NEUROSCIENCE WELCOMES THREE NEW MEMBERS

With the retirement of beloved professors Cathy McCormick and Mark Braford, the neuroscience department welcomes three new assistant professors: Gunnar Kwakye, Leslie Kwakye, and Siobhan Robinson.

Gunnar and Leslie served as visiting assistant professors here for a year and a half, and we are happy to report that they have joined us as full-time, tenure-track faculty members. The Kwakyes did postdoctoral work in different labs at Vanderbilt University; Gunnar’s research focuses on the role of environmental toxins on the nervous system, while Leslie focuses on how information from different sensory modalities is integrated together in the brain during perception.

We are also thrilled to report that Siobhan Robinson has joined us as a full-time, assistant professor this year, fresh from a visiting assistant professorship at Dartmouth College. Her work is aimed at understanding the roles of different parts of the medial temporal lobe in the formation, storage, and retrieval of new, long-term memories.

MARK BRAFORD AND CATHY MCCORMICK RETIRE AFTER 28 YEARS

Mark Braford and Catherine McCormick, both evolutionary neuroanatomists, came to Oberlin in 1986. Mark’s highly popular courses included Neuroanatomy. His recent research focused on possible homologs in fish forebrains of structures such as the amygdala and the hippocampus, as well as comparisons of forebrains of coral reef fishes. Cathy taught well-received courses in animal behavior and the evolution of structure and conducted research on the early evolution of the vertebrate auditory system. Both received teaching awards at Oberlin.

Former students continue to drop by to say hello and to thank them for a wonderful educational experience. The couple now moves on to their new home in Chapel Hill, North Carolina, near their daughter and her husband. They plan to visit Oberlin and conduct research during the next several summers.

JAN THORNTON, chair and professor of neuroscience, has been at Oberlin since 1990. For the last two years she co-taught Introductory Neuroscience and upper level classes in hormones, neuroendocrine research methods, and behavioral neuroscience. She and her student collaborators presented research at the annual meeting of the Society for Neuroscience (SfN), the Society for Behavioral Neuroendocrinology, and at a regional neuroscience meeting. Jan served as secretary of the Faculty for Undergraduate Neuroscience and has continued to act as an editor for the Educational Resources in Neuroscience project. She was invited to organize a symposium on her research for the upcoming International Congress on Neuroendocrinology in Sydney.

MIKE LOOSE, professor of neuroscience, has taught at Oberlin since 1990. He again taught courses in his specialty of neurophysiology and contributed to the teaching of the introductory labs. His research has continued to pursue the neural underpinnings of probabilistic decision making. He and his student collaborators have validated two new mechanisms of analyzing an artificial neural network that ranked the relative importance of various prior experiences to a future choice. In the EEG studies in the lab, he and his research students confirmed and extended a previous result in the lab that found a waveform that predicts—several seconds in advance—whether or not a person will switch their subsequent choice. Additional new work has identified a neural signature that provides a possible explanation for why people so often choose a risky alternative for which the rate of reward will be less than if they chose the safer alternative.

LYNNE BIANCHI, professor of neuroscience, has been at Oberlin since 1998. In 2011 she became coordinator of health career professions, advising neuroscience majors and other students across campus on how to prepare for and apply to medical and allied health profession schools. She also organizes workshops and seminars throughout the year and recently taught the health career practicum. Her research continues to focus on the growth factors necessary for early neurite outgrowth in the developing inner ear, particularly the discovery of the importance of cytokines in early inner ear development. She is also completing a textbook on developmental neurobiology. Lynn would love to hear from alumni who are working in developmental neurobiology so she can brag about their work in her book.

TRACIE PAINE joined the neuroscience department in 2009 as an assistant professor. After her 2012-13 sabbatical, she published three manuscripts based on data collected by Oberlin students, presented posters co-authored by former honors research students Sam Asinof ’12 and Geoff Diehl ’12 at SfN in New Orleans, and was awarded an NIH Academic Research Enhancement Award. The NIH grant is aimed at understanding the contribution of the inhibitory neurotransmitter, GABA, to cognitive deficits observed in schizophrenia. In 2013-14, Tracie’s research student Avery O’Hara presented a poster at SfN in San Diego, and Elizabeth Cooke and Ben Plaut presented at the Midwest and Great Lakes Undergraduate Research Symposium. Tracie and Sam Asinof also published a paper in the Journal of Visualized Experiments. In 2013-20, Tracie taught Neuropharmacology and the accompanying lab, Intro to Neuroscience; a senior seminar titled The Neurobiology of Mental Illness; and a new neuroscience-focused first-year seminar entitled The Synaptic Self.

