I can about chemistry and working in the lab."

Jessie has the benefit of two mentors this summer, as she is working under the direction of Bernhardt Saini-Eidukat from the Department of Geosciences and Gudrun Lukat-Rodgers.

•Both Brent and Jason will be learning about the intricacies of ESR and Raman instrumentation this summer. We will soon be setting up a new triple Raman spectrometer which will allow us to look at Raman bands corresponding to very low vibrational frequencies in our cofacial porphyrin assemblies.

•We are also setting up an ESR spectrometer, which returns to our department after spending a few years in Professor Steve Meinhardt's biochemistry lab. This spectrometer will allow us to more completely characterize our metalloporphyrin complexes and the coordination environment of the heme in FixL.

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Chemistry Department Staffing Changes

Long-time Fargo resident, Gary Stolzenberg, recently took on responsibilities as teaching lab coordinator for the Chemistry Department.

Gary received his Bachelor's degree in chemistry from Rensselaer Polytech Institute in 1962, and in 1968, earned his Ph.D. in biochemistry from Kansas State University. That same year, Gary became employed by the USDA labs in Fargo and stayed there until his retirement in early 1995.

Since his retirement, Gary has taught chemistry at Northwest Tech in Grand Forks. In addition, he has held a research associate position with the NDSU entomology department.

Overall, working in the chemistry department will seem like a familiar, comfortable place for Gary. "I know this faculty; I've known them and used the library for a long, long time. I'm really looking forward to getting to know everyone better. Also, I did

safety and waste management work for USDA, so I'm very



familiar with this type of environment."

Gary and his wife, Rosa—who still works for the

USDA—spend some of their spare time enjoying their lake cabin near Park Rapids, as well as tending to their tree farm.

Roxane Meidinger, who formerly held the position, has taken a position with Dakota Technologies, Inc. (DTI).

One part of Roxane's former assignment, Supplemental Instruction leadership, will be assigned to Lawrence McCabe, a second person just hired as a lecturer. Larry taught high school chemistry in Minnesota for about 30 years before retiring last spring

from the Roseau school district. He earned his B.S. from Mankato State College in 1962 and his master's from the University of Tennessee, Knoxville, in 1968. The department is sending Larry to "SI School" at the University of Missouri-Kansas City in mid-July to learn about the program.

Larry will also teach general chemistry for us next year. He is taking over for Peter Ramberg, who just accepted a position with Ohio University.

Another staff member has decided to move on as well. After 11 months as stockroom manager, Randy Jensen has taken a position in Detroit Lakes, where he will be to be closer to his family.

Dr. McCarthy said, "Randy did a great job working with Roxane on computerization of the department's inventory of chemicals and supplies—both in the stockroom and in every faculty research lab." Grad student Dawn Nygaard is taking over Randy's duties until a replacement is hired.

In Remembrance of Scott A. Olsen

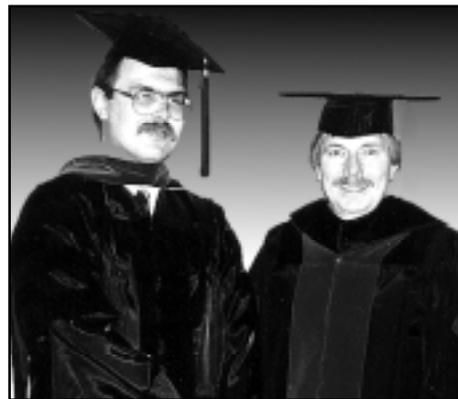
This spring the chemistry department was saddened to learn of the death of NDSU graduate Scott A. Olsen. Scott, who was 29, died at his home in Melbourne, Australia, April 30.

Scott was born on February 9, 1967, in Wolf Point, Montana, the son of Alfred and Rhoda (Schroeder) Olsen. He graduated from Waupun High School in 1985 and earned his Bachelor's

Degree from Gustavus Adolphus College in St. Peter, Minnesota.

A member of Dennis Tallman's group, in May of 1995, Scott received his Ph.D. from NDSU. He had accepted a postdoctoral position with Monash University in Melbourne last fall.

Scott will be sadly missed and mourned by his family—as well as by everyone who knew him at NDSU.



Scott Olsen and Dennis Tallman at commencement in May 1995

Fargo Conference on Main Group Chemistry a Success

"Great conference! The size was just right for networking."

