How Flying Fish Founder Gene Muller Turned a Blog into a Brewery
Four years ago, President Fry charged the University with becoming the most civically engaged in the nation. As you read through the pages of Ask, you’ll see that’s a challenge we’ve taken very seriously in the College of Arts and Sciences:

• Our Community-Based-Learning courses (p. 26) send students all over the Philadelphia area to learn from their peers, their elders, from inmates and hospice patients. These courses are not service projects; they are opportunities for our students to grow as citizens, as professionals and as human beings as they learn from the perspectives and experiences of their fellow citizens.

• In the newly formed group Drexel Edits, students, faculty and alums are reaching out to local nonprofits, offering their writing and editing skills to advance the causes of organizations with limited resources (p. 10).

• Our new Drexel Psychological Services Center provides not only hands-on training for our clinical psychology doctoral students, but also evidence-based, affordable mental health assessments and therapies to clients throughout Philadelphia and the surrounding region (p. 10).

As we near the College’s 25th anniversary, these programs signal our ongoing commitment to both the internal College community and the community at large — bringing us that much closer to making President Fry’s dream a reality.

Sincerely,

DONNA MURASKO, PHD
Dean of the College of Arts and Sciences
Drexel University
FREE TO BE LOST

My husband and I traveled to Spain for the first time in September. After a long flight, a long layover and a long train ride, we stepped out into the dusty, vineyard-filled landscape of the small town of Haro.

The station was deserted — not a person, not a car, not a sound except the clicking wheels of our suitcases across the sidewalk. It was comical.

Neither of us had planned for such a lackluster reception. And neither of us had written down directions to the hotel.

As we set off in the most plausible direction, filling the air with our clacking luggage, laughing, taking in the long shadows of cypress trees in the setting sun, the purple-black grapes hanging heavy on their vines, I thought, “This is freedom.” In fact, I think being lost might be the ultimate freedom. In those moments, it becomes all the more clear that there is no “right way,” no perfect path.

I have never created a magazine before. And neither have most of the people who help us put it together each year. That means we work hard to simultaneously learn and create, learn and create. But it also leaves us free to map our own way.

When Gene Muller (p. 34) set out to start a brewery having never brewed beer before, I imagine he felt the same mix of fear and exhilaration. When Susan Seidelman (p. 64) embarked on a film career in NYC rather than the traditional start in LA; when Max Henderson (p. 28) began to teach coding to kids for the first time; when Naomi Goldstein (p. 48) set out to change the juvenile justice system — I imagine they all felt that same mixture of emotions, but also that same, great freedom that comes from finding yourself somewhere you’ve never been before.

Being lost, starting anew, standing on a street you’ve never stood before — these are moments that force us to listen to the voice within, to trust our own instincts, but also to recognize when to seek advice from those who’ve ventured before. It’s a delicate balance — knowing when to listen to your own voice and when to allow yourself to be guided by others.

Eventually, our wandering through Haro led to more populated streets. A man parking his car leaned out of his window to ask for my assistance. At least that’s what I think he was doing — at the time, I felt utterly afloat; I spoke no Spanish; I had no idea where I was; I was just putting one foot in front of the other up a really, really steep hill.

The man assessed our predicament fairly quickly. He stopped trying to park and instead managed to ask what I was doing, where I was going — at least that’s what he seemed to be saying, he also didn’t speak much English. Despite my bewilderment, my undoubtedly confused expression, I managed finally to properly pronounce the name of our hotel.

He looked at me. He looked up the steep hill my husband and I were endeavoring to climb.

“Get in,” he said. “I’ll help you get there.”

AMY M. WEAVER
Director of Marketing and Communications
College of Arts and Sciences

Drexel Psychological Services Center
The new Drexel Psychological Services Center is a training clinic dedicated to providing high-quality, affordable psychological services to residents of all ages in the Philadelphia area.

To schedule an appointment, call 215.553.7128 or visit us online at Drexel.edu/psychology/clinic.

Specialties Include:
- Sleep Disorders
- Mood & Anxiety Disorders
- Disorders of Eating
- Clinical Neuropsychology
- Behavioral Medicine
- Forensic Psychology
- Child & Adolescent Services
Jesus in a New Light

Reza Aslan — the religion scholar whose Muslim faith became the topic of a now-viral Fox News interview — presented the College's 2014 Distinguished Lecture in May. In the talk based on his New York Times bestseller “Zealot: The Life and Times of Jesus of Nazareth,” Aslan compared the Jesus of the Gospels to the Jesus of history, bringing to question what many thought they knew about the founder of Christianity. Previous Distinguished Lecturers have included author Sir Salman Rushdie, neuroscientist David Eagleman and media maven Arianna Huffington.

Join us for the next CoAS Distinguished Lecture on April 30, 2015, featuring artist, designer and urban planner Candy Chang. Tickets available in March. Drexel.edu/coas/candychang
**PROVE IT**

We can help but flash back to our childhood when we hear the phrase "prove it" (as in "If I eat an extra ice cream, can I have a cookie, too?"). Putting a new spin on the phrase is Drexel biologist Jennifer Stanford, PhD, one of the first 15 scholars nationwide selected as a Scientific Thinking and Integrates Reasoning Skills Scholar by the Association of American Colleges and Universities. Developed in 2012, the STIRS initiative aims to improve undergraduates’ problem-solving and decision-making skills by asking them to -- you guessed it -- “prove it.” The program emphasizes the importance of evidence-based decision-making and scientific reasoning skills for all areas of study, not just the sciences. Stanford will develop resources and assessment strategies to be used by universities throughout the U.S.

**THE NEWEST GOLDMEMBERS**

Ok, you may not see Jeremy Gaison dueling it out with secret agent Austin Powers, but the undergrad was named a 2014 Goldwater Scholar, which -- in our books -- is just as groovy. The Barry M. Goldwater Scholarship, established in honor of the U.S. Senator in ’86, supports college students who intend to pursue research careers in the STEM fields. Gaison, BS physics and math ’15, was awarded $7,500 towards his tuition. Fellow physics student Matthew Parsons, BS ’15, received an honorable mention.

**I’ll Second That**

Drexel physicist Gordon Richards, PhD, made Thomson Reuters’ 2014 list of “Highly Cited Researchers.” When asked for comment, scientists all over the world responded with a resounding, “Yeah, what he said.”

**THE DANGERS OF Sexting**

As the law stands now, sexting (sending sexually explicit text messages) as a minor is considered child pornography in most jurisdictions -- an offense that carries harsh legal consequences including jail time and sex offender registration. A recent Drexel study by psychologist David DeMatteo, JD, PhD, and doctoral candidates Heidi Strohmaier and Megan Murphy revealed that more than half of students polled at a large northeastern university admitted to sexting as minors. An even larger percentage of them were unaware of the consequences of their actions. The team of Drexel researchers is advocating for federal legislation that clearly defines sexting and its consequences across all states. They’re also urging for frequent education on the matter -- from parents, schools or even law enforcement officials -- to drive home the ramifications of sexting under age.

**SWEET REVENGE**

While the popular sugar substitute Truvia may be safe to use in your morning coffee, Drexel researchers Sean O’Donnell, PhD, and Dan Marenada, PhD, have found that erythritol -- Truvia’s main ingredient -- is lethal to fruit flies. The two scientists are now pursuing a patent for a human-safe insecticide -- but that’s only part of the story. What’s even more impressive? The research was all started three years ago by Marenada’s then 11-year-old son for a science fair project. Today, the father and son, along with O’Donnell, are co-authors on the study published in PLOS ONE. Go young scientist, go!

**Sweet Revenge**

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**Drexel University**

A staggering 60 percent of undergrads who start their college career in STEM majors do not graduate with STEM degrees, that number jumps to 80 percent for minorities. Drexel plans to tackle the issue from a few angles:

- **Build Student Communities.** The University will create communities of incoming STEM students through a freshmen course designed to help them adjust to college life. Classes will include a network of faculty and upper-level undergraduates to support students’ academic and social successes.
- **Mentor Faculty.** Selected STEM faculty will participate in mentored learning communities that will encourage their development as innovative educators and teach them techniques to most effectively engage students.
- **Create a STEM Center.** Drexel will develop a Center for the Advancement of STEM Teaching and Learning that will bring faculty, students and staff together from across the University to collaborate on projects focused on improving STEM education.
- **Spread the Word.** The University will host an annual symposium to bring together faculty and administrators from partner institutions to present outcomes from their STEM initiatives.

While the award covers five years of funding, Dean Murasko is confident the initiatives will be sustained long after the award has ended. She’s also optimistic that Drexel’s techniques will catch on:

“We anticipate that this culture of mentored communities will become the hallmark of STEM disciplines within Drexel University, and will serve as a model for improving STEM education on other campuses across the country.”

**THEMATIC ALIGNED**

Jennifer Stanford, PhD, and bio prof Murasko, PhD.

Dean Donna Arts and Sciences under the direction of College of Engineering and math (STEM) fields.

We can’t help but flash back to our childhood when we hear the phrase “prove it” (as in “I’ll bet I can fit this in the same time”). Putting a new spin on the one of 37 institutions nationwide to receive funding from the Howard Hughes Medical Institute to increase retention for undergraduate students in science, tech, engineering and math (STEM) fields. The $1.2M award will be allocated under the direction of College of Arts and Sciences Dean Donna Murasko, PhD, and bio prof Jennifer Stanford, PhD.
Reunited and It Feels So Good

In laundry speak, scientists at the Academy of Natural Sciences have hit the missing sock jackpot. The team of curators and paleontologists have pieced together two halves of an ancient sea turtle fossil found 163 years apart. The perfectly matched humerus bones have scientists re-evaluating the time it takes for fossils to break down after exposure to the Earth’s surface, which was originally thought to be just a few weeks.

TELLING THE UNTOLD STORIES

The World War II documentary “Chocolate Soldiers from the USA” made its Philadelphia debut at Drexel this spring. Produced by writing prof Gregory Cooke, the groundbreaking film shares the untold stories of 140,000 African American men and women stationed in Great Britain during the Second World War, and the unexpected bonds they formed with British civilians over jazz, jitterbug and Black-American culture. Check out Cooke’s second film project, “Invisible Warriors: African American Women in World War II,” currently in the works, at Invisiblewarriorsfilm.com.

GUNNING FOR SUCCESS

Drexel environmental science prof Walt Bien, PhD, has been bringing students to the Warren Grove Gunnery Range (WGR) for more than 12 years. Located in the heart of the New Jersey Pinelands, the range is the perfect spot to study everything from northern pine snakes and bald eagles, to rare small mammals like the southern bog lemming (which, by the way, is pretty darn cute). Thanks in part to Drexel’s research efforts, WGR earned the General Thomas B. White Award for Natural Resources Conservation Program Excellence — the highest award the U.S. Air Force presents to a military-installation in this category. If you ask us, it’s a win-win for everyone — even those slithery snakes.