PATRICK SIMEN joined the department as an assistant professor in fall 2011. This year he co-taught Intro to Neuroscience and the intro lab and Cognitive Neuroscience and the accompanying lab. His research focuses on testing behavioral and physiological predictions of a random-walk model of decision-making and interval timing in humans. He published several papers on these topics in the past.
year and is revising a co-authored submission with student Sam Papadakis. He heads off to a year of junior-faculty research leave, which he plans to spend in Oberlin and in Ann Arbor, Mich.

**Leslie Dowell Kwakye ’06** started her first year as an assistant professor in the fall of 2013. This year she taught a lecture and lab on sensory neuroscience. She also taught a senior seminar titled Mind, Brain, Eyes, and Ears and the Introductory Neuroscience Lab. Over the past year, she has worked with 12 students in her research lab, studying how the brain combines information from the different senses and how cognitive factors such as attention modulate this multisensory integration. Last fall, she presented her work on the effects of attention on multisensory integration at the Society for Neuroscience conference in San Diego California with one of her students, Enimielen Aligbe.

**Gunnar Kwakye** joined the department in spring 2012 as a visiting assistant professor and transitioned to a tenure-track assistant professor in fall 2013. This year he taught Neurotoxicology and Neurodegeneration, the Introductory Neuroscience Lab, and a senior seminar titled Gene-Environment Interactions in Neurological Disorders. In fall 2013, his research student Gifty Dominah received the Annual Biomedical Research Conference for Minority Students (ABRCMS) travel award to present her research at ABRCMS in Nashville, Tenn., where she presented an award-winning poster. Gunnar’s lab employs mouse and human neuronal cultures of Huntington’s, Parkinson’s, and other neurodegenerative diseases to understand the interaction between genetics and the environment in triggering neurodegenerative disease. His lab is studying interactions between pesticides and other neurotoxicant exposures in neurodegenerative disease states and aims to corroborate its findings in in vivo models.

**Siobhan Robinson** joined the department in 2013 from a visiting assistant professor position at Dartmouth. Her courses this year included the neuroanatomy lecture and lab and the Introduction to Neuroscience lecture and lab. After setting up her Learning and Memory research lab during the fall term, she was joined by students Julie Adelman and Peter D’Auria to pursue questions pertaining to the hippocampal memory system in a rodent model. Her summer docket includes student-led research projects conducted by Julie Adelman, Jessica Hubert, and Anastasia Shou. Siobhan submitted a review and a research article during her first year and received an Oberlin College Teaching Grant, which will support her travel to Duke University and to Carleton College to discuss teaching pedagogy in neuroscience.

**Albert Borroni ’85** arrived at Oberlin in 1996 and is a lecturer in neuroscience and computer science. He is director of the Oberlin Center for Technologically Enhanced Teaching (OCTET) and teaches a seminar on Mind and Machine.

**Keith Downing** is a professor of computer science at the Norwegian University of Science and Technology. During winter term 2014, he taught a computational modeling course, Intelligence Emerging.

**Gigi Knight,** instructional and technical assistant, has been with the neuroscience department almost since its inception. She assists with laboratory instruction, provides technical support, and assists students with their research projects.

**Lori Lindsey** has been the animal caretaker since 2003.

**Kristi Gibson** joined the department as administrative assistant.

**Forrest Rose** and **Dorothy Auble** continue to help with facilities management and departmental ordering, respectively.
**NEUROSCIENCE MAJORS: Formal and Informal Activities**

By Avery O’Hara, NMC Co-chair

**THE GOAL OF THE NEUROSCIENCE MAJORS COMMITTEE (NMC)** this year was to strengthen the community of neuroscience majors and organize events for students to get to know faculty members. NMC the semester with a get-together in the Love Lounge and with journal clubs to discuss papers written by speakers coming to Oberlin. Next, NMC held the annual t-shirt design competition with the winning t-shirt design, “when I move you move, just like that.” Neuroscience majors also got a chance to talk with Professor Scott Swartzwelder over pizza dinner following his lecture. Swartzwelder was visiting Oberlin for a semester and taught the module course Thinking about Drinking: Alcohol and the Brain. Finally, NMC organized the annual neuroscience potluck where students could get to know other majors and faculty members over food and treats.

