



Making Waves

Fall 2006



SSEC

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Greetings from the Chair

Jonathan Martin



As I sit down to write this letter of greeting we are poised to watch the thermometer drop to its lowest readings of the season as summer officially gives way to the chill of fall and winter. Leaves have begun to turn and will likely fall in the howling gale that is destined to prevail over the next day or so. A new academic year is always accompanied by such meteorological transitions but also by eagerness and hope, the hallmarks of vibrant, constructive enterprise.

In the coming year the department will continue to develop several exciting new initiatives. In January, Dr. W. Paul Menzel will occupy the newly created Suomi Distinguished Chair and embark upon a year of research mentoring and classroom instruction of our graduate and undergraduate students. Some details about the Suomi Chair are included in the following pages. We are also involved, along with SSEC and CCR, in the development of the Verner E. Suomi Science Museum which will occupy the renovated lobby of our building. More on the planning of this museum (including a colorful schematic drawing) is included in the newsletter. Additionally, we inaugurated the first in what will be an annual Reid Bryson Lecture Series with a visit from Dr. Steven Schneider in early October. This issue of our semi annual newsletter will also highlight the contributions to our department and profession of Professor John Young who marked his 40th anniversary as a member of our department in September. Quite a remarkable feat!

We have also benefited from some recent infrastructure improvements in the building. All AOS space is now served by the campus wireless network and the network is available to visitors as well as denizens of the building. Perhaps even more interesting to many of you, the replacement of our Nixon administration-era elevators is nearly complete! Though we have already learned that newness does not inoculate against malfunction – it is, nonetheless, a significant improvement.

We hope to see all of you at our Alumni Reunion to be held at the AMS Annual Meeting in San Antonio this coming January. It will be a wonderful way for us to reconnect with you, our cherished alumni, to share recollections of our storied past and consider visions of an even brighter future. Please visit our newly renovated department website at <http://www.aos.wisc.edu>. As always, we are eager to hear from you.

