Congratulations to Dr. Mukund Sibi!

Chemistry professor published in prestigious magazine; awarded NIH grant

The September 30, 1996 edition of *Chemical & Engineering News* (circulation 130,000) includes the highlights of an article published by Professor Mukund Sibi on his free radical chemistry research.

According to his colleague in synthesis, Phil Boudjouk, this article deserves widespread attention: “The discovery made by Professor Sibi and his collaborators demonstrates that highly efficient stereochemical control of radical reactions is achievable, debunking the conventional wisdom that such reactions offer little or no potential for useful stereospecific reactions. Research into the synthesis of new drugs will be impacted immediately by this work and areas of fundamental research on radical chemistry, previously outside the limits of investigation, will be opened.”

In addition to having his chemistry highlighted in *C&E News*, Professor Sibi has also been awarded two grants from the National Institutes of Health (NIH).

A four-year grant for nearly $700,000 will be used to continue his research in free radical chemistry. The other NIH-funded project ($100,000/two years) will investigate new cancer chemotherapeutic agents.

NIH offers competitive grants in several categories of scientific research. Dr. Sibi’s category was in the “individual investigator” area, traditionally one of the most difficult to receive, but also one of the best grants offered. The peer-reviewed grants were based on Professor Sibi’s ideas and accomplishments in his research. He competed with several hundred scientists and currently has two of the 19 grants awarded in the state.

The four-year grant, sponsored by the National Institute of General Medicine, will focus primarily on developing new methods for the preparation of “Enantiomerically Pure Compounds.” This task has received a lot of attention from a large section of the synthetic community after the infamous “thalidomide incident.” Thalidomide was a drug prescribed to pregnant women to overcome morning sickness. It was later discovered that one of the two enantiomers (mirror images, like the left and the right hand) caused birth defects. Since then, the FDA will only approve drugs that are single enantiomers for human use.

Professor Sibi’s current use of free radical intermediates for the synthesis of single enantiomers is an outgrowth of his earlier work on amino acids. The work was initiated by graduate students James Christensen, Biqin Li, James LaLoggia, Drew Rutherford, Janet Gaboury, Jianliang Lu, and Brant Harris, with assistance from undergraduate researchers Paul Renhowe, Jeff Schultz and Chad Stessman. Dr. Prasad Deshpande, a postdoctoral fellow from Hyderabad, India, also made significa—

*Continued on page 13...*
Meet Two of Our Undergrads

Name: Jason Barron
Expected graduation: May 1997
Hometown: Jamestown, ND
High School: Jamestown High School

Describe your experiences during the last three/four years at NDSU: I have been involved with graduate-level research, and the curriculum has allowed me to take many classes I probably wouldn’t have been able to take normally.

What research activities were you involved in? I presented posters at the Midwest Bioinorganic Workshop in Minneapolis, as well as at the EPScOR-REU poster sessions. I also did an oral presentation at the ACS Regional Meeting in LaCrosse, Wisconsin. The paper I collaborated on was entitled “The Structural Basis for Ligand Discrimination and Response Initiation in the Home-Based Oxygen Sensor, FixL.” I also have one paper that has been submitted for publication.

What extracurricular activities were you involved in at NDSU? NDSU Club Soccer, Mortar Board, NDSU Chem Club (treasurer 1994-95, president 1995-96).

What are your plans following graduation? Graduate school. I want to get my Ph.D.

Is there anything else you’d like to mention? I think that a rotation system—similar to the one used by first-year grad students—should be set up for undergraduate seniors, or maybe even juniors. I think undergraduates should be exposed to a diversity of research interests, so they can make educated decisions about graduate school and/or the types of research that may interest them. Even after doing undergraduate research for a number of years, I don’t have a feel for what some of the other research groups do or how they do it.

Name: Amy Singer
Expected graduation: May 1998
Hometown: Williston, ND
High School: Williston High School

Describe your experiences during the last three/four years at NDSU: It has really been amazing. Besides the fact that I’m receiving a wonderful classroom education, NDSU has given me numerous opportunities to expand my learning through undergraduate research and chemistry club.

What research activities were you involved in? I have worked in two of the research labs on campus; Dr. Sibi’s organic lab and with Dr. Atwood’s group in organometallic chemistry. I have participated in a REU-sponsored poster session, and have attended one national ACS meeting and this summer’s Conference on Main Group Chemistry, held here in Fargo.

What extracurricular activities were you involved in at NDSU? My free time is mainly spent doing undergraduate research, but I have been an active member, and am now vice-president, of the chemistry club. I have also helped out with the “Expanding Your Horizons” workshops that are held at NDSU.

What are your plans following graduation? I plan on continuing my education in chemistry by attending a graduate school with an environmental chemistry program.

Is there anything else you’d like to mention? The research that I am currently conducting in Dr. Atwood’s laboratory involves the synthesis and characterization of zinc chelate complexes. The work will soon be submitted to Organometallics. I will present a poster on the results at the spring ACS meeting in San Francisco.

Note: Amy is also a participant in the prestigious Ronald E. McNair Post-Baccalaureate Achievement Program, which was named for Challenger space shuttle astronaut and physicist Ronald E. McNair.
New Chem Professor Gets “Cook”ing at NDSU

Cooking and chemistry may not seem like two interests that would go hand-in-hand—but around the NDSU Department of Chemistry, cooking has become a fairly popular activity.

