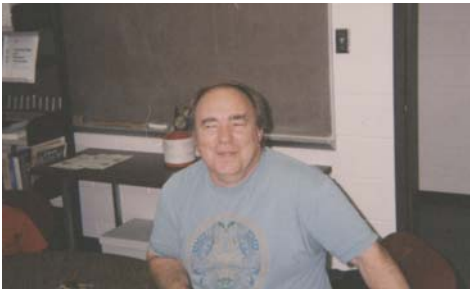


The Math Log



Gregory Retires

Professor Michael B. Gregory has retired from the Mathematics Department after a long career here at UND. Mike received his Ph.D. from the University of Connecticut in 1971 and first came to UND that year. He also received his bachelor's and master's degrees from Connecticut. In 1987, Mike took a leave of absence and served as a visiting Professor at Michigan State University for the 1987-1988 academic year. He also went on leave for the 1996-1997 academic year, serving as a Visiting Professor at South Dakota State University. During the summer of 1991, Mike was a Visiting Scholar at Iowa State University. In 1977, he received a University of North Dakota teaching award. Mike still lives in Grand Forks with his wife Gerri Dunnigan, who works here in the Mathematics Department. Watch for more news from Mike in future issues of the Math Log!

Department Hosts Sonia Kovalevsky Day

On May 5, 2006, the Mathematics Department hosted a "Sonia Kovalevsky High School Mathematics Day" for women and girls in grades 9 through 12 from schools in rural areas of North Dakota and Minnesota. The purpose of the event was to encourage women to go on to study at the university level, to take courses in mathematics, and to major in mathematics or a related discipline. The reason for organizing a program specifically for women and girls was the fact that women in the US have traditionally been underrepresented in mathematics and related fields. The event was named after Sonia Kovalevsky, a nineteenth century Russian mathematician who conducted research in

the theory of differential equations. Kovalevsky was a woman and lived at a time when mathematics was almost totally dominated by men. UND Mathematics faculty members Cheryl Halcrow and Michele Iiams organized the program, with help from other members of the Mathematics Department. In recruiting participants, Cheryl and Michele specifically targeted schools in rural areas of northeastern North Dakota and northwestern Minnesota, especially schools on Indian reservations. They wanted to reach students who do not live near UND or any large high schools.

Thirteen girls and two of their teachers attended the Sonia Kovalevsky Day event. After some opening remarks, the program began with a live discussion between Sonia Kovalevsky and an interviewer. Cheryl and Michele used an impersonation of Kovalevsky, of course. The impersonator was UND Mathematics graduate student Elena Vinokurova, who is a Russian herself. Elena wore authentic Russian clothing of the period and discussed her challenges (or actually Kovalevsky's challenges!) as a woman in a highly male-dominated field.

After the impersonation, the participants listened to a talk by Virginia (Ginny) Rains, a 2001 UND mathematics graduate who lives in Bremerton, Washington, and works at the Naval Undersea Warfare Center in Keyport, Washington. An article about Ginny appeared in the Spring 2006 issue of the Math Log. During her talk, Ginny discussed the ways in which she uses her mathematics background in the course of her job. She also talked about how her mathematics degree helped her to land her job in the first place.

After Ginny's talk, four other panelists spoke. The panel included

Corinne (Iseminger) Jacobson, an actuary for Midland National Life Insurance Company in Fargo, North Dakota,

LuAnn Johnson, a statistician for the Grand Forks Human Nutrition Research Center,

Colleen Kummet, a research analyst for the North Dakota Department of Human Services, in Bismarck, North Dakota, and

Dr. Colleen Livingston, Associate Professor of Mathematics at Bemidji State University, in Bemidji, Minnesota.

Jacobson, Johnson, and Kummet all hold M.S. degrees in mathematics from UND, and Livingston received a Ph.D. in mathematics from Colorado State University. In choosing the main speaker and the panelists, Cheryl says that one of her objectives was to demonstrate the fact that careers in mathematics are not limited to teaching careers.

The day's schedule also included a problem-solving session, two special workshops, lunch with the panelists and main speaker, a tour of the campus, and a star show at the Arthur P. Anderson Atmospherium (a theater here at UND which is very similar to a planetarium).

