Marshall Alumni Newsletter

Spring 2019

Marshall Scholars and the Natural World

Editors

Stanley Chang
Managing Editor,
(UC Berkeley, BA 1991; Trinity College, Cambridge, MA 1993; University of Chicago, PhD 1999) Stanley is a mathematician at Wellesley College, where he has been teaching since 2001. He is currently writing a research monograph on topology.

Nicholas Hartman
Deputy Editor
(Pennsylvania State, BS 2003; Darwin College, Cambridge, PhD 2008) Nicholas is the Head of Solutions at CKM Analytix in New York City and lives in Westchester.

Ushma Savla Neill
Special Features Editor
(Northwestern, BS 1996; MS 1996; PhD 1999; Sherfield Postdoctoral Fellow, Imperial College 1999) After 11 years as a professional editor of biomedical research journals, Ushma is now the VP, Scientific Education and Training at the Memorial Sloan-Kettering Cancer Center.

Thomas Killian
Science Editor
(Harvard University, BA 1991; University of Cambridge, MPhil 1993; MIT, PhD 1999). Tom is a physicist at Rice University, where he is also an Associate Dean for Natural Sciences.

Aroop Mukharji
Co-Editor for Class Notes
(Williams College, BA 2009; LSE, MSc 2012; Kings College London, MA 2013) Aroop is currently working on a history of the Marshall Scholarship and its impact on Anglo-American relations over the last 60 years. He is also a PhD candidate in Public Policy at Harvard Kennedy School.

Diana Coogle
Profiles Co-editor
(Vanderbilt, BA 1966; Newnham College, Cambridge, MA 1968; University of Oregon, PhD, 2012) After writing a dissertation on Old English poetry, Diana finished her long teaching career at Rogue Community College in Grants Pass, OR, with retirement in 2017. She continues to live and write in her little house in the Siskiyou Mountain of Southern Oregon, hiking and cross-country skiing as often as possible.

Wallace Vickers Kaufman
Profiles Co-editor
(Duke University, BA 1961; Oxford MLitt 1963) Wallace started his career as an English professor and subsequently moved into business and economic survey work in E. Europe, Russia, and Central Asia. He is now based in the Oregon coastal wilderness where he has built a house, finished a sci-fi novel, and is working on two new books while crabbing, fishing, and kayaking.

Nabiha Syed
Co-Editor for Class Notes
(Johns Hopkins, BA 2007; Yale University, JD 2010; Oxford, MSt Comparative Media Law 2011) Nabiha is a media lawyer with interests in transparency, surveillance, and emerging media technologies.

Cover photo: sarayut/bigstock.com

Newsletter design: Lara McCarron

Table of Contents

There is a long tradition of Marshall Scholars involved in the natural sciences. Some of the more notable ones are Dan Yergin ('68), Pulitzer Prize-winning energy expert and author, and Bruce Babbit ('60), environmentalist and Secretary of the Interior under President Clinton (1993-2001). In this issue of the Marshall Newsletter we bring you the profiles of some Marshall Scholars who have devoted their professional or nonprofessional lives to understanding, protecting and enjoying the natural world. In particular, we interview two of our long-term Newsletter writers, Diana Coogle ('66) and Wallace Kaufman ('61), both of whom have written extensively on local environment and the great outdoors. We are also happy to hear from Margot Singer ('84), Chair of the AMS Diversity Working Group, who will report on the demographics of the 2019 class. We also want to welcome Thomas Killian ('91) to the Newsletter team.

In our next issue, we would like to feature Marshalls involved in the study of language. In particular, we wish to interview scholars of language (dead or living, spoken or sign), cognitive scientists, speech specialists, sociolinguists. Please let us know if you or someone in the Marshall community would like to share any experiences or expertise in these subjects. We would like to talk with you!

Stanley Chang ('91)
newsletter@marshallscholarship.org

Letter from the AMS Diversity Working Group

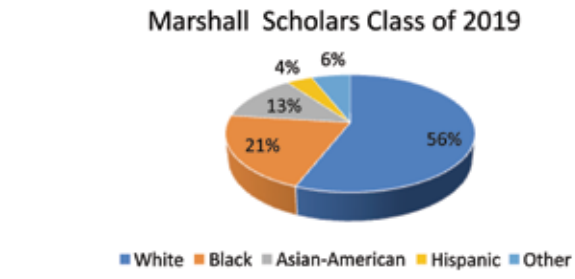
This year's class of 48 Marshall Scholars is the most diverse class in history. For many of us, this is welcome progress toward a long-held goal.

Over the past decade, the Marshall Aid Commemoration Commission (MACC), Foreign & Commonwealth Office (FCO), and alumni have worked very hard to ensure the scholarship's ongoing relevance and efficacy in attracting the next generation of American leaders.

Sixty percent of the freshly-minted scholars are women and over 40 percent are from minority backgrounds, including ten Asian-American, six Black, two Hispanic, and three multiracial scholars. Last year's class also hit new highs with 58 percent female and 35 percent minority scholars.

The diversity of these two most recent classes marks an important shift. Of all the scholars selected between 2008 and 2017, just 39% were women. And although detailed data on race and ethnicity was not collected throughout this period, unofficial analysis suggests that minority groups may have been underrepresented as well.

For over a decade, the Commission has been working hard to push for greater awareness, better outreach, improvements to the selection process, unconscious-bias training, and myriad other measures that have led to this year's exciting results. Marshall alumni have also helped highlight issues, gather data, analyze root causes, and recommend initiatives to assist the MACC and FCO in identifying, attracting, and selecting a group of scholars that is representative of the diversity found among the most talented American undergraduates today.



In 2013, a group of alumnae led by Lauren Baer ('02), Nan Keohane ('61), and Marisa Van Saanen ('02) formed the **AMS Gender Working Group**, which helped to establish the AMS as a dialogue partner with the MACC, the FCO, and regional selection committee chairs.

Spurred by then-current scholars Michael Anthony George ('15) and Tayler Ulmer ('15), who presented the AMS Board with a detailed analysis and call to action, the Gender Working Group broadened its purview in 2016 in order to address a broader range of diversity issues. Since then, the **AMS Diversity Working Group** has put forward a range of recommendations aimed at better targeting outreach, enhancing data gathering and assessment, improving the selection process, and better coordinating publicity, among other steps.

One of the Diversity Working Group's recommendations was to create the **Marshall Outreach and Diversity Standing Committee**, which since February 2017 has met quarterly to assess progress and spearhead new initiatives. Current Standing Committee members include Mary Denyer (MACC), Xenia Wicket (MACC), Josh Stanton (UK Embassy), Nell Breyer (AMS Executive Director), Kathy Hunt (Regional Chair '75), Sarah Bagby (Regional Chair '00), Margot Singer (AMS Board '84), Lauren Baer (AMS Board '02), Martin Gilkes (AMS Board '97), and two current scholars Josie Cooke ('18) and Aasha Jackson ('18).

While this year's selection results are encouraging, more work remains to be done. In the coming year we will be working to:

- Roll out a new Marshall Alumni Diversity Outreach initiative (led by Jessica Lee '05) aimed at connecting fellowships advisors (especially at under-resourced institutions) and prospective students with alumni volunteers who can share the stories of their experiences studying in the UK and help encourage more diverse students to apply.
- Help the FCO strengthen partnerships with organizations like the Posse Foundation and Questbridge and build on efforts to form new strategic partnerships with education organizations serving underserved students and communities.
- Assist in the creation of informational webinars targeting diverse candidates.
- Help the MACC develop more robust web-based resources (e.g., videos explaining how the interview process works) to help candidates who lack access to fellowships advisors.
- Work with Nell Breyer and the Foreign Office to coordinate and amplify publicity via traditional and social media.
- Assist with data analysis and assessment.

The recent growth in the number of Marshall Scholarships has undoubtedly helped our efforts at increasing diversity, as have the passionate advocacy and hard work of many alumni volunteers. Continuing to recruit and select scholars who will become the next generation of American leaders requires keeping pace with the changing demographics of U.S. colleges and universities and American society as a whole. We hope more of you will join our team in the years ahead!

Margot Singer ('84)

Chair, AMS Diversity Working Group
Chair, Marshall Outreach and Diversity Standing Committee

Update from the AMS Executive Director

Following conversation with several alumni, it seemed potentially helpful to provide a brief snapshot of the Marshall Scholarship's most recent decade of financial challenges and growth. The Marshall Aid Commemorative Commission (MACC), the British Ambassador, alumni, and the AMS continue to play a critical role advocating for the long-term impact of the program and the value of sustaining it into the 21st Century.

Following the 2008 recession, the Marshall Scholarship program faced a growing funding crisis, which threatened to diminish the program significantly. For five years (2012-2017), the scholarship received "flat funding" of 2M GBP from the British government with a low of £1.9 million in 2011/2012. In this same period, while the budget for the Scholarship did not change, tuitions and cost of living increased.

Facing Government "flat funding" and cost increases, the MACC bolstered its partnership scheme with UK colleges and universities. Participating "partner" institutions offer one free place for a Marshall Scholar, and, in exchange, these institutions are eligible to receive additional Marshall Scholars. Institutions that do not partner with the program do not, by and large, receive Marshall Scholars. Ten of 43 scholarships are currently funded through a "partner" taking part in this scheme. In some cases, the assistance of a third party donor (such as alumni or a foundation), enable the partner institution's participation.

Alumni advocacy for the program has been critical throughout the past decade, helping to ensure the British Government's commitment to the program and British institutional participation in the partnership scheme. The AMS Advisory Board has twice written to the Foreign Office during periods of program review; over 200 alumni created an endowed Scholarship that will be active only for as long as the British Government supports the full program; and individual alumni help their alma maters participate in the partnership scheme so that they can receive a Marshall Scholar. In addition, alumni continue to share their time and expertise through Marshall Scholar reading and selection committees, as well as through lectures, dinners, programming, communications, and informal mentorship with current and recent scholars.

Today, the Scholarship is on somewhat firmer footing. Since 2016, the British Government has increased its commitment to the program by 50%. The MACC continues to work to expand partnership support, with alumni assistance. Alumni have also enabled the AMS to launch "Marshall Xtra," a pilot program, providing a 1,000 GBP grant to each of the 83 enrolled Marshall Scholars, intended to enrich their time in the UK.

In addition, members of the British Foreign and Commonwealth Offices have expressed renewed interest in "soft power" initiatives, including the Marshall Scholarship. Political circumstances in the United Kingdom and the United States have brought the Scholarship's mission, once again, into a central and valuable role promoting living ties and mutual understanding between the US and the UK, as well as helping further advance human knowledge.

Moving forward, alumni can continue to play an important role in advocating for the value and relevance of the scholarship program. You can share your experiences and views with your alma maters; with the British Consulates, Embassy and members of the British government; with your friends and colleagues in the UK and with the AMS.

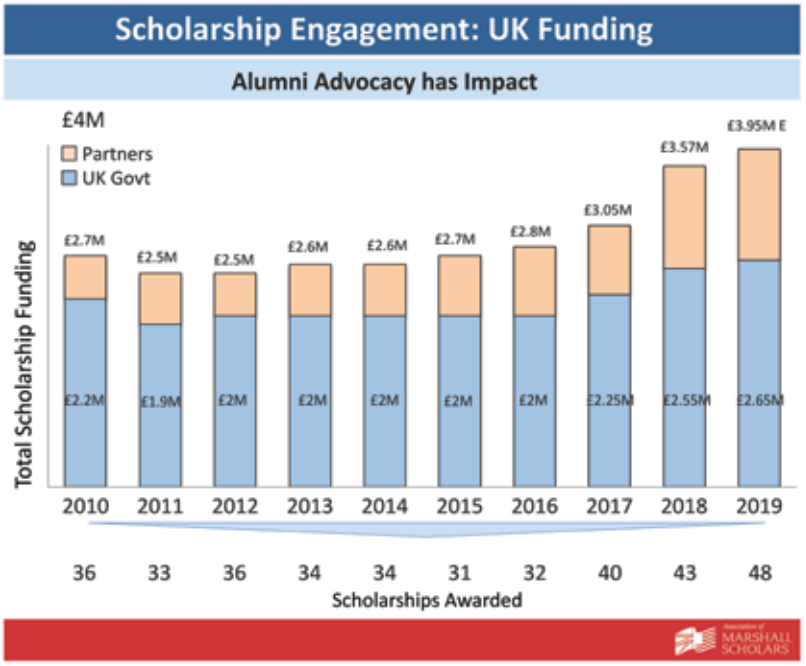
In addition to helping advocate for the Scholarship, the AMS is beginning to collect and describe some of the impact that Scholars are having around the world. If you are completing a new project, or have ideas, expertise or commitments you care about, let us know. If you support your British alma mater or another British institution that matters to you, let us know. If you have a memory or relevant experience that you wish to share, let us know. The AMS is working to develop a more comprehensive description of its alumni – their work, priorities, accomplishments and commitments (local, national, and international) – to help reflect the scholarship program's 65 years and the Marshall community's ongoing impact around the world.

Finally, and perhaps most importantly, I would like to express my enormous gratitude to all of you who participated in the Marshall Challenge, enabling the AMS to meet its 2017-2018 goal of raising $2 million dollars. Marshall Challenge Funds are helping the AMS advance its core mission: strengthening the Marshall Scholar community, US-UK ties, and the Marshall Scholarship Program. Thank you.

Please do not hesitate to reach out to your class secretaries, class fund-raisers, members of the Newsletter team, and anyone from the AMS leadership to share your news, ideas, and suggestions. Your contributions and engagement are a critical part of our ongoing efforts.

Thank you.

Sincerely, Nell Breyer



[1]Chris Fisher, Chairman of the MACC, believes that when alumni voice their support for their alma mater's participation in the partnership scheme. It helps ensure the college's ongoing commitment to the scholarship program. The MACC is now trying to procure additional partnerships from Jesus, St Anthony's, and St John's colleges at Oxford and Christ's, Darwin and Jesus colleges at Cambridge.

Kendyl Crawford ('12)

Creation Care Voters and the Atlantic Coast Pipeline

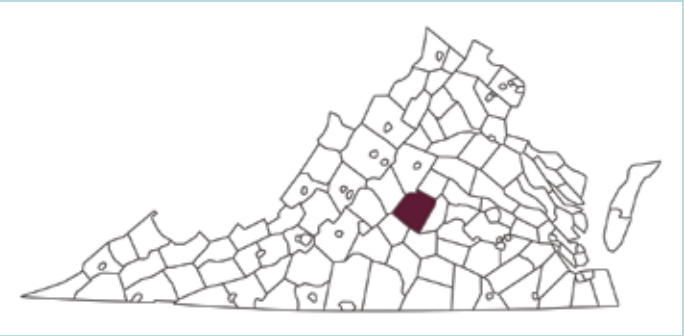
By Stanley Chang ('91)

During her time as a Marshall Scholar, Kendyl Crawford ('12) received a Masters of Science in Environment, Science and Society from the University of London. "It's a really long name for a program," she said with a laugh. "I was the only American there, and I felt that I had to keep apologizing!" Her thesis focused on social movement organizations that have mobilized around air pollution in London. Having suffered since the 13th century from poor air quality, London experienced the so-called Great Smog of 1952, the worst air-pollution event in the history of the United Kingdom, responsible for 6000 deaths. It was the most significant in terms of its effect on environmental research, government regulation, and public awareness of the relationship between air quality and health. It led to several changes in practices and regulations, including the Clean Air Act of 1956.

Returning to the United States, Crawford served as Richmond Conservation Program Coordinator for the Sierra Club Virginia Chapter, where she worked on community organizing around climate change and toxic pollution. In February 2018, she became the Director of Virginia Interfaith Power & Light, which supports faith communities and congregations in becoming more aware of environmental concerns and solutions. She and her team help Virginia residents to install solar panels on their roofs. "I'm consistently and pleasantly surprised at people's willingness to make this change," she remarked.

Crawford's organization currently works with the Virginia governor's own Advisory Council on Environmental Justice urging him to find ways to protect the residents of Buckingham County from the impacts of a compressor station to be built in the near future. The station is part of the planned 600-mile underground Atlantic Coast Pipeline that will originate in West Virginia, travel through Virginia with a lateral extension to Chesapeake, Virginia, and then continue south into eastern North Carolina, ending in Robeson County. Two additional, shorter lateral extensions will connect to two Dominion Energy electric generating facilities in Brunswick and Greensville Counties. Compressor buildings come with a host of other structures: a regulator building, auxiliary generator, a tank farm, gas coolers, gas heaters, blowdown and exhaust silencers, metering equipment, a pipeline launcher and receiver, filter/separators, a dekatherm building, an environmental storage building, and a communications tower.

Buckingham County lies south of the James River at the geographic center of Virginia, through which General Lee's army marched on the way to Appomattox. The median yearly income of its 5965 households is $36,378. About 21.1% of the population live below the



Map image: tbiedermann/bigstock.com

Buckingham County, where Crawford focuses much of her work, was chiefly devoted to plantations worked by African American slaves in the 19th century. Image from genealogyinc.com.