The spring semester marked the new term for NMC officers. Sarah Page and Sasha Mitts will be taking over as co-chairs. Peter Arden and Tania Mukherjee are taking over as student faculty liaisons. Gifty

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**SEND US YOUR NEWS!**

NeuroNews is a newsletter for alumni and friends of the Oberlin College Department of Neuroscience. Let us know some of the significant happenings in your lives.

Send comments/news to:
NeuroNews
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Oberlin OH 44074
(440) 775-8768 or
Kristi.Gibson@oberlin.edu
Jan.thornton@oberlin.edu
Webpage: www.oberlin.edu/nsci

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**NEURO DEPARTMENT SEMINARS**

- **Nicholas C. Spitzer**
  University of California at San Diego
  *Switching Neurotransmitters: Novel Brain Plasticity*

- **Anne M. Etgen**
  Albert Einstein College of Medicine
  *Neuroprotective actions of estrogens: mechanisms and therapeutic interventions?*

- **Scott Swartzwelder**
  Duke University
  *Dude, where’s my car? Alcohol and the adolescent brain*

- **Evan Deneris**
  Case Western Reserve University
  *Gene regulatory mechanisms controlling maturation and maintenance of serotonin neuron-type identity*

- **Erik Herzog**
  University of Washington
  *What wakes us up? Networked clocks in the brain*

- **The Seymour Benzer Lecture in Neuroscience:**
  **Edward A. Kravitz**
  Harvard Medical School
  *Genetic manipulations in the fruit fly fight club: How do amine neurons work?, and A new department, a new transmitter compound, a war and a movement, or how I spent the ’60s and early ’70s*

- **Michael Aschner**
  Albert Einstein College of Medicine
  *Nature and nurture in Parkinson’s Disease: Crosstalk between genes and manganese toxicity*

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**PLAN TO ATTEND:**

the Oberlin neuroscience reunion at the 2014 Society for Neuroscience meeting in Washington, D.C. We will gather somewhere close to the SfN meeting. Information will be posted on our website and emailed to neuroscience alumni and friends on our mailing list (contact kristi.gibson@oberlin.edu if you aren’t on our mailing list). If you have suggestions for a venue or are willing to help organize the event, please contact Jan Thornton (jan.thornton@oberlin.edu).

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**Save the Date: Oberlin Reunion at 2014 SfN Meeting in Washington, D.C.**

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**RECENT PUBLICATIONS, CONT.**


