

BIOFEEDBACK

Winter 2022-2023

Newsletter of the Andrews University Department of Biology

A new laboratory space for student and faculty research

On the third floor of Price Hall, a small teaching laboratory has been transformed into a modern space for collaborative research between students and faculty. We call it *The Biology Research Collaboratory*. We could not have done this without you, our alumni and supporters, who continue to give generously to our work here in the Department of Biology. It is because of your donations that we are able to provide transformative biological education to a broad spectrum of students, both in the classroom and out. We find that some of our most transformative experiences are in the research lab.

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Also in this issue



New classes: Microscopy and Medical Micro (p. 2)

Micro is the theme! The world of viruses, bacteria, and protists has been in the news lately. The cells of plants and animals harbor many secrets.

The student experience: reflections from Biophilia (p. 3)

COVID is past... we hope. We have emerged with hopes for a better social life and a greater experience in the classroom and the lab. Some of our students reflect on their experience here at Andrews.

Neurobiology at Andrews University (p. 4)

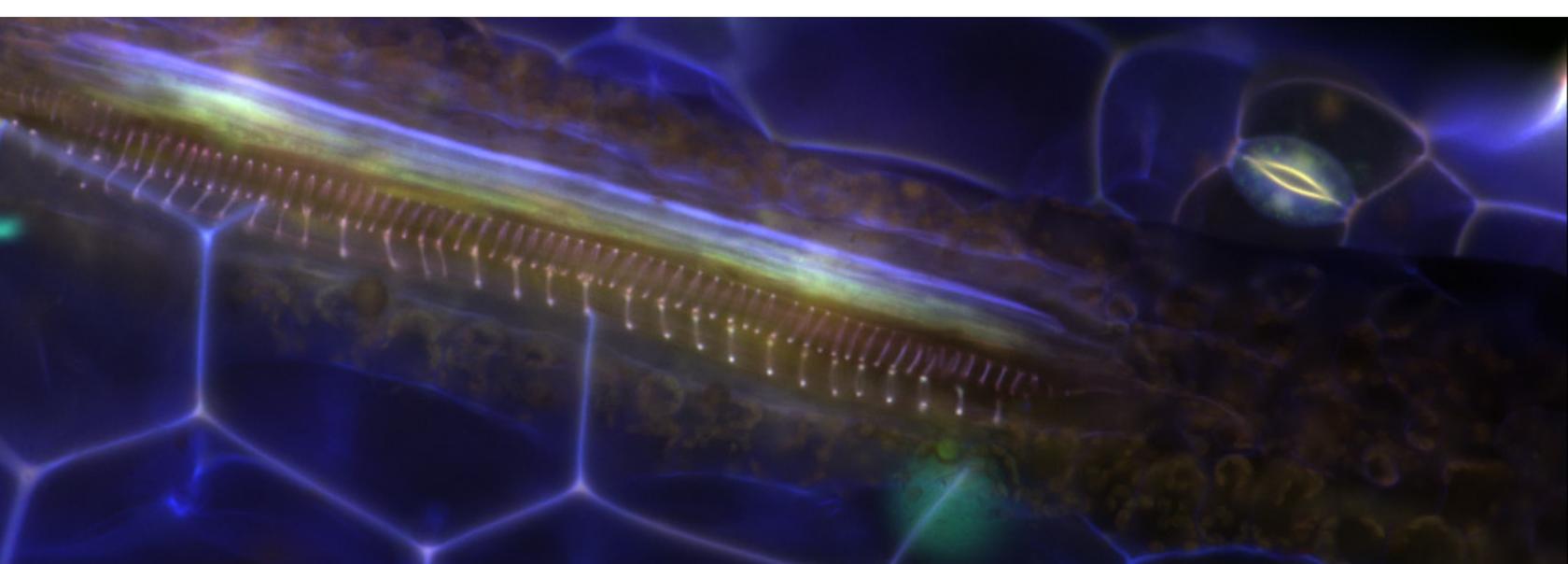
A long history of neurobiology, begun by Jack Stout, is now continued by Benjamin Navia, David Mbungu and others with interests in the area.