The first professor-chef to flaunt his talent was Mukund Sibi, who fired up the chemistry staff with his hot Spanish dishes. Then came David Atwood’s infamous Feed-300-or-Just-Yourself-for-Months Chili, which gained him some recognition (albeit unwanted, but recognition nonetheless).

Newly hired professor Greg Cook—appropriate name, huh?—has now entered the competition. His specialties are “a pretty mean sushi” and California rolls, but he also dabbles in all types of pastas and stir fry.

According to Greg’s wife, Lisa, “I think there’s a connection between being a good cook and being a good chemist. He never follows a recipe—and luckily he’s never blown up anything in the kitchen, because then I would have to clean it up!”

Greg grew up in Michigan, near Kalamazoo. He met Lisa while attending Michigan’s Olivet College, where they both received their Bachelor of Arts degrees. Greg went on to earn a Master’s degree in chemistry from Michigan State University in East Lansing, where he also obtained his Ph.D. in 1993.

Following graduation, Greg and Lisa moved to California, where Greg had accepted a postdoctoral position at Stanford University. Greg said, “We just loved it in California, where it was easy to be close to nature. We did a lot of hiking and biking; riding along the bay and mountains was beautiful.”

North Dakota’s population—or lack of it—is just one of the positive things the Cooks have noticed since moving here. In California, they became somewhat tired of the large number of people and the sometimes-crowded conditions. After spending nearly three months on campus, Greg has made one observation in particular: “It’s probably a regional thing, but for the most part, the people seem more civil here—and more polite.”

In August and September, before she accepted a position with Great Plains Software, Lisa worked with Phil Boudjouk in the North Dakota EPSCoR office. She has a background in English and journalism, and is also a Michigan native. In her spare time, Lisa enjoys reading, sewing, biking, and admits to being a “closet computer geek.”

Both Lisa and Greg enjoy gardening, but apartment life doesn’t really cater to someone with a green thumb; or as Lisa puts it: “We don’t have a house of our own yet, and landlords tend to get mad when you plow up their newly lain sod.”

Even though Michigan “certainly has more trees,” as Greg says, the Cooks are settling into their new environment. Lisa adds, “We are really excited about being here. The weather has been great—so far—and the people are wonderful. Everyone in the Chemistry Department has made both of us feel so welcome. We already feel at home.”
The Atwood group has seen several arrivals and departures throughout the past few months…

In August, Jolin Jegier ‘‘departed’’ for Orlando, Florida, for a week of sun and fun on the beach—oh, did I say that out loud? Actually, Jolin attended the ACS National Meeting to make an oral presentation entitled ‘‘Synthesis and Characterization of Four- and Six-coordinate, Cationic Aluminum Complexes.’’ David Atwood was heard to express relief while observing the state of Jolin’s tan after his return: ‘‘Anyone who’s that white after a week in Orlando must be telling the truth about having attended talks all week! My money was well spent after all.’’

While Jolin was in Orlando, there was another departure from the group. Drew Rutherford successfully defended his Ph.D. on August 26. Dr. Rutherford is currently teaching general and inorganic chemistry at Concordia College for the fall semester while a faculty member is on maternity leave.

In January, Drew and his wife, Julie, will be moving to Salt Lake City, Utah, where Drew will do postdoctoral research with Dr. John Gladysz. We wish them both the best of luck!

Due to the fact that nature abhors a vacuum, as soon as Drew departed, there was a new arrival (in the form of a postdoc) to take his place on the vacuum lines.

In August, Dr. Pingrong Wei arrived at NDSU. Dr. Wei is originally from Beijing, China. His wife, Yuxin Wang, and daughter, Shuyan Wei, will hopefully be able to join him in Fargo this November.

Dr. Wei says that he has enjoyed his stay in Fargo thus far and thinks ‘‘the people are very, very friendly here.’’ He has also inquired several times about the weather here in the winter. We think that he will learn to appreciate the power of the English language with the words ‘‘very’’ and ‘‘cold.’’ He may also learn a few new English words to describe it.

Our undergraduate researchers have arrived as well. Scott Peterson returned from his summer working for Carl Becker Chemie in Hamburg, Germany. Amy Singer joined the Atwood group this fall, after spending the summer as an REU student in Dr. Sibi’s lab.

The rest of the group are doing fine as well. Mike Remington, a.k.a. ‘‘Daddy,’’ is getting used to life as a new father. However, although he won’t admit it, he is becoming a caffeine addict. After Hannah starts sleeping through the night, the rest of the group is going to gang up on him and send him to Mr. Pibb Drinkers Anonymous. Mike presented his second-year seminar on October 1, and his fellow group members managed to keep their heckling under control.

Postdoc Mike Hill is also adapting well to life in the U.S. He has grown to love American sports such as baseball and the real football. (Just kidding Mike!) We did question his sanity, however, when he decided to pack up the family and drive to Wyoming in a Ford Festiva over Labor Day weekend. 😊
If I Can Make It There, I’ll Make It…in Fargo?

Wondering where to park your car for the weekend.

Taking a city bus to elementary school.

Standing in line for two hours at the department of motor vehicles.

Such concepts are foreign to those of us who grew up in the Midwest, but these are things Joe Eaton has become accustomed to his whole life. Professor Eaton, who recently joined the NDSU Chemistry Department, is originally from New York City.

Coming from the Big Apple to Fargo was a big change for Joe, but he has adjusted to the move quite well. After all, as Joe says, “Anywhere you go in the U.S. you can find a Barnes and Noble or a good cup of coffee.”