Globe image: Kumer/bigstock.com

Left: Kendyl Crawford addressing community members.

poverty line. On December 7, 2017, the State Water Control Board voted 5-2 to approve the permit for the fracked gas Mountain Valley Pipeline. Five days later, the board voted 4-3 to approve the Atlantic Coast Pipeline pending approval of a series of plans and mitigation measures. "We began a program called Creation Care Voters," she said, "which encourages pledging and voting to resist the development of this pipeline along a new fault line that has demonstrated seismic activity. The pipeline has the potential to create additional air and water pollution that negatively impacts everyone, but in particular the elderly and children in very low-income families."

The effects of fracking have been felt in many states on the Atlantic coast. In the I-95 highway corridor of South Carolina, over 75% of African-Americans and other people of color live within a 30-mile radius of a polluting facility. The economic toll can be easily seen, as businesses are less likely to move into these areas. Crawford says, "People of color should understand that we are normally the first and the worst hit when it comes to environmental degradation. Black children are six times more likely to die from asthma than white children, and climate change is decreasing air quality further in Richmond, one of the top asthma capitals in the United States."

But Crawford is hopeful. "As a faith community, it is important that we turn prayers into action advocating for environmental justice, and the fundamental rights of all people to live in safety, breathe clean air and drink clean water. And yes, it is really hard to create climate bills through general assembly! But that is why we are here."

A map of the proposed pipeline. Image from appvoices.org.

Julie Tarara ('91): A Marshall Scholar in Wine Country

By Diana Coogle ('66)

We are not surprised when we find Marshall Scholars in fields like physics, literature, or economics. I haven't made a thorough examination of all Marshall Scholars' careers, but I don't think that there are many Marshall Scholars who work in viticulture.

Nonetheless, it was a fairly straight trajectory through her life to her current job with Ste. Michelle Wine Estates, in the Yakima Valley of Washington State.

Julie Tarara grew up thirty miles north of Boston, in an old mill town that had three small-scale farms within its borders. When she was fifteen, her parents told her it was time to get a job, so she went to a local farmer to pick strawberries. She thought she would do that for three weeks.

Once there, she discovered she liked working with plants, which, "unlike animals," she scoffs to her friends in husbandry, "don't bite back." She liked the physicality of working in the field and the reward she found in seeing something grow, then become a food product for people. Most of all, perhaps, she liked Dave Burchell, whom she calls the best boss she's ever had: "He was always a teacher, always patient, and always gave me as much responsibility as I could handle, which in his opinion was a lot!" she says.

She worked on that farm for five years.

After that, Julie went to Colby College in Maine, then spent a year working on farms in France. Upon her return to the United States, she transferred to Kansas State University, where she earned a BS in horticulture and a BA in interdisciplinary social sciences. From there she went to Reading University for an MPhil in plant science and micrometeorology. Her studies got off to a rough start because, she says, her major professor thought American students "ill prepared to handle the rigors of British higher education." Whatever experience he had had to warrant that belief, Julie proved him wrong when she changed departments and worked under a professor unhampered by such prejudices.

Her success at Reading was valuable not only for what she learned but for where it led her. "If I hadn't enjoyed what I was studying so much in Britain," she says, "I wouldn't have pursued a PhD in the United States," which she did at Kansas State, earning her advanced degree in agronomy, the science of soil management and crop production.

Armed with these impressive credentials and now living in Washington State, Julie Tarara got a job as a research scientist at the US Department of Agriculture, where much of her research was with grapes. She stayed with the USDA sixteen and a half years before she grew tired of working in academia. Wanting to get closer to production agriculture again, she quit that job three and a half years ago and joined Ste. Michelle Estate Wines, where she works a multifaceted job: helping growers solve problems, seeing to a good disease management program, providing scouting services for pests and diseases, overseeing records for third-party sustainability programs, taking data. She sums up her work by saying, "Think of me as being in the quality control role for wine makers."

She considers working with the growers as a consultant the most rewarding part of her job. "They are good farmers and good people," she says. "Wine is a fun industry to work in. Some people take it too seriously, but most of the people at Ste. Michelle recognize we're creating a beverage to bring people pleasure." She likes the problem-solving aspect of her work, especially during the growing season, when "problem solving is most salient." She is in the field 80% of her time and in the office 20%, except in winter, when the figures are reversed.

Down-the-row shot of Cabernet Sauvignon two days before harvest. Horse Heaven Hills AVA, Washington state.

Fall colors in part of Canoe Ridge Vineyard.

The biggest challenge, she says with a laugh, is "loading the ATV in the back of the pick-up. It's the most dangerous thing I do every day."

When I asked about her most significant accomplishment, there was a long pause, so long that I interrupted it to make sure my cell phone hadn't disconnected us. She said, carefully, that what gave her the most satisfaction was having been in a position to give livelihood and employment to other people.

Later she sent me a more complete answer to my question, which, she said, she was willing to share with the Marshall community: "I have two bachelor's degrees, a master's degree, and a PhD," she wrote. "I have a patent. I was a successful research scientist in a competitive field. I provided family-wage employment to my staff and mentored over a dozen graduate students. I did all this while suffering almost 30 years of undiagnosed and untreated bipolar disorder. Anyone who has familiarity with the disease can appreciate that this, in and of itself, is a great accomplishment."

She neglected to mention the Marshall Scholarship in that list, but of course it belongs there. Besides being an important step in her career, it led to friendships with students from all parts of the world and to soccer. She had never played before she went to Reading, where she played on a town team and was, she says, "put in the goal box." Now she plays every Sunday on a team in a women's recreation league in Prosser, Washington, the town in the wine-growing Yakima Valley, where she lives. She is also on the ski patrol at White Pass Ski Area, in the Washington Cascades, and she goes hiking and backpacking in places like Lake Chelan, Eagle Cap, and Alpine Lakes Wilderness, with the Cascadians, a hiking club organized in 1920.

Ste. Michelle Wine Estates calls its collection of estate wineries its "string of pearls." In an online statement of philosophy, the company says, "We believe that each 'pearl's' luster is best revealed when the vineyard and wine-making decisions are made on site by the people who grow the grapes and make the wine" – and (the secret not revealed on the website) under consultation with viticulture scientist Julie Tarara.

The next time you try a bottle from Ste. Michelle Estates, give a toast to Julie Tarara for helping make it a good wine. And then toast the Marshall Scholarship program that was part of the trajectory that put her in that position.

Left: Part of Ste. Michelle Wine Estates' 600-acre Canoe Ridge Estate Vineyard with the Columbia River in the background. Right: Canoe Ridge Estate Vineyard, with alfalfa circles (grown under center-pivot irrigation) and the Columbia River in the background.

David Lee Campbell ('60): From Law to Nature – A Love Affair

By Stanley Chang ('91)

While practicing law in New Orleans, David Lee Campbell ('60) decided to spend every weekend he could over a period of six years in a tent, pitched over a bluff about sixty feet about sea level. His decision for such habitation emerged from a desire to find a quiet retreat away from the city, and in 1969 he chanced upon a bit of then-inaccessible wilderness on the upper reaches of the Tchefuncte River in St Tammany Parish, which became his place of refuge for the years thereafter. In his new book *Nature all Around Us: Fifty Years of Life with Creatures and Native Plants in Louisiana – A Book of Art and Poetry,* he writes, "When you are in a tent knowing you are alone with them, you begining to wonder what are all the trees and thick underbrush, their names and whether indigenous or alien invasive; whether edible or poisonous, utilitarian or useless. What were all these birds, mammals, amphibians and insects I was 'living' with?"

To answer these questions, Campbell kept a journal and embarked on a fifty-year journey to document and to understand the animal and plant life along the artesian-fed river on the north shore of Lake Pontchartrain. The Parishes north of the lake are referred to as the "Florida Parishes" because they were not part of the 1803 Louisiana Purchase and, like Texas, were briefly the independent Republic of West Florida. And, just as the Florida Parishes are different from the rest of Louisiana historically, so are the flora and fauna very different, having more in common, he points out, "with the Carolinas, with our Carolina lily, the sourwood tree, 'local' bachmani squirrel and indigenous turkey that do not exist north, west or south of us, just as our northshore white, sandy-bottom artesian rivers stop at the Mississippi."

Many accounts of Campbell's adventures can be found in his first book, "A Double Life," which was featured in the Fall 2018 issue of the Marshall Newsletter. His second book is a compilation of poems and illustrations about various species that he encountered in his "little wilderness." The artist Peg Usner spent two years painting the 25 pieces for the 25 poem-stories in the work.

He writes, "The underlying theme of this book is that of conservation, not by controlling, but by being controlled by (preparing for and preserving) nature, and developing new ways of building that honor and preserve — not destroy nature — and ultimately the human race, and of course to expose those who do not know of the wonders of our own local nature, fast being lost to rapid development.

So far the book has gained regional attention with a good number of book readings at libraries, Audubon Societies, Sierra Club, Land Trusts and invited groups.

As he was preparing for this article, he read Jack E. Davis' 2017 epic, *The Gulf – The Making of an American Sea*, and was struck by the sweeping knowledge and research in the book, specific to this topic of trying to save nature – the planet – from human intrusion.

Campbell's "little wilderness" is a spoke in the greater wheel of the estuarine Florida Parishes, Lake Pontchartrain, and the Gulf of Mexico. In that context, his book of poetry and Davis' tome join hands in plea for Mother Earth.

Drawing on his own experience and *The Gulf*, Campbell reminds us that "the Louisiana Delta is one of the major annual avian migration spectacles in the world; and while the great Delta flyway is well known, the resident avian populations are equally impressive, though threatened, especially shore and estuarine birds and wildlife. For example, Fish and Wildlife officials say the population of black rail birds has declined by as much as 90 percent in some coastal areas.

He continues, "However, when summer ebbs and winter lurks, the underwater spectacle of millions of Gulf fish that also move south in their annual migration is just as astounding. As habitat is necessary for ornithological (and marine or mammal or amphibian or insect) health, conversely, the habitat is not healthy if it does not have those


Author David Campbell entertains with stories about 'Nature All Around Us'

A recent article about David in the *New Orleans Times-Picayune* from October 2018

Left: Standing in front of the Louisiana Supreme Court upon returning from Oxford, 1963

Right: This is the only known photo of the tent. Circa 1970

flora and fauna, and in the case of my 'little wilderness,' coastal plain estuarine benefits of land and marine life, fully on display — and which must be preserved."

The Louisiana Delta is now subject to the effects of climate change. The coastline is sinking, and the sea is rising. It's shredded by the energy industry, and pollution from upriver agriculture creates annual, giant algae blooms.

In response to these challenges, local officials have developed a comprehensive, science-based Coastal Restoration Plan. Government, citizens, and business and industry have committed to it. Increased funding has resulted in some river diversion and other restoration projects actually being deployed in the region. Some results are promising, and the State seems focused.

Coastal Protection and Restoration has recently provided information about 67 active projects from around coastal Louisiana: 16 are in construction, three in planning, and 48 in engineering and design. Those in construction will benefit more than 131,000 acres of coastal habitat and improve more than 190 miles of levees.

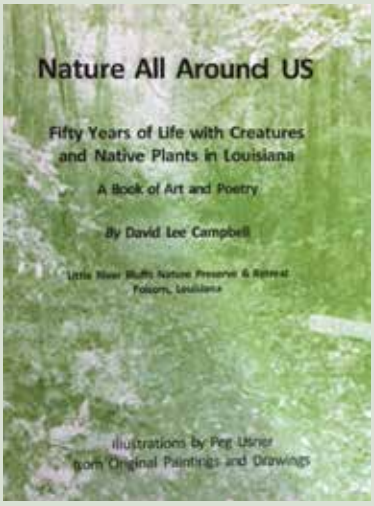
In 1980 Campbell founded the "Little Tchefuncte River Association," which in 2002 was named Conservation Organization of the Year and called "the mouse that roared" by the Louisiana Wildlife Federation. Right where he started camping in 1970 now stands a new Conference and Retreat Center, which is intended as a venue for the continued study of flora and fauna in the region. On the boards of the Land Trust for Louisiana and Sierra Club Delta Chapter, he was recently elected to the Advocacy Committee of the Lake Pontchartrain Basin Foundation, whose mission for the entire Basin is "to drive environmental sustainability and stewardship through scientific research, education and advocacy."

Looking back to the early 1970s when he pitched his tent every weekend, Campbell says, "I realized that it was a pristine, healthy environment because it had the symbiotic connection of creatures and plants that such a healthy environment — air, land, and water — produces. In this collection of rich estuarine habitats in the Delta and along the north shore of Lake Pontchartrain, nature presented itself to me in great abundance. How could I not respond?"

Copies of Campbell's book can be purchased on Amazon, Ebay, or by emailing his daughter Cali J. Campbell at toohardbox.cs@gmail.com.

Moles and Voles (*Scalopus aquaticus* and *Microtus pinetorum*)
"And Their Holes"

Holy moly, moles dig holes and moles dig holes that welcome voles into their holes.
Moles are big compared to voles, deep holes it's the moles that make.
Moles and voles are seldom seen, and not just for privacy's sake.
Same old reason, loss of habitat; you know, more subdivisions, malls, and all of that.
Concrete is fine in certain ways, but it's poured way too much 'round here these days.
Malaburbia has spread like fire, and for moles and voles it's really quite dire.
We seem to have no regard for these unique of God's mammals,
and they're some of my very favorite animals.
So if a mole or vole you're blessed to see,
just follow that little critter with gratitude and glee.



Kathryn Rodríguez-Clark ('94):
Saving species as an ecological match-maker

By Ushma S. Neill ('99)

Like many little kids, Kathryn Rodríguez-Clark grew up enthralled with animals. Although childhood thoughts of becoming a veterinarian were tempered by allergies to most furry critters, her love for the natural world did not diminish with time, and in fact, many animals whose species are on track to fight back from extinction based on her efforts should be thoroughly gratified that she never gave up on working with animals.

After an inspiring high school biology teacher turned her on to more formal study of the living world, she realized there were many ways to probe her interests. Never having met anyone who did research with animals, Rodríguez-Clark trundled off to Stanford as a premed major with a mind toward perhaps doing some medical research. She initially felt a little lost, and an unfortunate faculty advisor shrugged when she asked about trying research, suggesting she should just become a pediatrician instead. Despite this dismissive advice, Rodríguez-Clark decided to probe her interests in research through a summer internship. She was accepted into a well-paid internship with a big biotech company that was best known for creating the first enzymes to…make stone-washed jeans look stone-washed.

Unsure she would find fulfillment there, she instead accepted a rather less lucrative offer from the US Fish and Wildlife Service, to spend the summer tagging and radio-tracking California Clapper Rails (an endangered chicken-like salt marsh-dwelling bird). As unlikely as it seems, living in a double-wide trailer in the marshes of East Palo Alto, "at that time, the per-capita homicide capital of the US," alternately tagging Clapper Rails and worrying about how many drug dealers she'd stumble into on the levees where she worked, she fell in love with ecology. One of her most vivid memories is from her first night-time predator census with a strong spotting light, and the shock of seeing the marshes explode with the sparkling green eyeshine of the thousands of the black-widow and other spiders out there at night. "My colleagues were so dedicated and able to find these amazing moments, in the midst of really hard work. I was captivated."

While she left Stanford with degrees in Biology and Studio Arts, even doing some illustration work along the way, when she moved to Cambridge for her Marshall (completed at Corpus Christi College), she turned to Geography. Her MPhil and subsequent work with the NGO Action Comores took her to a number of tiny islands off the east coast of Africa to study giant fruit bats and their interaction with people.

She called her time in England on the Marshall "splendiferous," and enthusiastically recounted the global range of opportunities that she encountered with each new friendship. "It seemed like I had fellow students from every continent except Antarctica. They were all super passionately pursuing their dreams, and did things later like rowing solo across the Atlantic, saving wildlife in Malaysia, or setting up a solar company in India." She came away from her Marshall experience with a deep appreciation for the complexity of problems involving human systems, and with a desire to pair her childhood love of animals with a science that might allow her to understand them better.

Rodríguez-Clark therefore returned to the US to pursue PhD work in ecology and evolutionary biology at Princeton University, where her love of and grounding in statistics prepared her for rigorous graduate work in the application of quantitative and population genetic theory to the practical conservation of captive (ex situ, or zoo) populations. Even though she trained broadly in ecology, and has done work at the ecosystem and community levels, this early population-level focus has meant she has always held close to studying individual species. On graduation, she moved to Venezuela, to take up a tenure-track position at the Instituto Venezolano de Investigaciones Científicas in Caracas. It was a very different time in Venezuela, and she found generous support and research freedom.