Alumni calling songs (p. 6)

Highlighting graduates of 20 years ago. How the time flies!

Two projects for AU students and community (p. 8)

Ideas are coming together for improvements to our Andrews Natural History Museum, and an interdisciplinary space on the fourth floor of Price Hall.



The Biology Research Collaboratory (continued from page 1)



The ability to work together with students in research was built into Price Hall when it was constructed almost 50 years ago in 1973. Each faculty office was equipped with sink and bench space in the back, and each faculty member was provided with research lab space as well.

Thanks to University, alumni, and grant support through the years, the Department of Biology has been able to acquire a number of pieces of equipment that have been stationed throughout the department for use by faculty and students in research and in teaching. These items needed a home—a central home that would allow general access as well as greater interaction between our researchers throughout the department. The idea was put forward to transform a little-used classroom on the third floor of Price Hall into such a common research space.

The Collaboratory is located next to the common space housing environmental chambers, refrigeration units, water purification system, and autoclave, and thus extends this general-use research space with the addition of storage and bench-top areas for other equipment such as thermocyclers, spectrophotometers, and microscopes. In addition, four study carrels provide seating for student researchers, and a conference table provides space for meetings and brainstorming.

We are still awaiting a few finishing touches before we move in our research equipment. Our faculty and students are looking forward to using this space. We hope that you will stop by and take a look as well!



New classes and pedagogical additions

This year was the second iteration of our new Medical Microbiology class. The class has been found to be very relevant to the world we live in. The class has also enjoyed social occasions - a dinner at the Zdor home is shown. enjoyed by (l-r) Brian and Teresa Wong, James Corbett, Rob and Barb (taking photo) Zdor, Konstantin Zubkov, Gina Park, and Allana Benjamin.



This year, Techniques in Microscopy was offered.

This course explored many aspects of light and electron microscopy. On page 1, Kevin Lall and Dana Husana are introduced to microtomy in preparation for histological analysis. Our primary subject matter for both light and electron microscopy in this class was the world of plants - Dana discovered the structure of a stoma and of the xylem from a leaf of the cobweb spiderwort, *Tradescantia sillamontana* (see page 1, bottom).

The Harold Heidtke Biology Amphitheater received a small addition to enhance pedagogy in this space. A large number of whiteboards were added to the walls! They have been used extensively by the Foundations of Biology, Anatomy and Physiology, and Genetics classes that meet there.



The student experience: reflections from our Biophilia club

A Welcome Change at AU, by Ariana Coast



My name is Ariana Coast and I am a senior this year in the Department of Biology. After taking online classes at La Sierra University during my sophomore year due to COVID restrictions, I was ready for a change. I missed campus life and wanted more hands-on experiences that were applicable to my major. I was drawn in by the Animal Science program with the farm and the seemingly endless opportunities in the Department of Biology here at Andrews. My interest in combining my love for animals with the core biology classes offered here became a real possibility. Research opportunities, such as working with crickets under Dr. Navia or the potential of surveying manatee populations under Dr. Gonzalez, pulled me further into my love for biology.

One of the things I have enjoyed most about the Department of Biology is that the professors are willing to work with you to make things happen. They have enabled me to grow not only as a student, but also as an individual. Andrews has provided an environment that has allowed me to step outside my comfort zone. I have become more involved in the department by working in the Natural History Museum, leading tours to welcome visitors and new students, and performing cricket care responsibilities in the neurobiology lab. I've also grown as a leader through organizing events as a Biophilia officer, including our observatory vespers, social events, and more!

I'm thankful to have the growing support network I've had during my time here. Being a part of a department that encourages us to grow as individuals and hone our skills as biologists has played a considerable role in the success of its students.