Born and raised in Queens, Joe attended private Roman Catholic schools throughout his childhood and into high school. “I rode to school on public transportation when I was young. Everyday, my mom would walk me and my sister to the bus stop, and we’d jump on the bus with all of the businessmen with their suits and briefcases.”

He began his college career at Georgetown University in Washington, D.C., and graduated in 1984 with a B.S. in chemistry. Coincidentally, Joe’s mother also earned her nursing degree there. When Joe left Georgetown, he moved to Baltimore, where he spent eight years in graduate school at Johns Hopkins University. Before coming to Fargo, he often thought of Baltimore as a “nice little town.”

“When I was at City College, I taught an evening adult ed class. Two-thirds of the class was older than I was. The educational philosophy of a 40-year-old cab driver and your average 20-year-old college student is definitely different. I gained a lot of motivation because of my experience with the older students.”

After spending all of his life on the East Coast, North Dakota was probably one of the last places Joe thought he would end up. “I had full intentions of staying in New York, but the people and department at NDSU impressed me so much, it seemed very clear that this was the place to go.”

Joe is in the process of designing his lab and recruiting students to work in it. He is looking forward to continuing his work in the field of physical chemistry now that he is here at NDSU.

Chemistry Students to Receive Awards

In conjunction with NDSU’s “Family Weekend,” an Honors Day banquet will be held on Saturday, October 19. Thirteen chemistry majors will be among those students receiving scholarships and awards.

Kyle Allen (Alfred, ND) • Donald Bolin Memorial Scholarship
Matthew Alm (Fargo, ND) • James and May Sugihara Scholarship
Jason Barron (Jamestown, ND) • American Institute of Chemists Foundation Outstanding Senior Award
Shane N. Carter (Fargo, ND) • Richard Glenn Wedel Scholarship
Jessica Ebert (Faribault, MN) • Ralph E. Dunbar Memorial Scholarship • CRC Press Freshman Chemistry Achievement Award
Dilinine Fernando (Dehiwala, Sri Lanka) • Ralph E. Dunbar Memorial Scholarship
Bryan Jarabek (Fargo, ND) • ACS Analytical Chemistry Division Undergraduate Award in Analytical Chemistry
Stephanie Moe (Bismarck, ND) • Ralph E. Dunbar Memorial Scholarship
Heather Nash (Benson, MN) • Ralph E. Dunbar Memorial Scholarship
Scott Peterson (Bismarck, ND) • Chemistry Department Honor Scholarship
Amy Singer (Williston, ND) • Lawrence Debbing Memorial Scholarship • Merck Outstanding Student in Organic Chemistry Achievement Award
Chelsie Talbacka (Bismarck, ND) • Lawrence Debbing Memorial Scholarship
Brian Very (Bismarck, ND) • Donald Bolin Memorial Scholarship
Postdoc Joins Sibi Lab

In September, postdoctoral researcher John Shay joined Dr. Mukund Sibi’s lab. A native of Springfield, Massachusetts, John grew up with a chemical engineer in the family. When asked if his father’s scientific occupation had any effect on him, John replied, “I think it probably influenced me toward the sciences.” In addition to working toward a future as the next chemist in the family, John also took the time and dedication necessary to become an Eagle Scout.

John earned his B.S. at Bates College, a “small New England liberal arts school with a strong science department” in Lewiston, Maine. “Bates also offered me the opportunity to play Division III athletics,” said John, who played soccer for two years and lacrosse for four. He was a four-year letterman in lacrosse, was named team captain and was nominated for the East-West Allstar Game his senior year.

While Bates offered great athletic opportunities for John, the small size of the college became apparent to him during his senior year. “When I took advanced organic chemistry, I was the only one in the class.” While at Bates, John did his senior research with organic chemist David Ledlie, one of the more influential mentors in his academic career. Dr. Ledlie suggested John continue his graduate studies at Dartmouth College.

Updates from the Boudjouk Group

Professor Phil Boudjouk and Dr. Steve Kloos (Ph.D. NDSU 1995) are co-inventors on a patent entitled, “Method for Redistribution of Trichlorosilane.” The patent describes a novel redistribution reaction involving the reaction of tetramethylenediamine (TMEDA) and trichlorosilane to form silicon tetrachloride and a crystalline complex composed of dichlorosilane and TMEDA in very high yields. The potential commercial value arises mainly from two features: the unexpected selectivity of the reaction when TMEDA is used, normally a broad mixture is obtained with most redistribution reagents, and the unique properties of the complex. Dichlorosilane, which is used in large scale commercially, is flammable and sometimes explosive as a gas. However, when complexed with TMEDA, the compound is easy and quite safe to handle.

Dow Corning, who supported the research, patented the invention and assigned all rights to NDSU. Research on new aspects of this redistribution reaction is being conducted by Beon-Kyu Kim. Steve Kloos resides in Chanhassen, Minnesota, where he is a senior research chemist at Osmonics Corporation, Minnetonka.

Wayne Triebold became engaged to Angela Mason in April. The wedding is planned for June of 1997. Angie, who hails from Cooperstown, ND, attends Valley City State University (Wayne’s alma mater) and plans to enter optometry school in the fall of 1997. Wayne is pursuing his Master’s degree conducting research on new methods for the preparation of materials with optoelectronic properties.

Greg Schmitz is a bachelor these days. His wife Patty accepted a position teaching and coaching for the Mora School District in Minnesota. Greg is completing his MS research on low temperature syntheses of main group chalcogenides.