From 2003 to 2010, hundreds of millions of dollars were poured into funding the climate change countermovement — an effort to undermine the public’s confidence in climate science and obstruct the U.S. government from regulating emissions. In the first peer-reviewed, comprehensive analysis ever conducted on the movement’s funding sources, Drexel environmental sociologist Robert Brulle, PhD, made an unsettling discovery: approximately 75% of the income of climate denial organizations comes from unidentifiable sources. Historically, well-known conservative groups like the Koch Affiliated Foundations and the ExxonMobil Foundation heavily bankrolled these organizations. But since 2008, these foundations are no longer making publicly traceable contributions. Around the same time, there was a significant increase in “dark money” — untraceable funds donated through third parties.

“The real issue here is one of democracy,” says Brulle. “Without a free flow of accurate information, democratic politics and government accountability become impossible. Money amplifies certain voices above others and, in effect, gives them a megaphone in the public square…At the very least, American voters deserve to know who is behind these efforts.”

Conversations and Song

Sonia Sanchez celebrated the end of her term as Philadelphia’s Poet Laureate with a night of personal stories, readings and live music at Drexel (just add candles and a bottle of wine and you have the makings of a perfect date). Joining Sanchez were her friends Toni Morrison, Pulitzer- and Nobel Prize-winning author; Rita Dove, former Poet Laureate and Pulitzer-Prize winner; and Ruth Naomi Floyd, internationally acclaimed jazz vocalist and composer.
Let Them Be Heard

Organizations like Habitat for Humanity, the Spell Writing Lab and ACCES/ability provide vital services to the Philadelphia community — homes for families in need, free tutoring programs for children, and services to help break the cycle of poverty.

But if these nonprofits aren’t able to spread the word about their services — if they’re not able to clearly communicate their goals to attract funding and support — then their well-intentioned efforts are for naught.

That’s where Drexel Edits comes in. Founded by communication prof Lawrence Souder, PhD, the group provides pro-bono editing services to local nonprofits. Their list of services includes editing and consultations on grant proposals, strategic plans, public relations and social media communications, annual reports, newsletters, brochures and more.

Inspired by Souder’s Nonprofit Communication course, the organization calls on Drexel students, staff and alums — anyone interested in giving back through editing.

“Nonprofits must communicate effectively to survive in a competitive economy,” says Souder. “At the same time, they have unique needs and limitations. The careful eye of a trained editor can be invaluable in helping them meet their goals.”

Interested in volunteering for Drexel Edits, or know of an organization that could use its services? Contact Lawrence Souder at DrexelEdits@drexel.edu.

Let’s Get Clinical

Each year, hundreds of grad-school hopefuls vie for a spot in Drexel’s clinical psychology doctoral program. In 2013, over 700 competed for just 10 coveted spots.

There’s a reason applicant numbers are so high: Drexel’s psychology faculty are among the top in the nation. From treating remote patients via Skype, to designing an app to aid individuals struggling with eating disorders, faculty in the department are taking the field in innovative new directions — and even getting a nod from the Dalai Lama in the process.

Now, with a new training clinic open this fall, competition for those few spots is about to get stiffer.

In Drexel’s Psychological Services Center, doctoral student clinicians will put theory into practice, offering state-of-the-art, evidence-based treatments and assessments to clients in Philadelphia and the surrounding areas.

“The students who receive training at the Drexel Psychological Services Center are among the strongest clinical psychology doctoral students in the nation,” says Center Director Jen Schwartz, PhD. “They benefit from the tremendous oversight and investment of department faculty — learning both the science and practice of psychology — and will be well poised to compete for the most highly sought positions post-graduation.”

Housed in a newly renovated, Zen-like space on the second floor of Stratton Hall, the clinic offers a sliding fee scale in an effort to make mental health treatments affordable and accessible to all.

The Center’s areas of specialty include:

- Mood and anxiety disorders: Stress, depression, anxiety, phobias, trauma, grief, relational issues and identity concerns
- Disorders of eating: Anorexia, bulimia, compulsive overeating and weight management, bariatric surgery evaluations
- Behavioral medicine: Stress management, sleep disorders, concerns related to reproductive health and living with chronic pain or other physical health problems
- Clinical neuropsychological assessments: Services for attention and executive functioning, learning and memory, concussion and mild traumatic brain injury and other neurological injuries and diseases
- Child and adolescent services: Behavioral concerns such as ADHD, mood problems, social skills challenges, academic and school challenges, health risk behaviors and more
- Forensic psychological assessments: Assessments of intellectual ability and adaptive function for justice-involved individuals

DrexelEdits@psychology/drexel

Travel Through History

In total, more than 37 million soldiers were killed, wounded or missing by the end of World War I — over half of the total forces mobilized on all sides. With casualties so high, the chances of surviving the war unscathed were slim. Men as old as 45 and boys as young as 18 were drafted — and some far younger and older lied about their age for the opportunity to serve. But those are just numbers.

From the comforts of a modern classroom, students can study statistics, important battles, the causes and outcomes of the Great War. They can learn the names of the major players and look at photos of the weapons that took so many lives. But for even the most dedicated student, the reality behind the history can be difficult to imagine.

This fall, in honor of the centennial of WWI, Professor Eric Dorn Brose, PhD, brought the experience of war into focus for students in his History 298 course. Over the first two weeks of class, the group of 10 traveled through France, Belgium and England, beginning with the Musée d’Histoire, one of the three largest arms museums in the world, and continuing on to war museums, battlefields and memorials, cemeteries and memorials, a WWI stage play, an art exhibit, and three classic WWI films.

“Wartime is a hard, almost impossible concept to grasp. Travel courses offer students the opportunity to extend research projects they begin in a course on campus in the most exciting and engaging way possible — by going to a site where they can study history up close, first-hand,” says Scott Knowles, PhD, head of the history program. “This may involve international or domestic travel — we are working to provide multiple travel courses every year for students — and since these travel experiences are one to two weeks in length, between terms, we hope that most students will be able to fit them into their schedules.”

Other courses planned this year will bring students to Sao Paulo, Brazil, where they’ll discuss what it takes to build a 21st century urban economy, and to Milan, Italy, to explore the World’s Fair.

Country Hopping

In the four years she’s been at Drexel, international area studies student Jennifer Siew (featured in our 2013 map) has lived and studied in eight different countries. Thanks to the Boren Scholarship — an award that provides undergrads with up to $20,000 to study in areas critical to U.S. interests — Siew is now calling Sao Paulo, Brazil her home away from home. While there, she’s researching Brazil’s initiatives in microfinance and public health, with the hopes of one day creating a sister program in the Middle East.
Social media is simultaneously lauded and criticized for being a platform for grassroots marketing and vigilantism, but also a soapbox for bullying and bigoted commentary. We asked five Drexel profs to tell us, in 250 words or less, how social media is changing their field and how they approach their research. In what new ways could it be used to support or advance their field? What concerns or excites them about the potential?

Lullen Johnson, PhD
ASSOCIATE PROFESSOR
CRIMINOLOGY & JUSTICE STUDIES

While social media may be seen as an additional outlet to fuel mass consumerism, one less studied aspect is how it’s used to pursue justice. A simple Internet search of Ferguson instantly yields up-to-date information of the latest developments reported not only by additional media outlets but also, perhaps more importantly, by local residents and activists. This constant stream of data allows community members to quickly share information with each other and, as evidenced by Palestinian support of Ferguson activists, the world.

As a criminologist, I see social media as one of the newest ways the public will be able to mobilize, question police legitimacy, and hold the justice system accountable. No longer do disenfranchised communities have to beg for the attention of major media outlets to highlight injustices. Instead, technology has allowed those same communities to determine that their stories are “newsworthy” and to subsequently share them as necessary.

Adrienne Juarrascia, PhD
ASSISTANT RESEARCH PROFESSOR
PSYCHOLOGY

The psychological implications of social media are vast, and it is only recently that we have begun to understand the positive and negative effects social media can have on our emotional wellbeing. Although social media can be a positive way to provide social support that might not otherwise be possible, the biased nature of what individuals choose to portray through the medium often leads to faulty comparisons and can convince us that we are not as successful or happy as our peers.

As a psychologist, I believe that studying the impact of social media on mental health is an important area of study and one that will continue to grow in the near future. For instance, in a study several colleagues and I conducted investigating the impact of pro-anorexia groups on social media platforms, we found that participation in these groups had both positive and negative impact on users. Although these groups could encourage disordered eating behavior, they also appeared to serve as a valuable source of emotional support for a typically isolated population.

To date, research suggests that the impact of social media is complex and multi-dimensional and additional research is needed to parse out these effects.

Sean O’Donnell, PhD
PROFESSOR AND ASSOCIATE DEPARTMENT HEAD
BIODIVERSITY, EARTH AND ENVIRONMENTAL SCIENCE

I am a tropical ecologist. One of the things that I enjoy about the tropics is the pace of change: it is not something that happens overnight, but rather over a period of time. There is a sense of urgency that draws me to work in the tropics, because it is clear that the future of the region is at stake. The potential for rapid communication of important and timely discoveries or observations seems huge. Social media could also help provide answers to questions from curious citizen-scientists. And some scientists even talk about going beyond photos: Cheap and portable DNA sequencing technology could make it possible to upload and search genetic information to help with identifying species.

Jennifer Yusin, PhD
ASSOCIATE PROFESSOR
ENGLISH

Recently, I began to think seriously about the ways social media and processes of digitization impact our experiences of loss. The idea that social media has altered how and the ways in which we relate to each other is not new. But rather than simply offering a new medium for mourning, it seems that Facebook and other social media platforms fundamentally change the ways we cope with and work through loss. In general, these sites rely upon and promote a unique digital economy of consumption and interaction. When it comes to posting memorial photos, for example, the fact that the photos themselves are digital is key. By nature, they are defined by their ability to be reproduced without the photographer. Whether or not one chooses to download, like, or comment on a photo, the mere ability to engage and experience it as a memorial is defined by the ways we cope with and work through loss.

Kelly Joyce, PhD
PROFESSOR AND DIRECTOR
SCIENCE, TECHNOLOGY AND SOCIETY (STS)

In sociology and science and technology studies, researchers have turned digital media into an object of study. Sociologists are particularly adept at studying how individuals, groups and organizations challenge or recreate biases and hierarchies. They investigate, for example, how people use Twitter, Facebook and other platforms to create community, networks and social movements. But, crowdsourcing can also go terribly wrong. Crowds can become mobs and individuals can be “doxxed.” We saw this after the Boston Marathon bombing when Reddit users falsely accused several people of being a bomber, which had negative consequences for the accused individuals. Within our fields, studying digital media has raised deep reflection about which information is public and which is private and how we should ethically study life online.

Sociologists and STS scholars also use digital media to build community within their research areas. Faculty and students use Twitter to engage, discuss and highlight each other’s research. In such cases, digital media helps flatten professional hierarchies and distances. A full professor can engage a graduate student’s tweets and vice versa. Our professional organizations are just starting to explore how to use these, and need to catch up to faculty and students’ grassroots efforts.
Last year, we bet you could connect pol-sci prof George Cecariello-Maher to any prof in the College and any article in the mag (spoiler alert: we nailed it). This year, we’re taking on pop music and culture guru Devon Powers (DP)!

Some connections may be legit and some a bit of a stretch, but one thing’s for sure: we’re STILL really great at making flow charts.