Why I Chose Biology at Andrews, by Zoe Oster



Growing up, I was always fascinated by nature. I often found myself outside with the bug catcher my mom had gotten me for my seventh birthday, trying to capture any bug I could get my hands on. When I would finally catch something, I would go to my school's library and find a book that would tell me

about the bug I had caught. One day, I caught a ladybug during recess at school. I brought the ladybug to my mom's classroom, since she worked at my school, and did a beeline straight to the school's library. I ended up finding a book about ladybugs, which I searched diligently to find out what I needed to feed my new ladybug pet. Since the book said ladybugs eat aphids, I looked far and wide to find my ladybug's long overdue meal during the next recess. I could not find any aphids, so I decided that ants were the next best thing, and I collected a few and put them in the bug catcher.

Of course, ants were not something my ladybug wanted to eat, and I soon found my beloved ladybug dead. My seven-year-old self was devastated over this loss, so I searched again for a new insect pet to replace the ladybug. Over many recesses, I collected many different 'pets,' which all ended up dying. I kept wondering why my efforts were failing, and I became more and more curious about the bugs that I collected, and what was necessary to keep them alive. I was always inquisitive, wanting to learn as much as I could about any worm, butterfly, or stinkbug I could find. This bug curiosity sparked my interest in learning how living things work, which became increasingly interesting as I got older.

Just like my seven-year-old self, I still think there is nothing more interesting than learning about living things. Studying biology gives me the opportunity to dive deeper into these

things, and learn more about the world around me. I'm glad that Andrews provides the opportunity to learn about more than just ladybugs, but all the complexities of life God has created.

Research: Providing the Reasons to Protect Those that Matter, by Gloria Oh



Why does the environment matter to us? What does biodiversity have to do with human society? I am pretty sure many biologists have faced these questions at one time or another. Although there are many theories why COVID-19 came about, one thing is very clear to me. Unless a cooperative effort is made to increase biodiversity, these kinds of diseases will

very likely revisit us, because the world today is dominated by humans and their domesticated animals. According to research done in 2018, these two groups account for 96% of all mammals on Earth. We humans are widely available as a target for viral diseases.

But what can one individual do about this matter? My efforts of walking to school instead of using a car are probably not making much of a difference in the grand scheme of things. However, millions of people participating in these small actions would bring considerable change. I firmly believe science has the power to motivate a bigger audience to act and unite. Research results can provide answers to questions, such as *who* are we supposed to protect and preserve, and why?

Andrews University's Department of Biology has not only offered me necessary core knowledge through courses, but also the opportunity to learn about real problems, such as those in the environment, outside the classroom through seminars, club activities (Biophilia), and research. Thanks to the Department of Biology, I have had the opportunity to participate in research conducted by Dr. Gonzalez, together with Dr. Ramos (Rockefeller University) and Dr. Castelblanco-Martínez (Quintana Roo University), aiming to construct a complete list of marine mammals within the Bay Islands of Honduras. Through this research experience I have learned how to identify the many dolphin species found near these islands, witnessed a wild dolphin group while swimming in the water, collaborated with a local NGO, and participated in the Michigan Academy of Science, Arts and Letters (MASAL).

The most meaningful part of this research, however, was being a part of the effort to protect biodiversity. Publishing a paper that lists marine mammals in the area will not automatically bring forth a governmental or national effort to protect these animals and their habitat. However, it will become an official and public record that informs conservation efforts in this area.

Animals and nature have always been an important part of my life and I have learned a lot about myself and the world through them. I am glad I have had the opportunity to deepen my understanding of them through my biology major and research experience here at Andrews, and look forward to a future of continuing biological education.

Biophilia was quite active this year. In addition to regular vespers programs, flower walks, and activities in the Conservatory, they also sponsored a trip to the Potawatami Zoo in the spring (see photo).



The start of neurobiology at Andrews

An East African proverb states that “an elder sitting on a stool can see further than can a boy on top of a tree”. One truth in this proverb is that experience (historical perspective) sharpens vision. Everything has a history and what we do today is, to a great extent, shaped by the ideas and dreams of those who came before us. The story of neurobiology at Andrews begins with the work of Professor John Stout.