Phil just returned from a 12-day trip to Europe that included a one-week stay in Montpellier, in the south of France. He was an...
Bill Diamanti Joins Chemistry Staff

The newest face to brighten Ladd Hall belongs to Bill Diamanti, who joined the chemistry staff in August. Bill has taken over the stockroom manager position formerly held by Randy Jensen, and is working closely with newly hired teaching lab coordinator Gary Stolzenberg.

Born in Salt Lake City and raised in Price, Utah, Bill was drawn into the industry that dominates his part of the country. After graduating from Carbon High, in Carbon County, he started working in the coal mines of Utah, a job he held for 10 years.

“The last day I worked in the mines was in August of 1984. Three months later, in December, two of the crews that I had worked with for five years were killed in a mine explosion—it’s known as the ‘Wilburg Disaster.’ It took them a year to get the bodies out. That portion of the mine is still burning.”

Bill decided to further his education after leaving the coal mining industry. He earned his associate degree at the College of Eastern Utah and then moved to California, where he earned his B.S. in biology at Humbolt University, a school known for its environmental biology program. “I always had an interest in biology, even when I was working in the coal mines.”

During the five years following college, he was employed by North Coast Laboratories, an analytical and environmental company. He headed up their bio toxicity program and was eventually promoted to inorganic lab supervisor.

Then came an opportunity to move to North Dakota, where his wife, Rita, grew up. The Diamanti family moved to Walhalla, where Bill worked on an inorganic certification project for a local lab. This summer, his new position at NDSU brought them to the eastern part of the state and closer to Rita’s family, who live in the area.

“I love it here. It’s a good place to work,” says Bill. However, moving to the midwest from California did have its disadvantages…

“Living in California, you really develop a taste for good coffee. And North Dakota is like ‘Coffee Siberia.’ The coffee here tends to be overpriced, so I decided to start my own company. We sell gourmet coffee—for a good price.”

While coffee may not be North Dakota’s number one cash crop, Bill has decided he enjoys living here after all. “I like the people here because they tend to be more moderate. California is pretty extreme, and it was a lifestyle we didn’t like—especially for our kids. I also think the change of seasons is good for people. When you live in California, it’s more monotonous.”

When he’s not busy selling coffee or off exploring his fascination with biology, Bill enjoys working on the 1952 Chevy pickup that he is restoring. His other interests include aquariums, tropical fish and reading. He also spends time trying to keep up with his children: Gregory, 5, Dina, 14, Philip, 23, as well as with his one-year-old grandson, Wilam.

Boudjouk update continued…

invited lecturer at the International Organosilicon Symposium at Montpellier. The paper was based, in part, on the exciting new result by Boudjouk group member Seok-Bong Choi. He demonstrated that dianions of silaindene are stable and aromatic.

Good wine was served in abundance at every meal at the conference, and while it required some behavioral modification, Phil focused his efforts and made the necessary adjustments so he could blend in with the culture.

The banquet was extra special, featuring a local rock band. Phil reports that Billy Joel’s songs are great in French; Madonna’s are not bad either. Inexplicably, his notes on the papers from the last day of the conference are considerably less detailed than those from earlier in the meeting.

The meeting in Montpellier, which included 600 attendees, also provided Phil the opportunity to renew acquaintances with many of the participants who

Continued on back page...
How many chemists do you know who can correct improper punctuation, effectively edit grammar mistakes and explain the difference between active and passive voice? A chemist with such remarkable English skills is hard to come by, but we have one right here in the department: NMR Lab Manager Dan Wanner.

Dan grew up just a few miles from the Canadian border, near Crosby, North Dakota. He graduated from high school there, and had the distinction of attending one of the last one-room schools in the area.

After high school, Dan attended NDSU, where he earned his Bachelor’s degree, majoring in English with a minor in chemistry. Following college graduation, Dan was working for a construction company when he received a call from a high-school principal looking for someone to teach both English and chemistry.

The principal, as you can imagine, was having a tough time finding someone proficient in such diverse fields, so when Dan got the call, he accepted the position right away. In addition to English and chemistry, he also taught eighth-grade math in the small town of Cosmos, Minnesota—a city that took every advantage of its name. “It was 1968,” said Dan, “and the city fathers decided to capitalize on their name because of the attention the space age was receiving. They even had a rocket for a water tower!”

He spent a year in Cosmos, and then life took Dan back to NDSU for awhile, where he was accepted as a graduate student in the English Department.

Another high school English teaching position followed—this time at Moorhead High School. “I learned how difficult it was to teach writing, but it was also very interesting. During those years, I encountered some very good high school writers.” While at Moorhead High, Dan was able to entertain one of his other interests when he served as the Chess Club advisor. During that period, he also spent some time directing NDSU chess tournaments.

Dan stayed at Moorhead High until 1978, when, once again, he was lured back to NDSU—this time as an English lecturer. He held that position for about eight years, and then moved to Minot, where he taught English at Minot State University, as well as at the airforce base located there.

After being involved in the world of English education for so long, Dan then went through a transitional period. He wondered if he should have taken another direction in life—should he have gone into chemistry instead of English? “Up to that point, I had always had a strong interest in chemistry, but the thought of taking physical chemistry again made me really nervous. I remember the day I realized what I had to do. I was reading an article in Reader’s Digest, and it said, ‘Do what makes you anxious.’ And I certainly knew what that meant.”