6 DEGREES OF DEVON POWERS

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Sure, our College community is made up of students, faculty, staff and alums — but we’re also nature lovers, coffee guzzlers, explorers and trailblazers. We soak up novels and sunsets and drink in music and friends. And while we may not all speak the same language or live on the same continent, one thing’s for sure: we’re all Dragons.

Our #CoASDayInTheLife Instagram Challenge calls on our fellow CoAS Dragons to share the moments that make up their day. At the end of each academic year, the top submissions are voted on for a chance to win prizes. We’ve featured some of our favorites here, including the top three winners from our 2013-2014 contest.

Submit your own photos using #coasdayinthelife on Instagram and be sure to follow us @drexel_coas.
We consider the newspaper nearly obsolete, but in India, it's amazing how many people still get the TimesofIndia every day. Chai and the paper have become the morning routine.

Violence against women in their own homes is a huge issue in India, and the legal system is not giving the women the justice they need. We held an event today, a ‘public hearing’, about the failures of Maharashtra courts in the implementation of the Protection of Women from Domestic Violence Act. The panelists also discussed how these courts can be made more efficient and gender sensitive. Here, Kalawati speaks about her experience with domestic violence and the inefficiencies of the court in handling her case.

#humanrights #womensrights #indiapictures #issuesthatmatter
Yet another #sunrise pic and it’s quite a view. #nofilter #philly #mornings #igers_philly

Physics professor just summed up my entire advertising career

It takes a very special type of person to be a CoAS student. #AmericanDream #Simba #PurpleMan

Bury me in ginko.
Conservation biologist Gail Hearn, PhD, has dedicated her career to protecting the biodiversity of Bioko Island, a rich ecosystem of endangered primates, sea turtles and myriad other species, off the coast of West Africa. After 17 years of expeditions, Hearn is hanging up her hat, putting away her passport, and retiring from Drexel and the Bioko Biodiversity Protection Program (BBPP). Her leadership, insight and fantastic sense of humor will be missed, but the important work she started will go on.

Before she could officially leave us, we had to ask a few parting questions...

When did you decide you wanted to be a biologist/conservationist?
I was one of those kids who loved pets, tended houseplants, and tried to raise caterpillars on my bedroom curtains, so biology was an obvious career choice even before high school. The conservation part came much later, in my 40s, as I truly understood the magnitude of Earth’s current biodiversity losses. I can’t really explain it, but it became very important to me to do what I could to preserve a bit of that biodiversity. Only when I went to Bioko Island in 1990 did I suddenly realize how I would make my contribution.

What sparked your interest in monkeys? And why the drill monkey?
Well, let’s be honest here: I’m actually not very fond of monkeys. To me, monkeys have always seemed too much like unruly 2-year-old humans, poorly toilet trained and not very cooperative. Two-year-old humans eventually develop into delightful college students whereas monkeys do not.

The monkey angle began at the Philadelphia Zoo, where I did my postdoc and where some of my first undergraduate students became interested in the drill monkey. Dietrich Schaaf, then curator of mammals at the Zoo, wondered why the drill monkeys weren’t breeding successfully in captivity. Our collaboration led to a trip to Bioko Island in 1990, reputed to be a place where drill monkeys existed in large numbers.

It was the overall biodiversity of Bioko Island, not really the monkeys, which sparked my interest in conservation. However, monkeys, and the impressive drill monkey in particular, make great flagship species for conservation efforts. Humans identify with monkeys much more than with say, insects or plants. Monkeys also serve as umbrella species — if you save them, you also save all the less charismatic species in the ecosystem. So let’s just say that monkeys have been very useful to our conservation effort!

What will you miss most and least about the work?
I’ll miss the fieldwork. I’m genuinely happy when I’m in the rainforest, far from civilization.

I won’t miss the red tape that can be so endlessly irritating, both in Africa and back here in the United States. Like biting insects, it’s part of the (eco)system: necessary but not lovable.

Are there any important lessons you’ve learned from your work in Bioko?
Patience and worrying about the details turned out to be much more important than I would have thought. I’ve become really good at worrying.

How many times have you been to Bioko? Will you continue going after you retire?
I lost count once I had traveled to Bioko more than 50 times. I don’t have any plans to return, simply because there are now other things I want to do. Travel is not high on that list of “other things.”

“Sharing knowledge about what remains of our natural world, and simply being able to show students such a magnificent place as Bioko Island, is exhilarating.”

PARTING WORDS
WITH DREXEL’S PRIMATE EXPERT

By Amy Weaver
Illustrations by Sarah Macy

Illustrations by Sarah Macy
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Bioko Island, at about dinnertime on New Year’s Eve, totally exhausted

expeditions, we arrived at Ureca, the only village on the southern coast of

 Sheffield and called on me to work with 2-3 other students, and we

A girl has worked tirelessly for most of her career in one of the most difficult places in the world, and has achieved so much where others have often failed. Without her continued commitment to conservation and education, the wildlife of Bioko would have suffered greatly, and, as is often recounted by the villagers we employ, an entire village’s heritage and way of life would have been lost to rural Bioko. Ultimate-

Longest you’ve gone without showering?

Not sure, but it wasn’t on Bioko Island, and for certain not when we were in the field on Bioko Island. There’s so much water that finding a nice place to shower or bathe is easy, and some of our bathing areas are really unbelievably beautiful waterfalls, river rapids and freshwater lagoons.

Favorite native food?

The fruit is great in Bioko: tasty little bananas, amazing pineapples and delicious mangoes.

When you look back on your career, what are you most proud of?

I was very fortunate to be able to convince so many people, students, colleagues, volunteers and donors to help build the Bioko Biodiversity Protection Program into an organization that really has been able to make a difference for wildlife on Bioko Island. The model she created, which is based on university collaboration and undergraduate study abroad, can be expanded to many other conservation situations. It turned out even better than I had expected!

So what’s next? Any big plans for retirement?

No big plans, although I am looking forward to setting up my HO gauge

What's the scariest moment you've experienced in Bioko?

There might have been some scary moments, but I’ll never admit them if Drexel’s Risk Management office might hear about them. Let’s just say that fortunately nothing really bad ever happened. What scary moments?

Do you ever feel personally attached to the monkeys you observe?

I can get attached to just about anything, even a plant struggling for existence in the middle of a well-traveled trail.

Longest you’ve gone without showing?

The “Bioko Biodiversity Protection Program is unique across Central Africa. Over the years, the BBPP has trained numerous undergraduate students through Drexel’s Study Abroad program, and it is now widely recognized as a world-class research, education and conservation program. It is an honor to be able to continue working towards fulfilling Dr. Hearn’s vision of improving biodiversity research, education and conservation in Equatorial Guinea and to highlight the BBPP as a model for creating other academic partnerships in other Central African countries.”

PASSING THE BINOCULARS

Kary Gonder, PhD, an accomplished biologist and conservationist, will continue Hearn’s work as professor and the new director of the BBPP. Gonder comes to Drexel from the University at Albany, SUNY, and has nearly 20 years of research experience in Central Africa, specializing in African biodiversity and conservation strategies. Her leadership in the area and prior work with Hearn make her the ideal successor to carry on Hearn’s legacy.

“Dr. Gail Hearn’s legacy is her mark on the world — to also serve, to help children. She was helping not only the people of Equatorial Guinea, but the biodiversity of a place, the biodiversity of a country, a home.”

—Senator Barbara Boxer, U.S. Senator from California

“Gail has always believed that people learn by doing and by learning from their mistakes. Most importantly, she believes in the creativity and ingenuity of her employees alongside her students. No matter what the task, she has never failed to give feedback and moral support. This approach has helped build confidence in future professionals and give a leg up in preparing us for the challenges that await us in the future.”

—Tonnna Hazard, a fourth-year doctoral student in the Department of Biology at Drexel University

“The Gail W. Hearn Fund has been established in honor of Dr. Hearn’s hard work and contributions to biodiversity and education. The fund will support, in perpetuity, activities of the Bioko Biodiversity Protection Program, promoting biodiversity conser-

ATION on Bioko Island and supporting the interna-

“The Bioko Biodiversity Protection Program is unique across Central Africa. Over the years, the BBPP has trained numerous undergraduate students through Drexel’s Study Abroad program, and it is now widely recognized as a world-class research, education and conservation program. It is an honor to be able to continue working towards fulfilling Dr. Hearn’s vision of improving biodiversity research, education and conservation in Equatorial Guinea and to highlight the BBPP as a model for creating other academic partnerships in other Central African countries.”

—Kary Gonder, PhD

THE GAIL W. HEARN FUND

HEARN’S LEGACY

Since founding the BBPP in 1998, Gail Hearn, PhD, has grown the program into a unique research and academic partnership between Drexel and the National University of Equatorial Guinea (UNGE), allowing Drexel students and researchers to collaborate with scientists from all over the world. Her efforts have made an everlasting impact, not only on the people and wildlife of the island and the students and scientists who have worked at her side, but also on future generations who may now have the chance to appreciate the biodiversity she helped to protect.

What’s your favorite student experience?

There are many, but those where students overcome cultural expecta-
tions and misconceptions are my favorites. On one of our first student expeditions, we arrived at Ureca, the only village on the southern coast of Bioko Island, at about dinnertime on New Year’s Eve, totally exhausted from our long journey to the starting point of our research. After greet-
ing the welcoming villagers and hastily eating dinner, we pitched our tents and went to sleep. I was awakened a little before midnight by genuinely terrified students crowding around my tent. The villagers, they said, were marching toward the schoolhouse (and our tents) chanting and carrying torches, obviously intent on capturing, kill-
ing and possibly consuming the helpless students. No, I had to explain, the villagers were processing towards the schoolhouse, which also served as the village church, to celebrate a midnight mass. Catholicism — not cannibalism — was their motivation. Sheepishly, the students returned to their tents and were serenaded for the next hour with hymns by the joyous villagers welcoming the New Year.

How does teaching in the wild compare to the classroom?

Working with students in the wild is a wonderful experience. Sharing knowledge about what remains of our natural world, and simply being able to show students such a magnificent place as Bioko Island, is exhilar-

attitudes changed rapidly during my professional lifetime. It was hard to prove that we were effective. I was fortunate that those in the sciences. We were often not taken very seriously and had to work to the classroom.

recording devices continually improve (still and video cameras, sound recorders) it’s much easier to bring those wilderness experiences back to the classroom.

What have been the greatest challenges to your work?

Probably the same challenges that most women of my generation faced in the sciences. We were often not taken very seriously and had to work extra hard to prove that we were effective. I was fortunate that those attitudes changed rapidly during my professional lifetime.

What’s the one thing you couldn’t travel without to Bioko?

My Wellington boots.
Our Growing Campus

Connections in Biology
Locke Elementary School
Building on concepts from their own courses, Drexel students lead an after-school science club at a local K-8 school.

Constitutional Controversies
Curran-Fromhold Correctional Facility
Inmates and Drexel students learn side-by-side, exploring tensions over individual freedom and the public interest.

Doing Justice – Digital Storytelling
ASAP (a), Books Through Bars (b), Dress for Success (c), LIFT Philadelphia (d)
Students discover social justice efforts in Philadelphia and create short video documentaries for local justice-promoting nonprofits.