THIS YEAR a large group of outstanding seniors became members of the Oberlin chapter of Nu Rho Psi, the national honor society in neuroscience. They include Alec Berman, Elizabeth Cooke, Rachel Bergman, Sophia Brancazio, Laura Burnside, Kelly Drumm, Jarrett Fastman, Dan Melzer, Molly Martorella, Gabe Marx, Sarah Reach, Matt Tunzi, and Eric Weaver. Current junior and sophomore members of Nu Rho Psi include Weelic Chong, Jason Freedman, Kate Frost, Hannah Gilfix, Hannah Golay, Michelle Johnson, Emma Lehmann, Dan Lowes, Carey Lyons and Sarah Page. Certificates and pins were given out at the annual induction ceremony in May. To be invited for membership, neuroscience majors must have a minimum GPA of 3.5 in Neuroscience courses and other courses needed to fulfill the major and a cumulative college GPA of at least 3.2.
In 1960, while at NIH as a post-doc with P. Roy Vagelos and Earl Stadtman, I was contacted by Stephen W. Kuffler, who had started a new laboratory in the Department of Pharmacology at Harvard Medical School. Steve was the visionary who felt that to understand the nervous system one had to put neurophysiologists together with biochemists and anatomists, and he asked if I would join the laboratory as a biochemist. This lecture describes that early period when Steve, Dave Potter, Torsten Wiesel, Dave Potter, and Ed Furshpan, along with Bob Bosler as the electronics engineer, moved from the Wilmer Institute at Johns Hopkins University to form a Laboratory of Neurophysiology and Neuropharmacology at Harvard Medical School. That laboratory ultimately became the first neurobiology department in the world. During that early exciting period, many important and fundamental discoveries were made. Hubel and Wiesel were carrying out the experiments that led to the award of the Nobel Prize in Physiology or Medicine in 1981. I was part of the team that identified GABA as a transmitter compound. That was done in the face of an international neuroscience community that did not believe that GABA was a transmitter compound. The 1960s also were a decade of great political turmoil in the U.S., with a very unpopular war going on in Vietnam that killed and maimed uncountable numbers of Americans and Vietnamese and that destroyed a country. It was also the start of the civil rights movement, which ultimately and with momentous struggle and sacrifice led to the overturn of segregation in the south and to federal laws guaranteeing the fundamental rights of citizenship to all. The brutality shown by authorities during that period spread to college and university campuses and led to the start of national movements opposed to the war and racism and to a national STRIKE on college campuses. My office at Harvard Medical School was the STRIKE Center at HMS. The 2nd half of this lecture describes the activities that I as part of an ad-hoc group of politically active colleagues and students engaged in at the medical school. Such activities, among other things, led to Harvard Medical School assuming a nation-leading role in minority admissions at traditional white medical schools, a role that it continues to maintain to the present day.
Adriana Akintobi ‘11 writes: “I’m currently in Philadelphia working at a small nonprofit that facilitates organ and tissue donation for research. Not exactly what I pictured after school, but I’m enjoying it and still learning every day, so I’m happy.”

Chelsea Arata ‘13 will begin her master’s in nursing at the Vanderbilt University School of Nursing in Nashville.

Sage Aronson ‘12 writes: “I will attend UCSD’s neurosciences program. I received a summer fellowship to start ASAP.”

Gabi Bromberg ‘11 writes: “I just got back to New York from a pre-medical school trip through the West Coast, Europe, and Israel. After a long deliberation process, I decided that I’m going to attend Columbia.”

Mary Burke ‘11 writes: “I was living in Cleveland until a few months ago, working at the VA Hospital in a neuropharmacology lab. I just moved back to the east coast (I’m a N.Y. native) to New Haven, Conn., where I will start a neuroscience PhD program at Yale in a few months.”

Ben Greene ‘06 writes: “I spent two years at UPenn and finished my fMRI project on the role of Brodmann areas 44, 45, and 47 in cognitive control functions associated with language. I moved back to the west coast to direct and produce a feature-length film about the Redwood forest. I recently moved to Bellingham, Wash., with my wife Christina.”

Karen Gunther ‘92 just received tenure in the psychology department at Wabash College.

Nathan Harris ‘11 has been awarded an NSF predoctoral fellowship. He is studying synaptic plasticity at the neuromuscular junction in the fruit fly at UCSF.

Matt Hartsock ’12 writes: “I got the research technologist position at Johns Hopkins! I’ll be studying retinopathy in Elia Duh’s lab with three postdocs and two other technicians, probably for about three years.”

Blair Stewart ‘12 is working in a behavioral neuroscience laboratory at Oregon Health & Sciences University.

Chris Sundby ‘12 began a combined JD/PhD program in law and neuroscience at Vanderbilt last fall.

Craig Surman ‘94 co-wrote (with Tom Bilkey) a book on adult ADHD called Fast Minds: How to Thrive if you have ADHD (or think you might). He is an assistant professor of psychiatry at Harvard Medical School and scientific coordinator of the adult ADHD Research Program at Mass General Hospital.

Laura Kanter ‘08 writes: “Great news! I received an offer from my first choice [grad school], the University of Washington. I will start the program this June! Thanks again for all your help. I look forward to seeing you in May!”

David Leland ‘96 is up for tenure at the University of Wisconsin, Eau Claire, and was expecting a baby girl in February 2014.

Andrea McQuate ‘10 writes: “I just finished my first year of graduate school at UW. I will be studying Wnt regulation of synaptic plasticity in adult hippocampus. Last spring, I received the prestigious ARCS fellowship (achievement rewards for college scientists), for promoting neuroscience to the community. I’m still very much involved in taiko drumming and working on my many sci fi novels.”