This comment—along with similar statements heard from other conference participants—leads one to believe that the first *Fargo Conference on Main Group Chemistry* was, indeed, a big success.

Nearly 150 chemists participated in the event, which was held at NDSU May 30–June 1, 1996. In addition to representatives from across the United States, attendees included visitors from Canada, Mexico, Japan, Korea, England, Belgium, Germany, France, Romania, Norway, Slovenia, Russia, and Latvia.

Plenary speakers Robert West (University of Wisconsin-Madison) and Alan Cowley (University of Texas-Austin) provided intriguing and informative talks, which kicked off activities both Friday and Saturday. The plenary addresses were followed by 49 oral presentations, given by industry and academic leaders in main group chemistry research.

The NDSU Center for Main Group Chemistry would like to thank those who helped make the conference a success. Many students and staff members volunteered their efforts to the conference, which greatly enhanced the activities.

Because of the positive feedback received, the conference will be held again two years from now. The organizing committee has already begun to make arrangements for June 4, 5, and 6, 1998.



Dawn Kardash and Jill Retzer assist Michael Edwards in registering.



*A: The grad student who used a "Jeopardy" theme on his poster.
Q: Who is Doug Linder?*



Jianguo Ji discusses his poster with Boudjouk Group member, Seok-Bong Choi. →

← *Tom Gonnella with the poster he co-authored with Denley Jacobson.*



Dawn Nygaard talks with Joseph Eaton, who will join the NDSU chemistry faculty this fall.



Phil Boudjouk, Dean Grier, Dean Seidler, and Greg Schmitz discuss their poster with Robert Corriu (center).

Atwood Group News

Look What Dave's Guys are Up To Now!

A New Addition

Atwood Group member, Mike Remington, and his wife, Dana Thompson, recently welcomed their first child into the world. Mike, as any new father might, was overhead saying, "This is a totally new ballgame!"

Hannah Renee was born on Friday, June 21, at Merit-Care Hospital in Fargo. She weighed in at 7 lbs. 10 oz.



and was 19½ inches long. Since coming home from the hospital, Hannah has kept her parents busy. According to Mike, "We're not getting a lot of sleep yet."

Hill Joins Atwood Group

A new postdoctoral fellow has joined the Atwood Group. Dr. Mike Hill is from Lancashire, England. Mike, his wife, Paula, and their three-year-old son, Daniel, came to Fargo in June.

According to Mike, the family has gotten over the initial culture shock of moving to a new country, but they are still adjusting to the American way of doing things—particularly when it comes to working at NDSU. "They speak a different language of chemistry here. That is something that was difficult for me at first."

Overall, though, he has come to enjoy being a part of the Atwood Group. "They [the group members] seem great; it's nice because everything's really personal."

Born in St. Helens, a glass-making town ten miles from Liverpool, Mike gained an interest in chemistry early on. "The reason I carried on my enthusiasm for chemistry came from when I spent some time working for Pilkington Glass." Mike received his B.S.C. from the University of Bath in 1991. He also completed his Ph.D. work there and did one year of postdoctoral research under the direction of K.C. Molloy.

After spending almost a month here in the states, Mike has noticed that the pace in Fargo is different from the busy environment he is used to. "Life here seems really relaxed—like while driving the car, I am amazed at how courteous people are!" Mike and his family were able to visit some of Minnesota's lake country shortly after they moved here, and



they were pleased to discover how much it felt like home. "The countryside just beyond Moorhead is very similar to some areas in Wiltshire, just east of Bath—the only difference is the roads here are dead straight!"

When asked about what he misses about living in England, Mike said, "I really enjoy watching live bands. And at home, we could drive just 25 minutes down the road to Bristol and see a big name band perform." He also

mentioned that Paula, who grew up in a seaside town, is a bit homesick for the sea—since the nearest ocean is now two thousand miles away!

On a positive note, the U.S. has shown the family some financial advantages: "Beef is much cheaper here, and so is petro [gasoline]. At home, the cost is around \$3.50 to \$4.00 per gallon, and it is very heavily taxed. The tax on liquor and spirits is also very high." Mike has also noticed that bread costs more than he had anticipated. "Since this is 'grain country,' I thought it would be a bit less expensive. We pay about fifty cents for a loaf in England."

Throughout his life, Mike has done his share of moving from one city to another. But now, after coming to a foreign country, he has made a unique observation: "Everything's unfamiliar here, so it wouldn't have mattered if I would have moved to a different town in England or a different country. You start to discover that people are all the same wherever you go; they all have the same worries and needs."

