Elevations
The College of Arts and Sciences Magazine

Prepare for complete living. ~Spencer
Elevations
Volume 4: 2017

Managing Editor and Graphic Designer
Diana Marie Waggener

Cover Image
The “ABE” hydrothermal vent discovered on Feb. 10, 2017, at 2300m below sea-level. The mineral rich 370°C fluids exiting from the chimneys create “black smoke” of iron-sulphide particles as they mix with cold seawater.

Image courtesy of Mike Cheadle, University of Wyoming/NSF/ROV Jason 2017 © Woods Hole Oceanographic Institution.

College of Arts and Sciences Administration
Paula M. Lutz, Dean
Greg Brown, Associate Dean
Teena Gabrielson, Associate Dean
Robert Schuhmann, Associate Dean

Elevations is the magazine for College of Arts and Sciences alumni, friends, and constituents. Address comments and questions to Diana Marie Waggener, Managing Editor, College of Arts and Sciences, Department 3254, 1000 East University Avenue, Laramie, WY 82071; or send email to dream@uwyo.edu.

Mailing addresses are provided by the University of Wyoming Foundation. To change your mailing address and/or contact information, please send email to foundation@uwyo.edu.

Dear Friends of the College of Arts and Sciences:

I began last year’s letter with comments on the economic challenges facing Wyoming, resulting in budget reductions for UW. I described those challenges as great opportunities for our campus. I am pleased to report that we have met those challenges head on and taken advantage of the resulting opportunities! We committed to campus strategic planning so that our mission and vision were examined and re-affirmed as we set exciting new goals. We prioritized and re-calibrated, with an eye to streamlining and efficiency across the college and the university.

To create synergies across both research and teaching, A&S has restructured into twenty-one units, including two new schools and five consolidated departments. The School of Culture, Gender, and Social Justice is home to the programs in Gender and Women’s Studies, African American Diaspora Studies, American Indian Studies, and Latina/o Studies. The School of Politics, Public Affairs, and International Studies comprises Political Science and Global and Area Studies. Our consolidated units are Philosophy and Religious Studies, Visual and Literary Arts (Art and Creative Writing), Mathematics and Statistics, Criminal Justice and Sociology, and American Studies and History.

We may look a bit different, but college programs and people remain committed to preparing A&S students for “complete living.” Elevations will highlight our students and shine the spotlight on our talented faculty. The photos and stories will show you the cutting edge research and outstanding teaching to which we aspire. I’ve often said that A&S represents the heart and soul of this university. As you read these articles, I hope that you agree. Our breadth and depth are simply breathtaking! We are committed to the best in higher education here in Wyoming.

Our feature articles take you from music inspired by science and nature to sagebrush songbirds and life in total darkness…from the Green River Basin of Wyoming to the bottom of the sea. The “A&S Bookcase” features the latest from A&S alumni and faculty authors. Check out our short news items in “A&S Briefs” and our student experiences abroad in “A&S Internationalization” (London to Mongolia?!).

In closing, I encourage you to spread the word about the College of Arts and Sciences! Please brag about the things you learn in Elevations—exciting research, inspirational teaching, and meaningful service here at home and around the globe. As A&S alumni, supporters, and friends, you are members of the A&S family, and these are your accomplishments as well. Thank YOU for all you do for us.

Best regards,

Paula M. Lutz, Dean

Persons seeking admission, employment, or access to programs of the University of Wyoming shall be considered without regard to race, color, religion, sex, national origin, disability, age, veteran status, sexual orientation, or political belief.
Chemistry professor successfully applies active-learning pedagogy in the classroom

Throughout his career, Associate Professor John Hoberg, Department of Chemistry, has been recognized for effective teaching methods. To further strengthen his approach in the classroom, he participated in the Learning Actively Mentoring Program (LAMP), a UW Top-Tier Science Initiative course. Hoberg was among 22 UW faculty members and graduate students in the LAMP inaugural cohort, a yearlong program, which included monthly discussions and a visit to an active-learning conference in Minnesota during summer 2016.

LAMP inspired Hoberg to dramatically revise his sophomore-level organic chemistry class. “I have been teaching for almost 30 years,” he says, “and this was one of the most exciting semesters I have had. Even someone like me, who is pretty set in his ways and has strong feelings about the best ways for students to learn, can always find ways to do things better. Participating in LAMP brought about modifications in my teaching method for the better—no question.”

Because traditional theater-style classrooms are not the best forum for active learning, Hoberg secured one of the suitable rooms in the UW Classroom Building for his spring 2017 organic chemistry class. Rather than taking notes while Hoberg lectured, 47 students sat at tables in groups and worked together to find answers to questions they brought to class, based upon brief presentations Hoberg gave at tables in groups. Active learning allows students to synthesize and apply what they are learning, rather than just memorize concepts and theories. Active learning involves small-group and all-inclusive-class participation and can occur in any classroom setting, but Active Learning Classrooms (ALC) generally are flat, open rooms with round tables that facilitate large-scale, high-quality interaction. Such classrooms are in short supply on the UW campus. Currently, the Enzi STEM Facility houses a few appropriate classrooms, as does the Classroom Building and the UW Tоп-Tier Science Initiative

In the meantime, Hoberg and his STEM colleagues can integrate teaching practices that employ active-learning strategies into their classes. Reported active learning outcomes include a decrease in failure rates, improved academic success, increased inclusion and diversity, improved interpersonal interaction, increased engagement, increased learning motivation, and improved habits of mind that drive science.

To learn more about the UW Science Initiative, go to: http://www.uwyo.edu/science-initiative/

Supported by Governor Matt Mead and the Wyoming Legislature, the UW Tоп-Tier Science Programs and Facilities Initiative intends to transform science education and improve student success at UW and across the state. While creating state-of-the-art facilities to support innovation and research in advanced scientific imaging and integrative biology, along with UW’s first suite of large-scale active-learning classrooms (150-200 students each), the initiative also signals a dramatic change in the way the foundational sciences are taught at UW. Moving from traditional lectures and laboratories to an active-learning format will improve student engagement.

“There aren’t a lot of universities building buildings designed specifically for this,” Hoberg says. “We have a perfect chance to do something that will be critical for the state’s future. We have to start training our students to build other economic engines to help Wyoming’s economy evolve, and this building and the Science Initiative are key mechanisms to do that.”

Humanities project to highlight Wind River tribes’ connections with elk

A multiyear project, “Understanding and Communicating the Role of Elk on the Wind River Indian Reservation,” received a $150,000 grant from the National Endowment for the Humanities (NEH). The grant request was a team effort coordinated by Judy Antell, founding director of UW’s High Plains American Indian Research Institute (HPAIRI), who completed her tenure on July 1, 2017. Scheduled to begin in 2018, the project will explore and highlight relationships (Wyoming) Wind River Indian Reservation tribes with an iconic big-game species.

“This award is something we are very grateful for and excited about,” says James Troper, the new director of HPAIRI. “This is a unique opportunity to capture and communicate the stories, legends, and beliefs of the people of Wind River in regard to elk, and it’s a great way to tie the humanities with science.”

While the NEH-supported project concentrates on tribal culture and lifestyle in relationship with elk, another research effort focused on the science of elk migrations on the reservation also will take place. The Wyoming Migration Initiative, housed in the Wyoming Cooperative Fish and Wildlife Research Unit, will collaborate with the tribal wildlife management agency to map the migratory corridors of elk and mule deer on the reservation.