Gleaning, Food Security and Agriculture
Philabundance
Students explore agriculture, food security and gleaning, while experiencing gleaning firsthand at the A.T. Buzby Farm in New Jersey.

Hospice Journaling
Crossroads Hospice
A powerful course in which students document the lives of hospice patients to celebrate their experiences and create a lasting record for family and loved ones.

Justice in Our Community
LIFT Philadelphia
Working with community members, students explore urban economies, access to education and health care, digital divides and crime.

Nonprofit Communication
ACHIEVEability (a), Art Sanctuary (b), Children’s Hospital of Philadelphia (c), Enterprise Center (d), Lancaster Avenue 21st Century Business Association (e), Moder’s Sandwich (f), Project for Nuclear Awareness (g), Qualls Writing Lab (h), The Veterans Group (i), UIC Green, Inc. (j), Urban Tree Connection (k), Undisguised Dance Designs (l), West Philadelphia Financial Services (m)
All nonprofit organizations must develop and maintain effective communication strategies in order to survive in a competitive economy. Students in this course learn about the ways nonprofits communicate with their constituents and benefactors, while directly working with local nonprofit organizations.

Once Upon a Lifetime
Mantua Senior Residence
Two generations learn from each other as students collaborate with senior citizens in the community to create memoirs.

Project Footpath
City of Philadelphia
Students plan, design, and potentially implement an informational and engaging walking pathway to connect Drexel’s main campus with the Academy of Natural Sciences, including a segment along the Schuylkill Banks.

Promoting Health and Wellbeing
LIFT Philadelphia
Students work alongside community members to understand health promotion campaigns and to create and share their own health messages with the broader community, either digitally or at a health fair.

Reconsidering Our Code - An Ethnography of 33rd Street
Dornslife Center for Neighborhood Partnerships
This course explores the relationship between Drexel students and members of the Mantua and Powelton Village communities, creating opportunities for dialogue and collaboration between the two groups.

Secondary Education Math Enrichment
Freire Charter School
Drexel students spend half of their class time in a local middle/high school, teaching the topics they’ve learned on campus.

Urban Farming Communities
Enterprise Center
Students discuss urban farming from a community-organizing perspective and gain practical skills in planting and maintaining urban green spaces, as well as planning crop distribution.

Students immersed themselves in neighborhoods across Philadelphia and New Jersey in this year’s Community-Based-Learning (CBL) courses. From hospice patients and urban farmers to veterans and nonprofits, students collaborated with a whole new set of classmates.
In a small after-school program in South Philadelphia, one Drexel student is hoping to make a big impact on the future of diversity in STEM.

By Maria Zankiewicz
Photos by Jared Castaldi

CHANGING THE FACES OF SCIENCE
But even with a mind full of formulas and binaries, there’s one thing he couldn’t help but notice in the midst of his scholarly and professional work — the people surrounding him looked awfully similar.

“Over the last few years, it’s become something I think about a lot,” Henderson says. “A lack of diversity, in the STEM fields especially, is an immediate disadvantage. When you’re a scientist, you need creativity, and you need people around you who can think differently. There are scientific rules of course, but the people who do something new are the people who think about things in a way others haven’t thought of before. With diversity, science as a whole improves.”

The data backs up Henderson’s observations: According to research from the National Science Foundation, minorities represent only 29 percent of individuals working in science and engineering careers, while women represent just 27 percent. Of minorities, Latinos are the least represented in STEM careers, making up only six percent.

That number in particular became a concern for Henderson when he began volunteering with Puentes de Salud, a nonprofit health and wellness organization serving South Philadelphia’s burgeoning Latino population. Henderson worked specifically with the organization’s after-school literacy program, Puentes Hacia el Futuro, which partners with the Philadelphia School District’s Southwark School. At Southwark, Latino students in kindergarten through eighth grade make up more than 27 percent of the student body.

After a year of volunteering as a tutor, Henderson came up with an idea to bridge the two communities with which he spent the most time. “The kids were clearly smart, clearly creative,” he says. “Puentes seemed like the perfect opportunity to expose them to the exciting possibilities of STEM.”

Henderson approached Esther Morales, after-school coordinator at Puentes, about creating a sister program that focused solely on honing computer-programming skills. Morales welcomed the idea with open arms, and the Puentes Dragon Coders program was born.

“[Dragon Coders] allows our original focus to expand the meaning of literacy from reading and writing to include technology,” Morales says. “This is an important component of our mission. This program also allows the Puentes-Southwark partnership to grow and show how a public school and nonprofit organization can collaborate to bring students the best possible experience. [It] allows for continued exploration of the coding world and this keeps students interested.”

One night a week, Henderson interrupts Puentes’ regular programming to teach a group of approximately 20 kids about coding through gaming, using free programming software like Scratch and Tynker. With the help of fellow Puentes volunteers, including Southwark’s computer teacher Michael Bernstein, Henderson teaches students how to use foundational programming commands like “while loops” and “if-then statements” to create their own versions of popular computer games like the classic Pong and the wildly popular Flappy Bird.

“I wanted to show these kids that programming can be fun,” says Henderson. “There is no magical barrier between them and the people making these types of games — with the right training and knowledge, they can do the exact same thing.”

One of Henderson’s epiphanies as a teacher — and in his own self-discovery as an equality advocate — came during one of the first big coding projects for the class. The students were tasked with creating a game in which players navigate a character through the air without coming in contact with its surroundings.

“Up until that point, the boys in the class had been outpacing the girls,” Henderson says.

“With diversity, science as a whole improves.”
suggested Henderson expand the game's avatar options from stereotypically male-gendered options, like a spaceman or a dragon, to include more gender-neutral options, such as a bird or flying fish. The impact that subtle change made, Henderson says, was immediately visible.

"It became clear that something that seemed simply aesthetic made a huge difference in generating interest," Henderson says. "All of a sudden, the girls were coding faster than the boys. It made me realize that it's important across the board in STEM to phrase the information in ways that everyone can get excited about. It's not a question of ability. It's about opening the field so that everyone feels it's a place they belong." In the wake of the project's initial success, Henderson and his colleagues have sought ways to make coding accessible and exciting to all students, not just those in Puentes. Bernstein came up with the idea to create badges for the Dragon Coders to wear during normal school hours, identifying them as coding experts among their peers. "The badges have allowed them to act as mentors," Bernstein says. "It's empowering for students, that kind of responsibility makes them try harder because they're helping someone else.

The efforts of Henderson and his colleagues are representative of a nationwide trend to shrink the disparity of underrepresented minorities and women in STEM fields. The Obama administration's "Educate to Innovate" initiative has garnered more than $700 million in public-private partnerships geared toward increasing diversity in STEM careers. The Association of American Universities recently launched the Undergraduate STEM Education Initiative, with the goal of changing university teaching structures to inspire a more diverse pool of STEM graduates. Commercially, companies like GoldieBlox — a toy company that creates engineering-inspired toys for girls — are looking to strip the machismo, pink exterior typical of toys geared toward females to inspire interest in the sciences.

"I'm really trying to be aware of keeping things balanced, understanding that everyone comes into this with a different background," says Henderson. "Teaching programming as a language is hard, but you can't underestimate the value of connecting with a student and letting them know that their individual learning is important, inside and outside of the classroom." The program has earned attention beyond the walls of Southwark. It was recently awarded a $20,000 grant from the Philadelphia-based foundation Children Can Shape the Future, which will allow Puentes not only to promote STEM among the students in Dragon Coders, but also to share these concepts with the entire Southwark School.

"Teaching coding really teaches several things," says Bernstein. "Obviously it teaches logic, but it also teaches the ability to analyze and organize thoughts to create a solution. It's like an intense version of the scientific method." Henderson says he owes much of the success of the program to the support he's received throughout his years at Drexel. "At Drexel, there's a lot of autonomy," Henderson says. "If you have an idea, everyone is really willing to help you. Of any other place I've experienced, Drexel is most concerned with getting their students ready to be out in the world. Everything I've learned is practical; everything has an application." Henderson says he owes much of the success of the program to the support he's received throughout his years at Drexel. "As a kid, you're not thinking about the statistics. You're not thinking about where you feel comfortable. And there are subtle things in the ways we teach that can make that happen," Henderson says. "Staying conscious of that is a big part of what we do at Dragon Coders. And if a program like this can help increase diversity in the scientific community, I truly do believe we'll see better ideas, stronger products, and more innovations in the long run."
A LONG TIME AGO in a galaxy far, far away—well, it was New Jersey and the year was 1994—but back long before you could Google the possibility of executing that change-your-life-for-the-better epiphany—heck, long before “Google” was a verb—Drexel alumn Gene Muller quit his advertising job and created the world’s first virtual microbrewery, persuading investors to finance the development of an actual brewery before he ever brewed a single drop of beer.

BY JACOB HARTE
PHOTOS BY ADAM JONES
If you tried to pitch Gene Muller’s story to a movie producer, they would call it a big fish tale. But his success exemplifies the risk and reward conquests of the Internet boom. He conceptualized an Internet startup before Mark Zuckerberg could get into a PG-13 movie without his mom. He created a beer blog before there were blogs.

And though he may be considered a second-generation microbrewer (following the pioneers of the 70s), he’s a first-generation Internet trailblazer, whose persistence and scientific concepts and distill them for the average reader — because of what Drexel taught me — to take technical and marketing and advertising — to start the Flying Fish blog. For almost two years, Muller “kept at it.” He trained at America’s oldest brewing school, Chicago’s Siebel Institute of Technology. He developed his business model and researched the industry, and just when he was about to call it quits, he decided to utilize the skills he had developed over the years — as a writer for his college newspaper, as a staff writer and graduate student at Drexel, and in a career in machine manufacturers and get all of this information and make it available to a mass audience. That was able to say, “Ok, while I’ve got your attention here is a question about my project: I was able to build a bit of a network.”

In the year Muller graduated with his master’s in science and technical communication from Drexel, the University’s then-president, William Walsh Haggerty, announced that every student would be getting a personal computer. The year was 1984. “I just kept at it,” he says. “I was living off my savings. I just had this instinct it was a good idea.”

By 1996, Muller was fully funded and the brewery of his imagination had become a reality. He continued to grow the business, increasing his beer offerings, expanding his distribution area, and taking home medals in major competitions like the Great American Beer Festival and the World Beer Championship. And although he had succeeded in many ways to materialize his ambitions, he couldn’t help but feel the absence of one important element from all the years before: his community.

At that time, New Jersey law prevented retail sales and on-site consumption in breweries, which meant there could be no tasting room and no way to make good on that personal, share-a-beer-and-an-idea mentality the brewery had been built on. In early 2010, as the craft-beer craze reached its full manic stride, Flying Fish had outgrown its home in Cherry Hill, New Jersey. To meet the rising demand, Muller was going to have to build a new facility — but, he says, if he was going to build it, the way he had really envisioned it, he would first need to take on the law.

