



Photo by John Giannini

# 2<sup>nd</sup> Messenger

Biology Alumni Newsletter

## Summer 2014

July 2014

### **Alumna receives grant to research how stress in working mothers influences childhood obesity**

By Genevieve (Fridlund) Dunton '98, Biology and Psychology

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Childhood obesity rates have increased dramatically over the past thirty years. This trend is particularly alarming because obese children are more likely to encounter serious health problems such as diabetes and cardiovascular disease. The rising rates of childhood obesity are largely thought to result from low levels of physical activity, high rates of sedentary behavior, and increased consumption of energy-dense foods such as fast food and sugar-sweetened beverages. Health behavior patterns established in youth continue into adulthood. Therefore, developing effective programs to prevent and treat obesity among youth has critical public health importance.



Through my work as an Assistant Professor in the Department of Preventive Medicine at the University of Southern California (USC), I seek to determine how children's physical activity and eating behaviors contribute to the onset and progression of obesity. My research also aims to understand how psychological, social, and environmental factors influence children's physical activity and eating. I currently direct the USC Real-time Eating Activity and Children's Health (REACH) lab. Many of our projects use smartphones and other mobile devices to measure body

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# Introducing Lisa Bowers

By Lisa Bowers  
Assistant Professor of Biology



My name is Lisa Bowers and I'm about to start my third year as a faculty member in the Biology Department. I'm amazed how fast my first two years have whizzed by. So far, I've enjoyed teaching Genetics, Microbiology, Molecular Biology, and Biology of Women. I've tested out new inquiry-based labs for Genetics and Molecular Biology and I've had fun mentoring students in the lab. My students all know my favorite organism is an aquatic bacterium called *Caulobacter crescentus*, which is special because it survives in extremely low-nutrient environments by scavenging for the nutrients it needs. To understand how it can do this, my students add and delete genes from the *Caulobacter* genome and study the effects. They quantify the expression of genes they're interested in and compare cell shape and growth under different conditions. This summer, my students are busy studying how metals are imported into *Caulobacter* cells.

St. Olaf is an exciting place to teach and do research and I'm thankful to be here. It was a long path but each step has been special in its own way. I started by attending graduate school at the University of Wisconsin in Madison in the Microbiology Doctoral Training Program. Then I moved across the country to pursue a postdoctoral fellowship at the University of California-Berkeley (where I fell in love with *Caulobacter* and coffee). After three years as a postdoc, I became a visiting professor at Grinnell College in Iowa and after two years at Grinnell, I finally arrived at St. Olaf. Now I live in Northfield with my husband and daughter and we're exploring all Northfield has to offer – bike paths and cross country ski trails, the Cannon River and the Natural Lands, the outdoor pool and the Northfield Arts Guild, good schools and good people. □



## Planting Sugar Maples to Jump-start Natural Lands Restoration

By Kathy Shea  
Professor of Biology and Environmental Studies  
Curator of Natural Lands

In early July we planted 65 sugar maples (3-5 ft tall) grown from local seed stock at Knecht Nursery into the Natural Lands Forest Restoration areas along Highway 19. These areas were planted in 2005 and 2009 from tree seeds, mainly oaks, black walnut, and black cherry. We are adding sugar maple to jump-start the restoration and provide additional colors in the fall. We placed a tree mat made from corn stalks around each tree to help keep moisture around the tree and decrease competition from other plants. □

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movement, administer electronic surveys, and collect other types of data among children. We were recently awarded \$4 million grant from the National Heart Lung and Blood Institute to conduct a 5-year study of how psychological stress among working mothers influences children's obesity risk. This project will ask mothers and their 9-11 year-old children to complete several smartphone surveys per day measuring perceived stress, parenting practices, physical activity, and eating. Participants will also provide saliva samples to ascertain cortisol levels, a stress biomarker. We are interested in understanding how stress may compromise weight-related parenting practices (i.e., limiting, monitoring, modeling, and encouragement of children's physical activity and eating), which could ultimately increase vulnerability to obesity.

The USC REACH lab is also running several projects that integrate Bluetooth signals from external sensors such as activity monitors, asthma inhalers, and air pollution and ultraviolet radiation sensors to trigger real-time smartphone-based surveys after health-relevant exposures, behaviors and events. We hope that these types of studies lead to important discoveries about how to prevent obesity and other chronic diseases among children. For more information about the USC REACH lab, please visit <http://reach.usc.edu/>.