Both the Eastern Shoshone and Northern Arapaho tribes have strong traditions celebrating the natural world, and those traditions are represented in songs, stories, and visual artistic expression. Among the objectives of the project is to obtain oral histories, tribal stories, songs, chants, prayers, tribal language vocabulary, and unpublished documents to create an “elk cultural collection.”

This effort will be led by Jason Baldes, an enrolled Eastern Shoshone who heads the Wind River Native Advocacy Center (WRNAC), a nonprofit organization that works to empower Native Americans in Wyoming for a stronger voice through community organizing, education, research, legal advocacy, and leadership development.

“By strengthening knowledge of tribal histories, cultures, contemporary hunting and resource management practices, and tribal languages for the Eastern Shoshone and Northern Arapaho people, this project will enhance tribal citizens’ capacity to steward and assert their tribal sovereignty,” Baldes says. “And it will help assure that the elk’s many roles in tribal life and culture will not be lost.”

Under the advice and guidance of tribal members, including elders, the “elk cultural collection” will inform a K-12 curriculum, which will be implemented in the third year of the project, at the Wyoming Indian and Fort Washakie schools. The Wyoming Humanities Council (WHC) also will develop a statewide tour, featuring a video and printed materials. In addition, the project will include public gatherings on the reservation; a Website and social media campaign to communicate elk cultural information within tribal communities and beyond; an internship program; and a professional development workshop for UW, community college, and Wind River Tribal College faculty and students.

“Using the tribes’ relationships with elk as the focal point, important classroom and community discussions rooted in humanities-based inquiry will occur,” Antell says. “Tribal partners will play a lead role in acquiring existing knowledge about the cultural and historical dimensions of elk—and designing ways to incorporate that information into schools and communities on the reservation. These activities will build community and enhance the role of humanities in tribal life.”

Private fundraising is underway so UW can match the $150,000 NEH “Creating Humanities Communities” grant. The project involves five partners, including HPAIRI, WRNAC, the WHC, and Fremont County School Districts 14 (Wyoming Indian) and 21 (Fort Washakie).

To learn how to contribute toward the grant match, please call Katrina McGee, director of UW Foundation development, at 307-766-4266 or send her an email at kmcgee1@uwyo.edu.

To learn more about the grant, go to: http://www.wyo.edu/whc/whc/
In spring 2017, Dalyn Grindle, of Pavilion, earned a National Science Foundation Graduate Research Fellowship to study at Harvard University. She graduated in December 2016 with bachelor's degrees in anthropology and environment and natural resources and a minor in drawing.

When Grindle was considering career choices, she decided to become an archaeologist and see the world. “No one I knew of—family and friends—had done something like that,” she says, “but, people from Wyoming are a special breed, and it reflects in the way that we approach our work.”

Grindle’s work ethic carried her from Pavilion (population -230), to UW, and now to Harvard. A first-generation college student, Grindle received the NSF Graduate Research Fellowship, one of the nation’s most competitive awards for graduate studies, to conduct a zooarchaeological study on reindeer domestication. Besides the NSF grant, Grindle, an honors student and McNair Scholar, received additional funding from Harvard. Out of more than 250 applicants, Grindle was among 10 students accepted to Harvard’s anthropology Ph.D. program.

While attending UW, Grindle took advantage of study-abroad programs in New Zealand, Australia, the Canary Islands (Spain), and Croatia. During summer 2016, she was selected to intern at the Smithsonian Institution’s National Museum of Natural History and presented her research on “indigenous uses of sturgeon in the Pacific Northwest” at the 2016 Keith and Thyra Thomson Honors Convocation.

Grindle never believed, in her wildest dreams, that she would attend a prestigious Ivy League school. Grindle says, “It goes without saying that my parents are incredibly proud of me and that none of us expected something this big to happen, but I can’t thank my family enough. The support they showed has made my achievements possible.”

Department of Theatre and Dance graduate lit up Hairspray Live! production

H elena, native Neal Petz, a graduate of the Department of Theatre and Dance, helped to light up the set of NBC’s made-for-television musical Hairspray Live! The musical aired December 7, 2016, and was filmed at Universal Studios in Los Angeles. Petz began his internship with the show’s lighting design team on November 9 and finished when the show aired.

The show’s set consisted of two connected stages and a large portion of the Universal Studios backlot. Because the show used indoor and outdoor settings that presented different lighting challenges, this turned out to be a unique internship. The biggest challenge with the outdoor setting was the fact that the lights could only be seen well at night, and because a child actor had limited work hours, the cast worked during the day until the dress rehearsals.

Petz’s duties included picking up lighting design materials and gear from off-site locations (and sometimes coffee and food); overseeing two reference cameras so the team could see the lighting as the audience would; and assisting the lighting programmers and technicians. “A lot of my time toward the end was spent watching what was happening on the monitor and listening to Allen [the lighting designer] on headset discuss what needed to be changed,” Petz says. “I learned from watching him what it means to be in charge on such a large project with a large team.”

Besides learning some tricks of the trade from the show’s crew, Petz says the best part of the internship was making contacts for work after college. He graduates in fall 2017 and plans to pursue a career as a lighting director on concert tours. Petz credits the Department of Theatre and Dance with helping him to take his first step into the industry. “This was an incredible opportunity that I was lucky to hear about,” Petz says. “Department of Theatre and Dance faculty and staff were extremely supportive and helped me work out some of the finer details of my internship.”

A&S student named UW’s 2017 Top Graduating Man

H onor student Anthony Farmer, Cheyenne, received the 2017 Tobin Memorial Award, which is given annually to a male student who demonstrates academic excellence and achievement, service to the university, participation in leadership in the community and campus activities, and citizenship qualities. Farmer, the son of Rachel Martinez (B.A. Journalism 1997; MPA 2003) and Brian Farmer (B.A. Political Science and B.S. Psychology 1994; M.A. Political Science 1997; JD UW Law School 2001) received bachelor’s degrees in both political science and in economics. He began a master’s program in fall 2017.

While attending UW, Farmer was active with Multicultural Affairs, received the Outstanding Honors Freshman Award, and served as a senator on ASUW, and the College of Arts and Sciences Gtade Appeals Committee. He is a member of Golden Key International Honors Society and Phi Kappa Phi. In fall 2016, he studied at the University of Glasgow at the Adam Smith Business School with an emphasis on macroeconomy, government debt, and contemporary issues in inequality.
A new genus of plants is named after Associate Dean Greg Brown

A new genus of plants has been named after Associate Dean Greg Brown, a professor in the Department of Botany. Gregbrownia, including four species brownii, fulgens, butchioni, and lyman-smithii, is a member of the Bromeliaceae family—commonly known as the pineapple family. Identifiable by their distinct circular arrangement of leaves (approximately 1 meter in diameter) and a large cluster of yellow-green to white flowers, members of the genus Gregbrownia grow both on trees and on land within the Andes Mountain Range, which borders northern Ecuador and Peru.

Brown specializes in plant systematics, a branch of botany that involves identifying, naming, classifying, and studying the evolution of plants. His research focuses on the Bromeliaceae family.