In 1987, Dan again enrolled at NDSU, and ended up re-taking undergraduate chemistry courses he had taken as a student 20 years before. “I remember having nightmares about P-chem before I even took the class. Dr. Gillispie was the physical chemistry teacher, and I remember him coming to my desk saying, ‘if you’ll commit five hours a day to this...’”

Dan spent just over two years as an undergraduate student, re-acquainting himself with the world of chemistry. Professor Steve Castellino offered him one of his first substantial opportunities in the department as a graduate student in his group. “Dr. Castellino was an excellent instructor when it came to training someone on how to treat an NMR. He really knew the instrument well. One of his rules was: if you have a multi-user instrument and you have a choice between doing something that will harm the instrument or losing your data; you do what is safest. He was a good teacher of those types of lessons.”

While he was working for Dr. Castellino, the department was searching for someone to manage the NMR system, and Dan was hired in 1992.

As the NMR Lab Manager, Dan feels his job requires more than just a knowledge of chemistry. He must use his communication and teaching skills to train students who use Dan Wanner manages newly installed software that enables researchers to obtain 3-D NMR spectra.
Chemistry Web Page Available

Chemistry major Matt Alm may never forget the summer of 1996. For the past six months, the NDSU senior has committed a great deal of time to developing the official web site for the Chemistry Department.

“I spent the entire summer working on the project,” said Matt. “Writing the code was the simplest aspect of the page. Acquiring the information required substantially more time.”

After many hours and several modifications, the page was unveiled to the faculty in late August. According to Matt, “The web page will be a great asset to the department, because it provides prospective students and other interested people an easy way to access information about the department. And they are able to do it 24 hours a day.”

With the help of “web page information gatherer,” Jill Retzer, Matt compiled information, took photographs and spent a great deal of his summer sitting in front of a Macintosh computer.

Even though the web page has reached its final format, changes will be made on an on-going basis. All of your suggestions and comments are welcome.

You can find the Department of Chemistry at:
http://zn.chem.ndsu.nodak.edu/ndsuchem/

Senior Matt Alm

Greg McCarthy a Centennial Fellow of Penn State

No, that doesn’t mean he’s 100 years old.

Penn State University has selected chemistry chair Greg McCarthy as one of 100 accomplished living alumni. He received the award during a 100th anniversary celebration for the founding of Penn State’s College of Earth and Mineral Sciences.

Greg received his doctorate in solid state science from Penn State in 1969. He and his wife, Denise (who has two Penn State degrees), traveled to State College in September to participate in the celebration.

Remarking on the trip, Greg said, “I didn’t know how much to make of this award until I saw the company I was keeping. Around the banquet room were the presidents, CEOs, senior VPs, owners and founders of energy, environmental, mining and materials companies ranging from small firms like Accu-Weather, to Xerox, U.S. Steel, Consolidation Coal Co. and Conoco. Government bigwigs were also in evidence. They even chose to honor a few academics, even though we are not likely to endow buildings anytime soon!

“Fortunately, the Nittany Lions were out of town, so we avoided the snarl that comes when 98,000 people from all over the East descend on a state college population of 30,000. Instead, we had perfect fall days and the pace was relaxed.”
News from the McCarthy Lab

New Additions
The McCarthy Group has recently grown with the addition of a new graduate researcher, Ryan Winburn, and a new undergraduate student, Rebecca Parnham.

Ryan Winburn joined the group this summer after a short stint in Dr. Atwood’s research group. Ryan received his B.S. degree in chemistry from the University of Wisconsin-Eau Claire in 1991, and his Master’s Degree in theoretical physical chemistry under Dr. Mark Hoffmann in 1995. Ryan then took a semester off from attending college, but did not stray too far from education, spending the fall quarter of 1995 teaching at the University of Minnesota-Crookston. He decided to come back to school to get his Ph.D. in order to teach at a four-year university. Ryan chose NDSU because the inorganic program was one of the few in the country with its main focus on main group chemistry.

Ryan met his wife, Naomi, while attending UND. In fact, they were co-workers in Dr. Hoffmann’s research group. Naomi is currently employed as a chemist at ProGold, the new corn processing plant located in Wahpeton, ND. They are expecting their first child in April.

Rebecca (Becca) Parnham also joined the group this semester. Becca is a junior at NDSU majoring in geosciences, and plans to specialize in environmental law. She transferred to NDSU after attending the University of South Dakota, Vermillion, for two years. Becca will be assisting in routine operations of the Materials Characterization Lab (MCL), as well as performing research on, among other projects, advanced coal combustion byproducts.

In her spare time, Becca enjoys camping, hiking, scuba diving and many other activities. She is also an avid animal lover and has many four-legged friends. Becca spends much of her time traveling and has resided in four different states in the past two years. She is also very sociable, so don’t be afraid to say ‘hi’ if you see her!

Denver X-ray Conference
From August 3 through August 9, the McCarthy Group attended the 45th Annual Denver X-Ray Conference in Denver, Colorado. The group went to the conference with two objectives, to present a poster entitled “XRD Characterization of Compound Semiconductor Solid Solutions: Sn(S,Se) and (Pb,Cd)S” (a collaborative effort with Dr. Boudjouk’s group), and to gain a better understanding of the “Rietveld” quantitative X-ray diffraction technique.

This second objective was of particular importance in that the group has just been awarded a three-year grant to look at advanced coal combustion byproducts, using this Rietveld technique as a primary analytical tool.

While in Denver, the group also took some time to enjoy the Rocky Mountains, spending an evening exploring the countryside and enjoying the wildlife (the annual Red Rocks rock concert was being held that week just west of town, with related riots).
Three Join Pu Group
Dr. Pu’s group welcomes three new members: Mr. Zhiming Lin, Mr. Duane Simonson and Dr. Weisheng Huang.