The travel expenses of the panelists and keynote speaker were paid for by a grant of \$2800 from the Association for Women in Mathematics (AWM) and a grant of \$500 from the UND Mathematics Department. Cheryl obtained the AWM grant through a competitive process by submitting a written proposal to the AWM. Contributions from alumni and friends made the Mathematics grant possible. Thank you!

Sonia Kovalevsky High School Mathematics Days normally occur at several different universities around the U.S. each year, but this was the first time that the event came to UND. We thank Cheryl, Michele, and their helpers for making this possible!

Gilsdorf on Leave in Mexico City

UND Mathematics faculty member Tom Gilsdorf has been awarded a Fulbright Scholarship for the 2006-2007 academic year. This scholarship will enable him to spend the entire year at the Instituto Tecnológico Autónomo de México in Mexico City. Throughout the year, Tom will be teaching classes, and these classes will be in Spanish! But this is not a problem, since Tom is quite proficient in Spanish. Tom is also spending time working on mathematical research. His current research focuses on locally convex spaces and ethnomathematics.

Tom's scholarship is named after the late Senator J. William Fulbright, of Arkansas. The Fulbright Scholarship program receives much of its funding from the United States Department of State, but other organizations support the program as well. Fulbright scholarships are awarded on a competitive basis, and Tom

went through a lengthy application process in order to receive one. He wrote a "project proposal" and obtained letters of recommendation. He also had to arrange written and oral exams in Spanish and submit such items as course syllabi and sample exam questions for courses he might teach in Mexico. Further information about the Fulbright program is available on the World Wide Web at

http://www.cies.org/about_fulb.htm

Tom also spent the 1992-1993 and 2000-2001 academic years in Mexico. He received a Solomon Lefschetz postdoctoral fellowship for the 1992-1993 school year, and for 2000-2001 he received another (previous) Fulbright Scholarship. It was in 1992-1993 that Tom met his wife Elisa, who is from Mexico.

We congratulate Tom on the scholarship, and we hope that he is having a successful and enjoyable year in Mexico! We also look forward to seeing him back here in the department next fall!

Bevelacqua Promoted

Anthony Bevelacqua has been granted tenure and promoted to the rank of Associate Professor. Anthony came to the Mathematics Department in 2000. His research specialty area is abstract algebra. Congratulations to Anthony!

Three More Graduate Students Receive Master's Degrees

Boamong Asare graduated this past August. His adviser was John Collings, and he wrote an independent study report entitled "Stochastic Approach to Interest Rate." Boamong is currently teaching mathematics in New Town, North Dakota. He hopes to return to school after a couple of years and begin work on a Ph.D.

Jinho Jung will receive his master's degree at the end of the current fall semester. His adviser is Mohammad Khavanin, and the title of his independent study report is "Calculus of Variations." Jinho is interested in teaching jobs at two-year colleges.

Daniel Perlov graduated at the end of the 2006 summer session. His advisers were Michael Gregory and Ryan Zerr, and the title of his independent study report was "Measure Theory and Sigma-Algebras." Dan has returned to his native Canada and has begun work on a Ph.D. in mathematics at the University of Manitoba. He is thus living on the other side of the border, but he is still quite close to Grand Forks!

New GTA's Join the Department

Several new Graduate Teaching Assistants (GTA's) joined the Mathematics Department at the beginning of Fall Semester. All are pursuing master's degrees here.

Candyce Hecker comes from Dickinson, North Dakota. She received her bachelor's degree from UND, where she majored in mathematics and accountancy.

Charley Huhtala received an MS degree in computer science and software engineering from Colorado Technical University. He also holds a bachelor's degree from UND with a major in mathematics and minors in coaching and driver education. He is continuing his formal education here after retiring from a 23-year career with the US Air Force. Charley is originally from Sebeka, Minnesota.

Michael Lockhart is a native of Grand Forks. He holds bachelor's degrees from UND and from Princeton University. He majored in mathematics and in Germanic languages and literature.

Lisa Rice earned her bachelor's degree at Mills College, where she majored in mathematics and minored in economics. Lisa is originally from Brooklyn Park, Minnesota. Her outside interests include traveling and cooking.