Taming up with Mark Edelevon of Iron Hill Brewery and others in the industry, Muller pushed to get new legislation approved in the state. A year and a half later, he achieved what he considers his proudest accomplishment: the new law was adopted granting microbreweries the right to sell their beers for consumption on premises as part of a brewery tour and in retail sales for off-site indulging.

That openness to share experience has remained with Muller since the early days of Flying Fish. “It’s about making things possible,” he says. “When people look to start a brewery or they look to do something new, I say, ‘Let me tell you about my mistakes so if you make a mistake, at least it will be an original one.’”

Muller’s desire to share information and his capacity to build a community extends far beyond beer. “The Flying Fish staff is all local,” he says. “We all live in the area, we support local organizations; we serve in community groups. We try to be good citizens and be part of the community.

The main hall of the new brewery is designed large enough to host community meetings. This summer, they hosted a bike race and native plant sale, and Muller says he plans to build a nature tour in the future to support endangered local flora species. “I’ve always been a big believer in sustainability and protecting the environment,” he says.

Muller in the 42,000-square-foot home of the Flying Fish Brewing Company.

Brewpubs also made out well in the deal. The law granted them the ability to brew 10,000 barrels a year — up from 3,000 — and gave them the power to distribute their product via wholesale distribution to liquor stores and restaurateurs, rather than restricting sales to adjoining restaurants.

“Since the new law passed, 15 other businesses have been able to open,” says Muller. “We’ve almost doubled the amount of breweries in the state.”

And for Muller, more breweries don’t mean more competition; they mean the potential for a brewery tour. “Our industry is interesting. It’s collegial because we all came from somewhere else — we all kind of did what I did. It’s not like my grandfather owned a brewery and Marks’s grandfather owned a brewery and we’re not going to talk because we have trade secrets,” he says.

If Muller has a question, he doesn’t hesitate to call up one of his brew-buddies or even to post the question on the Flying Fish website, which he still attends to personally. “Ninety-nine percent of the time, people are more than glad to help you out.”

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Muller is the 42,000-square-foot home of the Flying Fish Brewing Company.
The new brewery — now four times the size of Flying Fish’s first home — is fully loaded with eco-friendly features, including 370 solar panels, which generate about 10 percent of the brewery’s electricity. A new brew kettle captures steam that would have been vented into the atmosphere and allows Muller’s team to reuse the water in the brew process — nearly one gallon of hot water for every five gallons of beer brewed.

A rain garden was also recently installed.

“Approximately 15 percent of the rainwater that hits our roof will now be diverted to a rain garden,” says Muller. “The garden will capture the water and let it percolate back into the ground rather than rushing into Cooper Creek.”

A tour through the brewery is like a tour through the Batcave (but better because there’s beer). Muller gets especially excited about his passive solar light tubes: “We have 19 of these solar prisms, which are the coolest thing. It’s just sunlight; there’s nothing to clean, or turn on, or repair, or replace.”

Through their eco-friendly tech enhancements, Flying Fish has cut its ingredient consumption by 40 percent per barrel of beer brewed.

“All of these [changes] make good business sense,” says Muller.

But it’s clear they make good people sense as well.

“The solar light tubes add a lot of light to the brewery area at no cost after the initial installation. But it also adds the element of natural light so that we aren’t just a fluorescent-lit warehouse. It makes for a much more comfortable work environment.”

Muller’s ultimate dream for Flying Fish is that it be a place “where you can learn a little bit and have a beer.” In essence, he wants it to feel like a home.

“I grew up in a suburb of southern Camden County that was kind of rural. My mother grew vegetables and cooked a lot of scratch meals at home and my father was in construction; I liked to use my hands. Brewing is both art and science — it allows me to work with my hands and my mind.”

During the infancy of the Internet, Muller envisioned its potential to build a tangible community — a potential many are still only now coming to fully realize. And although he might sometimes question whether he took his idea in the right direction — fantasizing about being on the inside of a startup like Google instead — it’s clear he’s built something bigger than a brewery.

“It’s a lot of hours but it’s a lifestyle industry,” he says. “There are a lot of fascinating people that are into craft beer. Going to a beer dinner or cheese pairing and talking to folks who are interesting and interested in good food and beverage is a pretty good job. I don’t consider it work — I’m happy in beer.”
IT TAKES A VILLAGE

By Diane Ketler
Illustration by Jennifer Hall
They say it takes a village to raise a child. As for unearting a dinosaur the size of about 3,000 children? Well, let’s just say it takes a really, really talented village.

Chris Coughenour remembers his first day of field prospecting in Argentina as a new graduate student in 2005.

“I was extremely hopeful and optimistic,” he says. “We knew the area had great potential, but prospecting is very much like fishing; you simply do not know when or if you will cross paths with your intended target.”

After a morning of uncovering “fossil fragments unassociated with other bones,” Coughenour and the team of five hopefuls — led by Drexel paleontologist Ken Lacovara, PhD — stumbled upon a small plot of bones. Within a few hours, they uncovered the six-foot femur of what would eventually be known as the most complete supermassive dinosaur skeleton ever discovered: Dreadnoughtus schrani.

“The first several days after finding the femur were rather surreal,” says Coughenour. “We realized fairly quickly that we had a concentrated-assemblage of material from what appeared to be a single animal. So really, in just a few hours our entire perspective shifted from one of complete uncertainty to comprehending the logistics of removing many tons of rock and fossilized material with only a few people in this extremely remote setting.”

Fast-forward through four field seasons, hundreds of bones, and a carefully orchestrated trip to the U.S., and the remains of one of the largest animals to ever walk the Earth found their way to the fifth floor of Drexel’s Papadakis Integrated Sciences Building in Lacovara’s fossil lab.

So what does it take to get the remains of a 65-ton supermassive dinosaur from Patagonia to Philadelphia?

“For starters, it took chisels, pickaxes, hammers, airscribes, burlap and plaster casts. And then there were the rails, stretchers, toobuggage, dump trucks, horses, forklifts, cargo containers and container ships. But most importantly, it took people. Very dedicated, tough people.

‘I’ve learned that nearly any student can adapt to any situation if they try hard enough,” says Lacovara. ‘I’ve had students in the field from all kinds of backgrounds. Some of them may not have spent a lot of time outdoors, while others are seasoned in the field. But no matter their background, when they put away their concerns about creature comforts and instead focus on the work, I haven’t seen one yet who wasn’t able to adapt to field conditions. It’s all about motivation: their passion for the work makes up for any discomfort.’

Lacovara first traveled to Patagonia solo back in 2004, working with a few volunteers from the University of Patagonia. A year later, he came back with graduate student Chris Coughenour. The year after that, he brought more graduate students, and, for the first time, a Drexel undergraduate student, Alison Moyer. In total, Lacovara has worked with over 75 undergraduate students and numerous graduate students on the Dreadnoughtus project. Of those, eight graduate and three undergraduate students are now co-authors on the research paper describing this new titanosaur. Another 40 volunteers committed their time and effort to piecing together Dreadnoughtus at the three sites to which the bones were sent: Drexel, the Academy of Natural Sciences of Drexel University and the Carnegie Museum of Pittsburgh.

“This project has taken years of persistence, research and hard work from Ken and a very dedicated group of individuals,” says College of Arts and Sciences Dean Donna Murasko, PhD. “Ken epitomizes the public scholar, whose goal it is to educate the people around him and inspire the scientists of the future.”

That includes scientists like Coughenour, then a physics undergrad, who, after taking several geology courses with Lacovara, went on to pursue his PhD in environmental science, with Lacovara as his advisor. And Lucio Ibiricu, the Patagonian-born student who volunteered his time for five expeditions, and came back to Philadelphia to complete his PhD at Drexel.

“The best part of being a professor is watching my students succeed,” says Lacovara. “It’s a big thrill to watch them advance and go on to do great jobs and great graduate programs. That’s really what makes it all worthwhile.”

Q&A with Drexel Dreadnoughtus Co-Authors

The discovery and publication of Dreadnoughtus is an impressive achievement for an accomplished paleontologist like Lacovara — but for the 11 students who co-authored the paper (published in Scientific Reports), it’s life-changing. We caught up with them to learn what it means to be part of such a discovery. (Turn the page to put a face to the name.)

What sparked your interest in paleontology?

Zachary Boles: Like the vast majority of paleontologists, I have always loved dinosaurs and ancient creatures, and never grew out of the desire to study them. Movies and documentaries like “Jurassic Park” and “Walking with Dinosaurs” also started coming out when I was a child and those only reinforced my desire to be a paleontologist.

Victoria Egerton: Whenever I visited my grandparents’ house when I was little, I would play with my grandmother’s rock and fossil collection. I loved to hear the stories of how the different rocks and fossils were formed and to imagine a world full of life that is different than today’s.

Lucio Ibiricu: The fieldwork. I always enjoyed working in the field.

Alison Moyer: Believe it or not, it was Dr. Lacovara himself when I had him as a professor for University 101.

Jason Schein: I always wanted to be an explorer when I was a kid. I wanted to go places and see things no one had ever experienced before, like Lewis and Clark or John Colter. Eventually I realized that, unless I was one of 100 or so people in the world that would ever get to go to space, or one of even fewer that would get to go to the bottom of the ocean, just about everywhere else on the planet has already been explored. Finding fossils, though, and learning things that are new to science, still gives me that sense of exploration and discovery.

Elena Schwoerer: When I was 5 years old, my older brother thought dinosaurs were the coolest thing ever. I thought whatever he liked was the coolest thing ever. Many, many years later, I never grew out of dinosaurs.

Paul Ullman: A lifelong passion initiated by my parents reading dinosaur books to me at 3 years old. In fact, my third birthday party was dinosaur-themed.

Favorite memory(ies) from the field?

Chris Coughenour: Our first full day in
I stayed behind in camp by myself, working a few days to rest, recuperate and restock our supplies. After 10-12 days, we’d head back into town for food. Our soda had been dirtied from our tents, so we had to dig it up and clean it off. We never used our soda from under two feet of sediment. Moving large jackets requires a lot of preparation and fast thinking. We had an ongoing debate as to whether to use a rock hammer or a blunt AK-47 bayonet knife. My favorite tool in the field, other than my rock hammer, is a blunt AK-47 bayonet knife. I always use it to cut away a lot of fossiliferous bone that already weighs 1,000 pounds or more. It makes me smile: unpicking a pile of cervical ribs required a lot of preparation and fast thinking.

Most challenging part of excavating fossils?

Boles: You have to resist the urge to “field prep” any exciting fossils that you find. In the field, you only want to expose just enough of the fossil to know where all the edges end so you can safely excavate it. With unusual or exciting bones, it can be hard to wait days, weeks or months to get them back into the lab so you can clean and prepare the fossils.

Egerton: It took me to realize that bones are living organisms. They have muscles and tendons and a lot more to them. When you think of a bone as just a fossil, you tend to overlook the fact that it is still alive. You have to resist the urge to “field prep” any exciting fossils. You need to carefully remove the plaster, burlap and separation layer. It’s like a birth day gift! So, I opened many of the jackets at the Academy and at Drexel. After the jackets were opened, I was part of the team that put the bones back together. After 70 million years of geologic pressure, they start to fall to pieces when brought to the surface. We have a plethora of tools, from pneumatic airbrushes to dental picks to specialized glue. I always compare it to putting together a 3D puzzle but you aren’t sure how many pieces you are missing or how it should look in the end.

