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SCIENCE WITHOUT SILOS
Collaboration begets innovation

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

At the Old Well, in the "before times."

One year in

On March 1, 2020, I was named dean of the College of Arts & Sciences, after serving a year as interim dean. I had no idea how radically the world would shift before the month was even over, and how my job since then would be dominated by responding to the coronavirus and its near- and long-term effects on our College community.

It has been inspiring to see the way our faculty and staff rose to the crisis and went the extra mile for our students over these past 13 months. We are discovering that some of the innovations and technological changes that were adapted out of necessity are useful investments for the Carolina of tomorrow. This spring, after a delayed start, we returned to some on-campus teaching — about 30% of students in the College have at least one in-person class — with plans for a socially distanced May Commencement in Kenan Stadium for our graduating seniors. We expect the fall semester to look much closer to "normal," although if the coronavirus has taught us anything, it is to not get too comfortable with predictions.

I will never again take for granted small pleasures like walking through a bustling, vibrant campus, attending a concert in Moeser Auditorium or a performance at PlayMakers, or taking a sip from the Old Well on my way to lunch on Franklin Street. I look forward to when these are once again everyday occurrences, and I especially look forward to our being together again, in-person, as a Carolina community.

Sincerely, Terry Ellen Rhodes

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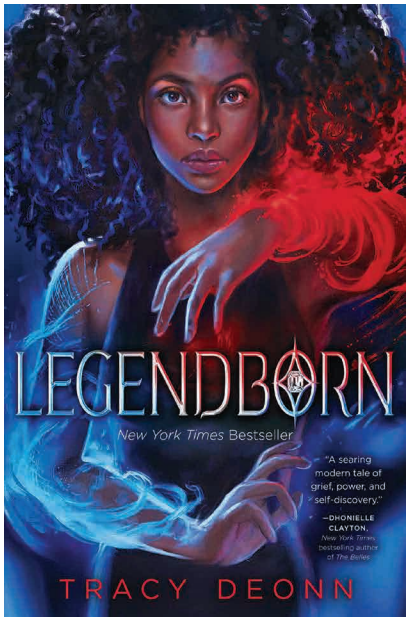
TABLE OF CONTENTS



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Institute for the Arts and Humanities fellows explore race and place, history alumna helms the award-winning *Garden & Gun*, a new speaker series will promote constructive discourse and author/illustrator Daniel Wallace celebrates English's 225 years.

Cover Photo:

Chemistry Ph.D. student Rachel Bangle works with pulsed laser light to initiate electron transfer reactions in a laser lab in Murray Hall. Bangle is part of the team of chemistry professor Gerald Meyer, who is leading an interdisciplinary project to advance solar energy research. *(Photo by Donn Young)*

Where Science

Interdisciplinary faculty research designed to tackle compelling problems is finding support from the Institute for Convergent Science in the Genome Sciences Building on campus. The goal: Expediting the research-to-marketplace pipeline.

Donn Young

Meets SOLUTIONS

BY DELENE BEELAND

"We're now taking that infrastructure that we've built and are identifying gap areas where UNC is uniquely positioned to address very pressing challenges that the market needs."

— MICHELLE BOLAS

Sarah Daniels

ABOVE: *The Genome Sciences Building has become a hub for faculty collaboration, with spaces for brainstorming, wet labs for testing new technologies and other features.* RIGHT: *The new Convergent Commons on the ground floor is a space for vetting ideas.*

Carolina's more than $1 billion research enterprise has made it one of the most innovative universities in the world, in part due to its culture of collaboration. Now, a campuswide push to bring together collaborative teams to tackle global problems is gaining traction, and a bigger home, in the Genome Sciences Building.

The world's problems are too complex for any single discipline to solve. Deadly diseases, energy shortages, water scarcity and natural disasters are sprawling challenges that demand diverse problem-solving approaches. In this feature package, we explore how convergent science teams at UNC seek to discover new sustainable energy technologies, radically improve medical imaging, expedite DNA extraction and understand extreme weather.

Researchers who venture beyond their own fields to address complex problems often discover rich inspiration and synergy — even commercial opportunity. In this convergent science approach — science without silos — the intention is to come together on solutions that the world needs and to create new technologies with market potential.