Two of Brown’s colleagues, Professor Walter Till (University of Vienna) and Research Scientist Michael Barfuss (University of Vienna) established the new genus out of an existing genus, Mezobromelia. The new genus was discovered based on new molecular (DNA sequence) and morphological (form and structure) data.

“识别现代植物系统学是仅命名群组的物种，其形态和结构数据，” Brown explains. “When a researcher finds a new, well-supported monophyletic group [clade] within an already-recognized genus, the group has to receive a new name at the appropriate taxonomic rank. In the case of the species in Mezobromelia, those new species were at the generic rank.”

Gregbrownia was named in honor of Brown’s contributions to the taxonomy and morphology of Bromeliaceae. “This is a tremendous, totally unexpected honor,” Brown says. “This recognition and honor become a permanent part of plant taxonomy and plant nomenclature.”

Former A&S Dean E.G. Meyer shines at Wyoming Senior Olympics

Wyoming Senior Olympics volunteer Pennie Espeland (B. A. communication 2008) hugs former A&S Dean E.G. Meyer (1963-1975) as he stands on the podium after taking first place in the 95 and over division of the 100-meter dash. Meyer is 97 years old and still going strong.

Hell Gap archaeological site receives historic landmark designation

Hell Gap, located in the Hartville Uplift of east-central Wyoming, received national historic landmark (NHL) designation in July. A critical Paleoindian site, Hell Gap was first investigated by UW researcher George Agogino (1959-1961) and by Harvard University/Peabody Museum (1962-1966). Professors Marcel Kornfeld and Mary Lou Larson and Professor Emeritus George Frison, Department of Anthropology, continued Harvard’s work beginning in 1993.

“The NHL nomination is based largely on our [Department of Anthropology] research and the data we amassed,” says Kornfeld. “However, the nomination would not have been possible without our partners at the State Historic Preservation Office; in particular, Judy Wolf, chief of planning and historic context program.”

Hell Gap, which is situated approximately 15 miles northeast of Guernsey, consists of four localities in a small valley containing at least 20 Paleoindian components. Originally, it provided the longest sequence of Paleoindian cultures dating between approximately 11,000 and 8,000 radiocarbon years ago (~13,000-9,000 calendar years ago). This nearly complete chronological sequence greatly aided prehistorians in their efforts to classify and link artifacts from the entire continent and continues to be a useful key to Paleoindian chronology. In addition to the site’s significance for untangling the chronology of Paleoindian cultures, Hell Gap also is classified as a camp site and provides a rare venue to study questions regarding other aspects of First Americans behavior beyond the temporarially occupied kil or processing localities represented by bone beds.

Mysteries that have been uncovered at Hell Gap show evidence of repeated occupations by nine Paleoindian cultural complexes in well-stratified deposits. Over the decades, archaeologists have discovered several hundred projectile points, hundreds of scrapers and tens of thousands of flakes or remains from fashioning stone tools, bone needles for sewing clothes, and post holes from structures that once stood in the area. Even a few beads were found.

Over the years, the Hell Gap project has successfully brought archaeology to the public through the Hell Gap Public Outreach Programs, while also offering UW Advanced Archaeological Field School students hands-on learning opportunities. In addition, Hell Gap collections have contributed to at least 15 master’s theses or Ph.D. dissertations from UW and other institutions and dozens of papers have been presented at regional and national conferences.

“The site fundamentally changed how archaeologists viewed Paleoindian foragers,” says Kornfeld, “because, as a residential campsite, it showed a diversity of human activities, including medium game hunting, tool stone acquisition, and personal ornamentation—none of which were evident at the big-game kill sites and surface scatters that had dominated the Paleoindian archaeological record up to that point.”

The National Historic Landmarks Program recognizes historic properties of exceptional value to the nation and promotes the preservation efforts of federal, state, and local agencies, Native American tribes, and those of private organizations and individuals. Administered by the National Park Service, the program provides states and local communities with technical assistance, recognition and funding to help preserve the nation’s shared history and create close-to-home recreation opportunities.
Growing up in a home in which the classical music radio station played the soundtrack of daily life and both parents were artistically inclined, served as the perfect incubator for creative expression. Guzzo’s father Anthony, a retired UW professor of chemistry, is a sculptor, and her mother, Sandra, is a writer and painter. When she was in junior high at UW Prep, Guzzo attended a band concert at Laramie High School during which a piece composed by a student was performed. “As I sat in the audience, listening to that student composition, I got so excited thinking that maybe I could compose,” says Guzzo. “I had never met a living composer—and here he was, just a student like me. I immediately started reading about how all the band instruments worked, poring over an instrumentation book I found at the library. My junior high band director was encouraging enough to try out my first composition with the Prep band, and I was hooked.”

Today, Guzzo is an internationally performed composer, and her work has been played in Brazil, Britain, Columbia, Canada, Italy, and throughout the United States. In 2015, Guzzo’s music was featured at the Beyond This World concert at the Choral Arts Institute in Los Angeles. Her compositions are performed and recorded by numerous orchestras and ensembles, including Third Angle in Portland, Oregon; the Colorado Chamber Orchestra; the Divan Consort and Synchrony Collective in Los Angeles; the Cheyenne Symphony Orchestra; and the UW Symphony.

A clarinetist first, Guzzo sites several influences on her music, including Russian-born Igor Stravinsky, who composed Three Pieces for Solo Clarinet in 1919. “While studying for my master’s in clarinet performance at UC Santa Cruz,” notes Guzzo, “I auditioned to play in Stravinsky’s Soldier’s Tale, a Faustian folk-like story about a devil bargaining with a soldier for his violin. I found the work intellectually stimulating with such clever use and reuse of themes. It was challenging, but also a lot of fun to play, with its infectious rhythms and quirky tunes. I was also moved by the music and how well it represented the characters.”

Other artists that help shape Guzzo’s work include Israeli-American composer Shulamit Ran, the second woman to win the Pulitzer Prize in Music for her Symphony (1990), and Carl W. Stalling, best-known for his work with Looney Tunes and Merrie Melodies. Stalling made significant use of the “Musical Pun,” which uses references to pop music or even classical pieces to create humor.

Have you ever wondered how to musically articulate a vibrating microbe or what tone quality would best convey the many nuances of the wind in Wyoming?

Have you ever asked yourself how the color of honey or a particular painting would sound?

Have you ever considered the musicality of love and hate and stars and water?

Wyoming native Anne Guzzo, an associate professor in the Department of Music, has asked herself all of those questions and many others. She communicates the answers through her music.

Composer Anne Guzzo’s music gives soul to the universe

Diana Marie Waggener
Among Guzzo’s inspirations are science and nature, and she often draws upon scientific phenomena and nature’s marvels to create her compositions. In recent years, she has worked with vertical dancers from the Department of Theatre and Dance, as well as UW science professors and researchers from such diverse areas as geology, rangeland ecology, and microbiology. These interdisciplinary collaborations have led to pieces that are both moving and humorous. “I think music and science, when done well, involve a lot of hard work,” she explains, “but also an openness to thinking differently or creatively—asking ‘what if’ and then trying it, seeking patterns, looking at proportions, seeking to understand translations and transformations, and assessing what has happened with the experiment.”