Moyer: Definitely my trenching tool. I can make a trench in the ground with my fingers, if necessary. I always use my fingers to dig around fossil bones easily, but also carefully split rocks to look for fossil leaves.

Schein: My favorite tool while I’m looking for fossils is an av. It’s just a simple tool that is great for a lot of tasks. It is also small and light and I can carry it in my pack.

Schroeter: By the end of my time prepping the cervical, I had my own personal tool kit filled with dental picks I had bent or ground just right, cushioned taps for my fingers, work gloves, etc. But my favorite tool was my X-Acet knife, which I named “Faust.”

ULLMAN: My rock hammer, which I fondly nicknamed “O’Rusty” because it had rusted so bad, was not ideal for any field work. But it is very useful in so many ways that many wouldn’t think of right away, including anchoring yourself along steep slopes while searching out fossils in the badlands.

What type of work went into this project outside of the lab?

Boles: There was a lot of negotiating and paperwork that had to be done by Dr. Lacovara to allow the fossils to leave Argentina. Once the fossils were in Philadelphia, they had to be split between the Academy of Natural Sciences, Drexel, and the Carnegie Museum in order for them to be prepared as quickly as possible. It took days of volunteers and thousands of hours to open jackets, remove sediment and piece the fossils back together. After the fossils were glued back together, we had to scan them to make digital models. This again took dozens of volunteers and hundreds of hours to accomplish due to the size and number of fossils we had. It was also, of course, the actual studying and describing of the fossils and comparing them to other known taxons so we could positively identify and argue that Dreadnoughtus was a new dinosaur.

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Dreadnoughtus’ metatarsals (toe bones) weigh 30 pounds each! Evidence suggests the 65-ton specimen discovered by Lacovara and his team was not yet fully grown.

Dreadnoughtus was likely killed in a geological disaster, as evidenced by the fact that it was buried in sediment rapidly before its body fully decomposed. This accounts for the skeleton’s extraordinary completeness.

Lacovara and his team are using a 3D laser scanner to study the dinosaur bones digitally, as well as 3D printers to print out one-tenth scale copies of the bones. They’re also using molecular paleontology—a relatively new science—to demineralize the bones and study the residue that is used for research and teaching students interested in paleontology. I do have aspirations to continue working with paleontologists on future work.

Carter: I want to go to Argentina, find more of Dreadnoughtus. Elena Schroeter was the last generation to go to Argentina. The rest of us only got to do lab work. One of our classmates, Matt Lamanna, works in Antarctica. I’d like to go down there once. Beyond digging, I have my own research to get started on!

Coughenour: I hope to continue my sedimentology research dealing with coastal/tidal environments and stratigraphy. Much of this ties in well to an excavation and determining the paleo-environment that an organism inhabited. I would value the chance to continue working with paleontologists on future work.

Egerton: I have many more plans for fossil digs in the future. I am currently working at the University of Manchester doing research and teaching. Right now, we have a field site in South Dakota where we dig up everything from dinosaurs, like Triiceratops and Tyrannosaurus, to fossil leaves and wood. This is a very productive site that is used for research and teaching students interested in paleontology. I do have aspirations to continue to do fieldwork in South America in the future or even Antarctica.

Moyer: Always, perhaps for the rest of my life.

Meyer: I hope my future plans involve being invited back to Patagonia for the next expedition! Schem: I still lead expeditions each summer to Montana and Wyoming [through the NJ State Museum]. I hope to continue those throughout my career, but I also want to conduct field-based research all over the world. I would love to extend our field experiences to elsewhere in South America, Antarctica, and just about anywhere else in the world. Paleontology is what I’ve wanted to do since I was little, and now I’m living out my dream. I can’t imagine what I’d do if I wasn’t a paleontologist.

Schroeter: Never done with dinosaurs! I’m going to continue my post-doc and continue to pursue paleontology research.

Ulman: Absolutely more fossil digs. I’m currently working on finishing my dissertation and applying to postdoctoral and tenure-track faculty positions that will allow me to continue research into dinosaurs and the curious Earth of the past they inhabited.

Voggel: I plan to finish my PhD in the next two years and would love to be a part of more fossil digs. Fieldwork is one of the many perks of being a paleontologist.
After more than 15 years working to transform the way our nation thinks about and delivers juvenile justice, Naomi Goldstein understands that changing people’s minds about crime and punishment — especially crime and punishment for at-risk youth — is no easy task. But Goldstein has also had enough success to know that change is possible. And, she says, sometimes a simple shift in mindset can make all the difference.

“In all of my work, it’s about transforming this idea that there’s no hope for these youth,” Goldstein says. “It’s about recognizing that, if we use empirical data, if we enact the right changes in philosophy and if we change the structure of the system, there is hope — these young people can lead positive lives. And that’s not just better for them; it’s better for their communities, for their states and for the country.”

Goldstein, an associate professor of psychology in Drexel’s College of Arts and Sciences and co-director of Drexel’s JD/PhD Program in Law and Psychology, has emerged as one of the nation’s leading thinkers in the area of juvenile justice reform. Her unique research interests — which range from anger management to trial competence and from intervention with female juvenile offenders to Miranda rights comprehension among youth suspects — have uncovered serious structural problems within the nation’s juvenile court systems. Perhaps more importantly, her work has delivered real solutions to some of the trickiest problems facing those systems today, and has offered greater hope to an untold number of at-risk youth both in Philadelphia and beyond.

At the core of all of her projects and initiatives is the very simple, very problematic and, to Goldstein’s mind, entirely undeniable fact that, because much of our nation’s juvenile justice system was built on the same general framework as the adult justice system, it was inevitably going to fall short of society’s expectations.

“These [juvenile] laws were really designed with adults in mind,” Goldstein says. “There is an expectation in the legal system that you can take these laws and apply them to youth and that these young people will function the same as adults when confronted with the system. … But we know from a lot of different sources that adolescents don’t make decisions the same way that adults do, particularly in high pressure situations.”

Zero tolerance policies have led to a disturbing number of in-school arrests — over 1,500 in Philadelphia alone last year. Once in the justice system, youths’ chances of leading healthy, productive lives are diminished considerably. Naomi Goldstein, PhD, is working to divert the damaging “school-to-prison pipeline,” improving outcomes for youth and making Philadelphia a national leader in the process.
In some ways, Goldstein says, it’s completely normal for kids to break the rules. For some, that means breaking the rules of the house. For others, it’s getting in trouble in school. And for some others still, that rule-breaking can cross into criminal activity.

But even the latter situation is not necessarily one that portends a bleak future. “To some extent, misbehavior and even breaking the law is not so unusual among adolescents,” she says. “The vast majority of kids who do those things go on to become completely well-adjusted individuals who don’t commit crimes.”

Unfortunately, even for kids who do manage to stay out of legal trouble after their first offense, the justice system is in some ways stacked against them. And the problems caused by that structural flaw are far-reaching.

Goldstein notes that 60 percent of delinquent youth receive probation as their primary consequence — a move that at least keeps them out of detention and residential placement. Unfortunately, she says, about 50 percent of those youth will one day end up in residential juvenile justice facilities anyway, not necessarily because they committed a second crime, but because they violated some terms of their probation, such as failing to attend a supervision meeting with a probation officer or missing school. Complicating matters further is the fact that many “first offenses” may be very minor — even sometimes accidental, imagine the very plausible scenario, Goldstein notes, of a student who works an afternoon job at a warehouse and accidentally brings his box cutter to school with him. Careless mistake or not, that offense often sends an otherwise innocent student into the system.

What she and her colleagues have been advocating, then, is setting youth up to succeed, which means not necessarily putting violators in detention or residential placements just because they didn’t meet all of the conditions of their probation. There’s a good reason they’re advocating for that, too: the adolescent brain is not fully developed, and it is wired to emphasize short-term positive outcomes of behavior over long-term negative consequences. This can create problems for youth on probation — the immediate fun of partying with friends on a Saturday night is a more powerful motivator than the risk of probation revocation at next month’s court hearing because of a curfew violation and failed drug screen. Establishing a juvenile probation system that can reinforce positive behaviors and provide proportional consequences for negative behaviors can help shape youths’ decision making, and, as a result, help them successfully complete probation.

“We’re trying to move away from this ‘all or nothing’ mentality when it comes to probation,” Goldstein explains. “Historically, if you fail one of your, often, very numerous probation requirements, the thinking has been, ‘Well, OK, you’ve violated your probation and so our only option is to lock you up.’ What I’m doing with this project is partnering with Philadelphia’s Juvenile Probation Department and other juvenile justice leaders to apply empirical data to the juvenile justice system — data that suggest that the use of behavioral shaping principles will work to improve youth probationers’ behavior.”

This innovative work, which has gained attention across the country for its early results, is built on a rather simple premise: one that Goldstein can support with any number of existing studies. That premise, she says, is this: Once a young person is arrested and placed in some kind of correctional facility, his or her chances of leading a normal, productive life are drastically reduced. About 50 percent of youth in juvenile justice facilities report histories of traumatic events, and the inclusion, lack of privacy, and perceived lack of safety in these facilities can exacerbate mental health symptoms. Additionally, more than 50 percent of youth drop out of school while serving time in youth detention and residential facilities, Goldstein says, and a history of arrest and conviction can generate a wide array of collateral consequences, including the family’s eviction from public housing and the youths’ disqualification from many colleges, jobs, and from military service — no small issue for the many young people who may see that as their path out of difficult circumstances.

So, she says, it only makes sense to keep the youth who present little risk to the community out of those facilities — and out of the juvenile justice system — whenever possible. “What we’re trying to do with the school-based police diversion program is keep low-risk kids from getting arrested and ever coming into contact with the juvenile justice system. When that is unavailable, what we hope to do with the probation reform work is to reduce the number of kids in detention, and reduce the number of kids in longer-term residential placements,” she says. “If kids are low-risk offenders, then we want to keep them out of placement, because the simple fact of the matter is that residential juvenile justice facilities have incredibly negative impacts on young people.”
“The more successful Philadelphia’s programs become, the more hope there will be for at-risk youth nationwide.”

Therapy and other support is available not only to the youth, but to their parents and families as well. The goal is to address the underlying reasons for misbehavior rather than subjecting the youth to the collateral consequences of juvenile justice system involvement.

Imagine a 12-year-old boy brings a knife to school because he is afraid of a group of kids that have been bullying him. In previous years, this student would likely be arrested. Under the new diversion program, school police and staff will address the bullying and the student will be provided with the support services he may need.

She is optimistic that the goal can be reached. That’s due in large part, she says, to the efforts of the legal community in Philadelphia, which has, over the past 15 years, developed a forward-thinking and nationally lauded perspective on juvenile justice. The city has become a real leader in reform efforts nationwide, she says. And the more successful Philadelphia’s programs become, the more hope there will be for at-risk youth nationwide.

“With this program, these kids will not come into contact with the juvenile justice system,” Goldstein says. “They will not be arrested. They will not be taken out of school. Instead, they will be directed to programming that will help them meet their needs.... It’s a one-time deal, yes, but at least with that first incident, they are staying out of the system.”