Wedding Bells

On April 27, Atwood Group member Drew Rutherford attended a wedding...his own. Drew and his long-time girlfriend



Julie Nomeland were married during a 4:00 p.m. candle-light service in Osakis, Minnesota.

Following the ceremony, a reception was held at the Holiday Inn in Alexandria. Several people from NDSU attended the wedding, including fellow group members, Jolin Jegier and Mike Remington, who served as groomsmen.



Jolin, Drew, and Mike model the spring collection of lab attire, straight off the runway of Dunbar's third floor.

Jegier Takes First Place

On April 25, Jolin Jegier traveled to Valley City State University to compete in the A. Roger Dennison Research Competition, sponsored by the North Dakota Academy of Sciences. He presented a paper entitled "Synthesis and Characterization of Cationic Aluminum Complexes with Potential Relevance to Lewis Acid Catalysis." Competing against 19 other graduate students, mainly from the UND Schools of Medicine and Pharmacology, Jolin tied for first place. For his efforts, Jolin received \$100, which was put to good use fixing his car—which had developed a rather nasty knocking noise on the trip to the competition.

In May, Jolin successfully presented and defended his Maxi. With that major hurdle out of the way, he is now working on writing his dissertation and hopes to defend in May of 1997. Jolin has also been busy submitting manuscripts in the past couple of months. Two of these have been accepted for publication and will

Continued on page 8...

Pu Group Experiences the Windy City

On June 7, Dr. Pu's research group stormed into the city of Chicago. Although on the street, they could see only clouds in the sky, when they reached the 103rd floor of the Sears Tower (110 stories total), they were able to stand above the clouds and enjoy the sunshine.

The group visited the Science Museum, the Art Institute, and China Town. In addition, a boat tour of the Chicago River and Lake Michigan was fascinating—and the water engineering was especially impressive. (The river is made to flow backwards to clean out the city.)

During their stay, group members enjoyed many foods, including Dim Sum (a Cantonese dish) and hot spice Sichuan. Several people brought back fresh fish and shrimp. (Despite all of these delicacies, Dr. Hu said he still likes Fargo better.)



Dr. Pu's Group on the streets of Chicago

Dr. Qiao-Sheng Hu presented a poster in the recent Fargo International Conference on Main Group Chemistry. This work, co-authored with Ms. Xiao-Fan Zheng, is the synthesis of the first optically active and sterically regular poly(1,1'-bi-2-naphthol). This chiral polymer serves as a precursor to a new generation of polymeric catalysts. Traditionally, polymeric chiral catalysts are made by covalently connecting a chiral catalyst to an achiral and sterically irregular polymer backbone. In the new polymer system constructed in Dr. Pu's laboratory, the catalytic centers are highly organized in a sterically regular chiral polymer chain, leading to a well-defined microenvironment for the catalytic sites. Therefore, it will be possible to systematically modify both the catalytic activity and stereoselectivity of these novel polymeric catalysts.

A polymeric aluminum catalyst has been prepared by Dr. Hu using the chiral poly(1,1'-bi-2-naphthol), which has shown a dramatic increase of catalytic activity over its corresponding monomeric aluminum catalyst when used in the Mukaiyama aldol condensation. Hu's work was recently accepted by the *Journal of Organic Chemistry* as a communication. This catalyst has many potential applications in organic synthesis and polymer synthesis.

Dr. Pu's group welcomes Professor Gary Edverson. Gary is a chemistry professor at Moorhead State University. He will spend part of this summer and next summer working in Dr. Pu's group. His project at NDSU is to study the Ziegler-Natta catalysis process using a novel catalyst developed in Dr. Pu's laboratory. Gary is supported by the Petroleum Research Fund's Summer Research Fellow program. Students in Dr. Pu's group will enjoy Gary's stay since he is not only an excellent chemist, but also a good ping-pong player—and an amazing glassblower!

Lin Pu's Corner

Atwood Group continued...

appear in upcoming issues of *Chemical Communications* and *Inorganic Chemistry*.

This August, Jolin will also be attending the ACS National Meeting in Orlando, where he

will present a paper entitled "Synthesis and Characterization of 4- and 6-Coordinate, Cationic Aluminum Complexes." While at ACS, Jolin will also participate in the Employment Clearing House, with the goal of becoming gainfully employed.

one of my teachers, was in charge of the '100% Science Club.' At first I thought about participating, but then I realized, 'I like science, but 100%? No way!' When we finished taking our first test, Mr. Sorum told me he really wanted me to try for the 100% Club. And since it sounded like a good challenge, I decided to do it."