At the beginning of the 14 years Rodríguez-Clark spent there, her work focused on helping Venezuelan zoos with population management and building a core molecular genetics lab facility. She found that, refreshingly, "women

Images: Chinnapong and Click bestsellers/bigstock.com

In this Oct. 24, 2018 photo, a Venezuelan male red siskin takes flight in Vargas, Venezuela. The finch-like Red Siskin is vanishing from the wild at an alarming rate, falling prey to shrinking forests and poaching for the illegal pet trade. Kathryn works with the Red Siskin Initiative (redsiskin.org) to reverse this decline. (Fernando Llano/Associated Press)

were treated equally in academia, and I was able to explore a wide range of interesting topics." However, as the situation in Venezuela deteriorated, zoos had less scope to think ahead strategically. They had to concentrate more on simply surviving, and the situation got more extreme over time. Therefore, her studies turned to more pressing problems, searching for solutions to conservation challenges faced by species and ecosystems threatened by overexploitation. The unsustainable harvest of organisms from their native habitats was, and continues to be, a growing challenge in the increasingly difficult situation that rural Venezuelans find themselves. Studying it meant a return to her MPhil work understanding coupled wildlife-human systems, now through an ecological and genetic lens. Her collaborations covered a range of endangered Venezuelan vertebrates, including the Red Siskin (*Spinus cucullatus*), the Orinoco crocodile (*Crocodylus intermedius*), the green turtle (*Chelonia mydas*), the Margarita capuchin (*Sapajus apella margaritae*), and the Andean bear (*Tremarctos ornatus*).

Alas over time, the security situation in Venezuela deteriorated to the point that she could no longer stay. "I was graduate studies coordinator, and it seemed like every fresh horror I heard about in the news then walked through my office in the form of a graduate student or colleague who had just experienced it. It broke my heart, in a thousand different ways." On top of the emotion associated with leaving an adopted country that had become a home, Rodríguez-Clark left in a health crisis. As hard as it was, she is acutely aware that she had it very easy compared with most of the current Venezuelan diaspora.

Happily, Rodríguez-Clark's health recovered, and she landed a dream job as a population ecologist at the Smithsonian National Zoological Park and Conservation Biology Institute. She remarked that zoos—and the Smithsonian in particular—now play to her strengths, in that in recent decades they have shifted from being living museums with "stamp collector-style" sets of animals, largely for entertainment, and are now full-fledged conservation and education organizations. Furthermore, when she took this post in April 2018, the Smithsonian gave her a dual mandate: research and applied conservation. What does this mean? "It is my job to figure out how to save species, and to do it." First on her list is the Red Siskin, a bright red bird (featured on the highest denomination currency in Venezuela) that used to be common across northern Venezuela, but is now critically endangered there. A large partnership of others worldwide have joined her, as detailed at redsiskin.org.

Beyond the Red Siskin, Rodríguez-Clark has turned her conservation skills toward species that are managed in captivity in groups, like birds in flocks, bats in colonies, and fish in schools. Without careful management, genetic diversity can be lost, inbreeding can increase, and population sizes can fluctuate dangerously. However, the most common current genetic management techniques are based on theories that were developed for simpler, pair-living species—not groups. Working with others, Rodríguez-Clark intends to revisit the disparate breeding schemes and theories developed to date for groups, and bring them together into a practical tool, leaning on theories she initially delved into during in her PhD work. When asked to elaborate what this means, she says the easiest way to describe her work is, "computer dating for animals—but making it work for them even when they aren't interested in pairing off neatly, two by two."

Rodríguez-Clark continues to collaborate with many of her former colleagues and students, though many are now scattered across the globe. She sees a bright future in continued work with them, and with her colleagues in the zoo world: "As scientists, in collaboration with people from all walks of life who care about the natural world, we like to think that we are saving species. And of course, in a way we are. But I often think about how equally true it is that they are saving us. I have seen people without electricity, without internet, proper gear, or running water—even without enough food or medicine or personal safety—working incredibly hard to help the natural world in spite of it all. It is because that feeling of being a part of something valuable, larger than oneself, can be even more important to us than all those basics. It makes us human, and it inspires me."

Kate's 1992 sketch of a *Oophaga pumilio* (strawberry poison dart frog), colored pencil on paper.

Sandra Shumway ('74):
Solid Science and Seafood Sanity

By Wallace Kaufman ('61)

"*We believe that science, the cornerstone of modern human civilization, now faces an existential threat.*" Sandra Shumway, Peter G. Beninger, and Jeffrey Beall.

Dr. Sandra Shumway is a research professor at the University of Connecticut with more than 44 years of analyzing marine toxins and invertebrate physiology. She has edited scientific journals and published hundreds of peer reviewed articles. Co-author Peter G. Beninger is an accomplished senior scientist in France with significant honors, while Jeffrey Beall is a professional librarian. Their conclusion appears in a scholarly and heavily documented article about the growing and corrupting influence of over 7,000 pay-for-publication and open access journals offering over 400,000 articles. An airing of the now bitter and litigious controversy over such journals is beyond our scope here, but threat to public confidence in science and the reaction to the article are important.

The reaction? Loud protests from open access and pay-for-publication journal owners, threats of litigation, pressure from the University of Colorado on Beall to close a blog on science journals, mild debate among a few scientists, and outside the scientific community—silence.

Overlapping this research quality problem are the alarmist and emotional scientists who also sway the public by appearing in a respected forum like Ted Talks or *Scientific American*. The contents of both are consumed by credulous non-scientific Americans.

In Shumway's sphere Ted Talks and *Scientific American* have made micro-plastics a cause celebre with presentations from scientists and activists showing dead birds with open guts filled with plastic bottle caps and other plastic debris. (Microplastics are plastic bits smaller than 5mm that come from many sources—synthetic fibers, the tiny plastic beads added to personal care products and detergents, and from the breakdown of larger plastics of all sorts.)

Emotional alarms? Consider, for instance, a talk by a young fisheries biologist, Sarah Dudas, some 15 minutes of startling claims about the dangers of microplastics that show up in shellfish and even in our table salt. Her claims have been featured on National Public Radio and numerous web sites. Another Ted Talk by the young and attractive Dr. Sherri "Sam" Mason of SUNY-Fredonia is called "Beads of Destruction" and begins, "I couldn't sleep." The presenters (often non-scientists and curiously mostly attractive young women) seldom if ever talk about how much precision and careful lab work is required to identify microplastics and their origins (some can come from the laboratory itself). About one of the scientists presenting, Shumway says, "Just regurgitating a lot of factoids. It's a decent summary of the problem and environmental issues and telling Joe Q. Public to stop using so much plastic. No agita, no science either."

Scientific American ran a three-part series by science writer Andrea Thompson on microplastics in the environment, in our food, and in our bodies. Like most science writers (yours truly being one of them), Thompson goes to the experts, but she almost exclusively goes to the experts who confirm her crisis perspective. (Psychologists call this "confirmation bias.") The articles have provocative titles like "From Fish to Humans, A Microplastic Invasion May Be Taking a Toll," and "Microplastics Have Been Found in People's Poop—What Does It Mean?"

Background image: 31moonlight31/bigstock.com

Left: 'Look what I found' – Sandy ~ 3 years old and already investigating the local fauna at the Hummocks. Right: Sandy with her dad's striper catch.

Yes, what does it mean? Read the many articles on microplastics, and the phrases "may be" and "possibly" and other qualifiers that readers gloss over whisper from behind the curtain of fear, "We don't know." Shumway has an even deeper concern—many of these scientist-alarmists not only don't know, they don't follow correct scientific methods for finding and categorizing and analyzing the microplastics. Some may be finding the microplastics contributed by their own laboratory environments, their own clothes.

About two of the Ted Talks in which a young scientist and an anti-plastics activist scare the audience by noting how we sprinkle our foods with sea salt containing microplastics, Shumway says, "The amount they are reporting in these salt shakers is miniscule, and you get as much from the clothing you are wearing and everyday exposures."

Shumway became so concerned about the way passion for a cause is replacing scientific rigor that she and two colleagues wrote an editorial warning about the problem: "The Microplastics and Shellish Media Frenzy: Stop The Train, We Want To Get Off!"

Shumway, as Chief Marshall, bestows honorary degree to Kermit the Frog at Long Island University.

Yes, begins the article, "It has been well documented that plastics are pervasive, persistent, and perpetual components of the marine environment." "Well-documented" means quantity, many years of publicity, and "the ubiquitous plastic bags smothering coral reefs and choking sea turtles, the bottle caps and detritus causing sea birds to starve."

Shumway is not Dr. Pollyanna Pangloss, but well-seasoned with prudent perspective. "While microplastics have plagued the marine environment for decades, recent publicity and campaign efforts have brought the blight to the forefront. Microplastics pollution is now the latest scientific bandwagon — driven unfortunately by some scientists' desire to establish their territory in the quest for research funding and fame."

The publicity not only ignores how long these plastics have been part of our lives, but it ignores findings that do not support grant getting for scientists and fund raising for organizations. Shumway writes in her editorial, "What is in question is the extent of the impacts (if any) on marine animals. Identifying detrimental impacts quickly garners the attention of both funding agencies and the public. Just as important are findings that demonstrate no impacts, but these results rarely make the news." She notes that actual accumulation of microplastics or any particles is very different from uptake. "In most animals the microplastics are excreted very quickly, and they have not been demonstrated to be toxic."

How does she know? For over thirty years she has been using microplastics as test particles and markers in her studies of shellfish physiology.

Shumway also cites research on what psychologists and statisticians might call "base rates." Researchers at Scotland's Heriot-Watt University examined the exposures to microplastics that diners get from eating mussels and from the house dust that falls during a meal. Two from mussels, 114 pieces from house dust falling on the dinner plate. Shumway concludes, "Although more data are needed to confirm 'potential' impacts, the current media hype and scare tactics with regard to "potential" impacts is irresponsible, unwarranted, and dangerous."

While some scientists speak confidently about the swarm of microplastics in seafood, Shumway says, "One (or even five or 10) microparticles cannot be extracted reliably from an entire mussel or oyster with any degree of confidence. And even if it could be, is that really of any consequence for the shellfish or, as some have suggested, human health? The answer is most likely No on both points, but experiments are currently underway in our laboratory to address this question."

Science writers who act as intermediaries between researchers and the public have little patience for or interest in "experiments currently underway" unless researchers leak exciting details. Journalists in their own sphere, like the proliferation of pay-for-publication and non-peer reviewed journals, contribute to corrupting the public understanding of and confidence in science. They are employed by organizations and publications that want profitable headlines or increased contributions to a cause (not unlike corporations who concentrate on emphasizing their success in quarterly reports rather than long term profits and viability).

An irony of time is that Sandra Shumway was about to graduate second in her Taunton, MA high school class and enter the now extinct Southampton College of Long Island University as a marine biology major in 1970, the year of the first Earth Day. A shining star of the events was Dr. Paul

Sandy hard at work last summer on Bainbridge Island, Washington, at the Kenneth K. Chew Center for Shellfish Research and Restoration.

Ehrlich, a butterfly entomologist re-inventing himself as a futurist. His first claim on public attention was his 1968 bestseller, *The Population Bomb*. Its first sentence was, "The battle to feed all of humanity is over." That catapulted him to the top rank of environmental prophets. On Earth Day he declared, "In ten years all important animal life in the sea will be extinct. Large areas of coastline will have to be evacuated because of the stench of dead fish."

Shumway would go on to publish her first research paper as a senior and graduate *summa cum laude*. Ehrlich, despite decades of famously failed prophecy of doom, has gone on warning of an environmental apocalypse, part of an ever more publicized chorus. This year he declared, "We're continuously harvesting the low-hanging fruit, for example by driving fisheries stocks to extinction."

While the chorus of doom grew ever louder, Shumway continued to develop her expertise as a comparative physiologist and, more importantly, to apply it to increasing the world's food supply. In the popular media, work like hers is largely unsung.

Where Shumway's achievements are sung is among the people who produce seafood, both fishermen and the aquaculture entrepreneurs—the people who actually produce more and more seafood. Perhaps her most solid honor is the long list of organizations that have backed their confidence with their money. The National Oceanographic and Atmospheric Administration has funded several projects that range from analyzing marine toxins—e.g. domoic acid that renders crab and molluscs toxic—to the use of scallops in aquaculture as a means of utilizing nutrients that escape from fish farms higher in the water column.

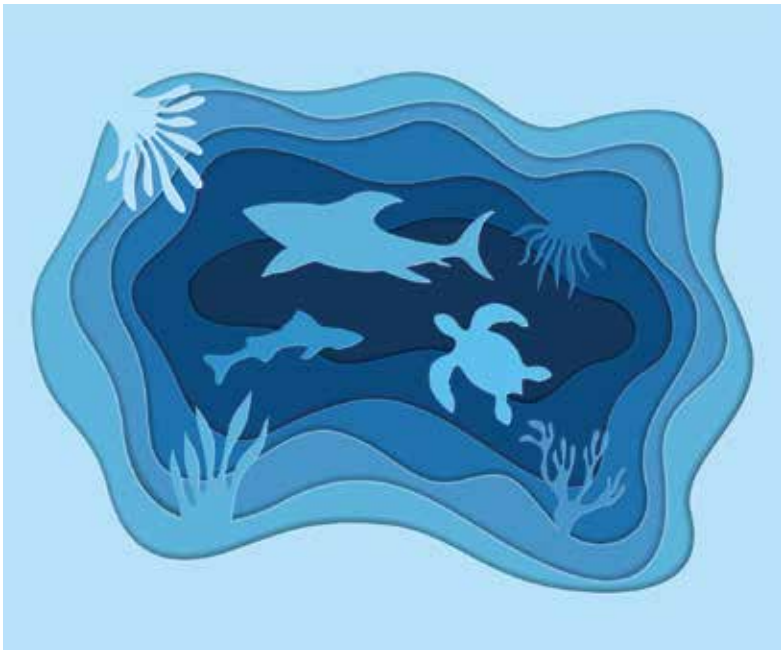
She has also undertaken work funded by NATO, ECOHAB-EPA, Sea Grant, universities in the US and abroad, the UN, the National Science Foundation, and several state agencies on both coasts.

For contributions that have led to increasing aquaculture productivity as well as protecting the natural environment, in 2001 the National Shellfisheries Association made her an Honored Life Member. When she received the Association's David H. Wallace award, the organization noted that she had "performed physiological experiments on nearly every phyla of benthic organism and has tailored her research to benefit industry. From her early work with pandalid shrimp and sea scallops in Maine to her work with harmful algal species (HABs) and their deleterious effects on commercially important shellfish species and human health, she has had a substantial impact on global legislation and policies."

Should such honors and recognition be surprising for a woman who dug her first mollusc (a clam) at age three? (Shumway, incidentally, insists mollusc, not mollusk, is the correct spelling. After all, these creatures are in the large invertebrate phylum Mollusca.) Research has been woven into Shumway's life for so long she doesn't remember when her exploration of marine organisms began.

Exploring the lives of marine animals "was just a part of me as long as I can remember. There wasn't a day when I decided to go explore. It was just how I was." She soon had a small boat of her own and extended her exploration beyond the supervision of parents. She tended her own lobster pots. "You couldn't do it today because of child abuse," she muses. A younger sister and two younger brothers "looked at me a little cross-eyed—what is she doing now?" None of them followed her into science. Her mother, a legal secretary, was not too happy to have a dissecting lab on the back porch of their summer home in Rhode Island, but Shumway is very grateful to both her mother and her father, an electrician, for the freedom they gave her to pursue her interests. "They were very supportive of all the crazy things I was doing."

In the fifth grade she created her first science project and went on to win prizes regularly in science fairs. In her



Background image: moon sleep/bigstock.com

Shumway exploring a mudflat in France.
Photo credit: Peter Beninger

junior year in high school she took first place at the Massachusetts State Science Fair at MIT. In her senior year she earned the award of Ford Future Scientist of America and an invitation to the NASA Youth Science Congress.

She told the *New York Times* in 1974 that she applied for a Marshall Scholarship "when my adviser told me it would not hurt to waste an eight-cent stamp. I never dreamed I would get it." She had all but forgotten the application as she pursued a research project at the Skidaway Institute on the coast of Georgia, her mind entirely engrossed in marine science. When she returned to college, a letter from the Marshall Scholarship Commission was waiting. The letter asked if she was sure she wanted to go to North Wales, where no scholar had gone for several years. She was quite certain. She was delighted that she'd be among castles and "all that archaic stuff," but what determined her selection of universities was that University College of North Wales, Bangor, Gwynedd, had its own marine lab and ocean access. A minor regret about moving to Wales was that she would have to leave behind her pet tarantula and that her pet boa constrictor that had roamed her apartment freely would be kept in a cage by her father.

After earning her PhD and doing post-doc research at Menai Bridge, Gwynedd, she went on to New Zealand's University of Otago for a year, then stopped in at Universidade de Sao Paulo, Sao Paulo, Brazil, as an invited researcher. That same year she was back on Long Island, where she joined the Department of Ecology and Evolution at SUNY's Stony Brook campus. During some thirty years of teaching and research she won high ratings from students and often took on the task of teaching or mentoring students in science writing, with special attention to students whose first language was not English.

In 2002 she became a research professor at University of Connecticut, a position that gave her the flexibility to pursue research and the travel required of someone whose reputation brings many invitations to lecture and to consult on ways to improve seafood production.