Laura Wagner is from Fargo, North Dakota. She earned her bachelor's degree in mathematics and secondary education from Jamestown College.

Chen Yao grew up in China and received his undergraduate degree at Sichuan Normal University in Chengdu, China. His major there was in mathematics.

Lancette and Snyder Join the Department as Lecturers

Steven Lancette recently received his MS degree in mathematics right here at UND, and he is now serving as a lecturer in the department. Steve is originally from Minnesota, and he also holds an MA degree in business administration and finance from the University of Iowa.

Jessica Snyder holds an MS degree in mathematics from UND. She is originally from Grand Forks, and after having been away, Jessica and her husband Tony moved back to Grand Forks in August of 2005. They have two children, ages 2 and 4. Jessica says she is excited to be back at UND as a lecturer!

Smith Presents Talk

Jason Smith presented the talk "Representational Power of Conjunctive Normal Form" at the Foundations of Computer Science Convention in Las Vegas, Nevada on June 29, 2006. The UND Graduate School, Provost's Office, and Computer Science Department all provided financial support for Jason's travel. As you may recall from the Spring 2006 issue of the Math Log, Jason received his master's degree in mathematics from UND this past summer. He has found employment for the 2006-2007 academic year at Minnesota State University-Mankato (formerly Mankato State University), where he is a lecturer.

Faculty Footnotes

Anthony Bevelacqua and his coauthor Mark J. Motley have published the article "Going-down results for C_r -fields" in the Canadian Mathematical Bulletin. Anthony and Mark have also published the article "Finite codimension subfields of a field complete with respect to a real valuation" in the journal Communications in Algebra.

Ryan Zerr has recently published the article "On minimal dynamical systems and their crossed product C^* -algebras" in the Journal of Mathematical Analysis and Applications as well as the article "On character groups arising from dimension groups" in Proceedings of the American Mathematical Society.

Larry Peterson and Rod Gover have published "The ambient obstruction tensor and the conformal deformation complex" in the Pacific Journal of Mathematics. Last summer Larry and Rod attended portions of the workshop on "Symmetries and Overdetermined Systems of Partial Differential Equations" at the Institute for Mathematics and its Applications in Minneapolis, Minnesota (July 17-August 4, 2006).

Where They Are and What They Are Up To

Joe Champion (MS, 2003) is currently pursuing graduate work at the University of Northern Colorado in Greeley, Colorado. Joe had previously served as a senior lecturer here in the UND Mathematics Department.

Yin Chang (MS, 2004) is currently a Ph.D. student in statistics at Montana State University in Bozeman, Montana. This past April she passed her Ph.D. qualifying exams. She says that she is doing well and that she is planning to teach a summer statistics course. She also mentions plans to go back to China for a

short visit. Yin has sweet memories of her time here at UND, and she extends her greetings to everyone! (406-556-0314)

Dr. Deann (Eliason) Christianson (UND Mathematics, 1963) has recently retired as Professor of Mathematics and Chair of the Mathematics Department at the University of the Pacific in Stockton, California. She received the Order of the Pacific, a recognition given to some retiring professors. Her teaching career included developing a placement testing and proficiency program for Pacific as well as mathematics classes for students who needed developmental courses before college-level mathematics courses. Her primary teaching assignments at Pacific were in statistics, higher geometry, and the history of mathematics. Now that she is retired, Deann plans to do some traveling, spend some time with her granddaughters, and work on volunteer activities. Deann is married to Dr. Lee Christianson, who is also a UND Mathematics graduate.

Anita Lesmeister (Master's, 1981) has taken a teaching position in the St. Paul area in Minnesota. She is teaching at Lake Junior High in Woodbury and Cottage Grove Junior High in Cottage Grove. Many of you may know Anita. She has served as a lecturer here in the Mathematics Department for many years.

Just Married

Dave Morstad and **Karla Smart** were married on July 22, 2006. The wedding took place near Grand Marais, Minnesota along the North Shore of Lake Superior. Many people from the Mathematics Department attended the wedding reception which Dave and Karla held a few weeks later in Fargo, North Dakota. Dave has been a lecturer here in the Mathematics Department for several years. Congratulations to Dave and Karla!