Guzzo continues: “In my chamber orchestra work, The Carnival of the Microbes, I learned how a variety of microbes functioned from Dr. Naomi Ward [Department of Molecular Biology, College of Agriculture and Natural Resources] and her poet collaborator, Dr. Harvey Hix [Departments of Philosophy and Religious Studies and Visual and Literary Arts]. I took those functions and translated them into music—if the Corynebacterium, found in soil, reproduce by snapping off a new bacterium and appear to vibrate when doing so, then orchestral strings will tremolo (a very fast back and forth of the main bacterium and appear to vibrate when doing so), Corynebacterium, found in soil, reproduce by snapping off a new bacterium and appear to vibrate when doing so, then orchestral strings will tremolo (a very fast back and forth of the main bacterium and appear to vibrate when doing so).”

Guzzo said that “the good poet weds his theft into a whole feeling, which is unique, utterly different from that from which it was torn.”

As one of the featured artists in the 2015 documentary film, The Uranus Experiment, detailing a two-year collaborative residency between artists and scientists, Guzzo and Professor Ron Frost, Department of Geology and Geophysics, composed an opera titled Clinker: Between an Open and a Hard Place. A musical description of the geology of the Powder River Basin, the opera’s libretto, written by Frost, contains technical and geological terms, while Guzzo’s music conveys the sound and rhythm that underscore the story. “One of the beautiful things about science-art collaborations is that you communicate these wonders and information in a new way and reach new audiences,” notes Guzzo. “For example, if we can present art at scientific conferences, then we have a whole new audience of invested listeners. They understand the story already, and here they are listening to opera about something they care about. If you anthropomorphize a geological process, the creation of clinker—a red, baked, pottery-like rock that forms when underground coal fires burn—and turn that process into a schemeing baritone, always looking for ways to heat things up—you have a memorable, interesting, and hopefully engaging way to understand geology AND listen to new classical concert music.”

A musician’s musician, Guzzo finds herself composing music that pleases those who will ultimately play her work. At the same time, she is well aware of the interplay between music makers and their audiences. She taps into her own emotions about such abstract concepts as love and wind, and sometimes she hears the music in her head before she starts to work with a concept. She describes her musical voice as welcoming, witty, and occasionally elegant.

Her musical elegance often is best communicated when Guzzo writes for her first love—the clarinet. She writes compositions for AdZel Duo, who have an album coming out this year. For example, if they wanted a climactic moment, but Guzzo wrote it, they get to keep it. It is their art, not mine. I find that there is definitely enough work out there for everyone, so I don’t need to compete with them. The way I see it, their successes are my successes.”

Besides writing musical compositions and collecting both rejection and acceptance letters, sharing her gifts with students is one of Guzzo’s great joys. “I genuinely love teaching,” she exclaims. “Being able to encourage curiosity and creativity is such a wonderful, wonderful opportunity. One of the important things about being in a position like mine, I believe, is to never, ever crush someone’s creativity and to help them support and find their own compositional voice. Honestly, most of what I do as a composition teacher is listen to what the student says they intend, ask a lot of questions, and then simply state the facts about what the student has brought to me. For example, if they wanted a climactic moment, but didn’t change the range or the dynamic or the tempo, I point that out. I suggest they experiment—ask ‘what if’—and then have them try out some ideas. Usually they find a more effective or moving way to achieve their goals. But one rule of my studio is that if a student likes it the way they originally wrote it, they get to keep it. It is their art, not mine. I find that there is definitely enough work out there for everyone, so I don’t need to compete with them. The way I see it, their successes are my successes.”

With the goal of creating and playing music in a beautiful natural environment, Guzzo founded the Wyoming Festival, a music event, held annually at the UW-NPS research station, AMK in the Berol Lodge at Grand Teton National Park.

This innovative 10-day festival is devoted to the creation of new concert music inspired by the wild and natural setting of Grand Teton National Park. Through a juried process, six music composition fellows, as well as a composer-in-residence, from across the nation are invited to participate. The festival culminates with a preview concert performed at the Craig Thomas Discovery and Visitor Center, Moose, and the final concert takes place at the AMK in the Berol Lodge.

The Wyoming Festival is supported by the UW-NPS and the Douglas B. Reeves Endowment for Composition. To learn more about the UW-NPS or to make a tax-deductible donation to the Wyoming Festival, send email to uwnp@uwyo.edu.
Journey to the bottom of the sea leads to exciting geological discoveries

Diana Marie Waggener

The seafloor: the final frontier of exploration on Planet Earth. These are the voyages of Professors Barbara John and Michael Cheadle, Department of Geology and Geophysics, and their graduate students. Their mission: to explore the bathymetry (topography) and rocks at the bottom of the sea, to seek out amazing organisms living under both extreme pressure and in total darkness, and to boldly go where few humans have gone before.

Geologists John and Cheadle have been exploring submarine geology and, consequently, life on the seafloor for the past 20 years. Their expeditions have resulted in fascinating opportunities, including the 2016 Indian Ocean Expedition to drill the upper part of a 5-kilometer-deep hole in ocean crust that will initiate a journey to the earth’s mantle. This endeavor eventually will lead to the realization of a more-than-50-year-old dream for the geologic community, which began with Project Mohole between 1958 and 1966. An attempt to retrieve sample material from below the Mohorovičić discontinuity (the boundary between the earth’s crust and the mantle), Project Mohole aspired to find conclusive evidence to support the theory of plate tectonics and continental drift.

Initially, Project Mohole received a great deal of attention, so much so that, in April 1961, Life Magazine sent author John Steinbeck to the drill ship to write dispatches. Due to lack of funding, however, the project was discontinued, but earth scientists held to the dream of one day drilling a hole through the ocean’s crust to glean a sample of the mantle to, in the words of Steinbeck, “crack a great geophysical mystery.”

Stemming from their quest to crack geophysical mysteries or, at least, to gain a better understanding of how the earth’s crust grows and evolves, John and Cheadle have been involved with important discoveries, including the Lost City Vent System in the Atlantic Ocean, found in 2000, during a National Science Foundation (NSF) expedition. A collection of up to 180-foot-tall limestone towers, the “Lost City” hosts a submarine hot-spring system with hydrothermal vents that scientists believe is similar to those that accommodated the earth’s first living organisms.

Continued on Page 14...
More recently, Cheadle and John served as co-chief scientists on a 42-day-NSF-funded expedition to the mid-oceanic ridge in the Southern Pacific Ocean. Along with UW undergraduate and graduate students and a team of international scientists, they boarded the U.S. vessel, R/V Atlantis, at Easter Island (Rapa Nui) on January 13, 2017. Their mission was to investigate Pito Deep, a chasm in the seafloor two-and-a-half times as deep as the Grand Canyon. “Pito Deep rests on the edge of the Easter Microplate,” explains John, “which is a small tectonic plate that rotates like a ball bearing trapped between two overlapping arms of the Pacific Rise. This is an area in the Pacific Ocean that exposes a cross section of lower ocean crust, which we know would help us to understand how oceanic crust is formed.”

The scientists used the remotely operated submarine, Jason II, and an autonomous undersea vehicle, Sentry, to locate and document five previously undiscovered hydrothermal vents, as well as to relocate two others that were found in 1994. These vents are called “black smokers” because they emit clouds of iron, copper, zinc sulphide particles, and even a small amount of gold. Measuring as high as 70 feet, with nearly 40-feet-high “chimneys,” these “black smokers” are among the most spectacular features found on the seafloor and host an alien chemosynthetic ecosystem within which organisms thrive in the darkness at the bottom of the sea.