Sarah “Uppie” Updegraff ‘04 writes: “Dave Andrew ‘04 just finished his PhD in neuroscience at the University of Arizona and is starting a post-doctoral fellowship through the PERT program at the University of Arizona. I’m working as a nurse in the neonatal intensive care unit. And last but not least, Dave and I had a baby on May 10, 2012. His name is Aiven David Ezra Andrew.”

Ksenia Vlasov ‘13 writes: “I’m working as a postbac fellow at the National Institute on Aging in a behavioral neuroscience lab that uses in vivo electrophysiology to study how noncholinergic basal forebrain neurons modulate cortical activity in the context of cognitive aging. I’m hoping to apply to grad programs in neuroscience in the fall.

Monica Volk ‘11 writes: “I’m working as the administrative assistant for Six Spoke Media, an advertising agency in SF. I know absolutely nothing about advertising, but I’m excited to learn!”

Jon Wachtel ‘11 writes: “I’m starting my four-year neuroscience scholarly concentra-
The Neuroscience Department, the college, the conservatory, and the town of Oberlin as a whole have much to offer visiting scholars. Keith Downing, a native Ohioan and a computational modeler, regularly joins us during winter terms and lives in town during the summer with his family. Scott Swartzwelder, whose wife and daughter are Obies, researches the effects of drugs on the adolescent brain. He is co-author of the book Buzzed in addition to other titles. Here they tell us about the courses they taught.

Intelligence Emerging
Keith Downing
Norwegian University of Science and Technology
Trondheim, Norway

During winter term 2014, the students in my course explored the concept of EMERGENCE from several different perspectives and in many different systems, with a special focus on the brain and the emergence of intelligent behavior at the neural level. They read and discussed several draft chapters from my book, Intelligence Emerging, as well as several classic papers in the field. They also implemented a few simple examples of emergent systems in NOVA. We also had a few “game days” involving multi-player contests in which emergence played a pivotal role. Finally, each student gave a presentation of a well-documented emergent system that stimulated their curiosity.

Alcohol and the Brain
Scott Swartzwelder
Duke University
University of North Carolina

During my half-semester at Oberlin I had the good fortune to teach 40 of the most engaged students I’ve encountered anywhere, cultivate scientific collaborations with several of my eager and innovative colleagues in the Department of Neuroscience, and listen to and play jazz in the Oberlin Conservatory. It was an action-packed “module,” to say the least.

My research centers on the effects that drugs exert on the brain, specifically on developing neural circuits during adolescence. I presented some of our most recent work in a seminar at Oberlin, and in the following days both students and faculty sought me out to discuss the findings in more detail. Some of those discussions evolved into plans for future experiments, and others resulted in Oberlin students contemplating medical or research careers and identifying sites for summer research to get more acquainted with the scientific process. For me, it was both stimulating and gratifying to be surrounded by such intellectually alive and genuinely nice people. I’ll be happy to come back for an encore anytime!

ALUMNI NEWS (CONTINUED)

Julia Walbridge ’91 is doing a postdoc at Northwestern University. She writes: “I’m using EEG to look at the relationship between auditory-visual integration working memory, and how this relationship influences reading comprehension.

Anrey Wang ’12 writes: “First, I will be attending Lewis & Clark Graduate School of Education and Counseling for a Master’s in Counseling Psychology starting next summer 2015. Second, Cindy [Getschow ’12] and I got married this last weekend on the 12th! We had a wonderful outdoor wedding with our close family and friends at Golden Gate Park in San Francisco. We will be honeymooning in Costa Rica.”

Liz Waring ’06 writes: “I started my third year of medical school at Tulane University School of Medicine, and I have to admit that I’ve fallen in love with the city.”

Krissy Welch ’13 writes: “I’m living in Chicago working at the ABIS Group, a healthcare industry intelligence company. I’m really enjoying getting to know the business side of healthcare/pharmaceuticals while also putting my collegiate knowledge of biology/neuroscience and healthcare systems to good use.”