In 2014 she completed the range of her work on shellfish that began with physiology and ecology. Having become the first woman honored life member of the National Shellfish Association, colleagues decided she ought to write a cookbook. She is the lead author-editor for *Simply Shellfish Cookbook*. Besides having over 600 recipes, as befits the product of a scientist, the introductory pages contain a table showing energy, protein, fat, carbohydrates, minerals, vitamins, and fatty acids for clams, oysters (Eastern and Pacific), and scallops. A second table lists the cholesterol found in 12 molluscs and in 8 crustaceans (crabs, lobsters, and shrimp). Buy the book, and your money will go to the Student Endowment Fund of the National Shellfisheries Association. It is also the only shellfish cookbook you will ever need.

The book is not a lark, a frill, or a fundraiser. It is the natural work for a scientist who wants her work to create the greatest benefit for the greatest number of people. Shumway sees the great potential for feeding the world in aquaculture, but while everyone is familiar with fish, she says of shellfish and crustaceans, "One of the biggest problems is people don't know what to do with them."

Nor is aquaculture very popular. In the popular press and environmental forums aquaculture is condemned as a

Sandy leading a touch tank experience with her sister Lorna's special needs class.

Sandy's office holds a large library and is an entertaing collection of memorabilia, often a stop on campus tours.

polluter and producer of inferior food. Shumway says that like every industry, aquaculture "has a few bad actors," but its benefits are far more important. It's an industry that demonstrates what environmentalists often proclaim—that what's good for the environment is good for the economy. "Shellfish aquaculture," Shumway says, "is good for economy, good for ecology, and good for you."

Farmed fish, she notes, get fed while shellfish take their food directly from the water, and in the process they improve water quality by removing particulate matter and reducing eutrophication. Their clusters provide refuge for many other animals—crabs, eels, fish, worms, and shrimp, for instance. Shellfish farming creates "whole new mini ecosystems."

Sandy with a clam rake

Aquaculture entrepreneurs, she says, "are good stewards of the environment because they want and need good water quality." Multitrophic aquaculture is part of that stewardship. Shumway gives as an example raising scallops with fish farms, the scallops filtering nutrients from any excess food and particulates. Responsible aquaculture moves closer and closer to using all of the natural resources and using them in the most efficient way, Shumway says. They can't do much about natural phenomena like red tides that have been documented as early as ancient Egypt. Human pollution they try to prevent.

"A lot of info from environmental extremists is outdated," Shumway says. "It doesn't note that the situation has improved, and yet they get a lot of press. For example, screaming about salmon culture in Canada. If aquaculture is done well, it is not bad for the environment. Aquaculture has matured and grown a lot in the last 20 years. People are developing sophisticated models for carrying capacity used for the commercial industry. They don't want to waste anything."

In the US the often unfounded concerns about aquaculture have entangled startups in regulations and permitting processes. Shumway notes that Canada, Spain, and Portugal are in the vanguard of applied science. When interviewed for this article, Shumway had just returned from China where she saw "massive advances" in both marine and aquatic food farming. She says China produces more aquaculture than the rest of the world combined. Japan and the Philippines are also big producers. For the US, "The biggest problem is NIMBY (not in my back yard), and people who don't want to see it out there." This is where those Ted Talks and the Paul Ehrlichs of the environmental fringe take their toll.

It's more than Shumway's role in this science and technology that has won her not just scientific honors but strong friendships in and out of science. Just as important is her passion for using science to help others. When she first learned she could study in Wales on the Marshall Scholarship, she explained to the *New York Times* that her goal was not just "knowledge for knowledge's sake, but research that will be worth something to other people, like mariculture or drugs from the sea."

When the National Shellfish Association awarded her life membership, Dr. Melborne Carriker said, "It is her warm outgoing personality and genuine interest in people and readiness to extend an unselfish helping hand to those in need that have endeared her to so many of us."

Among the kudos she's earned, one of her most treasured was won by her prowess as a pool player, a talent she has nurtured since college. To relax after a day's work she used to stop in a local pool hall. Friends reported that one day at a local bar a patron asked a seasoned and cynical fisherman, "Who's the broad at the pool table?" The fisherman replied, "She's a scientist, but she's okay."

Diana Coogle ('66)

In Wildness is the Preservation of Life

By Wallace Kaufman ('61)

Diana Coogle grew up in a house surrounded by forest, reached by gravel road, no other children in sight. Seventy years later Diana Coogle, MA Cantab, PhD (Marshall Scholar 1966), lives on a gravel road, surrounded by forest, no other septuagenarians or children in sight. Life began in a Georgia forest and in 2019 she celebrates her 75th birthday in a mountain forest of southern Oregon. In between, not long after bringing her Cambridge literature degree home, for a few months she was the second coming of Jesus Christ, or thought she was. Saviors and saints have often gone to the wilderness to be tested or to find higher truth, but none lived there as long and as happily as Coogle. Coogle, in fact, found her own salvation in the wilderness, but unlike the saints and saviors, she has filled books and blogs and radio airwaves with wilderness juice and joy. She is not the Pollyanna of the Siskyou Mountains, however.

Coogle's life suggests several answers to popular questions and theses. Students immersed in environmental studies or simply those passionate about the natural environment are trying to apply a new concept to explain what they think is wrong with affluent societies: "*nature deficit disorder*." In other words, our largely urban-suburban lives, increasingly spent in front of screens on walls of buildings and on digital watches, has inflicted on millions or billions a serious mental illness. Coogle question number one: how does a life in nature save one person or the world?

Coogle question number two may be related (you'll have to read on for a while). How do outstanding scholars and artists emerge from one room schools and the "Hick High School" that Coogle attended in red neck country outside of Atlanta, Georgia? Clue to a possible answer: the graduates of these schools are the same people who believe the world suffers from "nature deficit disorder." They are the "Woofers" who travel the country volunteering on organic farms. They quote older generations on the beauty and value of nature. Their saints include Mary Oliver, Wendell Berry, John Muir, Al Gore, Farley Mowat, Barry Lopez—all people born before the digital age.

If anyone is the intellectual seed of this movement, it is, of course, Henry David Thoreau, author of *Walden*. He died before light bulbs and telephones, but he thought the recently invented railroads traveled too fast at 20 to 30 miles per hour and that being employed or owning a farm was a form of slavery.

2001 At the Rosegarden in Trädsgårdsföreningen, Göteborg, Sweden

Nothing sums up the proposed remedy for nature deficit disorder more neatly than Thoreau's famous dictum, "In wildness is the preservation of the world."

That sentence became the title of a 1962 book that launched modern Sierra Club and in a real sense, superseded the venerable conservation movement with the far more radical and puritanical environmental movement. (It was close to the American Puritan spirit in that it demanded purification from things of this world and shunned materialism as temptation and sin.)

Perhaps it was natural, so to speak, that a new back-to-the-land movement was born as a sect of environmentalism and that one of its scriptures was a book produced in 1972 by a rural Georgia high school. *The Foxfire Book* began as a school magazine in the mid-1960s. Students interviewed their rural relatives about their lives and traditions, their crafts and their beliefs.

This book became enormously popular with the new environmental movement because it nurtured the idea that people who lived close to the land and nature were happier, wiser, and more practical than people corrupted or distracted by working in factories and offices and trying to accumulate the latest cars, appliances, entertainments, and homes. The country people lived the life that Thoreau prescribed in *Walden*, his account of living two years and two months in the woods. "None can be an impartial or wise observer of human life but from the vantage ground of what we should call voluntary poverty." Never mind that the rural Georgians did not volunteer to live poor, they adapted. *The Foxfire Book* was full of their tested practical methods for living a rural life. Diana Coogle, on the other hand, did volunteer to live poor. Thoreau had put it thus: "A man is rich in proportion to the number of things which he can afford to let alone."

Before the environmental movement took off with the first Earth Day celebrations in April of 1970, Diana Coogle had been thoroughly nurtured by a largely self-directed childhood in the Georgia woods. She was fortunate not to have to experience involuntary rural poverty, however, since her father after service in World War II had created his own business making ear molds for hearing aids. For non-farmers like the Coogles nature was not an adversary. And her parents encouraged her outdoor exploration. "I'm grateful to both my parents for that blessing." The blessing is distilled in the calligraphy wallhanging that her sister hung in their parents' home, "No riches on earth can ever compare to the good fortune of having been born to loving parents."

Coogle's love of natural things began in her own yard. In one of her three-minute essays for Jefferson Public Radio she lists the trees around the house that played roles that more urban children find in their human neighbors:

Two big poplars in front of the house, one hosting a birdhouse in which she once found a trapped blacksnake. The backyard hickory that supported a brass dinner bell. A four-trunked tree, which she loved dearly, grew outside her bedroom window, where she slept "every night under its fairy-tale spell." The sweet gum on the drive "whose prickly balls I rolled in my palms every summer and whose dark purple leaves lifted my spirits every autumn . . . and the sourwood that sang scarlet greetings to me every time I turned into the driveway on autumn days . . ." And the dogwoods "that turned the front woods into a garden of white blossoms every spring." "My fantasies of the woods were wound around those trunks." Can a child who grows up in a city or a suburb claim such a feeling of kinship with nature?

As a Girl Scout her horizons broadened with camping and spelunking. What stands out most in her teenage years? Not all the usual teen self-doubt, but at age 15 joining with her siblings to earn part of the funds for the family's 8,000 mile round trip drive from Atlanta, Georgia, to Alaska's wilderness.

Maybe small rural schools produce a proportionately small number of such prodigies, and Coogle was Sandy Springs' contribution to the cohort. Coogle is too modest to wear

2004 Playing classical guitar, Applegate, Oregon

Cross-country skiing in the Cascade Mountains in southern Oregon in 2017 (left) and at Crater Lake National Park in 2018 (center).

On the right, Coogle posing with her engagement ring on February 14, 2019

the label prodigy, but she attributes much of her life's joy and achievement to her life in nature.

Her joy in nature also nurtured her achievement. What she liked best in her university years were the studies that gave her new insight into nature's role in human life. Her curiosity about the unknown, including people and places, moved her to take the only foreign language offered to high school freshmen—Latin. It has become her gateway not only to the classical world but to the Romans like Virgil who wrote about the natural world.

With a scholarship to Vanderbilt University and working in the cafeteria, teaching swimming, and tutoring, she needed no financial help from her parents. The study abroad year she spent in the French medieval town of Aix prepared her for life as a Marshall Scholar at Cambridge, but not for the its educational routine. At her first tutorial with novelist Andrew Ward he asked her a question she had never been asked at Vanderbilt: "Well, Miss Coogle, what would you like to read?" She says, "That was the first time I had to take control."

It suited her independence and curiosity. Besides Chaucer and Old English texts, she chose to study medieval French—the twelve "lais" or stories in verse written by Marie de France. Her tutorial venue fit the subject. In Magdalen college the little short Diana Coogle passed from modern Cambridge "through a little short doorway into a stone room with a medieval fireplace" to read and talk about knights and ladies in the age of chivalry, an experience that was "just magical."

Part of her affinity for the medieval era was the fact that people then, she says, lived much closer to nature. Coogle's study of literature at Cambridge was only the beginning of finding out what she had to communicate and the language she needed.

The next important part of her education came as she returned to America, transformed from student to teacher. As a Woodrow Wilson Fellow she took the opportunity to teach in a small rural college in need of talent. In the coal mining town of Pikeville, Kentucky this little woman who seemed no older than a high school student puzzled and shocked people with her British accent and her miniskirts. "After Cambridge and going to operas and theater and studying classical literature, I came to coal mining Appalachia. It was an enormous and difficult adjustment."

She adjusted and soon found herself at home in "cricks and hollers country," comfortable in her faculty apartment, and in love with teaching. Then she found herself in love with Dan Lamblin. She was in love with both the man and his ideas. Lamblin had come to Pikeville funded by a government grant "to organize students to take charge of their own education." He was also "tuned in to the hippy movement." He was an idea man and seized on the ancient idea of communal living as a new idea for transforming American life. Coogle's attraction to the hippy movement was the hippy movement's attraction to forming rural communes. As independent as Coogle has always been, it's worth considering if her attraction to communes was the adult version of her once close knit rural family. In love with both Lamblin and the back-to-the-land commune idea, however, Coogle joined him and several hippies caravanning along the West Coast, looking for the right place.

The right place turned out to be in California's Santa Cruz mountains where Ken Kesey and his Merry Pranksters had established themselves, smoking pot and dropping acid and having a rip roaring time as America's most famous rebels.

Their caravan stumbled on an unoccupied cabin whose door sported a sign, "Welcome visitors. Stay as long as you like. Be careful of fires." They stayed for two years. Dan became good friends with the wealthy former timberman


(Left) 1964 Summit Le Rateau, 3809 m., French Alps. (Center) 1984 With son, Ela, at their home in the Applegate, Oregon. (Right) 2011 Diana's new house (with electricity) on the side of Grayback Mountain, Applegate Oregon.

who owned the land. The owner, after getting to know the commune members, observed that most had not spent much time in wild areas or even tamer rural areas. Coogle, he saw, was different. "You are the person most connected to the land," he told her. For the first time since leaving the family acres in Georgia she felt entirely at home.

Like most communes this one didn't last more than a couple of years before its members began drifting away, looking for new experiences and new friends. Off they went to Hawaii or India or back to the cities where the action was. "It kind of left Dan reeling," Coogle said, but she remembers those years as full of exciting promise.

Both of them had friends on the Cherokee reservation in the mountains of North Carolina—non-Cherokees who had been invited to live in a cabin no longer occupied by Cherokee friends, and who invited Coogle and Lamblin to stay, a commune of two couples. Both women became pregnant. If you were a real back-to-nature person, to give birth you didn't go back to a hospital like the one you were born in. Like the people in *The Foxfire Book* or hunter-gatherers you went about your daily life till the baby was due. "I was so naïve but I was very healthy," Coogle recalls. "I climbed Mt. Noble the day before I gave birth." That was an unrelenting uphill climb of over 1,500 feet in some 4 miles. For the birth the next day Lamblin was Coogle's midwife. The baby boy, Ela, became her one and only child, named after the small town of Ela, whose name derives from the Cherokee word Elawodi or Yellow Hill.

The Cherokees, after their own bloody civil war, had become a nation with its own conservative traditions and laws. "There was not a whole lot of hippy activity going on," Coogle says. She and Lamblin went west again looking for a commune and "country close to a cultural center." They found it, as did many commune creators, near a university and its affluent community. They found land in Oregon's Siskyou Mountains, in Williams, fifty miles from Southern Oregon University in Ashland, two miles from where Coogle has lived for over forty years.

"All I wanted," Coogle says, "was to be settled there with my baby and make a home." Lamblin, still deep into the commune ideal, gathered six or eight more residents for a commune that started in a barn. Commune life had a heavy emphasis on what Coogle describes as "knowing who you are." For her that meant being "in nature and not surrounded by manmade things all the time and having a communion with nature." She is a writer who chooses words deliberately, and "communion" then, in her childhood, and now is a mystical union with natural or supernatural powers. Most humans have sought this union in a god or gods, their community being their fellow believers. For most hippy communes and this one too, seeking a higher power meant mind altering drugs, opening what writer Aldous Huxley called "the doors of perception."

Coogle believes drugs may have triggered a latent susceptibility to schizophrenia. "Like clapping our hands to start an avalanche." She had never been religious, but one day at a winter solstice party, "I was the second coming of Jesus Christ. The radio was talking directly to me. Animals talked to me: 'Don't go this way; it's dangerous.' Mozart talked to me. God talked to me. God was in charge and was the voice that told me what to do all the time."

There she was in the wilderness again, and this time she was Jesus. The commune members, who had more respect for indigenous traditions and a fascination with shamans,

didn't know what to do, so they did nothing—let nature take its course. This was also the era in which psychiatrists like R.D. Laing in his popular books proposed hallucinations as valid responses to experience. Ken Kesey's book *One Flew Over the Cuckoo's Nest* portrayed the inmates of an asylum as saner than the staff. The commune members allowed Coogle to live in the world of her hallucinations.

One day Coogle went for a horseback ride and never came back. "I was told by God that it was dangerous to go back." Her holy journey had begun, and God told her she would travel around the world finding the handful of other holy people left on earth. Her instructions were to go disguised as a boy, not hard for the small, well muscled little woman. In disguise she boarded a Greyhound bus for San Francisco. The friend who was to meet her didn't. He may not have recognized her.

In the city she walked the streets for hours. She began to cross the same intersection over and over as the lights permitted. "I got trapped by Satan and couldn't find any way out." When she saw two women staring, she finished the magic spell and sped down the block. On the second block policemen stopped her. She gave her name as Rebecca Dougald and said she was fourteen. Thus began her two years in and out of California mental institutions.

She says she was fortunate to have been committed as an adolescent. Inmates that age played softball and volleyball, went on excursions, and took school classes. But she was still living in her hallucinations. Outside the institution doors a mob would be waiting to attack the Savior. And what would the doctors do when the end of the world came?