After *St. Olaf*, Genevieve completed a PhD in Psychology and Social Behavior at the University of California, Irvine and a Master of Public Health at the University of Southern California. □

## Illustrations by Elizabeth (Cunningham) Noble '09

This is an image of a painting titled "Pickles" that Liz showed in the alumni art show. It is a 6' x 3' still life oil painting on canvas of old samples from the University of Nebraska Entomology collection. It is also the highlight of her website at the moment.

To the right is "Pumpkin Seed". It is also an oil on canvas. 24" x 18"

Liz is still doing art and looking to shift her career even more in that direction. Visit her website at [innoticing.com](http://innoticing.com)



# Large St. Olaf Biology Alumni Representation at Joint Aquatic Sciences Meeting in May

Photos by Mike Swift

In May 2014 scientists from around the globe met in Portland, Oregon for the Joint Aquatic Sciences Meeting. St. Olaf was well represented. Alumni, current students (not pictured) and faculty attended.

**Far right:** Dave Manning '09, biology **Bottom left:** Dana Fjare '12, biology and Leif Olmanson, Visiting Professor of Environmental Studies **Bottom Middle Left:** Erin Seybold '11, biology, and Grace Wilkinson '10, biology. **Bottom Middle right:** Mike Swift, Assistant Professor of Biology and Environmental Studies and Alyssa Anderson '06, biology. **Bottom right:** Hal Halvorson '11, biology



Congratulations to Dana Fjare and Dave Manning for each winning an endowment award!



## A Few Fun Facts About Biology Alumni Professions

Of the 2870 of you who entered a profession in the St. Olaf alumni database, the top 5 professions are

- Physicians, M.D. specialists (574)
- Student (230)
- Science/Research: biology, chemistry, physics (180)
- Dentist, Orthodontist (146)
- Other Health, Medicine, Human Services (144)

Following closely behind are:

- School Teacher: pre-school to grade 12 (128)
- Higher Education Teacher (124)

A few others:

- Homemakers (88)
- Senior Management-private sector: owner, CEO, president, vice president, officer (78)
- Veterinarians (50)
- Clergy/Ministry (22)
- Armed services (16)
- Counseling, Psychology, Psychotherapy (14)
- Performing Arts (8) and Visual Arts (8)
- Restaurant, Catering: owner, chef, cook, other staff (3)

*Want to update your information? Go to <https://my.stolaf.edu/alumni-directory>*

# Henry Kermott and Ted Johnson Retire

At the end of the 2013-14 academic year, long time professors Henry Kermott and Ted Johnson retired. The biology department celebrated their careers with a party for each of them.

Henry's party opened with the digital sounds of birds filling the Regents 4<sup>th</sup> Floor atrium. Each table was adorned with origami paper cranes (we would have made LBJs if we had instructions for them) and a bouquet of tulips. Bon Appetit served a nice walleye dinner and key lime pie dessert. Alumna Ari Carlson '13 gave a touching and humorous account of how Henry positively influenced her time at St. Olaf. The evening closed with many sharing memories about Henry as well as the gifting to Henry of an album of images, stories and well wishes from many of you.

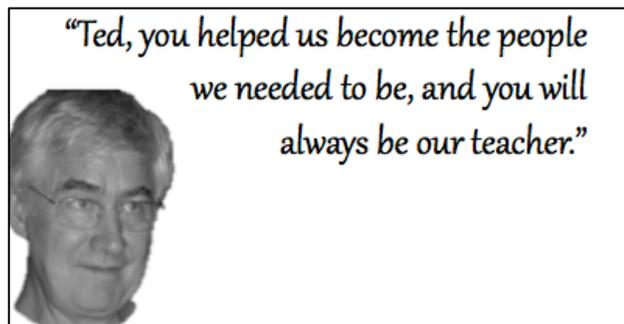
Congratulations Henry! Now you can really focus on your photography!