In the mid to late 1960’s, Professor John Stout was a member of the faculty of Walla Walla College. Having done his graduate work on fish behavior, he was well poised to undertake investigation of gull behavior. Behavior is a phenotype of nervous system activity and in time, Jack, as his colleagues call him, developed an interest in probing the underlying neural mechanisms of behavior.

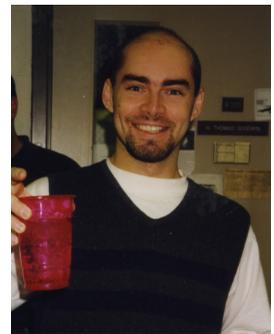
When an opportunity opened to acquire neurobiology skills, Jack took it. For one year (1969-70), he interned at Professor Franz Huber’s lab in Cologne, Germany. At that time, Professor Huber’s lab was investigating call recognition by female European field crickets, *Gryllus campestris*. It was here that Jack learned and perfected techniques that would mark his work. Neuroscientists use model organisms in their investigations and, in the Huber lab, Jack began to use crickets to investigate how individual nerve cells in the brain of the female cricket encode sound signals of a calling male. The expectation was that knowledge gained from this investigative approach would bring us closer to understanding how recognition occurs in the brain.

When Andrews University reached out and offered Jack a position in the Department of Biology after his internship, Jack took the offer and moved to Berrien Springs in 1970. Professor Franz Huber was highly esteemed by members of the academy and Jack’s work with Huber earned Jack the prestigious Humboldt Award. This award opened the way for successful NSF grant applications and important collaborations.

By the 1980s, Professor Stout had a small but very active group of graduate students, including Gordon Atkins and David Mbungu who would later join the Andrews biology faculty. The lab was investigating sound-sensitive neurons in the brain of the American house cricket, *Acheta domesticus*. The pervading interest was to understand whether auditory neurons that had been described in European field crickets had homologs in the American house cricket. The morphology of two omega-shaped neurons (ON1 and ON2) and three putative L-shaped neurons (L1, L2 and L3) were identified. Other students joined the lab, including Benjamin Navia in the mid-90s, and studies connecting these neurons to specific behavior were begun.

The middle of neurobiology at Andrews

During the first decade of the 2000s, Gordon Atkins (who had joined the Andrews faculty in 1989), played a central role in leading the Cricket Lab. The lab became a magnet for undergraduate and graduate students who were interested in learning more about



This page, top. Jack Stout works on a moving seagull model, for remote control use in gull communication studies. Obtained from https://www.researchgate.net/publication/349063298_An_Uncommon_Pathway_Reflections_On_A_30_Year_Career_In_Sleep_Research

This page, second row. Some of Jack Stout’s graduate students. (l-r) Gordon Atkins, David Mbungu, and Benjamin Navia. These students returned to Andrews for faculty positions, thus continuing the legacy of cricket neurobiology research.

Facing page, top to bottom. 1. Four student presenters traveled to the 2018 Annual Meeting of the Society for Neuroscience where they had the privilege of meeting Dr. John Stout (l-r, Shekinah Dosunmu, Brandon Shin, John Stout, Cassie Kim and Chelsea Kent). 2. During that same school year, members of the cricket lab presented at the Michigan Academy of Science, Arts, and Letters (MASAL) and were able to meet former cricket lab principal investigator and AU biology faculty Dr. Gordon Atkins (far right in picture). 3. Current lab members pose for a photo (front row, l-r, Professor Benjamin Navia, Lauren Kim, Lilly Widdicombe, Maya Sukumaran, Professor David Mbungu, (back row, l-r) Justin Liebelt, Lauren Butler). 4. Two undergraduate students presented their work at Neuroscience 2019 and also had the opportunity to meet Nobel Prize laureate Eric Kandel (l-r, Brandon Shin, Eric Kandel, Bryan Ashley, Benjamin Navia). 5. Student Lilly Widdicombe demonstrates microinjection of a cricket.