Births

Irene Asare was born on July 4, 2006. Her parents are Boamong and Henrietta Asare. At birth, Irene weighed 7.74 pounds and was 20 inches long. Boamong recently graduated with a master's degree from the Mathematics Department.

Emerson Ellen Byron was born on May 29, 2006. She weighed 7 pounds and 2 ounces at birth and was 20 inches tall. Her parents are Andy and Gwennie Byron. Gwennie serves as a lecturer in the Mathematics Department, and she is also the director of the Mathematics Learning Center.

Gregory Daniel Downs is the son of Joel and Heather Downs. He was born on September 21, 2006 and weighed 9 pounds and 0.9 ounces. He was 22 inches tall. Joel is a GTA here in our department.

Sympathies

Ann McBride passed away this past summer. Ann was the wife of Woodrow McBride, who retired from the UND Mathematics Department in 1981 after a long career here. We extend our sympathies to Woodrow, who lives in Grand Forks.

Math Log Editor talks to Mary P. (Martin) Bryngelson

Dr. Mary P. Bryngelson received her bachelor's degree in mathematics from the University of North Dakota in 1970 and is currently a regional Vice President of Operations for Healthways, Inc., a health care services company headquartered in Nashville, Tennessee. Mary has worked in a wide variety of places, and her career story provides a good example of how a person can learn things in one job and apply them in other positions. It also shows how a degree in mathematics can lead to some surprising career opportunities.

EARLY YEARS

Mary grew up in Enderlin, North Dakota. In 1966, she came to UND, where she majored in mathematics. She has especially strong memories of professors **Ron Bzoch**, **Ken Hankerson**, **Ed Nelson**, **Tom Robinson**, and **Milt Winger**, as well as **Ruth**, the Mathematics Department's secretary at the time. Mary also remembers some very good students, such as **Michelle Farmer**, **Ron Peterson**, and **Tom Ramsey**. Mary took physics from Professor **Robert Witmer** and remembers being the only woman in a class of 80 physics students at the time. It was still a few years before the advent of electronic pocket calculators, and many students used slide rules to perform approximate calculations. But Mary notes that she did her computations by hand, without a slide rule! In addition to taking the usual courses for a mathematics major, Mary also took courses in education and earned certification as a teacher.

While at UND, Mary worked as a part-time tutor for approximately four hours per week, earning \$3.50 per



Dr. Mary P. Bryngelson

hour, which was a very high wage for the time. She also had summer jobs in Enderlin at the Dairy Queen and at her uncle's store. Mary's parents valued higher education and funded her college education.

In February of 1970, Mary graduated from UND and went to work for the North Dakota State Tax Commissioner, Byron Dorgan. Later that same year Mary spent several weeks traveling in Europe, and during these travels she interviewed for a job at a private American boarding school in England. She was offered the position, but the duties were not to begin for another year. In the meantime, Mary returned to the US and undertook graduate studies at North Dakota State University. In the fall of 1971, Mary went to work teaching mathematics at the boarding school, and in 1972, she returned to the US, taking a teaching job at a parochial school in Lonsdale, Minnesota.

After a couple of years in Lonsdale, Mary concluded that although she enjoyed mathematics, she did not want to be a teacher. She mentions student discipline as one of the considerations in making this conclusion. In any case, Mary went on another short trip to Europe in 1974 and came to Grand Forks upon her return. She knew a man in Grand Forks by the name of **Boyd Wright**. (Wright is the husband of **Lillian Elsinga**, the current Dean of Students and Associate Vice President for Student Services here at UND). Wright told Mary about a job opening in UND's Office of Institutional Research, which she applied for. Mary soon went to work at Institutional Research!