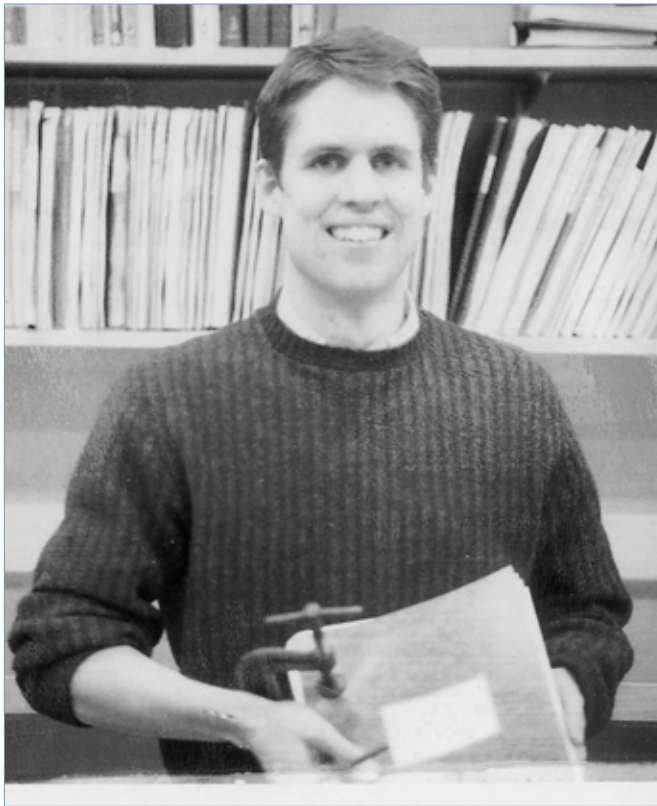




Faculty News

John Young's 40th Anniversary in AOS

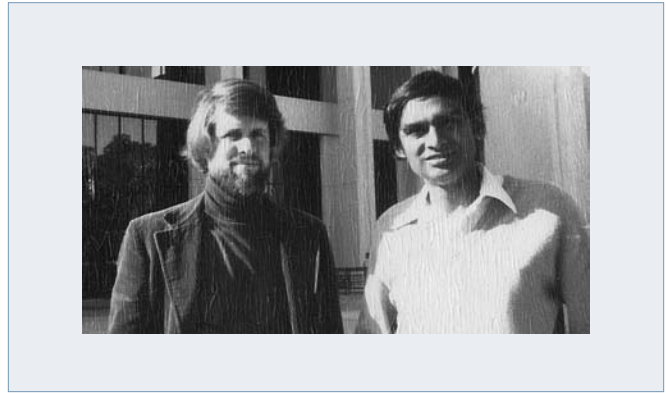
Professor John Young arrived at the University of Wisconsin-Madison in Fall 1966, the same week that the Beatles performed their last formal concert. John had recently received his Ph.D. from the Massachusetts Institute of Technology, where he studied under Profs. Norman Phillips and Ed Lorenz, with a thesis entitled, *On Nonlinear Chaotic Dynamics on an Earth with Continents and Oceans*. He came to Madison via the University of Oslo where he had just completed a post-doctoral NSF Fellowship studying with another giant in our field, Professor Arnt Eliassen.



John Young finishing his dissertation at MIT in February 1966

John's interest was in large-scale dynamics but quickly grew to include the planetary boundary layer, tropical meteorology, monsoon dynamics, as well as numerical modeling. In the summer of 1968, John spent some time as a visiting research scientist at the University of Washington. This affiliation resulted in an important collaborative paper on boundary layer dynamics and the ITCZ, co-authored with Jim Holton and Mike Wallace. In his early years at UW-Madison, John was also fortunate enough to make a trip to India with Professor Reid Bryson. This experience provided some of the impetus for John's growing interest in the monsoon and 20 years of international projects. Following a year as visiting associate professor at M. I. T., John became the chief scientist aboard the U.S.N.S. Vanguard in phase I of GATE (summer 1974). His participation in Monsoon-77, during which he flew in the NCAR Electra aircraft through the East African Jet, led him to become the lead United

States scientist for the Arabian Sea Experiment portion of MONEX in 1979. All the while, John was fully involved in the research community organizing 12 conferences and symposia, including cumulus parameterization, tropical dynamics (NCAR, July 1972), the results of FGGE and MONEX (at FSU in 1981 and UW-Madison in 1984, respectively), and air-sea interaction processes (Beijing, 1988) among many others.



John with a colleague at a conference on the Global Weather Experiment, 1981.

John was an active member of the US TOGA panel and the TOGA COARE Science Working Group as well as the first chair of the NOAA Postdoctoral Program on Climate and Global Change from 1990-1993. To this point in his career, John has published articles in refereed journals, four book chapters, and made many other contributions to conference and workshop proceedings. A truly remarkable career by any standard of measurement – and almost no mention has yet been made of his enormous contributions to our Department of Atmospheric and Oceanic Sciences!

Over the four decades of his tenure at UW, John has made major contributions to teaching, research and service. He was at the forefront of developing a number of dynamics and boundary layer courses – with a particular fondness for AOS 611. In fact, reputable sources report that a popular mantra during the late 1970's – “All our students take LSD” – was directly attributable to the success of AOS 611 –Large Scale Dynamics. John's great fondness was working with graduate students. He has mentored 15 Ph.D. and 25 M. S. students over his career – that is one successful degree candidate per year for four decades!



John with Ph.D. student, Frank Li, in 1994

He has spent over 200 hours flying in boundary layers and tropical environments – a particularly daring demonstration of dedication to understanding nature. John has also ably served the Department as Chair for a total of 7 years during his tenure and has had a significant hand in faculty recruitment for the last 25 years. He is currently directing the State Climatology Office which is now an outreach component of

AOS. John has also provided admirable campus service over his career, chairing the important Physical Sciences Divisional Committee in 1989. His campus-wide service was of such quality and impact that he was, at various times in his career, asked to consider applying for the positions of Dean and Associate Dean of the College of Letters and Science as well as Vice Chancellor for Academic Affairs. In addition, his national reputation resulted in his being asked to consider becoming a candidate for Director of NCAR. In each instance, he refrained, and these offices were denied an outstanding candidate and our department was fortunate to retain John. His loyalty to AOS has been a hallmark of his outstanding service to this department which he holds so dear and which owes him such gratitude.