Ariel Whitworth ’03 writes: “After finishing my classes at Oberlin, I got an MA in science journalism at Johns Hopkins University. I’ve worked as a science journalist for a number of venues. However, last year I decided to switch career paths again and am currently about a year into a four-year MSTOM (Master’s of Science in Oriental Medicine, acupuncture and herbalism) program at Pacific College of Oriental Medicine in San Diego.”
TRAVELS IN ASIA

By Billy Broderick '13
2013-14 Luce Scholar

I’m spending this year in Guangzhou, China, doing research at South China Normal University as a Luce Scholar. At SCNU, I am a member of Suiping Wang’s lab, where I work on two research projects. The first project is a computational model of numerosity using deep learning in an artificial neural network, examining how the model encodes numerosity information and whether this changes based on task condition. The second project is a graph theoretical analysis of fMRI data comparing the network properties of brain functional networks during the reading of Chinese and English.

Outside of the lab, I spend my time learning Chinese traditional painting, playing badminton, exploring Guangzhou itself, cooking, learning Cantonese, and eating my way across the city. As the third-largest city in China, an international commercial center, and the home of Cantonese dimsum, Guangzhou has plenty of cuisines to explore. Restaurants serving food from Sichuan, Yunnan, Shanxi, Xinjiang (all Chinese provinces with vastly different foods), Vietnam, Indonesia, Turkey, the Middle East, as well as all manner of Cantonese specialties are scattered throughout the city, and it has become my goal to try as many as possible before my too-short-year has ended.

The Luce Scholarship has also given me many opportunities to travel. I started this year with a summer in Beijing, continuing my study of Mandarin for two months while living among the café- and bar-lined hutongs just northeast of the Forbidden City. In early September, following a brief visa run to Seoul, I moved to Guangzhou to start work. Between then and now, I have rambled through the streets of Shanghai, traveled to Thailand for the Luce Scholars mid-year meeting, headed to Beijing for Thanksgiving dinner with a pack of Obies, visited Japan with eight members of my family before showing them around China, explored Vietnam, Laos, and Cambodia with a gaggle of Luce Scholars over Chinese New Year, met up with the current class of China Shansi fellows in Taigu, China, and popped over the border to Hong Kong several times. And in the coming months, I will bike around Taiwan, hike in Yunnan, and take too many long-distance buses and trains around the northwestern Chinese provinces of Gansu, Qinghai, and Xinjiang, before concluding my year at the wrap-up meeting in Myanmar.

This year has been an incredible experience, and I feel extraordinarily fortunate to have been given the opportunity to do research that I find engaging while also traveling around Asia and visiting places that I barely knew of a year ago. It has also emphasized the importance of international collaboration in the sciences, especially cognitive neuroscience, where findings are likely to be influenced by culture or language, and second language learning among American science students—while almost all of the professors and graduate students at SCNU speak English to some degree, I am the only foreign collaborator who speaks any Mandarin. I hope to return to China in the future, but regardless, as I continue my education and career in science, I will take these lessons and my experiences this year with me.
CONGRATULATIONS NEW GRADS!

Warm congratulations to our graduating neuroscience majors and their families. We wish you the best of luck in all your future endeavors. Please keep in touch!

Anna Aronowitz  
Rachel Bergman  
Alec Berman  
Marissa Blackwell  
Sophia Brancacio  
Veronica Burnham  
Laura Burnside  
Theo Carney  
Anna Cibils  
Elizabeth Cooke  
Dominic D’Andrea  
Peter D’Auria  
Hannah Daneshvar  
Kelly Drumm  
Brady Eggleston  
Jarrett Fastman  
Emma Fox  
Eli Goldberg  
Ian Hankin  
Jamila Jamal  
Adrian Jewell  
Helena Lane  
Nicole Le  
Katrina Lettang  
Anastasia Linger  
Molly Martorella  
Gabriel Marx  
Daniel Melzer  
Hillary Mullan  
Aidan Mullaney  
Avery O’Hara  
Matthew Owen  
Benjamin Plaut  
Jeremy Potterfield  
Sarah Reach  
Susan Russ  
Miles Schulman  
Reah Siegel  
Erin Tesny  
Matthew Tunzi  
Caroline Vilter  
Clair Watson  
Eric Weaver  
Ruthie Wittenberg