They observed that the water emanating from the mouth of the vents measured at temperatures of up to 370 degrees Celsius, indicating that seawater must descend down cracks to a nearby magma chamber where the water is heated and then rises back to the seafloor. “This process is important because the very hot water can dissolve elements, like copper, from the rocks and precipitate them as potentially economic deposits at the site of the vents,” explains Cheadle. “Perhaps the most important aspect of these vents is the chemical and thermal dynamics taking place within them, making such environments highly suitable for chemical evolution processes to take place.”

Because this year is the 40th anniversary of the first sighting of hydrothermal vents, the timing of Cheadle and John’s discovery is serendipitous. “The big surprise is the fauna that live down there. There’s no light. It’s totally dark,” says Cheadle. “The whole vent community depends on chemosynthetic bacteria for food. These bacteria can use hydrogen sulfide to produce organic material. It’s simply a completely alien ecosystem.”

As if finding an alien ecosystem wasn’t exciting enough, the team also accomplished the first detailed geologic mapping of the lower oceanic crust. The lower crust comprises a coarse-grained rock, gabbro, which crystallizes in the magma chambers below the volcanoes, supplying the basalt lava that covers most of the seafloor. Mapping the seafloor was accomplished by first sending the autonomous vehicle Sentry to depths of 14,800 feet (6,000 meters) below sea level to map the seafloor bathymetry at a resolution of 2 to 5 meters using sound waves, creating maps so detailed that individual rock outcrops are imaged.

Once these maps were finished, John and Cheadle sent the second robotic submariner, Jason II, straight to rocks on the seafloor. Jason II is tethered to the ship via fiber optic cable and operated by a pilot, allowing scientists to take high-resolution images and direct the pilot to use two robotic arms to pick up samples from the seafloor, as well as to measure temperatures in the vent chimneys. The vehicle can stay on the seafloor for up to seven days and recover up to 480 pounds of rocks per dive. The final geologic map is among the most comprehensive ever made that shows in-situ ocean crust, with a resolution and detail comparable to geologic maps of the continents. As such, it reveals complexities never before seen, leading to a much better understanding of how ocean crust, which forms 60 percent of the earth’s surface, is created.

Remote Operated Vehicle Jason II ascending after a dive. This vehicle recovered all of the rock samples collected on the Pito Deep cruise (Mike Cheadle photo).

Automated undersea vehicle Sentry mapped the seafloor at 1m resolution (Mike Cheadle photo).

**Plate Tectonics Review**

Plate tectonics (from the Latin *tectus*, “pertaining to building”) provides geology with a comprehensive theory that explains “how the Earth works.”

Developed from the 1950th through the 1970th, plate tectonics is the modern version of continental drift, a theory first proposed by Alfred Wegener in 1912. It grew from the explosion of new knowledge that emerged post World War II about the ocean floor, the earth’s magnetism, the distribution of earthquakes and volcanoes, the flow of heat from the earth’s interior, and the worldwide distribution of plant and animal fossils.

The theory describes the motion of seven large plates and the movement of many smaller plates of the earth’s lithosphere, over the earth’s mantle. Where the plates meet, their relative motion determines the type of boundary. At mid-ocean ridges, new lithosphere is formed and the plates move apart; at subduction zones, like that found off of the coast of Oregon and Washington, the plates converge and one plate gets pushed down into the mantle beneath mountain ranges and volcanoes, like those of the Cascade Range; and at transform faults, like the San Andreas Fault, the plates slide past each other, but in doing so can generate very large and dangerous earthquakes. The relative movement of the plates typically ranges from zero to 15 centimeters per year, not very different from the rate at which a finger nail grows—3.6 centimeters a year. Michael Cheadle
Voyage of the Jackalope

The Jackalope is a 5-foot-long mini-boat that was part of the outreach program Cheadle and John organized for their Pito Deep expedition. She was purchased in kit form from Educational Passages in Maine and given to Theresa Williams’ middle school class at the UW Lab School. Williams’ students built, painted, and named the mini-boat as part of their studies. They placed objects and information about Laramie and Wyoming in her waterproof “time capsule” including an explanation of the name Jackalope in 20 different languages.

Equipped with an Iridium GPS system, the mini-boat was set to report her position once every 24 hours, with the National Oceanographic and Atmospheric Administration (NOAA) picking up the signal and publishing her position on the Web. She was launched from the RV Atlantis at the end of the Pito Deep Expedition in February and began what was to be a 190-day-long journey across the Pacific Ocean.

She travelled 12,310 kilometers along a great circle. In late August, she made landfall on Ontong Java Atoll in the western Pacific Ocean—one of the largest atolls in the world. Williams’ students followed the journey and learned much about ocean wind patterns and currents and the geography of myriad ocean islands as she crossed the Pacific.

Life Under the Sea

In addition to discovering, imaging, and measuring temperatures from the seven hydrothermal vents, collecting over 400 rock samples, and achieving the first completely detailed geologic map of the lower ocean crust, the voyage included several outreach activities before and throughout the cruise, including live ship-to-shore Webcasts. Audiences included K-12 and post-secondary classrooms (with emphasis on interacting with Wyoming classrooms), as well as specialist groups in the United States, Canada, and the United Kingdom.

Broadcasts reached more than 1,050 students and the general public, allowing direct engagement with the shipboard science party as operations and discoveries were made. “Some might argue that bringing live science to school children in their classrooms was one of the most important aspects of the expedition,” remarks Cheadle, “to both make them aware of the opportunities that could await them when they get older and to get them interested in science and in the mysteries of planet earth, itself.”

The Atlantis voyage is not the final mission for John and Cheadle. During summer 2017, Cheadle went to Japan to de-
scribe rock core from Oman on-board the 55,000 ton Chikyu, the largest academic research vessel in the world. Oman likely has the best example in the world of an ophiolite—a piece of ocean crust that formed underwater at a mid-ocean ridge, but subsequently has been pushed up by tectonic forces onto the continents and, therefore, now is above sea-level and much more accessible than normal oceanic crust. Some argue, however, that there is something strange and different about the crust to cause it to behave this way. So Cheadle and 30 other geologists boarded the Chikyu to carefully examine the core from Oman to determine if it, indeed, looks like those rocks recovered from the sea-floor at places like Pito Deep. “I also got some unexpected excitement during the trip,” says Cheadle, “Whilst there, the ship had to outrun a typhoon that was headed toward Japan!”

Meanwhile, the husband and wife team are waiting to receive word of when their next adventure will happen—this time to the Indian Ocean to research the bottom of the sea where even more undiscovered geology and life await.

To learn more go to: www.pitodeep.org.
Sagebrush habitat loss, degradation, and fragmentation led to a fairly recent 3 percent decline among the sagebrush songbirds, and the USFWS has identified all three sagebrush songbirds as “species of conservation concern,” a term that generally refers to species that are in decline or appear to be in need of conservation.

So, in 2008, Associate Professor Anna Chalfoun, Department of Zoology and Physiology, and her graduate students started to examine the influence of natural gas development in southwestern Wyoming on the nesting success (numbers of nests that produce at least one fledgling) of sagebrush songbirds. “Because these birds have evolved to nest almost exclusively within sagebrush habitats,” explains Chalfoun, “they are vulnerable to the vast changes to sagebrush habitats range-wide.”