John with M.S. student, Margant McCalla in July 1980

Finally, I would like to relate a small, but representative, personal story concerning my first interactions with John Young over 13 years ago. I had been invited to interview for the job of Assistant Professor in the department in February 1994. It was an exciting time for me as I had been interviewing at a number of places around the country. I knew when I got the call from John Young at UW-Madison that this was the big time. However, the AOS Department had somehow acquired a reputation as a difficult place and so I was preparing myself for a challenging interpersonal couple of days. My flight arrived late on Sunday night and as I was waiting for my bags, John approached me to introduce himself. I still don't know how he knew it was me – he just has a way with people that gives him insights a lot of the rest of us don't have. We chatted for a while (he was waiting to pick up his daughter as I recall) and as we talked it became clear to me that the negative things I had heard about the department were categorically false – here was the most engaging, excited, and friendly person anyone could hope to have in a colleague. As it turns out, this was my first personal contact with AOS and, though it was brief, it convinced me that I had found a new home. Congratulations, John, and thank you, for your scholarship, your dedicated service, and our many years of abiding friendship.

Suomi Museum Planned

At the invitation of Tom Ahtor, Executive Director of Science at the Space Science and Engineering Center, the Department of Atmospheric and Oceanic Sciences is joining SSEC to develop a museum on the first floor of our building. The Verner E. Suomi Science Museum will highlight the exciting dynamics of weather and climate, the history of satellite meteorology, the remote sensing of Earth and other planets and the pivotal role that SSEC and its university partners, AOS and CCR, and supporting federal agencies, NOAA, NASA, NSF and DOE have played in advancing atmospheric science and technology.



Telling the story of satellite meteorology through the vision of Verner E. Suomi, the “Father of Satellite Meteorology,” its history, current research and its future is a compelling and exciting one, especially since weather affects us everyday. A science museum housed in our building will capture the spirit of Suomi’s pioneering work and its long-reaching effects on scientific research and society. Telling this story through a formal museum offering engaging exhibits and outreach programs is a perfect expression of the Wisconsin Idea. Above is a schematic drawing of the interior of the planned museum. We will keep you all updated on the progress being made to achieve this vision. For more information, e-mail us at: suomimuseum@ssec.wisc.edu.

UW Makes an Impact at 13th Cyclone Workshop

Professors Michael Morgan and Jon Martin headed a group of 7 UW-AOS scientists who attended the 13th Cyclone Workshop in Monterey, CA from October 22-27, 2006. Morgan’s research group presented two papers, one by Professor Morgan and one by Nick Bassill, while Martin’s group presented three; one by Andrew Hulme, one by Andrea Lang, and one by Dr. Peter Knippertz. A talented group of Wisconsin alumni also made contributions at the conference. Among the other presenters were Ryan Torn (B.S. 2002, about to receive his Ph. D. at Washington), Jack Dostalek (M. S. 1995, now at CSU), Justin McLay (Ph. D. 2004, now at NRL), with Rhett Grauman (M. S. 1999, now an NWS forecaster at Reno, NV) attending. The conference was a great success and made clear that Wisconsin retains a major presence in the extratropical cyclone research community.



Jon Martin, Nick Bassill, Ross Lazear, Andy Hulme, Andrea Lang, and Brett Hoover at the 13th Cyclone Workshop in Monterey, CA (October 2006). Not pictured, Michael Morgan.

Suomi Distinguished Chair

The Department of Atmospheric and Oceanic Sciences, in collaboration with the Space Science and Engineering Center is establishing the Verner E. Suomi Distinguished Chair in January 2007. The Suomi Chair is being designed to allow a senior scientist, one who may even be retired from a previous appointment, a position from which to mentor and educate graduate students in our department. The detailed policies surrounding the implementation of the Suomi Chair are not yet finalized, but we expect that it will be occupied on a rotating basis with terms ranging from 6 months to perhaps two years. We are excited to announce that Dr. W. Paul Menzel, a world leader in remote sensing of the Earth's atmosphere, will be the first occupant of the Chair beginning in January 2007.

We are also working to set up a Wisconsin Alumni Foundation Fund that would be used to fund a portion of the Suomi Chair in the future. As the longer term details of this vision become clear, we will report them in our newsletter. We are excited about the Department having long term interactions with a number of world leaders in a broad spectrum of research areas in the Atmospheric and Oceanic Sciences through the Suomi Chair program.