► Always ready to observe with his camera in hand, professor Henry Kermott takes a photo of an ocotillo plant. Photographic moments were abundant during the "Desert Ecology" trip to Arizona. Photo by: Ginger Kelly



Viking Yearbook, 1998

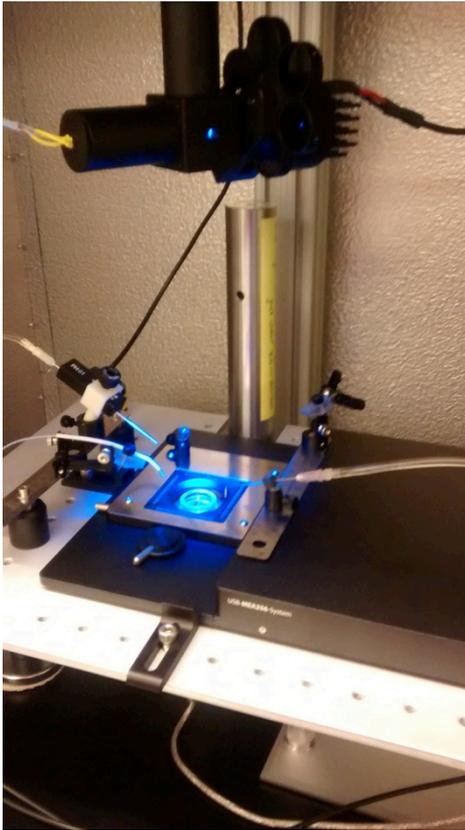
Ted's retirement party was held in the King's Dining Room in June. Many of his family were able to be there in addition to his wife Michelle and his three kids Carrie, Eric and Dan. We decorated the tables at Ted's party with stuffed microorganisms and wine bottles redecorated with pictures of Ted from various times in his career and quotes you sent us for his album. Many at the party recounted how Ted influenced their lives in such a positive and warm way and how he was always available to advise. We will miss you Ted! Congratulations!



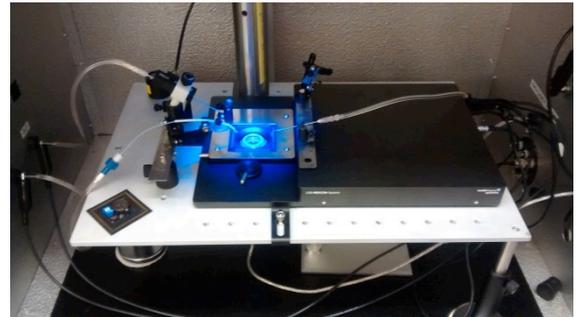
# New Multielectrode Array Technology at St. Olaf

By Jay Demas

Assistant Professor of Biology and Physics



As a result of a generous grant to the College, St. Olaf has acquired a multielectrode array system. Planar multielectrode array technology is used to simultaneously record electrical activity, such as nerve impulses, from hundreds of cells, typically either neurons or cardiac cells, while maintaining the ability to discriminate the signals from individual cells. This allows the spatiotemporal pattern of activity within the cell population under study to be visualized with extremely high resolution. The state of the art system purchased by St. Olaf has more than 250 recording electrodes, allowing as many as 1000 cells to be recorded simultaneously. The system will be used by Dr. Jay Demas in his research to study neural circuits in the vertebrate retina. In addition, it will be used in teaching laboratories to explore the rhythmic beating and spread of activity in cardiac tissue, plasticity in the developing nervous system, and visual processing in the retina.



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## Alumni News

### Phil Grupe '07

After four years working in outdoor environmental education (in NE Minnesota and SE Texas), and two more in software testing and design, last summer I graduated with an M.S. from the Nelson Institute for Environmental Studies at the University of Wisconsin-Madison. My degree is in Environment and Resources, with a certificate in Energy Analysis & Policy, and my thesis focused on using mobile devices and place-based learning to improve sustainability engagement on a college campus. Currently I am an analyst for Midwest programs at CLEARResult, a national energy efficiency consulting firm. I'm living in Madison, WI, and I can be reached at [phil.grupe@gmail.com](mailto:phil.grupe@gmail.com). I'd love to catch up with anybody living in Madison or just passing through!

### Kelsey Gothier '08

After graduating from St. Olaf in 2008 with my degree in Biology, I attended the University of Minnesota College of Veterinary Medicine. Having graduated with a small animal track, I now am Associate Veterinarian at a very busy small animal clinic in North Minneapolis.

Email [bioalumnews@stolaf.edu](mailto:bioalumnews@stolaf.edu) and let us know what you are (or aren't!) doing with your biology degree. We will include it in the next alumni newsletter. Pictures are great too!