When treatment allowed her to read seriously, she started reading about schizophrenia to understand what had happened to her. Fortunately, she was in that small proportion of schizophrenics who get well and leave the illness behind.

She returned to the commune in Williams, had a relapse, recovered in a nearby commune, then, reunited with her son, returned to Williams. The commune had abandoned the land, so Coogle and a woman friend became land partners and bought the land, and Coogle built a house there. Thoreau's cabin at Walden Pond was ten feet by fifteen feet. Coogle's was ten by twelve, one room with a loft, and, like Thoreau's, made with locally cut trees and salvaged lumber.

"When Ela was about eight I began seeing him as Alice in Wonderland with arms sticking out the windows." She hired a carpenter and doubled the size of the house with another room and a second floor room for Ela. She lived in that house until eight years ago, far longer than Thoreau lived at Walden Pond. She was off the grid, heated with wood heat, read and wrote by kerosene lamp, and took her water from a stream diverted to the house. Unlike Thoreau, she couldn't walk into town and eat with her parents and leave her laundry.

When her parents died within a year of each other, her mother at 88, her father still woodworking at 98, they left her a small inheritance. She was in her mid sixties and ready for a slightly bigger home with electricity, although her son Ela pushed to convince her to buy the rest of the land the commune had once owned and to commit to a more modern life style. She asked him, "Why should I buy it? I love my house."

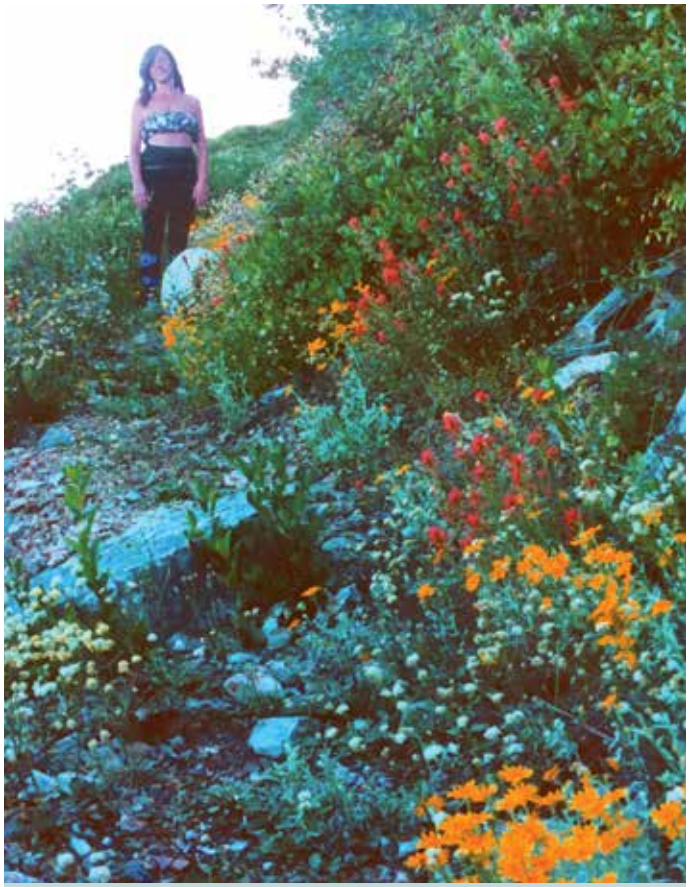
"Mom," Ela said, "buy the land, and we'll build you a house you like even better."

She thought about it, then, "I made a leap of faith."

Ela, near 40 by this time, had become the creator of large and original musical instruments and a builder-designer. His career as a builder began with homeschooling when at age eight his father made him a take-it-or-leave-it deal. "I won't buy you any toys, but I'll help you make anything you want." Ela is still building.

He designed the new home and helped build it, complete with a shining, jeweled steel railing that seems to dance up the stairs. Each panel brings inside an image of the nature outside. Most of the wood for the house was milled from her land.

Instead of her old 240 square foot home, since 2010 Coogle has been living in the luxury, for her, of 900 square feet, less than half the size of the average American single family home. She still occasionally sees a cougar pass by the window and still fights the bears for her apples. In her new book *At the Far End of Life: My Parents' Aging – and Then My Own*, she complains about creaking joints and that her breasts have "the punched down dough look,



On the return trail from Whiskey Park, Applegate, Oregon, 1991

yesterday's balloons slowly deflating." Yet aging and even death fit perfectly into the nature she accepts and loves.

Although she will turn 75 next year, her enthusiasms and her joy at living in and exploring the wilderness are as buoyant as ever. She hikes for miles and days in the high Siskyous and Cascades. In winter she straps on cross county skis for long excursions. She delights in seeking new high altitude, ice cold lakes, ponds and rivers to swim in. It is not so much the exercise that she loves as the places it takes her and what they do for her enjoyment of life. "Nothing like being in the middle of one of those deep blue lakes and looking up at the mountains around you. It's very peaceful." In her latest blog she sums up a recent mountain hike in fall foliage. "This was. The most. Beautiful autumn hike. I came home color-saturated and soul-satisfied."

How do you get so much continuous joy out of life and pass it on to your students and readers? A good answer is *saunter*, saunter through life. As a girl Coogle began to live a life that might best be described by Thoreau's definition of the saunterer. Sauntering is not just walking but a special kind of walking through both space and time. If Thoreau had known the concept "nature deficit disorder," he would have prescribed sauntering as the cure. Sauntering, he said, "has nothing in it akin to taking exercise, as it is called, as the sick take medicine at stated hours—as the Swinging of dumb-bells or chairs; but is itself the enterprise and adventure of the day. If you would get exercise, go in search of the springs of life."

Diana Coogle, even in her years of schizophrenia, has been looking for and drinking from the springs of life. Even though this year she published a book about aging and dying, she finds the prospect of turning 75 next year hard to grasp. "75 is a really big number." To understand the number and to accept it, in a recent blog she invited readers to suggest 75 things of 75 repetitions each that she should do. "Otherwise it's just another year of swimming in ice cold lakes, so 75 doesn't mean anything until I start to hug 75 trees." The girl who once hugged trees in rural Georgia has already hugged 50 trees in Oregon since her blog.

Finding and drinking from the springs of life has allowed her to contemplate death not only calmly but with a sense of fulfillment. "Best to laugh while we can," she wrote at the end of an essay about the uncertainty of death. As her mother imparted to her the first love of nature, her mother in dying also taught her a lesson. Her mother abhorred plastic flowers. Her joy was in the full cycle of her flowers that grew, bloomed, withered, and died. After a stroke felled her mother in her mid 80s she could seldom leave the house, "but the whole life cycle [was] richly and constantly demonstrated right before her eyes."

Without noticing the irony, Coogle at 74 writes, "When I am old, I want real flowers that will be beautiful then not be beautiful, that will live and then die. Give me no artificial flowers. I want to be reminded, then, as now, that only artificial things never change, that the price we pay for the vibrancy of life is change. To know I am alive, let me know the presence of death."

Coogle has made her life a human flowering, and she's still in bloom.

Books and Blogs by Diana Coogle

At the Far End of Life: My Parents' Aging – and Then My Own, Laughing Dog Press, 2018

*Wisdom of the Hear*t, in collaboration with artist Barbara Kostal, Laughing Dog Press, 2017

Weekly blog, www.dianacoogle.blogspot.com, 2015-present

Favorite Hikes of the Applegate: A Trail Guide with Stories and Histories, co-authored with Janeen Sathre, Laughing Dog Presss, 2013

An Explosion of Stars, Laughing Dog Press, 2004

Living with All My Senses: 25 Years of Life on the Mountain, Laughing Dog Press, 2001

Fire from the Dragon's Tongue, Essays about Living with Nature in the Siskiyou Mountains, Laughing Dog Press, 1999

Soda Mountain: A Living Legacy, script for video, Pamela Morey Studios, Ashland, OR, 1992

Wallace Kaufmann ('61): A Life in the Wilderness

By Stanley Chang ('91)

Such finery waits patiently for a few occasions.

Tell us briefly about your Marshall experience and whether it impacted your choices upon returning to the US.

From the time I became the first person in my extended blue collar family of cousins, uncles, and aunts to go to any college, I doubted whether I deserved to be there—first at Duke, then at Oxford. By all visible and standard measures—grades, extracurricular activity, thirst for knowledge—I qualified, of course. But I never felt qualified and still feel elite institutions weren't meant for people like me. "Like me?" People who had to work since they were 10 years old, who got 10 cents a week on Pop's payday, who had no books at home, whose parents dropped out of high school, who never ate at a restaurant. When I was ten or twelve I saw a black kid a bit older than me do a good tap dance routine for a cousin's wedding. People threw coins onto his platform. I envied him—the talent and the money and the applause. I tried to teach myself tap dancing. Then magic. Then juggling. No good.

I was good to pretty good at soccer, ice skating, and swimming. These are not things that make you think about going to Duke, let alone Oxford. But I was a reader. Like lots of kids, I devoured books about animals—heroic animals—race horses, war dogs. And comic books, of course, about heroes. And the Greek and Norse myths. Thor, Prometheus, Zeus, Hector and Ulysses were my role models. I shared a bed with an older brother, for years, and for years at night we would tell each other long, very long self-inducing summaries of the books we were reading about animals.

Oh, the Marshall, yes. Do I digress? No. I'm getting there. Let's speed up. In short, I loved being outdoors whether swimming and fishing or playing sports or watching animals. It was an escape from my mother's depression that led to her two suicide attempts, then electric shock treatment—during the years I was 9 and 10. After that she survived on anti-depressants, and she was not the same mother. My father was always at work, making airplane parts at Grumman. Nature was my escape, something bigger, something permanent, something wonderfully mysterious. It didn't coddle me, and it didn't betray me. At Duke I spent a lot of time in the 7,000 acre Duke forest and took the pre-med zoology courses.

Above: Kaufman, on the right, with some of the crew from the '55 "Longyland Wally" on left.

Right: After a day's digging at Swan Creek, Kaufman practiced diving and swimming in the Missouri, with hopes of returning to Long Island and the Labor Day swimming races.

I have a reading disability—never could read faster than I could speak. I dreaded the thought of graduate school in America and stacks of thick novels and lit-crit. I shot for the moon—applied for a Fulbright to France to write about Rimbaud and a Rhodes and a Marshall to go to Oxford and write about Wordsworth. See, I'm back to nature. Besides at that time I could read all of Wordsworth and all written about him even with my reading disability. The Marshall and the English system allowed me a lot of outdoor time, and I could go to the Lake District and read Wordsworth manuscripts and letters at Dove Cottage. In the fall of my second year I worked on a hops farm in Herefordshire. After two years I had my MLitt. The impact? First, it got this blue collar, socially bumbling, unsophisticated, but well read bumpkin necessary lessons in polite society and in real scholarship. Unlike a lot of Americans, I went for a graduate degree that did two things. It required me to do really independent and rigorous scholarly work. Second, I spent the first year supervised by a fine scholar, John Jones. (Second year Jones was on sabbatical and I was turned over to an old pastor at St. Edmunds who would ask me to read my latest chapter while he fell asleep.)

The English system of graduate work also liberated me to attend any lectures I chose—Ms.Ing on the Ballad or history of science. I joined the Crime Society and became an escort for borstal boys on leave. I could have and should have stayed a third year, but I was itching to get back to America and be somebody. We could say that during the Marshall years, I went from believing I was nobody to being overconfident that I could be somebody. I applied to be on the staff of Sen. Jacob Javits of New York. Surely he'd want a Marshall Scholar. He didn't. I became the assistant curator of a new natural history museum on Long Island, writing their publicity and educational brochures and helping design a new building and preserve. Two years later, partly on the strength of my Marshall distinction and Oxford degree, I took a teaching position at the University of North Carolina at Chapel Hill. I was allowed to teach a special freshman course about nature in literature. I was not allowed to teach Wordsworth or the Romantics. No PhD.

What path led you to Oregon, and where exactly do you currently live? How did you decide to live there? You mentioned something about mushrooms?

At UNC I was denied tenure. The official reason given to protesting students was that the department didn't need a generalist. The unofficial reason, I'm quite sure, was that when given the task of reforming the freshman English comp course, I instituted exercises suggested by what science was learning about creativity, how the brain makes order out of chaos—that's what composing is.

The denial may also have had something to do with my new business interests. Many of the senior faculty dabbled in real estate, and the socialist playwright Paul Green, founder of outdoor theater, had even created a posh, whites-only subdivision, but they had invested quietly. I attacked head on the spoilage of the countryside and discrimination. I founded a small brokerage that advertised that it would not discriminate on any basis and that it would not charge the standard 6% commission. The Chapel Hill Realtors president and some officers tried to blackball us. My big project was a 330 acre rural homestead community with covenants to protect the environment from pesticides, light pollution, deforestation, and to preserve particularly important habitat. And in the summers, while I wrote articles and fiction and poetry at home in an old farm house, I grew organic vegetables and sold them at prices similar to grocery store prices for commercially grown food.

Whereas once I didn't think I was the kind of person for academia, now academia didn't think it was the kind of place for me. Alas, I loved teaching and I loved my students. Fortunately, I went on to teach a couple of courses at Duke, then an adult ed course for Duke (a history of private property), then two different stints at Bucknell as writer in residence. And later I taught property valuation for the World Bank in Central Asia, an environmental covenants course for Texas A&M Law School last year, and now poetry for the local community college.

After almost 35 years in North Carolina (minus two years in Kazakhstan and many months traveling in Central and South America, Eastern Europe and Siberia), the boom created by the Research Triangle (the area around Duke, UNC, and NC State) had transformed the place I first knew as quiet rural countryside and small towns. It had become suburbia. And I was tired of the summer heat, the ticks, the chiggers, and the endless disputes over zoning and planning. The population had doubled and seriously gentrified. Going, going, almost gone was the diversity of towns and people.

I still didn't think of myself as gentry in any sense of the word. I had been to colloquia in Montana and Arizona, so I began looking in the west. I lived in three different places in Oregon before I answered a CraigsList ad for 17.5 acres on a tidal river with marsh and forest, overpriced with numerous misleading claims about getting electric service,

Clearing land for a new building on his land in NC and making firewood.

right of way, and building permits. After 7 months of on and off negotiation I bought it and moved into the cabin in the coldest winter anyone here can remember.

I believe many or most people imprint on the place they grow up. I grew up on a little finger of harbor off Long Island Sound. I dug clams with my bare feet when the tide was low enough. I caught lots of flounders for dinner. I speared eels and sold them to German immigrants. I salvaged boats. I had to cross Yaquina Bay in a kayak to see the acreage advertised, but the place smelled and felt like home—the rich decay of mud, the salt air, the soft marshland, creosote pilings, gulls crying. Like a salmon, I knew home when I felt it.

Your book, *The Rubaiyat of Poole's Slough* shows great interest for the natural world. What was your motivation to write it?

Gloom and doom. They are so prevalent among people who think of themselves as environmentalists. They love nature or what they think of as nature, but they are always shouting fire. Well, at least global warming. That's largely taken the place of resource depletion, famine, and pestilence, though it's often said to be the forerunner of all of those earlier clouds of doom.

I've seen and written about environmental disasters here and in many other countries. I've run three statewide environmental groups. I have no illusions about humankind's capacity for destruction. But the foundation for getting the necessary public support is not exaggerating wailing and rendering of garments and scapegoating the latest convenient target—fossil fuels, multinational corporations, Trump, or capitalism. The foundation is to get people to see nature as it is, to be wowed by the real complexity, by science, by personal experience, to understand that as far as we know Homo sapiens, you and me, we're the only species on earth that thinks about the problems and that now wants to save and enjoy other species.

Omar Khayyam's *Rubaiyat* is all about enjoying life. My *Rubaiyat of Poole's Slough* is about enjoying and understanding and celebrating both human life and nature. It's also a celebration of our ability to re-invent our lives, at any age.

Are the pictures taken from your environs, and how do you choose the poetry that accompanies it? Why do you choose photographs instead of drawings or paintings?

I can't paint. I can't draw. I can push the shutter release button on a camera. All the pictures except one are pictures I've taken here, most of them from one of my kayaks out on the slough, in the marsh channels, or on Yaquina Bay. The one that's not mine is a picture of a squirrel eating with the sun in full eclipse behind him. That was taken by my undergraduaate roommate, Dave Deamer, who became my co-author of our 2016 science fiction book about genomics and ethical dilemmas.

I chose the rubaiyat form because it is short enough to be used as a caption, and because it forces the writer to encapsulate an observation and conclusion in just four very readable lines. (Rubaiyat is plural for the 4 line quatrain called in Persian, a ruba'i.)

What three environmental groups did you run? How did you get involved? Are you still running them?

In 1967 when I was teaching writing and literature at UNC-CH I was also writing the newsletter for the

Though in the South, every year offered a few days for the sport Kaufman still enjoys in dreams and in fact—figure skating.

Outside the house built in his first rural homestead project, Saralyn, near Chapel Hill, NC, one of 33 owner built homes in the 350 acre forest protected by environmental covenants.