Mr. Lin was an assistant research professor at the Institute of Photographic Chemistry, Beijing, China, before he came to the U.S. In Dr. Pu’s group, he is supported by the Hasegawa Fellowship provided by the Organization of Henry Taube Institutes. He is studying the use of rigid chiral polymers in organic synthesis.

Duane is going to receive his M.S. degree at NDSU. He joins Dr. Pu’s group to continue his graduate studies. His work involves the study of a novel alpha-olefin polymerization process.

Dr. Huang received his Ph.D. degree from the well-known Shanghai Institute of Organic Chemistry in Shanghai, China. His work in Dr. Pu’s group will cover several areas including the synthesis of novel chiral materials and the study of asymmetric catalysis.

In other news…
Mr. Liang Ma was recently invited to interview with Bristol-Myers Squibb, a major pharmaceutical company located in Trenton, New Jersey. This company is particularly interested in Mr. Ma’s synthetic organic background. Good luck to Ma!

The Air Force Office of Scientific Research has recently awarded a grant of $565,820 to Dr. Pu’s research group through the DEPSCoR program. The AFOSR and the NSF are jointly supporting different aspects of Pu Group’s efforts on the synthesis of novel chiral materials for electrical and optical applications.

At the end of August, Dr. Pu was invited to present at the Materials Chirality Symposium during the Orlando ACS Meeting. The work Dr. Pu presented is the synthesis of main chain chiral conjugated polymers, propeller polymers and their applications in catalysis. This four-day symposium was organized by the ACS polymer chemistry division and the organic chemistry division. Speakers included many well-established chemists, as well as a number of active young chemists in the field of chiral materials and asymmetric polymerization.

Dr. Pu has also been invited by Acta Polymerica, a journal published by VCH Publishers Inc., to write a feature article for the journal. A “feature article” is the lead article in each issue of Acta Polymerica. In the article, Dr. Pu has been asked to not only highlight the research carried out in his laboratory, but to also include the important contributions of other scientists in the field.

Thank You
33 Percent of Alumni Return Survey

Thanks to everyone who took the time to return the alumni surveys that were included in past issues of Chem-News. Chemistry Department prepared them for success in the chemical industry. Out of 218 surveyed, 72 alumni responded.

The results of the survey indicated that the NDSU chemistry program is viewed as being very strong with few weaknesses. According to survey responses, the area in need of the most improvement is understanding the industrial environment. The highest ratings were in three areas: performing common lab procedures, interpreting results critically and using common instruments.
Larry McCabe Attends “SI School”

This summer, the chemistry department faculty expanded with the addition of lecturer Larry McCabe.

Larry earned his B.S. at Mankato State University in 1962 and went on to get a Master’s degree from the University of Tennessee, Knoxville, in 1968.

He continued his graduate studies at Detroit’s Wayne State University and at the University of Idaho in Moscow. For the past 30 years, Larry has taught high school chemistry in Minnesota and retired last spring from the Roseau School District.

After joining the NDSU faculty, Larry wasted no time in getting prepared for the fall semester. One of the responsibilities that came with his new position was that of Supplemental Instruction (SI) Coordinator. In mid-July, Larry attended an SI training session at the University of Missouri-Kansas City. The three-day session included 60 participants who represented many different cities and states.

“The sessions were very intense,” said Larry. “We started at eight o’clock every morning, and didn’t stop until five that evening. They divided us into working groups, so we became well-acquainted with our own group members. I met people from all over the country.”

Throughout the sessions, participants were told about the history and the objectives behind SI. Larry recalled some of the more interesting points that were mentioned: “One thing that struck me was the fact that SI has been in operation for more than 25 years. It’s a world-wide program that is used heavily in England, South Africa and Australia.

“SI also differs from tutoring and other help programs, because it has statistical data, which shows that it improves grades. Rather than just targeting the poor students, SI concentrates on difficult, or ‘gate keeper’ subjects that are typically more challenging.”

According to Larry, the original SI program started in the medical school at the University of Missouri-Kansas City. Currently, they offer SI in approximately eight different areas, and last semester they had 26 SI leaders. Since implementing the program, UMKC has continued to promote it and provide training. They are also developing a video-supplemented program for high school chemistry classes.

Larry learned a great deal from the SI sessions. “The training made me aware of the need to implement the program the first day of class, and the need for training the leaders to be effective and avoid pitfalls. They also stressed that the SI leaders are facilitators, not instructors.”

This year, the SI program employs four student leaders: Rena Diegel (Glendive, MT) and Greg Bonn (Rolla, ND) will be working with students in Larry’s Chemistry 120 and 121 sections, while Joey Rexine (Fargo, ND) and Jeff Wandler (Rochester, MN) will be assisting Chemistry 120 students for Kent Rodgers and Denley Jacobson, respectively.

Chemistry Department Welcomes Student Assistants

Two students have joined the ranks of the chemistry office staff this fall as work study assistants.

Rita Glennen is a freshman majoring in criminal justice. She is originally from Roseau, Minnesota.

Corey Shock, a Cando, North Dakota native, is also a freshman, and is considering a major in business administration.