Three Join Mukund Sibi's Lab



Craig Jasperse

For the second summer in a row, Dr. Craig Jasperse is spending a few months

with the Mukund Sibi Group, where he will be working on stereo selectivity in free radical alkylation reactions.

Craig has been a professor at Moorhead State University since 1994. He earned his B.S. from Calvin College in Grand Rapids, Michigan, in 1982, and his Ph.D. from the University of Wisconsin, Madison, in 1987. The following two years, Craig was a post-doc at the University of Pittsburgh. He then went to UND, where he stayed until the spring of 1994.

Along the way—in 1991, to be more precise—Craig married his wife, Tammy. The couple has two children, Dirk, 2, and Micah, who will be 1 in July. "Needless to say," says Craig, "it's busy at home!"

Craig is originally from Sheboygan, Wisconsin, just one hour north of Milwaukee, and "home of Johnsonville Brats—the best brats in the country!" When

he's not doing chemistry research, Craig enjoys sports, especially softball and basketball, and he's very involved in his church.

As far as his summer collaboration with Dr. Sibi goes, Craig is optimistic, "Hopefully, for both of us, this will be an ongoing summer relationship."

Michael Johnson

"Any challenge presented to me is one I'll take." The words of Michael Johnson say a lot about this ambitious grad student, who has been with the Sibi Group since May. Last spring, Michael graduated from UND, where he performed undergrad research under Craig Jasperse.



While growing up in Manvel—a North Dakota town with a population of 365—Michael found his science and math classes most interesting. When they reach the ninth grade, Manvel students begin attending Grand Forks Valley Junior High School. This is where he became especially intrigued by science. "Mr. Sorum,

Michael's interest in chemistry grew as he advanced in school. "When I started at Central High School, I took Chem Study, an advanced chemistry class, and had a teacher who really challenged me to learn. His class was something different and interesting—he taught it much like a college course, and that really sparked my interest."

In addition to chemistry, Michael is interested in RC (radio-controlled) airplanes. When asked if he builds his own, he replied, "Yeah, basically. I build them—then I crash them." Like many of the students at NDSU, Michael also enjoys the outdoors, particularly golfing, hunting, fishing. He also likes anything related to computers—programming, playing games, but especially, "taking them apart to find out how they work."

Jessica Edwards

Redwood Falls, Minnesota native Jessica Edwards has joined Mukund Sibi's Group for the summer as an undergraduate research assistant.

This fall, Jessica will



be a junior at Skidmore College, which is in upstate (Saratoga Springs) New York. When asked why she chose to attend the small (2,800 students) liberal arts school so far away from home, she replied, "I had relatives who went there, and ever since I was little, I always said 'that's where I want to go to college.' So when it came time to pick a school, I went out there and decided I really liked it."

Science is not the only area where Jessica excels. "I like to be outdoors, and I enjoy all kinds of outdoor sports, like golf, tennis and lacrosse." While she just learned how to play lacrosse last year, Jessica is on her college's women's team, and by her own admission, "caught on to the game pretty fast."

Before coming to NDSU in June, Jessica had never visited Fargo. "This has been the perfect situation for me, though. I'm close to home, and I have friends here in Fargo, so I had a place to live for the summer."

As far as her position goes, Jessica has already discovered that life in a research lab is not exactly what she had imagined. "It's very different than labs you take in a college class. The same ideas are there, but the techniques are different. And it still amazes me how many hours people work!"

While spending the summer with the Sibi Group, she hopes to gain an understanding for what interests her most.

"There are so many different areas, it's a bit overwhelming, so I hope to discover what my interests are. After all, there has to be something out there I really enjoy!"

Science Olympiad Held at NDSU

On April 27, several hundred junior and senior high students were at NDSU for the North Dakota Science Olympiad. A portion of the competition was held in Ladd and Dunbar Halls,



with several chemistry department faculty and students assisting with the event.

NDSU graduate students supervised lab tests on density measurement and titration, as part of the analytical portion of the test.

In conjunction with the Science Olympiad, the NDSU Chemistry and P&C Departments hosted an open house and demonstrations. The Science Olympiad is an excellent opportunity for the departments to exhibit their facilities and equipment.