In her new job, Mary used many of the analytical skills that she had begun to develop in her earlier studies of mathematics. She prepared quarterly reports involving statistics from students' evaluations of their teachers. She analyzed data on the number of credit hours of instruction offered by various faculty members and departments. Together with Professor **John D. Williams**, she worked on a salary regression analysis in which it was determined that women at UND were receiving unfairly low pay. This salary analysis project gave Mary valuable experience in writing papers and giving presentations. It also resulted in some adjustments to salaries here at UND! One of Mary's other responsibilities at the Office of Institutional Research was to work with space allocation issues. This involved questions as to which buildings faculty members and departments would occupy; she says that this could be even more controversial than pay issues! A large part of Mary's job involved working with people. She worked with the Council of Deans as well as with Vice President of Academic Affairs **William Koenker** and his successor, **Connie Nelson**. She also worked with Arts and Sciences Dean **Bernard O'Kelly** and UND President **Tom Clifford**.

MORE STUDY

While employed in the Office of Institutional Research, Mary also undertook graduate study at UND. She completed an M.Ed. degree in 1976, and in 1977 she moved to Florida and

began work as a teaching assistant and graduate student at Florida State University. Her studies at Florida State soon led to internships at the Organization of Economic Cooperation and Development in Paris and at the University of Loughborough, in Loughborough, England. Mary said that although she had taken one semester of French in school, she really never learned to speak French! In 1980, Mary received a Ph.D. degree in higher educational administration from Florida State.

After completing her Ph.D., Mary took a job in Central Administration at the University of Missouri. In many ways this job was similar to the job at the UND Office of Institutional Research. In 1983, she married Robert Bryngelson, who was serving in the US Air Force, and after a while, the two moved to Cheyenne, Wyoming. Mary told me an interesting story about how she "stumbled" onto a job opportunity in Cheyenne. She was in a small shop, where she overheard a conversation between a clerk and someone who was trying to fill a position at URS-Berger. Mary did not happen to be dressed professionally at the moment, so she waited and later went back to the clerk and got the person's name and telephone number. To make a long story short, Mary was hired!

ENTRY INTO THE HEALTH CARE INDUSTRY

After a few years in Cheyenne, Mary and Robert moved to southern California, where Mary went to work for Tetra Tech corporation and later the Aetna Insurance Company. It was during this period that Mary first entered the field of health insurance and health services. She says that her experience in analytical work helped with this transition.

In 1991, Mary and Robert moved to the Minneapolis-St. Paul area. They came without jobs, and it took Mary a while to get one. But in May of 1992, she went to work for United Health Care, which later became United Health Group. In 1994, Mary was named Vice President of Operations for Healthmarc, which was a specialty company associated with United Health Care. She directly or indirectly supervised approximately 450 employees around the country and managed a budget of approximately \$50 million!

Through personal contacts, Mary later learned of a job opportunity at ican, Inc., which was a new start-up company. In 1999, she left United Health Group to work for ican. Mary looks back on this period with a bit of nostalgia. The new company was developing an Internet-based system that health care professionals could use to obtain high quality up-to-date information. Several physicians worked for ican, and one of the company's founders was Dr. Michael T. Osterholm. Osterholm had been the Minnesota State Epidemiologist for several years and is currently the director of the Center for Infectious Disease Research & Policy at the University of Minnesota. Like many small "dot com" companies of the time, however, ican later went out of business. Mary left ican in September of 2000 and went to work for Prime Therapeutics, a pharmacy benefit management company.

In 2003, Mary left Prime Therapeutics and joined American Healthways. The company is now known as simply "Healthways," and it provides health care-related services to hospitals, health plans, employers, and health care providers. Mary is now a regional Vice President of Operations at Healthways. Mary and Robert live in Bloomington, Minnesota.

OVERALL REFLECTIONS

Toward the end of our discussion, I asked Mary to comment on her career and any lessons to be learned from her experience. Her response emphasized two main points. First, we all need to be willing to learn new disciplines and to try new things. In fact, Mary's career story shows just how important this can be! Her employment has involved teaching, analytical work in education and industry, as well as senior-level management. The willingness to embark upon new activities has clearly paid off in Mary's case, and I think it may also pay off for people who stay with the same company or institution throughout their employment years.

Mary also emphasized the importance of networking, i.e. establishing and maintaining contacts with other people. Personal contacts and connections may often lead to employment opportunities, and Mary's story is again a good example! Personal contacts have helped her to obtain several jobs in the course of her career.