The program began in May 2014, but early returns suggest that it’s been a great success. There were 232 arrests in the School District of Philadelphia during the first one-and-a-half months of the 2013-2014 academic year. At the same point in this school year, there were 91 arrests, resulting in a 59 percent reduction in the number of school-based arrests. And the arrest reduction does not appear to be creating a risk to school safety. Goldstein says that the vast majority of school police officers polled on the efficacy of the program indicated that it had “positive effects” on school safety.

Perhaps just as notably, not a single officer reported concern that the program was negatively impacting school safety.

“Most of the officers we talked to [before the start of the program] were telling us they felt the old policies didn’t work,” she says. “That being said, although many officers were optimistic that the new program would be better for the students involved in incidents, many remained skeptical about its broader impacts. That’s why it was so important for us to hear, after the first six weeks of implementation, that the vast majority of the officers felt it was not only helpful to the youth directly involved, but it was actually increasing the overall safety of the schools.”

Going forward, she says, the plan is to build the program out even more fully, with the ultimate aim of drastically reducing the number of Philadelphia public school students arrested in school each year. In the 2013-2014 school year, that number was a staggering 1,555. Through the diversion program, Goldstein says the aim is to cut that number in half, resulting in no more than 800 arrested in school each year.

“These are the questions that mean the difference between change and deadlock. Start asking the important questions.

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At first glance, wind power seems the epitome of clean, green energy: it harnesses an inexhaustible resource without causing pollution. Yet, large wind farms are increasingly opposed by the people who would have to live next to them due to unanticipated health effects. How can we ensure that other promising technologies are not slowed or stopped by effects not considered by scientists and engineers?

The most interesting and important questions of our time live at the intersection of science, technology, medicine and society. These are the questions that mean the difference between change and deadlock.

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Real Results

In Philadelphia, Goldstein’s somewhat radical ideas are being put to the test. And they’re passing with flying colors. Philadelphia school officials, police and juvenile justice leaders instituted late in the 2013-2014 school year a new policy for first-time offenders in the city’s schools. Under the rules established by the new School Police Diversion Program, first-time offenders who commit low-level delinquent acts on or around school premises are not arrested — which is to say, they never formally “enter the system.” Unlike those students arrested in school who are handcuffed, removed from school, taken by police car to the police station, held for up to six hours for processing, and finger printed, students diverted through this new program meet with a Department of Human Services social worker and are referred for intensive prevention services after school hours.

The more successful Philadelphia’s programs become, the more hope there will be for at-risk youth nationwide.
EXPOSING THE SOCIAL ROOTS OF OUR ENVIRONMENTAL PROBLEMS

BY TIM HYLAND

From energy policy to honeybee health, climate change to disaster preparedness, Drexel social scientists are bringing important new perspectives to the nation’s greatest environmental challenges.

Colony collapse disorder (CCD) is one of the most troubling and confounding problems facing the American agricultural industry today. Since 2006, beekeepers from coast to coast have been reporting sudden and unexplained losses in their hives, with formerly healthy colonies losing as much as 90 percent of their bees over the course of a season. Often left behind when CCD strikes is a lonely queen, a few immature bees, but no adult worker bees at all.

This perplexing disease at first glance may seem to be only a problem for American farmers, but in reality, it’s a massive economic issue as well. According to the United States Department of Agriculture, bee pollination is responsible for more than $15 billion in crop value each year. Saving the bees, then, is of paramount importance to wide swaths of this country, and scientists have been working for nearly a decade to find the elusive cure.

Drexel’s Chloe Silverman, PhD, is among them. But unlike her colleagues in biology or ecology or entomology, she is approaching the problem of CCD from a very different perspective — and asking very different questions.

Silverman, a sociologist and historian of science in Drexel’s Center for Science, Technology and Society, is in the midst of a new research project that looks not for the single root cause of CCD, or for clues to a cure, but rather at the ways stakeholders are defining the problem — its scope, its impact, its severity — and what they conceive the ultimate “solution” might look like.

By bringing these diverse approaches to light, Silverman hopes to improve our understanding of CCD as a multidimensional issue, far more complex than some media members — and even some scientists — might admit.

In understanding how people work, she says, scientists may be able to better understand how bees work.

“The data that is emerging from my research suggests that, not surprisingly, our intuitive ways of describing health and illness as humans don’t necessarily map onto honeybee hives,” says Silverman, who previously studied the dynamics and history of autism spectrum disorders. “I’d like to understand better if the different groups tackling this problem — entomologists, beekeepers, agricultural extension workers — are defining health and illness for bees in different ways. If they are, that’s a very important dynamic for us to understand as we work to maintain pollinator health. We have to manage communication among these groups.”

At a time when environmental issues big and small are vexing scientists and challenging public policy makers like never before, Drexel social scientists like Silverman are offering valuable insight into problems, such as CCD, that may simply be too complex for any single discipline to conquer. From climate change to disaster preparedness to the myriad ethical challenges spurred by society’s energy policies, Drexel researchers are working at the forefront of some of the most important debates in environmental science today.

Their contributions, which expose layers of complexity that extend far beyond the labs and measurements of the hard sciences, could prove invaluable as the wider science community grapples with issues that pose serious and ever-rising threats to our economy, our ecology and even our collective safety.
Scott Knowles, PhD, describes himself as “a historian of disaster.” Over the course of his unique and accomplished academic career, Knowles has established himself as an expert in the area of broad-scale risk management and preparedness — how risks emerge in a fast-changing world, how policy experts attempt to tackle (or, sometimes, ignore) those risks, and how and why policies are ultimately put into place to mitigate them.

It’s an area of expertise that Knowles, an associate professor of history at Drexel, developed after first becoming interested in why so many cities in the late 19th and early 20th centuries suffered such devastating fires — the Great Chicago Fire that killed 300 people in 1871, the San Francisco earthquake and blaze that killed 3,000 in 1906, and any number of others. That interest in fire soon expanded to include other types of disasters, from hurricanes and earthquakes to nuclear war and terrorism. Today, Knowles spends much of his time researching the new and often unexpected threats posed by emerging technologies. A current project has him investigating what American nuclear scientists might be able to “learn from the Fukushima nuclear disaster in Japan — a disaster that continues to pose an environmental hazard on the Japanese coast.”

At its core, Knowles’ work is aimed at helping policymakers both understand the history of disaster and better prepare themselves to mitigate the impacts of the inevitable disasters to come. It is work that draws on a number of disciplines.

“I identify myself as a historian, but my methods flow from the history of public policy, policy analysis, sociology, and science, technology and society,” he says. “My work really is sprawling across many different fields.”

His hope, he says, is that policymakers might be able to draw on his research to be more proactive when it comes to disaster planning — even when doing so may prove unpopular with their constituents. “It’s one thing, for example, for a governor or president to respond with strong and swift action after a disaster hits — providing state or federal support, sending in the National Guard, helping towns rebuild — but it’s another entirely for them to propose tough legislation limiting development in vulnerable (through desirable) coastal areas or to push for higher taxes to pay for safeguards that would help cities better endure hurricanes or earthquakes.

“The important thing is to have all of the work regarding disasters in multiple disciplines — engineering, medicine, history — somewhat coordinated, so we can move the needle policymaking over time,” Knowles says. “It can happen.”

Of course, it doesn’t always happen quickly or easily. Knowles’ colleague at Drexel, Robert J. Brulle, PhD, can certainly attest to that.

Brulle, a professor of sociology and environmental science, has spent much of his career investigating the way politicians, and society as a whole, view environmental problems. More recently, much of his work has revolved around perhaps the most divisive environmental issue of our time: climate change.

“Climate change is such an enormous environmental issue that all of the rest of them somewhat pale in significance,” says Brulle. “If we don’t get this one, if we don’t somehow address it, we’re not going to be able to save the others, for example. It will just tank anyway.”

Brulle’s interest in environmental issues dates all the way back to his days in high school, when he took it upon himself to investigate the impacts of all sorts on the Mississippi River. Later, he served in the Coast Guard and began to understand that, while biologists and ecologists have a great role to play in helping society understand the impact and causes of environmental issues, most solutions to those problems are housed not out of a lab, but rather through the political process. With that understanding, and a passion for the environment, he decided to pursue a PhD in sociology.

“It became clear to me at some point that the environment is what it is because of the things we do to it,” he says. “And so if we want to change the environment, we have to change what we do to it.”

In Brulle’s mind, that simple truth sits at the very essence of the climate change debate, and for one reason: From a scientific point of view, he says, there is no debate.

Climate change, according to almost all reputable scientists, is happening. What’s fascinating to Brulle is that this scientific truth remains such a topic of debate within the world of politics and media. Until those dynamics change, he says, it’s unlikely that anything will be accomplished from a policy point of view to meaningfully reverse the looming disaster.

“Climate change is a political debate,” he says. “It is not a scientific debate.”

But how exactly has this dynamic developed? Why has a strictly scientific issue devolved into a political war? And why do the climate change deniers remain so steadfast in their belief that it’s all one big lie?

There are many factors at work, says Brulle.

“What we find is that, for most people, climate change is just one more issue among many — education, foreign policy, those kinds of things,” he says. “With most issues, people don’t have the time to necessarily study those things in depth. What should we be doing in Ukraine? How should we be handling the Middle East? Most people will say, Well, I have no idea. I don’t have the time or ability to study all of those facts and learn about all of those dynamics. So what we do is look to people we trust for guidance on issues that are often peripheral to our main concerns.”

For the most part, he says, people know what they know. They also know what they don’t know. In essence, then, they outsource their thinking on those issues to others — either in the media, or the political sphere — with whom they feel most aligned. And this is where the problem is rooted.
"Our Environmental Problems Really Are Social Problems."

“If you’re talking to somebody in Philadelphia about traffic on I-76, or how to get in and out of Philly via the Ben Franklin Bridge, people know a lot about that — because that’s their life,” Brulle says. “But climate change is something that’s way out in the distance. What people do is rely on their trusted sources of information — the media or politicians or pundits. People will tend to follow these opinions. So if one of those trusted opinion leaders says this thing is real, then people will believe it’s real and will believe, too, that we should probably do something about it. The problem is that the political sides are actually divided on this. If you listen to Rush Limbaugh or Fox News, climate change isn’t real. It’s a fraud. It’s fake. And on the other side, you have people reading the New York Times and listening to Al Gore and MSNBC.

It’s a political and, in some ways, cultural deadlock that is unlikely to be broken any time soon, Brulle says, if only because there is so much money and influence backing the other.

Both sides are entrenched.

But history tells us there is one way that opinions can ultimately be changed.

“If the guys on the denier side lose elections and keep losing, and if denial [start losing elections], they will run away from that position.

‘Well, we have those tests and measurements that say you can’t possibly be getting sick.’

In that sense, Ottinger’s work is both local and global; while she often studies individual communities struggling with their own unique problems, the dynamics present in each of those situations play out in countless towns and cities the world over.

By shedding light on the processes that ultimately decide the fate of these people and these communities, Ottinger may help policymakers understand more fully the impact of their decisions.