acoustic communication in crickets and their underlying neural networks. In the Cricket Lab, many honors students found just the right place to do research and complete their theses. Additionally, the newly created multidisciplinary neuroscience program, funded by the National Science Foundation, attracted even more students to

No, this isn’t neurobiology. But it was a great pizza party, after a long COVID lull, and it is interesting to



ws: a continuing story



this vibrant lab. With Jack Stout taking on more administrative responsibilities, Gordon Atkins found himself mentoring tens of students in research in the lab. “Somehow I was able to do it” says Atkins, who continued leading the lab until he moved to Camp Au Sable as Camp Naturalist in 2012.

The multidisciplinary neuroscience program was an important part of neurobiology at Andrews for nearly 10 years. It was initiated to take advantage of strengths across the campus in neurobiology, behavior, psychology, and mathematics. Karl Bailey, Professor of Psychology, and graduate of the Department of Biology, directed this program. In addition to helping students learn basic information about neurobiology, cognitive neuroscience, behavioral neuroscience, and mathematical modeling, the Behavioral Neuroscience program involved students in hands-on laboratory experiences using research-quality equipment and prepared students to actively contribute to their field. Fundamental research in cricket neurobiology, directed by Stout, Atkins, and Mbungu, was joined by mathematical modeling of gull behavior (Hayward and Henson) and a number of research programs in the behavioral sciences. Pamela Litvak joined the Department in 2012, contributing expertise in the neurobiology of stress and anxiety. This was an obvious link between biology and the behavioral sciences, and as coordinator of the biology graduate program, Pam also made important changes in this program.

Recent progress in neurobiology at Andrews

The quest for understanding the auditory network in brains of female crickets continues today with Professors Benjamin Navia and David Mbungu mentoring students, both undergraduate and graduate, in neurobiology. Many students have been involved in research projects evaluating the plasticity of behavior in *Acheta domesticus*, continuing the legacy started by Professor Stout in the 1970s. These projects have resulted in a number of publications with many undergraduate students as co-authors, and multiple presentations at professional and international conferences such as the Annual Society for Neuroscience Meetings and the International Congress of Neuroethology. Members of the Cricket Lab have also presented at regional conferences such as the Michigan Academy of Science, Arts and Letters (MASAL).

This year the lab is enjoying a great team of energetic and curious undergraduate students who wish to learn more about the intricacies of cricket behavior and its underlying neural networks (see photo to left). Research in the lab is joined by learning in the classroom: this year’s neurobiology course had the highest enrollment in recent memory! Neurobiology makes a regular appearance at our local elementary school as well, as Navia and Mbungu have both visited classes to share the wonders of the nervous system.

Although the multidisciplinary neuroscience program has not continued, expertise in neurobiology at Andrews and within the Department of Biology remains broad. In addition to the work of Navia and Mbungu in fundamental aspects of neuronal and behavioral plasticity, several other faculty have neurobiology interests. Daniel Gonzalez-Socolosce is an ecologist and conservation biologist with interests in manatee behavior and sensory abilities. Peter Lyons is a biochemist who studies a family of neuropeptide-modifying enzymes and their functions in a broad range of tissues including the brain. Marlene Murray has important interests in the molecular mechanisms of bipolar disease, and has recently explored the use of mammalian cell lines to understand this disease. Together, our students have a wealth of opportunities to learn about the brain and connections with the nervous system in a variety of classes and research laboratories.

g to see the tradition continue, from Thoresen and Chobotar in the ‘70s to Mbungu and Navia in 2022.



And in research...



Peter Lyons, Professor of Biology, published an article in *Coursesource*, an open-access journal for science educators. "Isolation and Functional Analysis of a Pancreatic Enzyme in an Introductory Student Lab" describes a student laboratory exercise in which a carboxypeptidase enzyme is extracted from cow pancreas tissue and then analyzed using common molecular techniques.