The first phase of Chalfoun’s research indicated that the nesting success of all three birds—the sagebrush sparrow, Brewer’s sparrow, and sage thrasher—decreased with surrounding sagebrush habitat loss and alteration. Diminishing numbers of the Brewer’s sparrow and the sagebrush sparrow have an estimated decline of six birds for every 10 gas wells per square mile.

Even though nesting success has decreased in these areas, the songbirds continue to settle wherever they can find patches of sagebrush.

For the songbirds, these altered nesting sites became an ecological trap in which more nests are discovered by predators, occasionally including other bird species like the loggerhead shrike, northern magpie, short-eared owl, northern harrier, and American kestrel. “A first step,” Chalfoun says, “was to learn who the primary nest predators were. We placed 24-hour infrared video cameras at a subset of nests and discovered, to our surprise, that rodents, including deer mice, which often are the same size as the nestlings they depredate, were the main culprits.”

Between 2011 and 2017, Chalfoun and her students found that 89 percent of predation to Brewer’s sparrow was caused by rodents. Of 67 predation events filmed on infrared video camera, 35 were by deer mice, 12 by chipmunks, and five by ground squirrels. During that same time period, 68 percent of the predation of 37 sage thrasher nests was done by 10 deer mice, 10 chipmunks, and five ground squirrels.

Continued on Page 20...
Subsequent comparisons of rodent abundance revealed that deer mice and ground squirrels were more plentiful around natural gas infrastructures. Chalfoun says, “We tested the hypothesis that the main predators of rodents—coyotes, badgers, eagles, hawks, and ravens—are less prevalent near natural gas fields, thereby increasing rodent survival and abundance.” This ecological phenomenon is called Mesopredator Release, but Chalfoun and her graduate student Lindsey Sanders found that, in fact, the mesopredators also were more abundant in the gas fields. “Potentially, the ‘apex predators’ were all taking advantage of the increased rodent prey there,” adds Chalfoun. “So something else may be benefiting the mice and ground squirrels in the gas fields.”

Tracking fluorescent-powder-dipped mice at night recently gave Sanders and Chalfoun evidence confirming that mice will forage in the reclaimed areas surrounding the well pads and pipelines. In addition, diet analyses of their scat reveals that these mice consume both native and non-native plants, like Russian thistle, commonly found in the reclaimed areas, make excellent hiding places from rodent predators. Another possible refugia (an area in which a population can survive in unfavorable conditions) for rodents might include denester predators are hesitant to cross particular edges, such as major dirt roads, they could “stack up” in adjacent areas and increase in density even if those areas are not particularly beneficial to them.

Regardless of the specific mechanism(s), the deviations to sagebrush habitats within natural gas fields are clearly affecting nesting outcomes of breeding birds. “If rodent densities are increasing as a result of landscape changes and/or altered herbaceous plant composition and structure,” says Chalfoun, “we should re-emphasize the need to restore disturbed sagebrush steppe areas within energy-extraction fields back to their more ‘natural state’ as quickly as possible, so that trophic dynamics and balance can be restored.”

According to the Wyoming State Wildlife Action Plan (2017), several efforts are focused on lessening the negative effects of energy development on sagebrush habitats. In particular, the Jonah Interagency Office (JIO) supports projects to maintain important sagebrush habitats in the vicinity of energy development near Pinedale. Potentially, Chalfoun’s research will help land managers develop mitigation plans that benefit Wyoming’s sagebrush songbirds and even the more-famous greater sage-grouse.
First-hand encounters of the international kind

The College of Arts and Sciences has a long-standing tradition of encouraging its students to take advantage of study abroad. These life-changing experiences help students to see the world from a new perspective, develop language skills, step outside of their comfort zones, and increase their self-confidence.

UW currently has International agreements with Afghanistan, Argentina, Australia, Austria, Belgium, Brazil, Chile, China, Croatia, Cyprus, Denmark, Ecuador, England, Ethiopia, France, Germany, Ghana, Guatemala, Iceland, India, Indonesia, Israel, Italy, Japan, Kazakhstan, Korea, Malaysia, Mexico, Morocco, Nepal, the Netherlands, Peru, Philippines, Russia, Singapore, Slovak Republic, Scotland, Sweden, Syria, Taiwan, Tanzania, Tunisia, Turkey, United Arab Emirates, and Wales. Students in the College of Arts and Sciences regularly take advantage of the many offerings to take classes, conduct fieldwork and research, and immerse themselves in a place far away from home.

During Spring London Semester 2016, Killian Ramey, a dance major, attended the American Institute for Foreign Study (AIFS). Her academic courses were hosted by the University of London, while she also studied independently at four of London’s finest studios—The Place, DanceWorks, Pineapple, and Studio 68. Working with dancers, choreographers, and teachers from across the globe was an opportunity that Ramey always will cherish. “Taking professional-level classes from new people every day encouraged me to grow in my artistry, confidence, and technique,” she says. “I kept a detailed journal of every dance class I took while abroad that I will be sure to treasure forever.”

In addition to academic and dance studies, Ramey immersed herself into London culture, attending 13 productions—including the Royal Opera’s Giselle, learning to English country dance at the Cecil Sharp House, and exploring the city’s architecture, markets, and parks. Ramey was struck by London’s global environment, allowing her to interact with people from diverse cultures at various eateries and festivities. “I will always cherish being a part of the largest Chinese New Year celebration outside of Asia,” she reflects. “I also do not think I could ever taste another curry dish as delicious as the one I found on Brick Lane. Furthermore, I will never forget my first ride down to the Tube where I heard more than five different languages being spoken in a single elevator.”

Besides exploring London, Ramey also participated in day trips and cultural events sponsored by AIFS. These events included visiting Bath, Stonehenge, and Oxford, as well as organized trips to Scotland and Munich. On her own, Ramey and two friends also traveled to Paris, and on the way back to the United States, she stayed in Iceland and took in its magnificent scenery and discovered yet another new culture.

“Having the chance to experience firsthand the world’s vastness and diversity led me to realize the importance of connection, collaboration, and sharing ideas,” Ramey says. “My semester greatly humbled me as I realized how much I did not know; yet, it simultaneously inspired me to ever be learning from, growing alongside, and sharing with the people around me.”

In addition to her coursework, Hoeninghausen deepened her international awareness by traveling throughout Morocco and Europe nearly every weekend. “This was an incredible experience for me because I made friends from all over the world, including Italy, Algeria, Germany, the Netherlands, and, of course Morocco,” she says. “Having such a diverse group of friends came in handy because everywhere I traveled, I was with someone who could speak the native language.”

By seizing the moment and taking spontaneous adventures, Hoeninghausen learned how beautiful the world can be when one has an open mind and is able to accept new cultures and encounters. Living in a Muslim country, Hoeninghausen was moved by the Call to Prayer from the town mosques five times a day—an occurrence not at all common in the United States. “While traveling to English-speaking countries also is an amazing and bold move, traveling to a developing country or a country that you know very little about will open your eyes to an entirely new perspective on life,” she notes. “You never know, experiencing a country for yourself could go as far as ending a stereotype that you’ve had in your head about an entire population of people, and that is amazing.”

Benefits of studying abroad

The Institute for International Education of Students (IES) conducted a 50-year alumni survey to explore the long-term impact of study abroad on the personal, professional, and academic lives of students.