A year out of Oxford University, Kaufman bought a rundown farm outside of Oxford, NY, and began remodeling his first home, intending to farm and write like the young Robert Frost.

Conservation Council of North Carolina—the practical side of writing. I became the president in the early 1970s when the Council intervened in the Shearon Harris Nuclear Plant hearings and challenged the Army Corps of Engineers plan to take by eminent domain thousands of acres of bottomland hardwood and family farms for a reservoir. Unsuccessful, but plans were at least modified. In the late 70s or early 80s I became president of the Conservation Foundation of North Carolina, a group that acquired donations of important natural areas or conservation easements on them. About the same time I served as president of the North Carolina Land Trustees of America. Among other things we rehabbed urban housing in Durham, established a cooperative of small timberland owners, and ran what may have been the first tour of solar heated homes in the US. I also served on the board of the Triangle Land Conservancy, the North Carolina ACLU, and was on the land use advisory committee for Triangle J Region. My involvement with NC groups ended when I started working in the USSR and its bloc in 1989.

Can you elaborate a bit on the ways in which the book connects to, as you wrote earlier, evolution, astrobiology and animal behavior sciences?

People romanticize the supposed environmental reverence of pre-industrial people. Usually those people feared nature, and while they were good at identifying things and natural processes useful to them, they understood very little about biology and ecology. The more one understands, the greater the reverence and awe. Knowing how a salmon's chemical sensitivity works to bring it back to a home stream is far more awesome than assigning the appearance of salmon to the gods. Knowing that the atoms that are you and me and everybody else are assembled and thinking and that they are almost as ancient as the Big Bang, the source of far more profound wonder and reverence than pantheism or the anthropocentric view of animals with human traits. Think about this notion of the hunter gatherer asking the deer's permission to kill it, then thanking the deer. What do you think the deer would say about that—"You're welcome, shoot me"?

The 1913 cabin overlooking Poole's Slough. Kaufman lived here while building his present home on the same land, a place he calls End of the Road.

I've spent a lot of my life on and off as a science writer. I bring to the poetry what I've learned both as a science writer and as a man who has lived surrounded by forest and wild things most of my adult life. In the pictures and their ruba'i captions, I share what science and living have given me.

In one of your writing samples that you sent to me, you talk about subatomic particles and the infinite cosmos simultaneously. It seems that you have a special interest for spectra, in the sense of the totality of things from one extreme to another. Can you say a little about that?

The better we understand the parts, the better we understand the whole. Same about one's own life. I've lived at least ¾ of my life. Who knows, maybe all of it. My friend Dave Deamer is a world class astrobiologist and biomolecular engineer who says we came from stardust and we'll become stardust. That's the cosmic alpha and omega unless one believes in the unprovables—re-incarnation, Heaven, Hell, Paradise, and such places.

I gave up on God when I was 10 for childish reasons, but I never did find an adolescent or an adult reason for believing in a supernatural being. So I don't have any of the religious stories to comfort me and give me an address and purpose in the universe. I have a story that science gives me. I certainly don't pooh pooh theology and scripture. It's as necessary and useful as anything by Tolstoy, Dickens, or Dostoevsky. In fact, scripture and myth teach moral lessons that science can't teach.

What are some of your upcoming projects, literary and otherwise?

I should have a prototype of *The Rubaiyat of Poole's Slough* this month. While looking for a publisher, I'll finish the narrative and essay pages. I have a nearly finished biography of Georg Wilhelm Steller, possibly the world's most intrepid field biologist. He sailed with Bering in 1741, was a champion of indigenous rights, and was persecuted by the Russian government for that. I also have pieces of a book I call "True Green," which will examine all of the ways daily life might change to conform to the prescriptions for simpler and greener living that we hear so often and see so seldom. It will challenge readers to take an honest look at who is and isn't serious and about how practical the most common notions of saving the world are. Call it thinking inside the box—critically.

When (and where) can we purchase a copy of your book?! Your fellow Marshalls will undoubtedly want to read it.

My earlier work is all available through the usual channels:

The Beaches Are Moving (a natural and social history of America's beaches)

No Turning Back (a history of environmental thinking)

Coming Out of the Woods (a memoir of some 25 years and house building in a North Carolina forest)

Invasive Plants (a guide to invasive plants in natural areas of North America, co-authored with my daughter Sylvan, a PhD ecologist)

The Hunt for FOXP5: A Genomic Mystery Novel (co-authored with David Deamer, astrobiologist and biomolecular engineer)

The Rubaiyat of Poole's Slough has just begun hunting for a publisher.

From book:

I'll tell you how the sun rose setting frost on fire.*
The air burned gold, the sky became sapphire.
Fast or slow, cold or warm, all life burns.
So burns my life, my warmth, my days, my pyre.

*a take-off on Emily Dickinson's line, "I'll tell you how the sun rose, a ribbon at a time"

Pumpkin Pie and Tamales in East Anglia

Jackie Zavala ('15)

My move to the UK as a Marshall scholar has proven to be a life changing experience. Prior to moving to the UK I had only ever travelled to Mexico (which was only a ten-minute drive away). I am embarrassed to say that I knew little about the UK before living here. However, learning about the UK is an integral part of the Marshall experience, and I have had plenty of experiences as a Marshall scholar.

Jackie posing in front of the Sainsbury Center at UEA a.k.a. "The Avenger's headquarters"

I am in my fourth year of my PhD in Environmental Sciences at the University of East Anglia (UEA) in Norwich. My research assesses the uses of visualizations in a bottom-up approach on coastal management in North Norfolk. The term "bottom-up" is used in this research to refer to management processes that engage stakeholders from the beginning of the planning process, as opposed to decisions made by individuals or government without the inclusion of stakeholder input. In my research, the participants generate future options for the village rather than choosing between pre-generated options or consulting on a singular option suggested by the relevant governing body. In order to maintain expectations and

A picture taken while Jackie was playing with Lowestoft Town Ladies football club

Jackie and her UEA women's footbal team after a Derby Day win against Essex University

to avoid misinforming participants, I have worked with a village in North Norfolk, as well as coastal managers at North Norfolk District Council and the Environment Agency for two years. My research aims to inform future coastal adaptation strategies and identify barriers in this type of decision-making approach.

The wonderful thing about doing my PhD fieldwork in Norfolk is that it gave me the opportunity to speak with a group of people that I might not have gotten to know otherwise. I spent the first three months of my PhD learning about the history of Norfolk and scouting potential case study sites, in other works learning about and going to various coastal communities. I was corrected many times about the way that Norfolk place names were pronounced. Places like Wymondham, Happisburgh, and Southrepps were among some of the tricky ones. All of this exploring of the Norfolk coast has taught me the best places to get fish and chips (Cromer) and that there is nothing colder than being at the top of 40m high cliffs in the middle of winter.

Living in the UK with its unique football (soccer) culture has allowed me to enjoy playing fully and watching matches at varying levels. The University of East Anglia provides many opportunities to join clubs and societies. I chose to join the UEA women's football team and Futsal teams. I have participated in practices and matches for the past three years and received "manager's player" at the end of my first year. I was also given the opportunity to play with the Lowestoft Ladies and Wymondham Ladies football clubs. These sporting actives serve as a stress reliever when the PhD becomes overwhelming or frustrating.

Norwich and Norfolk have been more than welcoming. I have been fortunate to build relationships with my teammates and my PhD cohort. They taught me about pubs and British slang. We even started a pub club to rate the many pubs in Norwich. They taught me about Bonfire night and I explained Day of the Dead. They fed me Christmas dinner and I fed them pumpkin pie and tamales. My cultural traditions were experienced by my British and European peers, and vice versa. I was able to show the diversity of the US while experiencing a diversity of cultures and traditions, including those of the UK. I feel that I have been able to have a very British experience through my term of study at the UEA and my field work. As a Marshall Scholar placed in one of the lesser known/explored areas of the UK, I was able to immerse myself fully in a very British countryside lifestyle and appreciate the similarities to my own experiences growing up in the US countryside. I am fortunate to have been able to spend my term as a Marshall Scholar in such an amazing region of the UK.

I would like to take this chance to thank the Marshall Commission, the University of East Anglia and EnvEast for this opportunity to pursue a PhD. The three years spent in the UK have been the catalyst to drive the next chapter of my life and I cannot emphasize how grateful I am for this opportunity. Finally, a big thank you to the Marshall Scholars (especially the 2015 cohort) for being such wonderful role models and friends. My Marshall experience would not have been the same without you.

Here is the sign for the Norfolk coastal path showing the distance to the ends of the coastal path. It also shows the sign warning about the eroding cliffs.

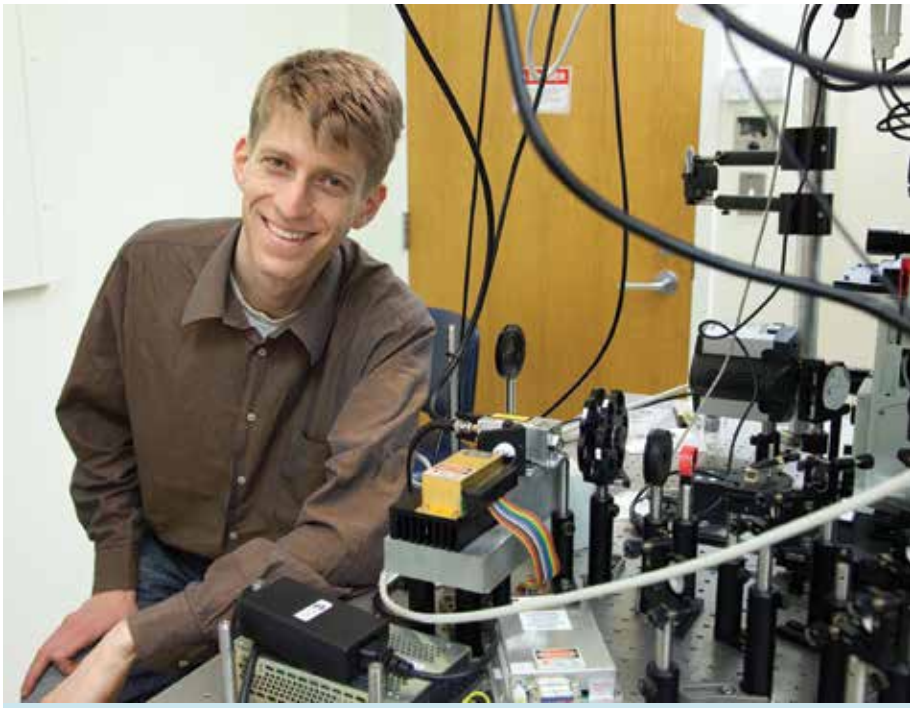
The erosion in the area where Jackie does her research

SCIENCE CORNER

ADAM COHEN ('01)
WATCHING NERVE CELLS WORK

by Thomas Killian ('91)

Understanding how brain functions like memory, cognition, emotion, and motor control are encoded in electrical signals is one of the central problems in the rapidly expanding field of neuroscience. Solving these puzzles could provide the keys to curing debilitating diseases like Alzheimer's, epilepsy, and Amyotrophic Lateral Sclerosis (commonly known as ALS or Lou Gehrig's disease). Adam Cohen ('01), Professor of Chemistry and Chemical Biology and Physics at Harvard University, has created tools to image neural activity that are moving us closer to these goals.



Adam Cohen next to his laser microscope for imaging neural activity

A brain is an incredibly complex network, whether it consists of just a few hundred neurons in the well-studied nematode *Caenorhabditis elegans* (biologists' favorite roundworm), or tens of billions of neurons in a human. Signals are transmitted from one neuron to the next through chemicals released in responses to small changes in the electrical potential or voltage across the cell membrane. Much effort has been dedicated to understanding this biochemistry, and one in principle can measure these changing voltages by placing tiny electrodes into a cell. But this is not practical on the large scale of a neural network, and the need to understand the brain at the network scale is widely recognized as essential for deciphering the brain's mysteries.

One of Cohen's biggest breakthroughs was developing a technique to allow us to image these neural signals. As Cohen describes it, "We discovered a gene, originally from a Dead Sea microorganism, which can convert the electrical activity in a cell into flashes of near infrared fluorescence. These flashes can be detected with a sensitive and high-speed camera. We take an engineered form of this Dead Sea gene (called Archaerhodopsin 3, or Arch to friends) and introduce it into neurons. We can then see the electrical activity in the neurons directly." His lab also programs cells to produce another protein, derived from a fresh water alga from the South of England, which can turn flashes of blue light into stimuli that trigger neurons to fire. The combination provides an all-optical neural interface. Pulses of blue light tickle the neurons, and near-infrared fluorescence reports their response.

It turns out that the signal transduction is fast enough to image brain activity in real time. Cohen adds, "In my academic lab we've been focused on using this tool to visualize electrical activity in the brains of live mice while they are engaged in simple tasks, like running on a treadmill." This work has revealed correlations between the voltages in multiple cells, and changes in dynamics as the mouse learns its environment. This suggests that it might be possible to connect the network activity to overall organism behavior.

In addition to mastering the biochemistry of imaging and manipulating neuronal function, Cohen has also invested

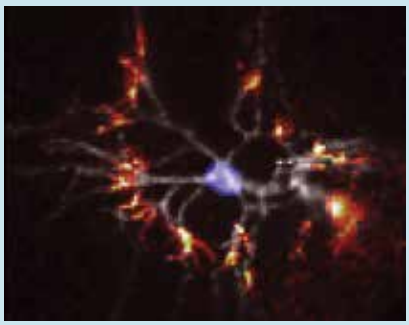


Image of the electrical activity of a single neuron (red) that has been stimulated by a flash of light (blue). Hochbaum et al., *Nature Methods* 11, 825 (2014).

significant effort in the design and construction of hardware needed for his research. He had to develop an improved optical microscope, which he named "Firefly," with the extremely large field of view and fast imaging capability necessary to image the temporal and spatial dynamics of a brain's electrical signals.

Cohen is also translating his discoveries from the lab into practical applications. "About 5 years ago, I co-founded a company, Q-State Biosciences to aid in the discovery of new drugs for the nervous system. We use the optical voltage measurements in human stem cell-derived neurons which contain mutations that cause disease. We then test candidate drugs for the ability to restore normal firing patterns." Much of the company's work has been in epilepsy and neurodevelopmental disorders, but they recently spun out a subsidiary focusing on ALS. They also are working on development of non-addictive pain medicines.

"It's incredible to me," says Cohen, "that this gene from an obscure Dead Sea microorganism is now being used to reveal the mysteries of neurological disorders!"