Participants compete in the lab portion of the test (above left).

Bryan Jarabek prepares for the "Crime Busters" event (below left).

Boudjouk Group News

Dr. Phil Boudjouk will travel to Europe the end of August. During his two weeks of travel, he will present five different seminars.

The major focus of his trip is to attend and present an invited lecture at the "XIth International Symposium on Organosilicon Chemistry" in Montpellier, France. The title of his paper is "Delocalized Ions Containing Silicon," and it will focus on research carried out by Dr. Hong (a former visiting adjunct professor in the department, now with Samsung Corporation), Mr. Seok-Bong Choi and Mr. Wayne Triebold, graduate students in the Boudjouk Group.

The research results of another graduate student, Mr. Beon-Kyu Kim, will also be presented at the Organosilicon Symposium. Kim's work builds on the research of alumnus Dr. Steve Kloos (now with Osmonics in Minnetonka, Minnesota). Kim's study involves a novel cyclopolysilane dianion $\text{Si}_6\text{Cl}_{14}^{2-}$ which was prepared and characterized by X-ray analysis in collaboration with Professor David Atwood's Group.

Following the Organosilicon Symposium, Dr. Boudjouk will travel to Brussels and present two seminars at the Universite Libre De Bruxelles. He will then fly to Wales to present seminars at Dow Corning Corporation.

Continued on back page...

Staff Profile...

Dean Grier, MCL Manager

Not many of us can claim that we were introduced to the great outdoors BEFORE we were able to take our first breath. Dean Grier, however, accompanied his parents on trips to Canada in the months before he was born.

Dean's father, Jim Grier, has taught zoology at NDSU since 1974. Dean says, "While I was growing up, my dad's research was studying bald eagles in Canada, where they would canoe around the eagles' nests. My mom would go with, and so did I...at first in her belly, and later in a papoose."

After years of visits to Canada as a youngster, Dean made some contacts and worked one summer for Canadian commercial fishermen. Besides the work, which he liked, Dean was able to enjoy his environment. "The scenery is fantastic; you can't beat being up there."

It's probably safe to say that Dean had a head start in biology because of the experiences with his dad. He basically grew up around the NDSU campus, and even helped Dr. Grier write a book on animal behavior when Dean was ten years old. "I helped with some of the editing and typed in corrections."

When he wasn't busy editing college-level material, Dean attended school in Hawley, Minnesota, where his parents still live today. "Our house is on



the Norcross beach of Glacial Lake Agassiz. I grew up on beach-front property...but missed it by about 11,000 years."

Dean started at NDSU as a civil engineering major, but eventually switched over to geology. He earned his B.S. in May 1995, and has worked in the McCarthy Lab for several years. In September, he took over full-time duties as manager of the Materials Characterization Lab (MCL).

As MCL manager, Dean's time is split in several directions. He manages the lab and keeps the equipment running, as well as trains new users, to familiarize them with the instruments. In addition, he's involved with research for the McCarthy Group and is assisting other main group labs with research.

Along with the internal responsibilities, Dean also coordinates (and performs) a small amount of outside contract work. "We try to keep an educational component in all of our contract work. Each sample that comes through is used as a learning opportunity."

Dean enjoys the flexibility of his job. He is currently working towards his master's in soil science, all while taking care of things in the lab. "I'm very grateful to Dr. McCarthy for the flexibility to get my graduate work done.

Working in his lab has brought me a wealth of opportunities."

When it comes to his personal life, Dean speaks very fondly. In 1993, he married Kris (Drussell) from Sabin, Minnesota. "The day Kris and I got married, the area was in the middle of the great flood of 1993. It was the only day in a stretch of about two weeks when it didn't rain. Instead, it was 75 degrees and beautiful." Exhibiting his interest in paleontology, Dean wore a dinosaur tie to the wedding.

Along with everything else that is going well for Dean, he and Kris are expecting their first child in December. "I'm very excited about that," Dean says, "And it's important for me to recognize that for everything that's going well in my life, and for all I've been given, I have the Lord to thank."



Dean and Kris Grier on their wedding day in 1993

McCarthy Group Receives Three- Year DOE Grant

Information has just been received from the Department of Energy that a proposal from the department chair Greg McCarthy has been selected for funding. Dean Grier, manager of the Materials Characterization Laboratory (MCL), is a co-investigator. Dean will use some of the results of the research for his master's thesis in soil science.