Petty Receives CHOICE Award



Professor Grant Petty's textbook *A First Course in Atmospheric Radiation* (Second Edition) has been selected by the Academic Library Association's CHOICE Magazine as an Outstanding Academic Title for 2006. This honor is bestowed on fewer than 10% of the roughly 7000 new academic titles reviewed by CHOICE each year, and it reflects editors' rankings based on several criteria:

- overall excellence in presentation and scholarship
- importance relative to other literature in the field
- distinction as a first treatment of a given subject in book or electronic form
- originality or uniqueness of treatment
- value to undergraduate students
- importance in building undergraduate library collections

The Outstanding Academic Title award, which is regarded as a major "feather in the cap" for both the author and the publisher of the title, is doubly gratifying for Grant, who served in both capacities. Congratulations, Grant!



Department Events

AMS Alumni Reunion

On Tuesday, January 16, 2007, the Department of Atmospheric and Oceanic Sciences will be hosting its first Alumni Reunion in many years at the AMS Annual Meeting in San Antonio, Texas. Our reception will be held in Conference Room 7 at the Marriott Rivercenter from 6:30 – 9:00 PM. We hope to see you there for an evening of reconnecting, reminiscing, and discussion of a vision for the future.

Inaugural Bryson Lecture

On Friday, October 6, we inaugurated the first Reid Bryson Lecture, sponsored by CPEP and organized by CCR and AOS. The featured speaker was Professor Stephen Schneider, Director of the Center for Environmental Science and Policy and the Interdisciplinary Program in Environment and Resources at Stanford University. Prior to Dr. Schneider's talk, Professor Zhengyu Liu introduced the Bryson Lecture concept, Professor Jon Martin introduced the namesake, Dr. Reid Bryson, and the audience was then regaled with a Bryson story by the man himself. The scientific talk was outstanding and it was generally agreed that the Bryson Lecture series was inaugurated in fine fashion. The Bryson Lecture will be an annual event, given by similarly high profile invited speakers, dedicated to discussing current issues in interdisciplinary climate studies – a field that was effectively pioneered by Reid.

Computational Infrastructural Improvements

Professor Galen McKinley, Systems Administrator Pete Pokrandt, and Department Administrator, Betty Rhyner recently spearheaded an effort to create a new chilled computer room to house rack systems and other large computing systems. The room was completed in early fall and has adequate cooling, power, and networking to house several rack systems and many of the Department's other servers.

Another aspect of this modernization was a significant upgrade to our Internet Data Distribution (IDD) capability. A new relay machine and a new data storage machine with over 7 terabytes of RAID storage should be able to hold nearly a full year of most of the voluminous real-time observational and model data that we receive.



Graduate Program Report

August 2006 MS Degrees

Ong, Everest T., "Response of South American Climate to Orbital Forcing from Middle Holocene to Present," August 2006. (Liu)

Wagner, Timothy J., "Subhourly Profiling of Atmospheric Stability During Southern Great Plains Severe Weather Events," August 2006. (Ackerman)

August 2006 PhD Degrees

Decker, Steven G., "Potential Vorticity Inversion in Terrain-Following Coordinates with Applications to Morphological Data Assimilation," August 2006. (Martin)

Lee, Dong Eun., "The Impact of Ekman Advection on the North Pacific Coupled Climate Variability," August 2006. (Liu)



Undergraduate Program Report

Innovations in AOS 425



Beginning in Fall 2005, Professor Galen McKinley introduced a novel way to deal with a relatively new problem – how to engage a class of eager Atmospheric and Oceanic Sciences undergraduate students, with experience, interest, and enthusiasm for synoptic and mesoscale weather systems and facilitate a transfer of that enthusiasm to the wider scope of global climate changes.

“When I first started teaching this course I found it was really hard to get the students interested in climate, because all we had was sort of a static map,” she says, pointing to a black-and-white earth in the course textbook. “It’s not interactive and it’s not exciting.”

The solution, McKinley discovered, lay in a computer simulation called Educational Global Climate Modeling, or EdGCM. Incorporating the software into AOS 425, Global Climate Processes, in Fall 2005, she was able to help students bridge the gap between weather and climate, right on their computer screens.

“If you notice over 150 years that the surface temperature has changed, you might look at how drought or precipitation or ice cover has changed,” she says. “Now you have a way to connect all those different variables that we’re talking about in class. We could talk about them [before], but now you can see it.”