We are pleased to welcome Rita and Corey to the department!
Department of Defense Grant Awarded to Atwood and Boudjouk

The Department of Defense has awarded a $325,000 grant to Dr. David Atwood and Dr. Philip Boudjouk of the NDSU Department of Chemistry. The three-year grant will be used to hire undergraduate researchers, graduate students and postdoctoral fellows to conduct research toward their master’s and doctoral degrees.

Research conducted in the Atwood and Boudjouk labs is focused on solid-state materials composed of members of the group-14 and group-16 elements. Solid-state materials made from these elements can have a dramatic impact on military communications and detection systems.

In communications, wide band gap semiconducting materials made from Ge and Se(Te) have demonstrated uses as detectors and as sources for laser signals. The lead chalcogenides, such as PbS, are used extensively in photo-conducting detectors. They have a high response in the near infrared region of the electromagnetic spectrum and have found use as spectroscopic sensors, flame monitors, and missile guidance systems. The tin chalcogenides, SnS and SnSe, are narrow bandgap semiconductors and have potential use in photovoltaic (converting light into electricity) applications.

Two general types of materials preparation techniques will be employed. The first has been established by the Boudjouk group over the past several years and involves decompositions through a newly discovered mechanism. This mechanism allows the decomposition to progress at unprecedented low temperatures (120°F or 248°F). Both solution and gas phase experiments will be conducted. The gas phase syntheses (called chemical vapor deposition or CVD) will utilize a new apparatus designed by Dr. Atwood.

The second technique involves the use of a new series of per-hydro precursor molecules currently under examination in the Atwood group. These molecules are designed to avoid the problem of carbon incorporation which is, in general, seen for organometallic precursors. They are environmentally friendly and only eliminate hydrogen when they are decomposed.

This funding is an outgrowth of our Center for Main Group Chemistry (funded by the North Dakota EPSCoR program). This group of NDSU chemists is known worldwide for their collective approach to solving research problems and conceiving new applications for existing chemistry.

Atwood and Boudjouk will also utilize the department’s Materials Characterization Laboratory (MCL) and will work closely with professor and department chairman, Greg McCarthy, a well-known authority on materials characterization.

Sibi Award continued...

Sibi’s contributions to the amino acid research. Financial support from the EPSCoR program and NDSU was critical to the initial accomplishment.

“We’ve been very successful the past two years in the area of free radical chemistry. A lot of the credit for this success is due to Dr. Jianguo Ji, a postdoctoral fellow from the Shanghai Institute of Organic Chemistry,” Dr. Sibi said. “Another key participant was Professor Craig Jasperse, a visiting scientist from Moorhead State University. Two new collaborators, Dr. S. Chandramouli and Dr. John Shay, have joined the fray and will extend the science to polymer supported free radical chemistry and environmentally benign synthesis.”

Dr. Sibi’s second NIH project is sponsored by the National Cancer Institute, and deals with how small molecules interact with tubulin, a protein responsible for mitosis (cell division). “With the recent success of Taxol, a molecule that interacts with the polymeric form of tubulin as an outstanding chemotherapeutic agent, research in this area is hot,” Dr. Sibi said. The group is synthesizing a large number of lignan natural products in a rational way and hopes to evaluate them for chemotherapeutic potential.
Trip to Nicaragua Highlights Gayle’s Summer

When she’s not busy assisting students in the chemistry library, Gayle Noraker is more than happy to sit down and tell you about how she spent part of her summer.

Gayle, along with six other women from Minnesota, traveled to Nicaragua as part of a “Donor Delegation,” sponsored by the Franciscan Sisters of Little Falls, Minnesota. The trip allows people to see what the mission has done for Nicaragua, and to learn a little more about the country.

The group left Minneapolis July 11, and after a short layover in Houston, flew directly into Nicaragua. “My first impression of the country was just like you would imagine: a row of armed guards, standing with guns at the airport. But that was the last instant it was like that,” recalled Gayle. Their home-base during the two-week stay was “Sister Parish,” a facility sponsored by Lutheran parishes throughout the U.S.

The “Reality Tour,” as it’s called, began with a trip through Managua. From the back of a pickup, the group witnessed the richest parts of the city, as well as the city dump, where people were digging for food. The following day, they visited the Global Education Center, where a speaker explained the U.S.-Nicaraguan relationship and outlined Nicaraguan history.

Following the speech, they drove 150 miles north of Managua, to Condega, closer to where much of the fighting occurred until 1991. “After a ride like that, you definitely learn to appreciate American roads,” said Gayle. “There are huge potholes everywhere, and we passed many buses and pickups with people hanging out of the windows or even riding on top.”

From Condega, the group traveled to San Diego, a mountain village five kilometers to the northeast. “This is the point where my three years of Spanish was the greatest gift for me.”

When the women arrived in San Diego, they were greeted with a party. “They give parties when you get there and when you leave,” Gayle explained. “Even though they have 60 to 70 percent unemployment, and a great deal of poverty, there is so much joy in the people.”

Staples like beans, rice, sugar, oil, onions and coffee were offered to help contribute to the food supply. “The families would have gladly fed us their own food, but they don’t have enough to feed themselves, much less a visitor.”

Staying with families in the tiny village proved to be somewhat challenging. “I was lucky; I stayed in one of the nicer homes,” said Gayle. “But some of the women were shooing pigs out from underneath their beds at night. The homes we stayed in were very clean, but chickens and other animals were running loose in some of them.”

The home Gayle stayed in was owned by a man who worked six days a week at a slaughterhouse. He rode his bicycle five kilometers to work everyday, only to make 33 córdobas (about four dollars) a day.