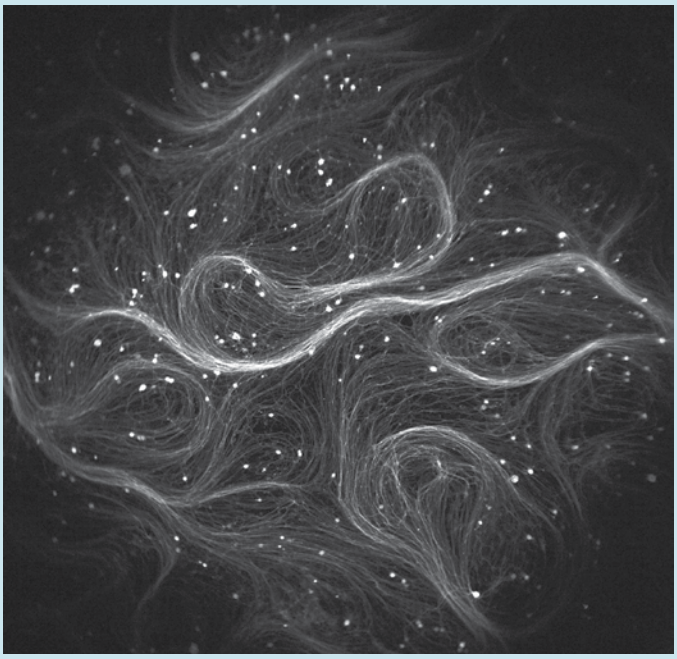


Image: Vaibhav Joshi, Harvard University

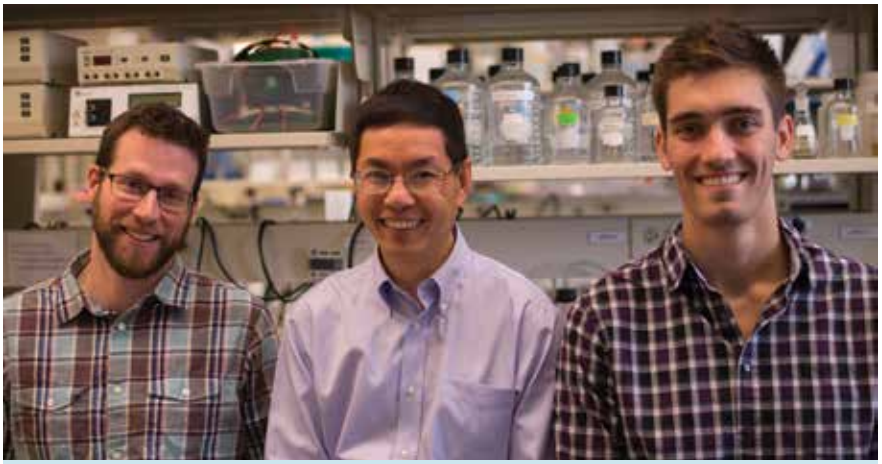
From the "Firefly" microscope, developed in the Cohen lab, showing the point-like cell bodies and wispy axons of cultured mouse sensory neurons

SONG TAN ('85)
VISUALIZING GENE REGULATION

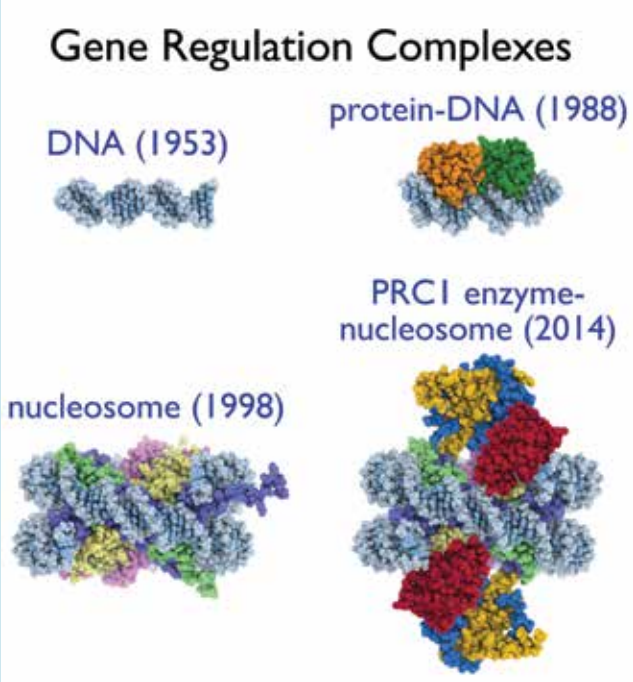
How determining the three-dimensional structures of gene regulation enzymes helps us understand human diseases

Just about everything that happens in a cell is the result of genes being turned on or off. Think of a cell as a city, with goods and services needed to be delivered to the right locations. Without order imposed by traffic lights and other means to coordinate such transport, chaos will result. My laboratory studies the equivalent of the traffic cops or traffic lights: the genetic enzymes that regulate gene expression. These enzymes ensure proper genetic function in normal cells, and misfunction of these enzymes often leads to diseases like cancer.

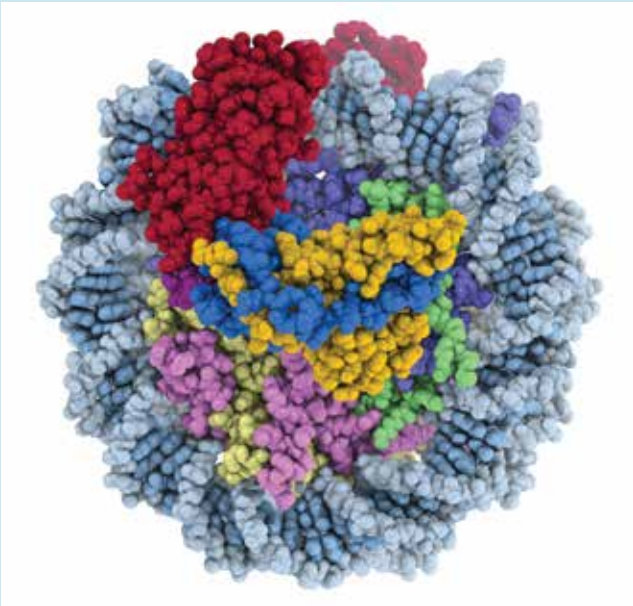
Our approach to study gene regulation is structural biology, the study of biology through understanding what the relevant biological molecules look like. A fundamental tenet of biology is that structure determines function (and vice versa). Just as what a vehicle looks like (its structure) is intimately related to how it is used (its function), how an enzyme works is tied to what it looks like. If you see a bicycle, you can surmise it is useful for getting one person across a small town, but you would not expect to use the bicycle to move the home of a family of four across the town, yet alone across the country. Structural biology allows for a deep understanding of how biological molecules work through



The team that determined the structure of the PRC1-nucleosome complex (left to right): Rob McGinty, Song Tan ('85) and Ryan Henrici ('15)



Three-dimensional structures of gene regulation complexes. DNA model similar to Watson and Crick's 1953 model (upper left), the 434 bacteriophage repressor protein-DNA complex as an example of a protein-DNA complex (upper right), the nucleosome complex of DNA wrapped around histone proteins (lower left), and the Polycomb Repressive Complex 1 (PRC1) bound to the nucleosome (lower right).



Crystal structure of the Polycomb Repressive Complex 1 (PRC1) enzyme bound to the nucleosome

an appreciation of what the molecules look like. A classic example is the structure of DNA, discovered by Watson and Crick in 1953. The structure of DNA with its two complementary strands was both aesthetically beautiful and mechanistically delightful because the structure explained the basis for genetic inheritance.

We now appreciate that regulating gene activity in a cell requires more than the simplistic beauty of the DNA double helix. Every cell in our body contains 6 feet of DNA. Packing that length of DNA into the nucleus of a cell is equivalent to stuffing 30 miles of thread into a basketball. To achieve such compaction, DNA is wrapped around histone proteins into disc-like molecules called nucleosomes. This organization collectively known as chromatin was originally thought to silence gene activity, but we now know that chromatin is critical for both turning on and turning off gene activity. And we have come to understand that gene regulation enzymes that work on chromatin play critical roles in normal and diseased cells. In particular, mutations in many gene regulation enzymes are strongly associated with many different forms of cancer.

When I started my laboratory at Penn State, we knew how gene regulation proteins could bind to DNA, and we knew the structure of the nucleosome complex of DNA and histones (work done in the laboratory of my mentor, Tim Richmond). What we did not know was how chromatin enzymes would recognize and act on the nucleosome unit of chromatin, a critical step to understanding how these disease-associated enzymes actually work. It took my laboratory more than a decade, but in 2014 Rob McGinty (a postdoc in the lab) and Ryan Henrici (an undergrad who would be awarded a Marshall Scholarship the same year), and I determined the first structure of a chromatin enzyme (PRC1 = Polycomb Repressive Complex 1) in complex with its nucleosome substrate. This structure and other structures of chromatin proteins bound to the nucleosome provide paradigms to understand how the cell recognizes and acts on its own genetic information (DNA) packaged into chromatin. Our structure also provided fascinating insight into human disease. Colleagues at the University of Washington have provided convincing evidence that mutation of a single DNA base in the gene for the PRC1 enzyme caused neurological abnormalities in a patient. Neither of the patient's parents carry this mutation, indicating that the mutation occurred *de novo* at a very early stage of development. This mutation changes a protein residue that my laboratory showed was critical for the ability of the PRC1 enzyme to bind to and act on the nucleosome, thus providing the mechanistic basis for why a single mutation led to the unfortunate outcome for the patient.

For us, this is just the beginning. Although we now possess a few paradigms for understanding how chromatin enzymes act on DNA packaged into nucleosomes to regulate gene activity, there are hundreds of chromatin enzymes and much more to discover about how they regulate gene activity. And there are new techniques such as cryoelectron microscopy to complement X-ray crystallography that we used to solve the structure of the PRC1-nucleosome complex. Our goal is to develop mechanistic insights for how these gene regulation enzymes work in normal and diseased cells, and our expectation is that such insight will lead to new therapeutics against different forms of cancer.

Gavin Baird ('15) Where the Heart is

When I tell people where I'm from, it usually results in a barrage of questions. In the past, these remarks have run the gamut from "Where exactly is that?" to "Did you feel safe growing up there?" to my personal favorite, "I think I drove through there once… (turns to partner) Honey, did we drive through there once?" It often surprises me that a city with over half a million inhabitants that gave the world Audra McDonald, the credit card, and the Doritos Locos taco goes largely unnoticed by the rest of America.

Over the years I've grown accustomed to answering these questions, and I see it as an opportunity to challenge the often negative misconceptions of Fresno, California. It wasn't until recently that a question truly made me think about my hometown's values. Several weeks ago a coworker asked "What is something that I'd be able to find in every home in Fresno?" I told him I'd need a moment to think about it and later that afternoon I had the answer.

When I saw him again I pulled out my phone and showed him a photo of a 2001 *Sports Illustrated* Magazine cover. Pictured was a poised quarterback scanning the field and a headline that read "Fresno? Yep. Unheralded Fresno State is knocking off college football's big boys." This was undoubtedly a banner year for Bulldog football but that isn't the true reason why this magazine remains a hometown staple. This proved to be a rare moment where the nation took note of my hometown because something great was happening. Thirteen years after the magazine landed in home of every Fresnan, I found myself seated in the office of the President of Fresno State. Dr. Joseph Castro grew up in a small town south of Fresno and comes from a family of Mexican farmworkers. He worked his way through several years of higher education and ended up receiving his PhD from Stanford. President Castro is a wonderful person with an incredible story, but on this day he wanted to focus on sharing a different narrative with the community. After I told him I'd be happy to help we shook hands and promised to keep in touch. What I didn't know was how much being the first Fresno State Marshall meant to my university and hometown.

Over the next few months my story seemed to be everywhere. What I thought would end with a tweet from Fresno State's account turned into articles, interviews, and photo sessions. The short-term impact of the Marshall was significant, but the long-term effects have been incredible. Since 2014, Fresno State has seen the number of student applications to UK graduate programs rise substantially. Students that once believed Los Angeles was too far from home are now weighing offers from Liverpool, Brighton, Aberystwyth, and Edinburgh. With each success comes another opportunity to demonstrate that British universities aren't out of the reach of kids from the Central Valley. These stories of postgraduate success are especially important when 68.3% of students are the first in their family to attend college.

Background graphic: PhotoGranary/Bigstock.com

Scholars and alums often ask me what it was like to receive the Marshall coming out of Fresno State. One thing that's important to keep in mind is that Fresno often struggles to combat the negative publicity it receives. Even though the city's residents are aware of the great things afoot, their home is often defined by a bad headline or an unsavory soundbyte. What this fellowship gave the city of Fresno was validation. When a Fresno native attended the local university and left with a Marshall Scholarship, the city rightfully took ownership of that moment. They knew that this was the result of the time and effort that they put into me over the years. It was the elementary school librarian who stocked up on UK-related books after I had checked all of them out twice. It was the professor who held weekly one-on-one book discussion sessions with me after he found out I wanted to attend graduate school. It was the Hmong community that opened up to me and gave me a passion for refugee and asylum policy. Fresnans knew that, without their contributions, none of this would have been possible. It may not have come in the form of a *Sports Illustrated* cover, but the Marshall Scholarship had people once again asking the question "Fresno?" for all of the right reasons.

The 2018 Scholars in Washington

Kim Darroch, British Ambassador to the United States, with 2018 Marshall Scholars

Joshua Stanton, Staff at British Embassy; Jennifer Spande ('97), Deputy Director Australia, New Zealand and Çaman Island in the State Department; Peter Haas ('88), Deputy Assistant Secretary for Trade Policy and Negotiations in the Bureau of Economic Affairs; Michael Aktipis ('03), Attorney Advisor State Department

Paul Sonne ('07), Washington Post, addressing 2018 Marshall Scholars during their orientation program at the British Embassy in Washington DC

MARSHALL SCHOLARSHIP CLASS OF 2019

Mallika Balakrishnan
Agnes Scott College
University of St Andrews

Rachel Bass
Grinnell College
University of Edinburgh

Ariana Benson
Spelman College
Royal Holloway, University of London

David Bindon
United States Military Academy
London School of Economics and Political Science

John Brake
University of Virginia
University of Cambridge

Amanda Burcroff
University of Michigan
University of Cambridge

Theodore Caputi
University of Pennsylvania
University of York

Sofia Carozza
University of Notre Dame
University of Cambridge

Claire Celestin
Northeastern University
King's College London

Akshayaa Chittibabu
University of Connecticut
University of Oxford

Gabriella Cook Francis
CUNY - Hunter College
University of Oxford

Christopher Crum
Bates College
University of Oxford

Robert Drummond
United States Military Academy
University of Cambridge

Dina Eldawy
Syracuse University
University of Sussex

Brian Ferguson
Georgetown University
University of Oxford

Nina Finley
Whitman College
Royal Veterinary College

Photos: Scholar submissions
Background photo: MikeTra/bigstock.com

Katherine Gallagher
University of Notre Dame
University of Oxford

Ararat Gocmen
Princeton University
University College London

Laura Hallas
University of Texas – Austin
London School of Hygiene and Tropical Medicine

Lyndon Hanrahan
Harvard University
Royal College of Art

Jonah Herzog-Arbeitman
Princeton University
University of Oxford

Margaret Hilderbran
University of North Carolina - Chapel Hill
University of Edinburgh

Myrial Holbrook
Princeton University
University of Cambridge

Deepti Kannan
Stanford University
University of Cambridge

Morgan King
West Virginia University
University College London

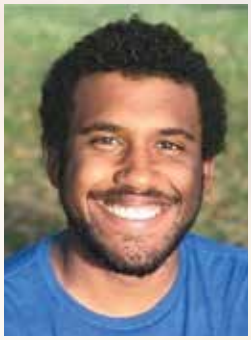
Justin Lee
Harvard University
University of Oxford

Patrick Liu
Northwestern University
University of Oxford

Lucy Mahaffey
University of Oklahoma
University of Nottingham

Radha Mastandrea
MIT
University of Cambridge

Havana McElvaine
University of Washington
London School of Economics and Political Science



Noah McNeal
University of Michigan
University of Sussex

Manuel Medrano
Harvard University
University of St Andrews

Photos: Scholar submissions
Background photo: vent du sud/bistock.com

Vaibhav Mohanty
Harvard University
University of Oxford

Kevin Morris
Georgia College & State University
University College London

Sarah Nakasone
University of Chicago
London School of Hygiene and Tropical Medicine

Kaytie Nielsen
Carnegie Mellon University
National Film and Television School

Kathryn O'Nell
MIT
University of Oxford

Clarissa Pacyna
Johns Hopkins University
University of Cambridge

Aneesh Pappu
Stanford University
University of Oxford

Janel Pineda
Dickinson College
Goldsmiths, University of London

Jeremy Ratcliff
Johns Hopkins University
University of Oxford

Anne Richter
United States Naval Academy
University of Sheffield

Anna Sappington
MIT
University College London

Madeleine Schneider
United States Military Academy
University of Edinburgh

Kyle Swanson
MIT
University of Cambridge

Julie Uchitel
Duke University
University of Cambridge

Shomik Verma
Duke University
University of Cambridge

Crystal Winston
MIT
Imperial College London

Photos: Scholar submissions
Background photo: exflow/bistock.com

IN MEMORIAM

Harvey M. Wagner — November 20, 1931 to July 23, 2017

Harvey Wagner ('54) died suddenly and unexpectedly on July 23, 2017, in Chapel Hill at the age of 85. At the time of his death, he was a faculty member in Operations Research and Management Science at the Kenan-Flagler Business School at the University of North Carolina at Chapel Hill, a position he held for more than 40 years. A respected scholar, teacher, consultant and author, Harvey wore many professional hats and achieved a rare level of success in his field. He received his BS and MS degrees from Stanford University. In 1954 Harvey was selected as one of the first 12 university graduates to receive the prestigious Marshall Scholarship, pursuant to which he studied at King's College, Cambridge University. Following his studies at Cambridge, he earned his PhD from MIT. Faculty appointments followed at Stanford, Yale and finally UNC, where he was the former Dean of the business school. Concurrently

he was a consultant at RAND Corporation and McKinsey & Company. Harvey rubbed elbows with Nobel Laureates in academia and rolled up his sleeves to work with his students as they pursued their interests and goals.

Harvey is renowned for his work in the area of Operations Management – a field that studies how firms can do their work better using mathematical models and data analysis. His seminal book titled *Principles of Operations Research with Applications to Managerial Decisions* was published in 1969. The book is a classic text that helped tens of thousands of graduate students learn concepts related to Operations Research over these years. His article titled *Dynamic Version of the Lot Sizing Problem* ('58) was selected as one of the most influential papers published in the prestigious *Management Science* journal and remains one of its most cited papers. Harvey was inducted as a fellow of many academic societies including Institute for Management Science and Operations Research (INFORMS), American Statistical Association (ASA), and Manufacturing and Service Operations Management Society (MSOM). His scholarly work has won many awards including the Lanchester Prize, the Edelman Award, and an Expository Award given by INFORMS. He also received the Weatherspoon Award for Outstanding Research Accomplishments at the Kenan-Flagler Business School. Harvey was passionate about teaching; he inspired and mentored many students throughout his career and was held in high regard by his colleagues.