- 95% said that studying abroad was a catalyst for increased maturity.
- 96% reported increased self-confidence.
- 94% said that studying abroad continues to influence interactions with people from different cultures.
- 95% said that studying abroad had a lasting impact on their world view.

Source: https://www.iiesabroad.org/study-abroad/why/alumni-survey-results
Sarah Beth Wurzel, a senior majoring in biology and Spanish, spent two semesters in a full immersion program in Chile in 2015. She lived with a Chilean family, volunteered at a bilingual preschool, and joined a church community. In her second semester, Wurzel joined the university choir.

She took several courses most of which focused on oceanography and Spanish. “All of my oceanography classes were with Chilean students, so I became friends with Chilean students and professors,” she says. “I also saw some Chilean naval research ships and collected samples from the Valparaiso Bay for one of my classes. Hearing about all of the current research Chilean scientists are doing and being able to ask them questions about it was very special.”

When asked what the most important skill or lesson she learned while abroad, Wurzel comments, “I learned how to truly listen to people and seek to understand a different culture and language from the nationals’ perspective instead of my own. Along with that, I realized that different countries’ approaches to a problem can be equally effective if not better that the solutions we have in the United States.”

Wurzel participated in several cultural festivals and learned to dance la cueca, declared the national dance of Chile in 1979, which mimics the courtship of a chicken and a rooster using handkerchiefs that symbolize feathers. She also got “hooked” on salsa dancing. “The people in Chile really welcomed me into their lives and showed me amazing hospitality,” says Wurzel. “I am so thankful to have been able to live a year of my life with them, see the beautiful country, and learn the language. I also am thankful to UW for the scholarships I received to help me to go to Chile.”

In spring 2016, Spencer Ramsey Pelton, a Ph.D. candidate in the Department of Anthropology, lived in a remote camp with Dukha (pronounced do-ha) reindeer herders in the boreal forest in Mongolia. As a research assistant to Professor Todd Surovell, Pelton mapped people around their camps and inside their rounded homes, called an ortz, with iron stoves in the middle, to use as an analog for the Dukha Ethnoarchaeology Project. The goal of the project (funded by the National Science Foundation, the Fulbright Scholars Program, and the George C. Frison Institute) is to develop spatial theory of human behavior for application to archaeological problems.

While living and working with these nomadic people, Pelton discovered the true meaning of self-reliance. “The concept of a 'repairman' or a 'run to the grocery store' is foreign to those who must rely on themselves to maintain their few possessions and obtain most of their food by their own devices,” he says. “The nearest village was a few-days-on-the-back-of-a-reindeer away, so if anything went wrong, we had to deal with it.”

Pelton’s interactions with the reindeer were intriguing. “I would characterize their disposition as somewhere between a golden retriever and a cow,” he says. “They make really funny noises, are food obsessed, and kind of dopey—they are inherently hilarious. They also are really hard working.” Besides enjoying the reindeer, Pelton found the camaraderie among the herders, complete with good-natured teasing and plenty of laughter, charming. He remembers receiving no shortage of jokes about him “crawling” up a snowy mountain pass on a particularly grueling day of travel. “My favorite part of living with nomadic people was seeing how purely happy they are,” he comments. “The Dukha are simply good people, and I felt like I had earned lasting friendships by the end of the experience.”

Laramie native Gabriel Selting received the Undergraduate Student International Excellence Award in Spring 2017. Each year, the UW International Board of Advisors and the International Programs Office recognize individuals who have significantly contributed to internationalization and the promotion of global awareness at the university.

Selting, an honors student majoring in international studies with a minor in human and animal physiology, is president of the International Studies Student Club. He also received the Outstanding Freshman Award in the Global and Area Studies Program.

Selting’s main interest is the Middle East, which motivated his language study in both Arabic and French. He has been to Israel, Haiti, and France and has interned at the university.

The nationals’ perspective instead of my own. Along with that, I realized that different countries’ approaches to a problem can be equally effective if not better than the solutions we have in the United States.”

When asked what the most important skill or lesson she learned while abroad, Wurzel comments, “I learned how to truly listen to people and seek to understand a different culture and language from the nationals’ perspective instead of my own. Along with that, I realized that different countries’ approaches to a problem can be equally effective if not better than the solutions we have in the United States.”

Wurzel participated in several cultural festivals and learned to dance la cueca, declared the national dance of Chile in 1979, which mimics the courtship of a chicken and a rooster using handkerchiefs that symbolize feathers. She also got “hooked” on salsa dancing. “The people in Chile really welcomed me into their lives and showed me amazing hospitality,” says Wurzel. “I am so thankful to have been able to live a year of my life with them, see the beautiful country, and learn the language. I also am thankful to UW for the scholarships I received to help me to go to Chile.”

In spring 2016, Spencer Ramsey Pelton, a Ph.D. candidate in the Department of Anthropology, lived in a remote camp with Dukha (pronounced do-ha) reindeer herders in the boreal forest in Mongolia. As a research assistant to Professor Todd Surovell, Pelton mapped people around their camps and inside their rounded homes, called an ortz, with iron stoves in the middle, to use as an analog for the Dukha Ethnoarchaeology Project. The goal of the project (funded by the National Science Foundation, the Fulbright Scholars Program, and the George C. Frison Institute) is to develop spatial theory of human behavior for application to archaeological problems.

While living and working with these nomadic people, Pelton discovered the true meaning of self-reliance. “The concept of a ‘repairman’ or a ‘run to the grocery store’ is foreign to those who must rely on themselves to maintain their few possessions and obtain most of their food by their own devices,” he says. “The nearest village was a few-days-on-the-back-of-a-reindeer away, so if anything went wrong, we had to deal with it.”

Pelton’s interactions with the reindeer were intriguing. “I would characterize their disposition as somewhere between a golden retriever and a cow,” he says. “They make really funny noises, are food obsessed, and kind of dopey—they are inherently hilarious. They also are really hard working.” Besides enjoying the reindeer, Pelton found the camaraderie among the herders, complete with good-natured teasing and plenty of laughter, charming. He remembers receiving no shortage of jokes about him “crawling” up a snowy mountain pass on a particularly grueling day of travel. “My favorite part of living with nomadic people was seeing how purely happy they are,” he comments. “The Dukha are simply good people, and I felt like I had earned lasting friendships by the end of the experience.”

Laramie native Gabriel Selting received the Undergraduate Student International Excellence Award in Spring 2017. Each year, the UW International Board of Advisors and the International Programs Office recognize individuals who have significantly contributed to internationalization and the promotion of global awareness at the university.

Selting, an honors student majoring in international studies with a minor in human and animal physiology, is president of the International Studies Student Club. He also received the Outstanding Freshman Award in the Global and Area Studies Program.

Selting’s main interest is the Middle East, which motivated his language study in both Arabic and French. He has been to Israel, Haiti, and France and has interned at the university.

The nationals’ perspective instead of my own. Along with that, I realized that different countries’ approaches to a problem can be equally effective if not better than the solutions we have in the United States.”

When asked what the most important skill or lesson she learned while abroad, Wurzel comments, “I learned how to truly listen to people and seek to understand a different culture and language from the nationals’ perspective instead of my own. Along with that, I realized that different countries’ approaches to a problem can be equally effective if not better than the solutions we have in the United States.”