Galen reports that, from a pedagogical standpoint, incorporating EdGCM into her class took minimum effort and also took advantage of the fact that most of the students were familiar with looking at model output already. Most of the work came down to manipulating example models and structuring assignments based on them.



A sample of the user interface that accompanies the EdGCM in AOS 425

“I think that’s what the EdGCM is really trying to offer. It’s just a package that anyone can download, and even teachers who aren’t terribly familiar with climate could use it.”

Manipulating climate models gave undergraduate students a chance to use a simpler version of an advanced technology normally available only to the field’s graduate students and researchers.

“It’s a way to teach the students about a tool that’s actually used in research and to think about the benefits and negatives of those models,” she explains. “It’s trying to understand how those models work and how they’re used.”

While it hasn’t been possible to determine the specific impact of the simulations on students’ learning, positive course evaluations indicate that students liked using the EdGCM. Galen believes that use of the package at least “...improved the (students’) connection to the material. I do feel that students learned from it and were able to understand the aspects of the course better.” Just another example of what our students are exposed to in their ever more comprehensive education.

August 2006 Undergraduate Degrees

Lumpkins, Brandy A.



Alumni News

Melissa Tuttle Carr



Melissa Tuttle Carr, (B.S. 1997) has been named Manager, Weather Information Distribution at The Weather Channel (TWC). Melissa’s career at TWC began over nine years ago, and has included stints as a forecaster, local product developer and on-camera meteorologist apprentice. In her current role, Melissa manages cross-departmental projects, writes technical requirements, and

provides customer support for both internal and external customers of TWC distribution systems. She also manages numerous data sets, while searching for new data that would add breadth to TWC products.

In July 2006, Melissa was an invited participant in the summer Weather and Society – Integrated Studies (WAS*IS) program in Boulder, CO (<http://www.sip.ucar.edu/wasis/index.jsp>). An effort funded in part by the NCAR Societal Impacts Program, WAS*IS aims to empower participants to form new partnerships and use new knowledge and tools towards better integration of weather and social science. The Summer WAS*IS class consisted of 31 people from public, private and academic sectors, with backgrounds including meteorology, social science, geography, economics, environmental studies and emergency management. For eight days, the group worked to learn more about the role social science plays in weather, learning about risk assessment, hazard mitigation, warning systems, forecast verification, and much more.

The Summer WAS*IS participants left Boulder with new partnerships and projects and a renewed commitment to understanding the weather/society interface. Melissa is leading one such project, which is aiming to enhance the relationship between the public and private weather sectors for the benefit of both the weather forecasting enterprise and the general public.

As a result of her WAS*IS participation and ongoing work in that area,

Melissa has also been asked to sign on for a three-year term on the Societal Impacts Board of the American Meteorological Society, led by Dr. Eve Gruntfest. The board, comprised of approximately nine WAS*IS participants, hopes to be instrumental in promoting interest in the growing weather/society interface within the Society.

Andrew Thut Joins WXOW

Mr. Andrew Thut (B.S. 2006) will begin a broadcast career as the morning and weekend meteorologist at WXOW, the ABC affiliate in LaCrosse. Andy is set to start late in 2006.

Sara Skellinger Moves to WOI

Interestingly, Andy is moving into a spot formerly occupied by another AOS graduate, Sara Skellinger (Sara Kelley on TV, B.S.

2006) who has moved from WXOW to WOI, the ABC affiliate in Des Moines, Iowa where she has been the morning meteorologist since October of 2006.