The project concerns long-term mineralogical behavior of buried coal combustion byproducts such as fly ash and flue-gas-desulfurization solid waste.

Preliminary research, done in collaboration with the UND Energy and Environmental Research Center, showed that some of these materials had altered mineralogy, much lower strength and increased permeability some two to five years after disposal.

A goal of the project will be to determine how common this phenomenon, which the researchers call "diagenesis," is in buried coal byproducts and to explore its mechanism.

An important component of the research will be application of the new Rietveld powder X-ray diffraction methods for quantitative analysis to these complex materials. Adding Rietveld methods will enhance the analytical capabilities of the MCL significantly.

Henke Spends Summer at NDSU

Kevin R. Henke, a graduate student from the UND geology department, will be spending the summer in the NDSU chemistry department.

Kevin spent the past two years at Tennessee's Oak Ridge National Laboratories, exploring mercury contamination in soils and the chemistry of previously unidentified mercury compounds. He will continue a related project under the joint supervision of Professors Atwood and McCarthy. This work will provide the foundation for a grant proposal to the Environmental Protection Agency (EPA).

Originally from Nebraska, Kevin has had ties to Grand Forks since 1979. "I earned my master's at UND. It was smaller than the University of Nebraska; but it had a good geology program, so that's one of the reasons why I initially went up there."

While in Grand Forks, Kevin



met his wife, Yvonne, who is originally from Southern California. The couple has two children, daughter Erin, 11, and Kyle, who is six years old. "My wife and kids came back here last year, because the schools are so much better for my kids, and they really missed their friends in North Dakota. Overall, this area is very civilized; we really like it here."

When asked what he hopes to accomplish during his time at NDSU, Kevin replied, "I want to continue to research several previously unidentified heavy metal compounds. In addition, this is a great opportunity to brush up on my skills in X-ray diffraction, and just plain strengthen my knowledge in the area of chemistry."

Chemistry Department Receives Gift

A gift of stock from Sheldahl, Inc. was given to the Department of Chemistry by Gilmore Schjeldahl from Minnetonka, Minnesota in early 1996. The gift, designated for equipment, was for \$4,915.

Department chairman Greg McCarthy said, "This gift comes

at an excellent time for the department. We are upgrading our undergraduate major's laboratories to provide even more hands-on experience with modern analytical instruments and workstations. This gift constitutes a significant start in our efforts to purchase new spectrometers."

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Boudjouk Group continued...

Joining the Boudjouk Group for the summer are Matt Johnson and Ketheeswaran (Keith) Pararajasingham.

Matt, a Fargo native, is an undergraduate at UND majoring in chemical engineering. This summer he was awarded an NSF EPSCoR Research Experiences for Undergraduates (REU) grant to conduct research in an area of his choice. He has selected a project to develop new, efficient and safe methods of preparing semiconductor materials. He is collaborating with Greg Schmitz.

Keith is an incoming grad student working with the group on a project-by-project basis. He is collaborating with Beon-Kyu Kim developing new routes to stable complexes of simple



functionalized silanes and siliconium ions.

Several Boudjouk Group alumni traveled thousands of miles to attend and present posters at the *Fargo Conference on Main Group Chemistry*. Former group members Dr. Jang-Hwan Hong and Dr. Kimihiro Matsukawa were able to participate in a reunion at the Great Northern Brewery after the conference festivities.

Recent M.S. graduate, Dean Seidler (now at Kodak in Rochester, NY), also attended the conference and presented a poster. Dean is writing his Ph.D. thesis and hopes to finish it this summer.

In late July, Drs. Boudjouk and Sibi will travel to King of Prussia, Pennsylvania, headquarters of Elf Atochem. The purpose of their visit is to discuss the commercialization of a catalyst they recently



Dr. Philip Boudjouk meets with group members Seok-Bong Choi, Wayne Triebold, Duane Simonson, Beon-Kyu Kim, and Greg Schmitz.

developed with Dr. Jinguo Ji. The catalyst, patent pending, efficiently cleaves olefins to form carboxylic acids using air for most of the oxygen. It has proven very effective in producing brassylic acid and pelargonic acid from the abundant agricultural oil, erucic acid. Brassylic acid is used in the synthesis of nylons and musk scents. The company's European executives will also attend the meeting to discuss the economic potential and the feasibility of scale up to meet industrial needs.