With her new NSF grant, she wants to empower those individuals who are most impacted by the presence of oil refineries to more easily collect environmental data and counter claims made by industry stakeholders.

It’s an important project for society as a whole, Ottinger says, because every decision a municipality or a state or the nation makes regarding energy impacts somebody. Her interests lie in figuring out which voices get heard in the debate, which ones don’t, and why.

“We’re looking at communities that feel they are being overburdened by society — communities that feel they are bearing more than their fair share of the risks and hazards associated with energy generation,” Ottinger says. “They want to change things, but they are confronted with big companies and big political apparatus that are not necessarily set up to be friendly toward them.”

The project, if successful, could change the way energy companies interact with their communities — empowering those communities in a way that they’ve never been empowered before, and changing society’s wider discourse about energy policy.

“If these people have a better opportunity to actually do something with this data, the question is what kind of claims they could actually make,” she says. “‘If they were able to say with confidence to these companies, ‘We have this data — now you need to tell us the truth,’ that would be a huge success.”

Ottinger says her work — and that of her Drexel colleagues — is illustrative of the value that social scientists bring to the world’s efforts to tackle its biggest environmental problems. While biologists, geologists, ecologists and others working in the hard sciences are more equipped to help us see what the world’s greatest environmental issues are, Ottinger says, social scientists can help us understand how and why we as a society have allowed these problems to arise — and to understand what kinds of collective changes need to be made in order to alleviate them.

“We’re looking at communities that feel they are being overburdened by society — communities that feel they are bearing more than their fair share of the risks and hazards associated with energy generation,” she says. “That’s what social scientists bring to these discussions. Our environmental problems really are social problems — problems that have their origins in how we have organized ourselves as a society and how our decisions have impacted the world around us.”

While climate change may seem a distant or even non-existent issue to some sides, other environmental concerns — particularly those looming in our own backyard — are less easily denied.

Owen Ottinger, PhD, a new assistant professor at Drexel, has carved out an expertise at the juncture of science and technology studies and environmental justice. It’s an expertise that allows her to delve deeply into issues ranging from renewable technology to energy policy, in a quest to understand the unique problems and challenges posed to both people and communities by society’s policy decisions. Most recently, she received a $600,000 grant from the National Science Foundation to look at the potential impact of technologies that might allow people living near oil refineries to more easily collect environmental data and counter claims made by industry stakeholders.

It’s an important project for society as a whole, Ottinger says, because every decision a municipality or a state or the nation makes regarding energy impacts somebody. Her interests lie in figuring out which voices get heard in the debate, which ones don’t, and why.

“‘Well, we have those tests and measurements that say you can’t possibly be getting sick.’

In that sense, Ottinger’s work is both local and global; while she often studies individual communities struggling with their own unique problems, the dynamics present in each of those situations play out in countless towns and cities the world over.

By shedding light on the processes that ultimately decide the fate of these people and these communities, Ottinger may help policymakers understand more fully the impact of their decisions.

With her new NSF grant, she wants to empower those individuals who are most impacted by the presence of oil refineries to more easily collect environmental data and counter claims made by industry stakeholders.

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“I investigate how the benefits and harms of any number of environmental issues are distributed, because it’s not a monolithic thing,” she explains. “I am especially interested in the kind of claims that different stakeholders make about environmental and health issues, which claims are actually taken seriously, and how and why certain claims get acted upon. For instance, I want to know what happens when a community near an oil refinery says, ‘We know what’s going on, and we know we are getting sick from this plant being here,’ while the oil people counter,

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The number of individuals with severe mental illness in the criminal justice system is shockingly high. However, there is a wealth of research showing that traditional incarceration is not effective with this population and many can be rehabilitated in the community at less cost, without increased risk to public safety, and in ways that improve their opportunities for recovery. “The Sequential Intercept Model and Criminal Justice” offers an overview of recent changes in correctional policy and practice that reflect an increased focus on community-based alternatives for offenders.

Sequins & Scandals: Reflections on Figure Skating, Culture, and the Philosophy of Sport
MARILYN PETTY, PH.D. PHILOSOPHY

Is figure skating sport or art? Why are figure skating’s popularites gone into a death spiral? These beautiful essays address these questions and more. Informed by the author’s training in philosophy and her familiarity with the work of noted dance critics, this book will help you glide effortlessly to a deeper understanding of the mysterious world of figure skating.

Suzanne Davis Gets a Life
PAULA MARANTZ COHEN, PH.D. ENGLISH

Suzanne Davis lounges around her tiny New York City apartment in her pajamas, writing press releases for the International Association of Air-Conditioning Engineers, listening to the ticking of her biological clock, and wondering where life is taking her. As her 35th birthday looms, Suzanne embarks on a wrong-headed, but very funny, quest — to find Mr. Right and start the family she hopes will give meaning to her life.

Writing The Record: The Village Voice and the Birth of Rock Criticism
DEVON POWERS, PH.D. COMMUNICATION

In the 1960s, a small group of journalists made it their mission to write about popular music, especially rock, as something worthy of intellectual scrutiny. Their efforts transformed the perspective on the era’s music and revolutionized how Americans have come to think, talk and write about music ever since. Powers explores this shift by focusing on The Village Voice, a key publication in the rise of rock criticism. Revisiting the work of early pop critics, she shows how they stood at the front lines of mass culture debates, challenging old assumptions and hierarchies and offering pioneering political and social critiques of the music.
Women, Wellbeing and the Ethics of Domesticity in an Odia Hindu Temple Town

USHA MENON, PHD, ANTHROPOLOGY

In this ethnography of traditional, predominantly upper-caste, sequestered Hindu women in the temple town of Bhubaneswar in Odisha, Menon elaborates on a distinctive paradigm of domesticity and explicates a particular model of human wellbeing among this category. Part of the growing literature in "multicultural feminism," her book seeks to broaden the parameters of feminist discourse, going beyond questions of individual liberty or gender equality to examine the potential for female empowerment that exists in the context of these women's lives.

Spirit Rising: My Life, My Music

CO-WRITTEN BY GRAMMY-AWARD-WINNING ARTIST ANGÉLIQUE KIDJO, AND RACHEL WENRICK, ENGLISH

Grammy-Award-winning singer Angélique Kidjo is known for her electrifying voice and fearless advocacy work. In this intimate memoir, she reveals how she escaped Communist Africa to make her dreams a reality, and how she's prompting others all around the world to reach for their dreams as well.

Refining Expertise: How Responsible Engineers Subvert Environmental Justice Challenges

GWEN OTTINGER, PHD, SCIENCE, TECHNOLOGY AND SOCIETY

Residents of a small Louisiana town were sure that the oil refinery nearby was making them sick; they collected scientific data to prove it. While the case ended with a settlement agreement that addressed many of their grievances, it didn't address their health concerns. Instead of continuing to collect data, residents let refinery scientists' assertions that their operations didn't harm them stand without challenge. What makes a community move so suddenly from actively challenging to apparently accepting experts' authority?

Aluminum Dreams: The Making of Light Modernity

MIMI SHELLER, PHD, MOBILITIES RESEARCH AND POLICY

Aluminum shaped the 20th century. It enabled high-speed travel and gravity-defying flight. It became an essential ingredient in industrial and domestic products, from airplanes and cars to designer chairs and artificial Christmas trees. It entered modern homes as packaging, foil, pots and pans and even infiltrated our bodies through food, medicine and cosmetics. In "Aluminum Dreams," Sheller describes how the materiality and meaning of aluminum transformed modern life and continues to shape the world today.

The Body's Bride

MIRIAM KOTZIN, PHD, ENGLISH

"The Body's Bride" is a three-part poetry collection that plays with form and style to evoke the body and its interactions with the world. "A haunting book that draws the reader back into its pages again and again, without ever fully giving up its secrets," says Rhina P. Espaillat, American poet.

Post-Ethical Society: The Iraq War, Abu Ghraib, and the Moral Failure of the Secular

DOUGLAS PORPORA, PHD, SOCIOLOGY

We’ve all seen the images from Abu Ghraib: stress positions, U.S. soldiers kneeling on the heads of prisoners, and dehumanizing pyramids formed from black-hooded bodies. We have watched officials elected to our highest offices defend enhanced interrogation in terms of efficacy and justify drone strikes in terms of retribution and deterrence. But the mainstream secular media rarely addresses the morality of these choices, leaving us to ask individually: Is this right?
Favorite food/restaurant? 
Roast duck at The Four Seasons in NYC

Favorite books right now? 
"The Brief Wondrous Life of Oscar Wao" by Junot Díaz, and "The Razor’s Edge" by W. Somerset Maugham

Last time you did something for the first time? 
Being a child during the Cold War, I’ve always been fascinated by Cuba. I finally had a chance to visit for the first time two years ago. I wanted to see this culturally amazing country before it goes through a massive change, which is likely to happen in the next few years, post Castro.

Best mistake you ever made? 
Not moving to Los Angeles after I graduated from film school. I had the chance to go, but instead stayed in NYC and directed my own independent film (“Smothered”). I think if I had moved to LA, I could have gotten sucked up in the system (or overwhelmed by it) and would not have made my own low-budget feature film, which put me on a fast track as a director. In LA, it may have taken many years to work my way up the studio ranks. I’m a great believer in taking the initiative to make things happen for yourself rather than waiting for someone to recognize your skills.

Favorite Drexel memory? 
Sitting in Dr. Arthur Shostak’s sociology class listening to him talk about the “future.” (This was in 1972 — pre-PC, pre-Internet, pre-digital technology). I remember Dr. Shostak talking about how one day in the future people would actually be able to shop from their homes and see each other on small portable TV-phones. What a crazy thought!!!

Current event you wish people knew more about? 
The history of the division of the Middle East, post WWI, and how it has impacted some of the problems we are experiencing in that region today.

Proudest accomplishment so far? 
Being a “working mom.” I wouldn’t want to give up work or motherhood.

What’s your ideal weekend? 
An outdoor dinner party in the countryside (Bucks County) with friends

Who are your heroes? 
I have an affinity for underdog achievers (people who achieve their goals against the odds).

What are the best qualities a person can have? 
Compassion and curiosity

What is your favorite of the five senses and why? 
Sight. I’m a film director, so “viewing” the world is important to me both personally and professionally.

What would you name your autobiography? 
“Desperately Seeking Susan” (naturally!)

If you could communicate using only Twitter or Instagram, which would you choose? (i.e. words or pictures) 
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If you could trade places with someone for a day, who would it be? 
I like strong women, so I was going to say Hillary Clinton, but if I’m totally honest, it would probably be fun to be Beyoncé for a day.

How do you give back? 
Teaching. I’ve had a pretty interesting professional life and feel fortunate to have been able to earn a living as a film director, so it’s important to share what I know (as well as the mistakes I’ve learned from) with the next generation of filmmakers — especially the young women who are aspiring directors, since statistically women are extremely underrepresented in this overwhelmingly male industry.

What makes the world go ‘round? 
Creative thinking — along with a sense of humor

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SUSAN SEIDELMAN

BA Humanities ’73, Honorary PhD ’91
Occupation: Film and TV Director

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