Wurzel participated in several cultural festivals and learned to dance la cueca, declared the national dance of Chile in 1979, which mimics the courtship of a chicken and a rooster using handkerchiefs that symbolize feathers. She also got “hooked” on salsa dancing. “The people in Chile really welcomed me into their lives and showed me amazing hospitality,” says Wurzel. “I am so thankful to have been able to live a year of my life with them, see the beautiful country, and learn the language. I also am thankful to UW for the scholarships I received to help me to go to Chile.”
Humanity’s great potential—in the long run. As he dwells not on coming chaos, but rather on the widespread shift toward world citizenship will end the near-sacred status of nation-states. His optimism for the emergent phenomena of this fifth beginning during which the concept of the ‘survival of the fittest’ will give way to altruism and generosity spirit give her the strength to live her life as she pleases despite the limitations that others, and her own body, would place on her. Free to satisfy only herself, Miss Jane mesmerizes those around her, exerting an unearthly fascination that lives beyond her still.

These “beginnings” occur over a long period of time. Kelly argues, and this fifth beginning actually started in around 1500 A.D. (C.E.). Placing what many people today call globalization into its longer context, Kelly describes the fifth beginning as a five-thousand-year arms race, capitalism’s global reach, and the cultural effects of a worldwide communication network. He defines the first four enduring beginnings as the rise of technology, culture, and agriculture, and, finally, the state. Kelly shows that we are in the fifth beginning during which the concept of the ‘survival of the fittest’ will give way to altruism and philanthropy.

These “beginnings” occur over a long period of time. Kelly argues, and this fifth beginning actually started in around 1500 A.D. (C.E.). Placing what many people today call globalization into its longer context, Kelly describes the fifth beginning as a five-thousand-year arms race, capitalism’s global reach, and the cultural effects of a worldwide communication network. He defines the first four enduring beginnings as the rise of technology, culture, and agriculture, and, finally, the state. Kelly shows that we are in the fifth beginning during which the concept of the ‘survival of the fittest’ will give way to altruism and philanthropy.

Looking at the six-million-year history of human development, Robert Kelly identifies what he calls four “beginnings” all of which led to an ultimate, “no-turning back” change for the way societies organize themselves. He defines the first four enduring beginnings as the rise of technology, culture, and agriculture, and, finally, the state. Kelly shows that we are in the fifth beginning during which the concept of the ‘survival of the fittest’ will give way to altruism and philanthropy.

When he filmed there during a February 1972 blizzard for his CBS “On the Road” series. Anyone who ever has driven or will drive those 77 miles during a snow storm will appreciate learning about how and why the highway was constructed in that location despite the warnings of well-versed locals. Waggener also details the development of snow fences by Ronald Tabler and others, as well as additional efforts to mitigate danger-ous travel.
Laramie native Danielle Olden, 2006 College of Arts and Sciences Outstanding Graduate, credits her UW undergraduate education with preparing her for graduate school and consequent position as an assistant professor at the University of Utah. Like many high school seniors, Olden was ready to leave her hometown after graduation, but financial realities determined that she would attend UW. "As it turned out, I couldn’t be happier that I chose UW," she notes. "I had a number of life-altering experiences there for which I am grateful. I genuinely enjoyed my coursework, which helped me fine tune my writing and speaking skills, and I also learned how to research, how to develop an argument, and how to present evidence."

Because of her fascination with religious history and Egyptology, Olden decided to major in history. Once she started to take classes, though, Olden was drawn to U.S. History because it helped her to make sense of contemporary debates and problems that she saw in everyday American life. She also took advantage of the wide range of courses available in a liberal arts and sciences college. "I felt empowered with the new knowledge I was gaining and the new insights I was developing," she notes. "I loved my courses in English, Women’s Studies, Chicana/o Studies, and African American Studies. Combined, these courses helped me develop my scholarly interests and my research agenda, which I still am pursuing."

Opportunities seemed to wait around every corner for Olden. As a freshman, she took Introduction to Public History, which met in a liberal arts and sciences college. "It enabled me to focus on the research without having to work another job to pay the bills," she explains. “It gave me a taste of what it is like to pursue a career in academia."

"It was through McNair that I learned what graduate school is," she says, "and that there are graduate programs that not only pay your tuition but provide stipends as well." Before becoming a McNair Scholar, Olden had not considered graduate school. "McNair staff offered workshops on research, writing, and speaking skills, and I also learned how to research, how to develop an argument, and how to present evidence."

During the summer between her junior and senior years, Olden was a McNair Scholar, which provided funding for her undergraduate independent research. "The fact that it was paid was critical because it enabled me to focus on the research without having to work another job to pay the bills," she explains. "It gave me a taste of what it is like to pursue a career in academia."

Armed with a B.A. in history, including a concentration in public history, and a minor in interdisciplinary professional writing, Olden went on to earn both a master’s and Ph.D. in history at the Ohio State University. "The rest, as they say, is history."

Today, Olden, a first-generation college graduate, teaches undergraduate and graduate courses in U.S. History, U.S. West History, Chicana/o history, borderlands history, and historical methodology and writing. As she finishes her fourth year at the University of Utah, Olden is preparing for a year-long National Endowment for the Humanities fellowship, which she will take during calendar year 2018.

Olden will use that year to work on her book, Racial Uncertainties: Mexican Americans, School Desegregation, and the Making of Race in Post-Civil Rights America, in which she looks at desegregation of Colorado public schools during the 1970s. Her work focuses on how Mexican Americans participated in litigation and community disputes concerning how desegregation would be implemented in the city of Denver. In 1972, Keyes v. School District No. 1, made its way to the United States Supreme Court. The case resulted from law suits and disagreements about which Mexican Americans (the largest minority group in Denver) fit into the black-white paradigm of the court system. “I was drawn to the case,” explains Olden, “because of the questions and debates it presented about race—a major research interest of mine. Denver citizens could not agree on their racial identity or how they fit into the court’s desegregation plan. Mexican American racial ambiguity was, therefore, a critical part of the case. I argue that these racial uncertainties are more important to the history of modern America than previous scholars have recognized.”

As an educator, Olden hopes to inspire other first-generation college students and challenge the assumptions that students often bring into the classroom. Olden shares her accomplishments with her family, whose love and support have served as a guiding light. "My mom raised me and my two sisters as a single mother—a feat that I still can’t quite figure out," notes Olden. "Yet, she did it, and she did it with grace, strength, and humor. My accomplishments are not mine alone; they belong to her as well."

Katie Kern is the new A&S Major Gift Officer

Katie Kern recently joined the UW Foundation as the College of Arts and Sciences major gift officer. Born and raised in Albuquerque, New Mexico, Kern holds a B.A. in communications and an M.S. in physical education and sports administration from the University of New Mexico. Kern was an assistant coach for the UW Women’s Basketball team for several years and has a strong passion for the University of Wyoming.

"I am extremely excited to work with the College of Arts and Sciences,” says Kern, “and I love living in Wyoming for the outside adventure opportunities. I enjoy hiking, camping, cross-country skiing, and basically anything outdoors. I have one dog, Decker."
Part of the 22m tall “Medea” hydrothermal vent discovered on February 10, 2017, at 2300m below sea-level. Crabs and polychaete worms are visible on the surface of the vent.

Image courtesy of Mike Cheadle, University of Wyoming/NSF/ROV Jason 2017 © Woods Hole Oceanographic Institution.