On one of the days spent in San Diego, the women divided into groups, and then went to four different homes to make rosquillas (a pastry that is to Nicaraguans what krum-kaka is to Norwegians).
On July 19, the group went to the central plaza in Managua, where they celebrated the “17th Anniversary of the Triumph of the Revolution” with between 50,000 and 100,000 Sandinistas. “It was pretty intense,” noted Gayle, “and as we walked through the crowd, I could hear people talking about us, the ‘parade of gringos.’ We only stayed for about 45 minutes, but it was one of the most incredible, exciting and memorable experiences I’ve ever had.”

The violent history in Nicaragua is still evident there today, but there are many programs helping to change that. A boarding school, which holds sessions lasting about five months, teaches people the skills that will hopefully help them become productive and self-sufficient.

“They learn plumbing, electricity or plant cultivation, and basic math. Reconciliation skills are also taught. The people need to learn that they are not Sandinistas, they’re not Contras, but they’re all just Nicaraguans.” When they complete the program each person receives money (about $400) to start a small business.

As you can imagine, witnessing all of the poverty and hunger was a difficult thing for Gayle and others in her group. “Everywhere we went, there were children in the streets. And they’re all very hungry, but we were told not to give anything to one of them, because then 100 others would want it.”

Her trip to Nicaragua proved to be very inspiring for Gayle. In fact, she was so invigorated by it, she’s going back in January to help renovate a school there.

Note: a group called “Pastors for Peace” is helping to set up three universities in the eastern part of Nicaragua, where English is spoken in addition to Spanish. They are looking for science textbooks published in 1986 or later. If you are interested in donating any science textbooks to the cause, please contact Gayle.

Gayle and “Marianna,” the woman who cooked for the group during their stay at Sister Parish.

“‘It took us all day to make the rosquillas. They supplied the corn, and we gave them everything else. It was a real treat for them, so we made enough for the whole village. I ate the last one on September 2nd—my birthday. I had brought it home and saved it.”

When they left San Diego, each host family gave their visitor a gift. “We were told that we should accept whatever they gave us, even if it happened to be a live animal. We laughed about it on the trip home, because one of the interpreters did, in fact, get a live chicken from her host family.”

While driving back to Managua, they encountered a huge truck, overflowing with people waving black and red flags. It turned out to be a group of Sandinistas enroute to Esteli, where a celebration of their 1979 liberation was taking place. “When we reached Esteli, we slowed down to a crawl. The streets were crowded because Daniel Ortega, the presidential candidate, was visiting that day.”

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Chem Club Elects New Officers

The NDSU Chemistry Club has elected new officers (see list below). The club, which meets monthly in Ladd Hall’s Broberg Center, has started outlining activities for the upcoming year. In addition to other plans, club members will visit elementary schools this fall to promote chemistry to younger students.

Jeremy Bucholz - President
Amy Singer - Vice President
Matt Alm - Treasurer
Chelsy Talbacka - Secretary

Chem-News 15 Fall 1996
attended the Fargo Conference on Main Group Chemistry in May.

Following the meeting, he presented lectures at the Free University of Brussels and met with faculty at the Vrije Universiteit Brussel, Belgium, the nominal capital of Europe because of its key role in unifying Europe, is a two-culture country (French and Flemish) with lovely sights, great food and wine, but very high prices. “Three days was not enough time to visit the Bruges, often called the Venice of the North,” said Phil. “Next time, for sure.”

Dan Wanner Profile continued…

the NMR. Without a background in high school teaching, his job could be much more difficult.

Dan says he enjoys the challenges that come with his position. “I like the problem solving; trouble-shooting is fascinating to me. I also like the fact that no day ever repeats itself. There are so many interesting people to work with—and a lot of different cultures.

“My job is not just the physical maintaining of the instruments, but more like a kind of ‘driving instructor’ who teaches students how to use the equipment properly and organizes the overall operation of the lab.”

Although English and chemistry have played a large role in his life, Dan finds time for other interests as well. He enjoys biking, and as you might have guessed by now, is a chess enthusiast. “I still play quite a bit of chess—I don’t have many human competitors anymore, though. I play a little bit for fun, with relatives…but I play most games against the computer.”

In addition to dozens of chess trophies and a successful career, Dan has a lot to be proud of. His daughter, Caren, is a senior history major at Carleton College, and his son, Christopher, graduated from St. Johns with a degree in chemistry and has just started his third year of medical school at UND.

New Visiting Scientist at NDSU:
Dr. Huayu Qiu arrived in Fargo on October 7. He will conduct research on anions of silicon compounds in Dr. Boudjouk’s group.

Alumni News: Dan Falvey (B.S. NDSU 1985), now Assistant Professor at the University of Maryland, recently published a very interesting “Communication to the Editor” in the September 18 issue of the 

Journal of the American Chemical Society
(pages 8965-8966) entitled, “Photo-generated Diaryl-nitrenium Ions: Laser Flash Photolysis and Product Studies on Diphenyl-nitrenium Ion Generated from Photolysis of 1-(N,N-Diphenyl-amino)pyridinium Ions.”

Dan conducted undergraduate research on sonochemistry in Dr. Boudjouk’s labs and went on to graduate school at the University of Illinois where he did his thesis work under Professor Peter Beak. While at Illinois, Dan received the “Most Outstanding Graduate Student Award.”

Dr. Hong, post doc and adjunct professor at NDSU (1991-1996) reports that he is extremely busy as a senior research chemist for Samsung Corporation in Korea.

Boudjouk update continued…

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