A number of members of the Proteolysis Lab traveled this spring to Philadelphia, where they attended Experimental Biology 2022 and the annual meeting of the American Society for Biochemistry and Molecular Biology. Daniel Fajardo presented research performed by himself and Ritchie Saint Jean on gene duplication in the metallo-carboxypeptidase family of enzymes, while Masy Domicillo and Erica Shin presented their work studying the requirements for protein folding within this enzyme family. Their work was also highlighted in a recent issue of *FOCUS*.



Daniel Gonzalez-Socoloske, Professor of Biology, together with Peter Lyons and first author Erika Bauza-Nowotny (BS '18, MS '20), published "Identification of the Eastern Massasauga Rattlesnake (*Sistrurus catenatus*) through Genetic Analysis of Shed Skin" in *Conservation Genetics Resources*. In this paper, the authors describe a non-invasive method for identifying this local endangered rattlesnake.

We previously announced that Professor Gonzalez-Socoloske was awarded the prestigious Fulbright Scholarship for research to be conducted in Brazil, using sonar to monitor the Amazonian manatee. Due to the pandemic, this work was delayed, but finally this year he was able to complete this work. Notably, this work was also supported by a grant from the National Geographic Society and Daniel was named a 2022 National Geographic Explorer. We look forward to hearing more about this work in next year's edition of *Biofeedback*!



In March 2022, the Seabird Ecology Team, headed by Dr. James Hayward and Dr. Shandelle Henson received word that one of their papers had received the Edwards Prize for the best major article published in volume 132 of the *Wilson Journal of Ornithology*, the highly respected journal of the Wilson Ornithological Society, which has been around since 1886. Titled, "Every-other-day clutch-initiation synchrony as an adaptive response to egg cannibalism in Glaucous-winged Gulls (*Larus glaucescens*)," the paper was based on the Honors thesis of Sumiko Weir (BS '16) and included Ashley Polski (BS '16), WayAnne Watson (BS '15), and Amanda Sandler (MS '13). This is the crowning, capstone paper of the team's long-standing Protection Island project. The Edwards Prize, first awarded by the Wilson Ornithological Society in 1970, is named in memory of Ernest P. "Buck" Edwards (1919–2011), who proposed the idea of a prize for best paper and provided initial supporting funds. The Edwards Prize-winning paper is chosen by a panel comprised of the Editor of the WJO and the corresponding authors of the two previous award-winning papers. It consists of a plaque presented at the annual meeting of the WOS following completion of each volume of the journal.



This year, Dr. Robert Zdor took on Senior Editor responsibilities for the *Journal of Applied Microbiology* in the area of Plant Microbiology. He has served as Handling Editor for this journal since 2005.

Brian Wong and his team of research students presented their work at the Andrews Celebration of Research. Shown here are (l-r) Dr. Wong, Jasmine Cha, Min Seo Kang, Christine Choi, Jessica Yi, Rekha Isaac, Sarah Wolf, and in the front row Alanna Benjamin and Elim Choi.

Kieran Taylor successfully defended his Master's thesis, entitled "Peruvian Mammals Collected by the Andrews University Department of Biology: Expeditions & Patterns of Diversity". In this work he cataloged and analyzed the many mammalian specimens collected by Andrews biologists on several trips to Peru in the 1960s. As part of this work, Kieran was able to visit and make connections at the American Museum of Natural History, the University of Kansas, and the University of Michigan Museum of Zoology.



Alumni calling songs

We want to hear your stories! While we are happy to hear from you at any time, this year we decided to reach out to those of you who graduated twenty years ago. What has happened in your life recently, or over these many years since leaving Andrews? Here are the stories we received.

P.S. If you graduated in 2003, please expect an email in the coming months!

Yolanda Leffler (MS, 2002)

In 2020, after a number of years of praying about moving from the Berrien Springs area, we were convicted to put our lives in our Heavenly Father's hands and take it out of man's hands. (My husband quit his job at the end of April 2020.)