Jeremy Nelson Moves to KSHB

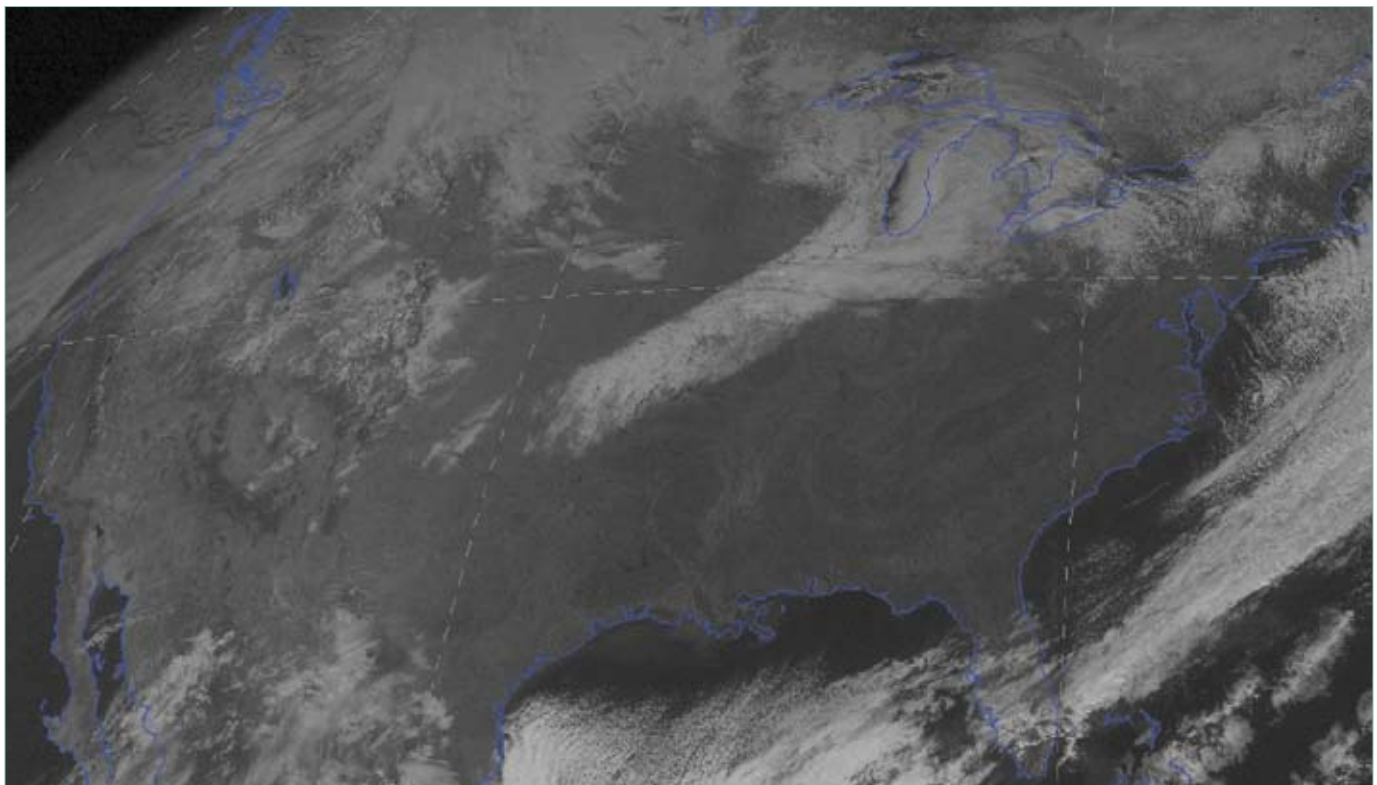
Mr. Jeremy Nelson (B.S. 2000) recently moved from FOX47 in Madison to become the weekend meteorologist at KSHB, the NBC affiliate in Kansas City where he started in November 2006. He was almost immediately presented with the challenge of forecasting the Midwest Blizzard of December 1, 2006. In fact, Jeremy appeared on *The Today Show* on that Friday morning and gave a report on the current conditions and the forecast. Badgers are everywhere!



Recent Sightings

GOES 12 Captures Midwest Blizzard from Space

GOES 12 visible satellite image from 1745 UTC 4 December 2006 showing the snowcover left by the Midwest Blizzard of December 1, 2006. Milwaukee received nearly a foot of snow, Madison received just over 2" of snow while Middleton got only a trace.





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Thank You!



Jed Miller/W Communications



Department of Atmospheric & Oceanic Sciences
1225 West Dayton Street, Room 849
University of Wisconsin-Madison
Madison, WI 53706-1695



Chair: Jonathan Martin, Telephone: 608/262-0178
FAX: 608/262-0166, e-mail: jmart1@wisc.edu
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Alumni should send address changes to:
Below Alumni Center, 650 North Lake St., Madison, WI 53706,
or e-mail: alumnichanges@uwalumni.com

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