Mary had many other interesting observations about the world of work, and I wish I could fit them all in here. But maybe it is best to conclude with a couple of her comments: "Enjoy the people you work with," and "take advantage of opportunities as they arise!"

The Pseudo-Sum

by Larry Peterson

If you haven't been to the UND campus for several years, you might be surprised by some of the changes here. One of the biggest changes this year is the new \$20 million Wellness Center that opened this past September. It features three basketball courts, a 200-meter running track, a 28-foot rock climbing wall, and all sorts of exercise equipment. All of this is indoors! In addition to the facilities themselves, the Wellness Center also offers exercise classes and cooking classes. The Center will be paid for over a period of several years, in part through student fees. It is located on the east side of the English Coulee and just north of the main part of the campus.



Another important change to the campus is the new parking ramp that is going up on the southwest corner of Uni-

versity Avenue and Columbia Road. For many years an ordinary parking lot occupied this site, but throughout much of the past summer, construction crews were busy driving in pilings for the new ramp. Some of these pilings were the size of a three- or four-story building! The new ramp will have several levels and will be connected to nearby Swanson Hall by an underground tunnel. There will also be a pedestrian bridge over Columbia Road connecting the parking ramp to a small tower on the other side of the street.



Still another change to the campus is a complex of new student apartments which is going up along University Avenue west of the English Coulee and the Chester Fritz Auditorium. When the complex is completed, maybe I will put a picture of it here in the Math Log! In the meantime, I hope things are going well for all of you. If you are on campus, feel free to stop by the Mathematics Department. As our secretary Lona says, the coffee is always on!

Math Log on the Web

This issue of the Math Log is available on the World Wide Web! Point your Web browser to

<http://www.und.nodak.edu/dept/math/mathlog>

DEPARTMENT FACULTY AND STAFF FOR 2006-07

- Anthony Bevelacqua..... Associate Professor
- Donna Boe Word Processing Operator
- Gwennie Byron..... Senior Lecturer & Math Learning Center Director
- John Collings Associate Professor
- Bruce Dearden Professor
- Gerri Dunnigan Associate Professor & Associate Chair
- Stuart Farm Senior Lecturer
- Thomas Gilsdorf (on leave)..... Professor
- Cheryl Halcrow..... Assistant Professor
- Joel Iiams Associate Professor
- Michele Iiams Assistant Professor
- Mohammad Khavanin..... Associate Professor
- Steven Lancette.....Lecturer
- Jerry Metzger Professor
- Richard Millspaugh..... Professor & Chair
- David Morstad Senior Lecturer & Math Computer Lab Director
- Lawrence Peterson..... Associate Professor
- Mary Rerick Senior Lecturer
- Thomas Richards Assistant Professor
- Jessica Snyder Senior Lecturer
- Lona Spicer..... Administrative Secretary
- Shuzo Takahashi Assistant Professor
- Ryan Zerr Assistant Professor

THANK YOU !!

The following persons are responsible for monetary gifts to the UND Alumni Association specifically designated for the improvement of the Department of Mathematics:

Patricia Lund	Kathryn Pope	Douglas and Susan McLeod	Dr. Deann Christianson	Amy and Derek Schulte
Sandra Paur	Brian Beaudrie	Mary Bryngelson	Rebecca Kyler	Rodney McKinney
Ernest Gullerud	Lesla Whaley			

Jay and Marie Bjerkaas Scholarship

Forrest J. Bjerkaas

Ronald C. and Ann C. Bzoch Memorial Scholarship

Maryanne Romero

Special note for Fall 2006: The UND Alumni Association provides us with the names of those of you who have made financial contributions to the Mathematics Department. The Alumni Association office has recently installed some new computer software, however, and for this reason the Alumni Association is currently several weeks behind in providing us with the names of donors. More names will appear in the next issue of the Math Log. Thank you for your patience!

Your generosity is gratefully acknowledged and sincerely appreciated!

Your teachers and friends are wondering what you are doing! Help us to satisfy their curiosity. (Photos are also welcome!)

NAME (Include previous if changed.): _____

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Use additional sheets if necessary. You can also send us news items and comments by e-mail! Just send a message to

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Be sure to say that the information is for the Math Log.



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