God sold our house without us putting it on the market. We did have to wait over



Alumni calling songs (continued)

a year while we packed, and waited, and waited. It wasn't easy to wait for a buyer, but we were learning to be patient and to see His leading instead of pushing our own desires through.

The adventures He prepared for us were at times very challenging as he brought us to our new property. The tests for us included the buying of a vehicle that was held up for a whole week, and paying tithe and offering on the house that we sold (I had been so busy I had put it off). Initially after moving, we were required to camp for a time. But we have had so many miracle stories. Did I say that we were without a running vehicle for six months, but were praying that our loving Father would open doors to travel in the direction he wanted us to move. To think we almost turned down the opportunity to go in this direction.

We had said we would go wherever our Heavenly Father would send us. We now own a "sagebrush" farm near Oroville, Washington. After moving to the area in April of 2022, we planted a big garden and put up a Farmer's Friend greenhouse. Our oldest sons have been building a small cabin for our family to live in. We are also enjoying the fellowship of our Tonasket church family and getting to know new people in the area. We have been abundantly blessed through the joys and the trials. So thankful for both.

It has been quite a journey of faith, trust and waiting. But we feel confident that He is leading and will see us through whatever he chooses for us to go through. We are preparing for heaven. Jesus is coming soon! May we all choose to be ready, is my prayer for my family and yours!

Cathy Founé (MS, 2002)



After graduation, I spent five years running research labs in the Biological Sciences Department at Western Michigan University in Kalamazoo, Michigan. From WMU, I moved on to Vestaron where I am

still currently employed as a Fermentation Scientist II. Vestaron is a biotech startup company that develops pesticides with peptide active ingredients which are selected for pest specificity and low environmental impacts. This year marks twenty-five years of marriage to my husband, Dave. We have been blessed with two children, Alexander and Morgan. Both are currently in high school and active in sports. Our family enjoys spend-

ing time outdoors and hanging out with our two dogs.

Monica Sickler (BS, 2002)



So, there I was, just watching female *Acheta domestica* walk around an arena after I injected them with picrotoxin. Was that really 20 years ago? I went from being just "Monica"

to "Dr. Sickler," earning the call-sign "Speed" to now...old sounding "Lt Col Sickler." I can look back and say that I've done some interesting things. Although not everything I've done was in the plan or always what I wanted I have been blessed with a great Christian foundation that supported me through it all.

After medical school at Loma Linda and a family medicine residency at Florida Hospital I started active duty in the U.S. Air Force at Minot AFB, North Dakota. I had a military medical scholarship with the Health Professions Scholarship Program (HPSP) that required a service commitment. At Minot I honed my medical skills while trying not to freeze. Yes, I always had a survival kit in my car. After three years I was picked up to be the doctor for an F-16 fighter squadron in Korea. As I am a private pilot, I loved that part of my job where I flew with the pilots I cared for clinically. I worked to promote and educate them on preventative medicine and safety issues that could impact their ability to fly. From Korea I moved to Spangdahlem Air Base, Germany to continue support for fighter pilots and their families. Amongst my 11 deployments was a six-month trip in direct support to Operation Inherent Resolve; a truly life changing experience. I was blessed to work with foreign doctors to develop safer working environments and optimal treatment modalities. Moving on from Germany I found myself at Aviano AB, Italy just north of Venice. There I managed a specialized clinic in occupational and flight medicine. I was very proud to lead our men and women to develop and deliver more efficient care to highly specialized military members. I again deployed, this time to Niger, where I ran an austere clinic of two. Each deployment could be a book in itself and has a way to

change a person's life perspective. Of course, when not deployed, I offset the work stress with the beauty of the local land. Hiking in the Dolomites is such a great way to decompress and see the beauty of God's Creation.

Currently, I'm the sole U.S. Air Force physician on the island of Crete and working with a flying reconnaissance squadron. I've set up a new clinical program here so our service members will have improved access to care while they complete their flying missions. I love the travel and all the new places that I've been able to experience while living in four different countries. I couldn't have imagined how much I have seen and the great people I have interacted with through the years. All of this started with my time doing biology (and cricket research) there at Andrews University.