At his core, Harvey was an inveterate collector. Starting with model trains as a child growing up in Los Angeles, he later gravitated toward the art world. His next efforts as a collector were shared with his wife Ruth, with whom he established a diverse collection of avant-garde and contemporary American paintings, many which now hang in art museums all over the United States. In later years, travelling throughout Australia with his partner, Will Owen, sparked a deep passion and interest in Australian ab-

original art. During the last decades of his life, he and Will amassed one of the largest and most comprehensive collections of aboriginal art outside of Australia. He and Will, who predeceased him in December, 2015, donated the collection of more than 900 works of art to the Hood Museum at Dartmouth College, creating the Owen and Wagner Collection in order to educate and enhance the knowledge of future generations of scholars, students and admirers about the beauty and complexity of this genre.

Harvey was a beloved husband, partner, father and grandfather. He is survived by his wife, Ruth Glesby Wagner of Pittsburgh, PA; his two daughters, Caroline Reichard (Jeff) of Woodsboro, MD, and Julie Laun (Peter) of Pittsburgh, PA, and his four grandchildren: Henry and Andrea Reichard, and Benjamin and Jeremy Laun. In lieu of flowers, the family has requested that any memorial contributions be made in support of the Owen and Wagner Collection of Aboriginal Australian Art Endowment and sent to the Hood Museum of Art, 6 East Wheelock Street, Dartmouth College, Hanover, NH 03755.

Over the last few months, we have been working to provide a comprehensive list of Marshalls who have volunteered to collect class news from their colleagues. We are still searching for representatives from 25 out of the 64 years. The workload is light: three sentences and a photograph of a Marshall Scholar every six months or year. Please let us know if you are interested in helping. If you wish to submit some class news about yourself, please write to us at newsletter@marshallscholars.org and we will put you in touch with the appropriate news collector. We apologize in advance for any errors in this list. Let us know right away if changes should be made.

1954 Phyllis Wiegand Piotrow
1955
1956 Shirley Beatrice
1957
1958
1959 Frank Bernhard
1960 Patrick Henry
1961 Wallace Kaufman
1962 Pamela Rundle Perrott
1963
1964
1965
1966 Diana Coogle
1967
1968
1969 William Lee
1970
1971 Jeffrey Kunz
1972 Jonathan Erichsen
1973
1974
1975 John Head
1976 Carol Lee
1977 Nathan Fagre
1978 Albert Wells
1979 Thomas Lupfer
1980 Anya McGuirk
1981 Suzette Masters
1982
1983 Bryan Schwartz
1984
1985 Song Tan
1986
1987
1988
1989
1990
1991 Stanley Chang
1992 Christy Lorgen
1993 Loren Siebert
1994 Lisa Marie Grove
1995
1996 Caroline Lombardo
1997
1998 Sewell Chan
1999 Thaddeus Heuer
2000 Nisha Agarwal
2001
2002
2003 Michael Aktipis
2004 Nickolas Rodriguez
2005 Vincent Evans
2006 Daniel Weeks
2007
2008 Benjamin Carmichael
2009
2010 Aroop Mukharji
2011
2012 Rebecca Farnum
2013 Katelyn Davidson
2014 Samantha Olyha
2015 Benjamin Daus-Haberle
2016 Emaline Laney
2017 Aaron Solomon

1966

Having retired from the University of North Carolina at Chapel Hill in 2001, **Jesse White** ('66) is still a Professor of the Practice in the Department of City and Regional Planning. He is also active politically as an avid Democrat and continue his life-long work for social justice and for LGBT rights. He also funds scholarships for students at Sussex and MIT, as well as programs of racial reconciliation at Ole Miss and in music and public service at UNC. He is single but keeps waiting for Mr. Right to show up, which is one of the reasons he visits the gym on most days and tries to stay in shape!

Since retiring from his 33-year career with ExxonMobil in 2003 (the last seven in China), **Stephen Goldman** ('66) has been active in two non-profits near to his heart. He serves on the board of the YMCA of the Rockies and works two days a week with Habitat, just pounding nails after having retired

Jesse White

Liz Laporte

Donna Stoering

from board leadership in Dallas. He lost his wife Joyce to kidney cancer in 2012, after nearly 45 years of marriage, and remarried in 2016 to the former Bette Cortelyou, a long-time friend in Dallas. They continue to spend summers at their home in Estes Park, CO, with plenty of room for visitors.

1972

Richard Tarrant ('72) retired earlier this year after teaching Classics at Harvard since 1982 (and at Toronto from 1970 to 1982). His most recent book is *Texts, Editors, and Readers: Methods and Problems in Latin Textual Criticism* (Cambridge University Press 2016). He is currently finishing a book on Horace's Odes and has hopes of producing a new critical edition of Horace for the Oxford Classical Texts series.

1975

Liz Laporte ('75) continues to serve as a federal magistrate judge sitting in San Francisco, including presiding over more than 100 civil cases for all purposes. Her two adult daughters both live and work in the Washington DC area and recently married (one to an Englishman who earned an Oxford PhD in geophysics whom she met there as a Rhodes Scholar), so she is frequent visitor to the East Coast.

Donna Stoering ('75) is keeping very busy performing concerts, recording new CDs/releases, serving as artistic director of concert series and music festivals; designing music-based educational media content showcasing the cultures of the globe; guest-teaching at universities; composing music for various ensembles, choirs, and films; giving workshops and international retreats for piano teachers; working to help master musicians of all cultures who are in refugee camps; seeking grants and corporate sponsors for Listen for Life projects; and speaking on television networks, podcasts, and TEDx platforms about harnessing the power of music

Frances Brodsky

for health/wellness, conflict resolution, neurological healing, cultural diversity training, increased literacy, and language education. She is also focused on being a wife to retired attorney and bass vocalist Andy Anderson. Between them they have six grown kids and 11 grandchildren in the UK and across the USA. Together they continue to administer the global umbrella organization ListenForLife.org that she founded 20 (!) years ago now in London! Due to Andy's current health challenges, Donna is hoping that several music-loving Marshall Scholar alumni might have interest in taking over executive direction of LFL projects worldwide (from any location), while expanding its mission to inspire/enable the musicians of the world to use their gifts in the service of others. So if anyone is curious, please get in touch!

1976

Frances Brodsky ('76) has been back in the UK since January 2014, when she took up a Professorship at University

College London and became Director of the Division of Biosciences. The Division is one of the largest at UCL and includes four Research Departments and several institutes spanning molecular to cellular biology to physiology, genetics, and environmental science. She also continues to run her own research laboratory funded by the Wellcome Trust and the Medical Research Council, while maintaining an affiliation with the University of California, San Francisco, where she was on the faculty for 27 years. Frances is currently serving on the regional committee for Marshall Scholar selection covering the Northwest.

Frances writes, "One of the attractions of moving to London was joining the EU scientific community, where I have become a member of the European Molecular Biology Organization and the Academy of Medical Sciences (UK). However, since June 2016, the changes threatened by Brexit have been a major concern for all academic enterprise in the UK and Europe and the outcomes remain unclear at this time. A consolation in this age of global uncertainty is that the arts and particularly theater are thriving, with some of the best political drama and acting to be seen in London for years. It is an interesting time to be in the UK, and welcoming the new Marshall Scholars to London this year brought back wonderful memories of good times and facing a whole different range of cultural challenges. Please do get in touch if you are visiting London (f.brodsky@ucl.ac.uk)."

Quiz: can you name these 1983 Marshall Scholars and friends?

1983

In the picture above, a number of 1983 Marshall Scholars and friends attend a 2017 gala celebration at Harvard University. Here is a quiz: can anyone name them all? Email newsletter@marshallscholar.org if you have the answer!

1993

D. Graham Burnett has a new (co-authored) book out, *Keywords* (Princeton University Press, 2018). His collaborative project "Schema for a School," which was part of the 2015 Ljubljana Biennial, debuted in New York City this spring, as part of the launch of the Shed Arts Center at the top of the High Line. Later this year, his work on "Attentional Practices" will be part of the programming of the São Paolo Biennial. He and his daughters (Francesca, 11, and Consuelo, 9) moved to a new place in New York City; the renovation (of an old loft way uptown) took the better part of two years, but the results are pretty special. Visiting Marshalls very welcome!

Eileen Hunt Botting ('93) says, "I have been returning to my literary roots in the Romantic era. Hosting a 200th birthday party for Frankenstein's creature, and dressed as Mary Wollstonecraft Shelley (or perhaps her avatar Margaret Walton Seville), I wore a red cape that my parents had bought for me in Cambridge during my first week there in 1993. It was in great shape after 25 years (if only I could say that sentence applied to all aspects of my life!). I am working on a new book on Mary Shelley as the progenitor of political science fictions that help us think through the ethical and political puzzles raised by AI and genetic engineering. A foretaste of that project appeared online in *Aeon* Magazine in October 2018 under the title *Godmother of Intelligences*. I would enjoy any feedback from the Marshall community, especially those working in Silicon Valley or teaching on the ethics of AI."

Loren Siebert ('93) continues to work with a variety of clients on their software problems ranging from natural language processing to data center orchestration. Recently, Loren branched out from software consulting to coach his daughters' kindergarten soccer team, claiming on his application to have "spent several years in the UK watching Manchester United."

Matthew Ringel ('93) says, "My work for Red Light Management takes me to concert venues around the country, so our move to Houston 2.5 years ago has

Jessica Ashooh

been convenient. And fun! I balance out the rodeo by serving on the board of Houston Grand Opera. We took our boys (17 and 15) to London last holiday where they enjoyed exploring Camden."

1999

On November 6, **Jocelyn Benson** ('99) was elected as the forty-third Michigan Secretary of State. Jocelyn will be the youngest person ever to serve as Michigan Secretary of State, and will also be the first female Democrat to serve in the position.

Patrick Radden Keefe ('99) has a new book, a narrative nonfiction account of a notorious murder in Belfast during the Troubles. *Say Nothing: A True Story of Murder and Memory in Northern Ireland* was published in November in the UK and Ireland, where the *Sunday Times* called it "breathtaking in scope and ambition, one of the best books written about the Troubles." The US edition will be published by Doubleday in February.

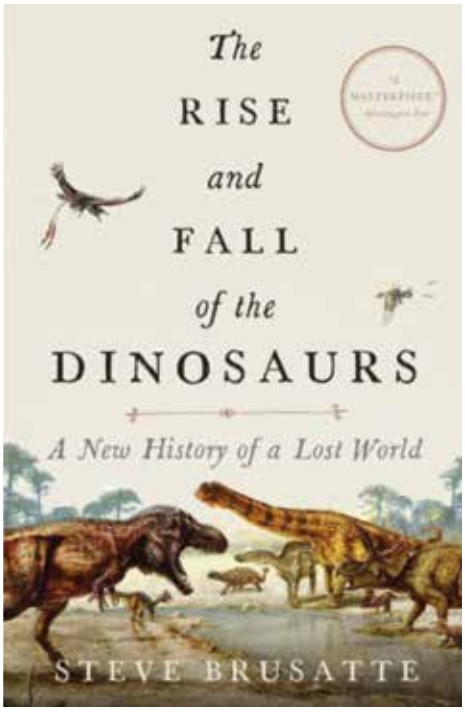
2006

Jessica Ashooh ('06), based in San Francisco, continued in her role as Head of Policy at Reddit, helping the company navigate one of the most turbulent years ever for tech companies in Washington. Her work to strengthen Reddit's policies around difficult issues like hate speech and deepfakes was featured in the *New Yorker* in March. She also had the opportunity to return to Oxford in May to speak at an event at the Oxford Internet Institute. In her spare time, Jessica continues to practice the flying trapeze, and extends an open invitation to any Marshalls traveling through San Francisco to join her for a lesson.

Back in June, **Julia Rafal-Baer** ('06) and Ajit Divakaruni headed back to Cambridge and took a 5-day trip down memory lane. They recreated their first picture from the early days in Cambridge. They are already planning for a 15th-anniversary trip and hope to have a big group of the 2006 Marshall class join them.

Stephen Brusatte ('06) is currently on the faculty at the University of Edinburgh (Reader in the School of GeoSciences). He has been there for six years now and is going through his UK citizenship application. He is having fun

Julia Rafal-Baer



living in the most beautiful and least-Brexity part of the UK, teaching paleontology, traveling around digging up dinosaurs, running a Master's course and a dinosaur lab, and doing as much public outreach and engagement as he can. He published his first adult pop science book this year, *The Rise and Fall of the Dinosaurs*, and is working now on a young readers' version for middle schoolers.

2008

Michael Barany ('08) has accepted a Lectureship in the History of Science at the University of Edinburgh, returning as staff to the program where he spent a very happy second year as a Marshall Scholar in 2009-2010.

2010

Austin McKinney ('10) updates us from Boston with wedding news! In October 2018, he married Sara Hoyos Suares halfway between their respective hometowns (Detroit, Bogota) in Cancun, Mexico. Several Marshalls were in attendance, including **Jonathan Warsh** ('11), **Sam Bjork** ('10), **Steve Robinette** ('10), **Jessica Lanney** ('10), **Jacob White** ('11), and **Aroop Mukharji** ('10). After graduating from Harvard Business School in June, Austin is now working at HubSpot in Cambridge, MA, and serves in the Air Force Reserves with the Defense Innovation Unit.

Emily Kapur ('10) is still in California, having fun in court as a litigator for Quinn Emanuel. Of late, though, she has been greatly enjoying maternity leave. She, Paul, and big sister Mary welcomed a new addition in June: Thomas Phillip Kapur.

Emily Kapur

Aroop Mukharji, Jacob White, Jessica Lanney, Austin McKinney, Steve Robinette, Sam Bjork, Jonathan Warsh

Madalyn Parnas

2012

Violin extraordinaire **Madalyn Parnas** ('12) is currently living in LA with her husband Bradley, where she is a Teaching Artist for the Philharmonic's Youth Orchestra of Los Angeles program. She is also on faculty at Pierce College after a stint directing strings for the Caesura Youth Orchestra and a tour of China with the Pacific Symphony in May. She and sister Cicely continue to perform together, and with French cellist Juliette Herlin.

Nick Werle and family

2013

Nick Werle ('13) and his wife, Lisa Erickson, welcomed their first child, Noah, on July 29. Noah arrived four days after Nick finished the New York Bar Exam and almost two years to the day after his parents were married by **Nico Montano** ('13). Everyone is happy, healthy, and learning to sleep as Nick starts his legal career at WilmerHale in NYC and Lisa returns to work at Penguin Random House.

Craig Pearson

2014

Craig Pearson ('14) recently completed his PhD in clinical neuroscience at the University of Cambridge, where he worked to develop an enzyme-based treatment that enhances the regeneration of injured nerve cells in the visual system. He is now working toward his MD at Washington University School of Medicine in St. Louis, where he is studying glaucoma biomarkers in human patients. He remains excited by the intersections between science, medicine, and the humanities, and is organizing a multi-sensory art installation that draws inspiration from patients' experiences of losing or regaining their sight.

Rhaina Cohen ('14) is a producer for the NPR podcast and radio show *Hidden Brain*. In November 2017, she married Remco Zwetsloot. Rhaina and Remco met within a couple months of starting their respective MPhils at Oxford. Of the 20 people present at the wedding,

Rhain Cohen and husband, Remco, with Alex Baron officiating

Leah Matchett

Chris Birmingham

several were Marshalls, including **Alex Baron** ('13), who officiated.

Sam Olyha ('14) is in the PhD phase of her MD/PhD at Yale School of Medicine. This past November, she finally made it back to Oxford to graduate from her MRes in the same ceremony where her husband Jonas Harnau received his DPhil. Sam and Jonas met while each completing their degrees at Oxford.

2016

Leah Matchett ('16) was chosen as a Knight Hennessy Scholar at Stanford University, where she just started her PhD in Political Science.

Duncan Hosie ('16) is a 1L at Yale Law School and is volunteering on the campaigns of two Democratic candidates running in the midterms.

Post-Marshall, **Chris Birmingham** ('16) led R&D at a visual search startup and is now starting a PhD in Computer Science at USC, specializing in socially assistive robotics.

Sam Olyha

Duncan Hosie

Class Notes

2017

David Elitzer ('17) is reading for an MPhil in Architecture and Urban Studies at the University of Cambridge (Peterhouse College). His research focuses on the effects of cultural property destruction on urban communities in war zones. Hoping to put his background in archaeology and conflict analysis to good use, David is seeking employment in the Greater London area in the fall in either the NGO or political risk sphere.

David Elitzer

Join the Class Notes Team

The Marshall Alumni Newsletter team is currently looking to add a class additional class secretaries (including potentially covering multiple class years) to ensure that all classes are fully covered. If you're interested in volunteering for this role, please contact us at newsletter@marshallscholarship.org.

Contact Nell Breyer (nell.breyer@marshallscholars.org) with any questions about membership, updating your profile, address changes or paying annual dues.

Further information is also available on the AMS website at marshallscholars.org or by calling +1-917-818-1267.

Association of Marshall Scholars
474A 16th Street
Brooklyn, NY 11215

www.marshallscholars.org