Ruthie Franke (BS, 1999; MS, 2002)



After graduating from Andrews in 2002 (BS 1999), I worked in research labs at the University of Virginia and The Ohio State University. I have now

transitioned from a career in research to education. I am currently working as a high school science teacher in central Ohio.

Raymond Bennett (BS, 2020)

I'm in my second year of med school at the University of Miami Miller Medical School. I'd be lying to say it's been easy, between the learning expectations and the pandemic, but I also would be lying to say that I haven't been enjoying learning the medical field. My class is the first class of a new curriculum, which means that we have gone over even more bumps in the road, but we're still moving forward. I do miss life on a campus, but there are perks to adult life. One thing to take away from Andrews is that balance really matters in your life. If you are wise and responsible with your time, you can still learn and have fun. Work on your social skills too, because friendships are not nearly as easy to create after undergrad. (Yes, I still wear shorts and/or carry a football around in med school.)

Some of our new alumni, as of May 2022!



Updates and ideas: a vision for the future

The Andrews University Museum of Natural History

AUMNH, located on the ground floor of Price Hall, possesses scientifically valuable specimens for teaching and research in biodiversity, natural history, and conservation. The collection features a mammoth skeleton, discovered in Eau Claire, Michigan (The Prillwitz Mammoth), as well as taxidermy, insects, shells, and many specimens acquired through expeditions by AU Biology professors and students. A story in the 2020 issue of *Biofeedback* described recent work to unearth the stories of expeditions to Peru in the 1960s.

In addition to describing these trips and cataloging the specimens collected, our museum has an important role in public outreach. In past years we have received an average of 300 visitors per year. This year our visitors have increased to well over 700, largely due to the work of Roshelle Hall, Adjunct Assistant Curator of the AUMNH since January. These visitors have included students from Andrews, K-12 students, senior citizens, alumni, and other interest groups from Berrien County.

We have recently started an AUMNH redevelopment project and so far have raised over \$30,000 in private donations. This money, as well as any received through small local grants, will be used to help us increase the number of displays, arrange the collection in a more ordered fashion, and create improved signage providing a better educational experience for visitors and students of all ages. We are collaborating with the University of Kansas, University of Michigan, and Grand Rapids Public Museum curators in this project. If you have any interest in this project, we would be glad to hear of it.

The Inspiration Center

In addition to the AUMNH, Andrews has a variety of other resources of educational and inspirational interest to many. These include the Botanical Conservatory, Kingman Observatory, Arboretum, Agriculture Education Center, trails, and others.

This year, an interdisciplinary working group has been brainstorming ways to bring together the AU and local communities in common inspiration through these natural resources: the Inspiration Center. Proposed ideas involve renovation of existing space surrounding the current Botanical Conservatory to include an area for meetings, performances, exhibits, and casual gatherings, an outdoor terrace with campus views, an elevated observation platform for views from one of the highest points on campus, and possibly a dome theater for immersive presentations. In addition, the Inspiration Center will include a small kitchen or café for light food and refreshments.

The goal is for a place where artists, theologians, scientists, anyone, can come together to share ideas, perhaps inspired by a view of the Arboretum canopy, a desert in bloom in the Andrews Botanical Conservatory, or the night sky as viewed through a telescope on a stargazing platform. The Inspiration Center is proposed to be a connection between our campus resources and our local community (schools, garden clubs, seniors' groups, other nature-focused organizations). You might think of it as a hub, linking the sciences, arts, and humanities at Andrews with each other and with the local community through a common source of inspiration, the natural world. If you share interest in such interactions, we would be glad for your input.

We'd love to hear from you! Send us an email or letter to let us know what is new in your life. Photographs are great too.

Name: _____

Address: _____

Year you graduated from AU _____ AU degree _____

Other degrees since graduating from AU _____

Your current employment _____

Your current interests and activities _____



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