But transforming a big idea into a successful company requires space, resources and funding — high hurdles for faculty entrepreneurs to surmount. Which is why UNC's Innovate Carolina has fostered a yes-we-can culture of innovation and entrepreneurship on campus for the past decade, helping faculty navigate the roadblocks that may slow their go-to-market paths.

Today, the College of Arts & Sciences, Innovate Carolina and UNC Research are working together to support the Institute for Convergent Science, which has entered a pilot phase in the Genome Sciences Building. There, faculty have access to meeting spaces for brainstorming, wet labs for testing concepts and resource support for everything from accounting to grants to insurance.


Donn Young

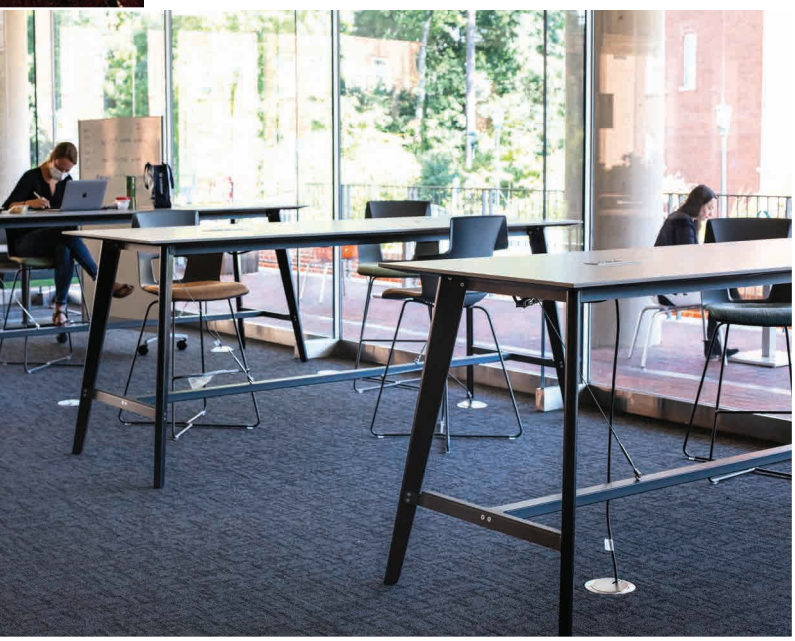
Ready, set, go

The Genome Sciences Building is a natural fit to incubate convergent science-themed technologies and startups. It is located in a hub on campus that geographically links faculty in the chemistry and biology departments to those in medicine, pharmacy and nursing. And the KickStart Accelerator, which provides wet lab rental space for startups, is in this premier research facility.

Michelle Bolas, associate vice chancellor for innovation strategy and programs with Innovate Carolina, said the University spent several years looking for an appropriate space to dedicate to fostering startups.

"These very young, nascent companies need time to develop their work and their technology," Bolas said. "We have that piece in the KickStart Accelerator, but now we need to look further upstream at how to nurture startup ideas in the earlier stages."

Last summer, Chris Clemens was named the ICS faculty director. Clemens is senior associate dean for research and innovation in the College and a physics and astronomy professor. He said the ICS has three phases in its "innovation framework," quite simply identified as *Ready, Set* and *Go*.



"When you're running a race, you never tell the runner to just go," he explained. "There's a process to getting ready, to preparing your stance for the starting gun."

In the *Ready* phase, the ICS will help support faculty in refining and vetting their ideas. A newly renovated 7,500-square-foot-space on the building's ground floor, named the Convergent Commons, will be instrumental to this phase. "It's a space for ideas, workshops and brainstorming," Clemens said. "The *Ready* phase is about putting your team and ideas together."

The new commons space is directly below the KickStart Accelerator on the second floor.

"When faculty get to the stage where they have devices or processes that need prototyping or they need to validate an invention for commercialization, they move to the middle lane for development. This is the *Set* phase in *Ready, Set, Go,*" Clemens said. "And that's what we are trying to build at the moment."

Lanes two and three in the innovation framework happen on the second floor. Clemens said ICS temporarily gave up some space intended for the *Set* phase for UNC to set up its COVID-19 test processing lab. ICS will reclaim the space when the lab operation is no longer necessary.

When the ventures are on firm ground and ready to launch as independent companies, they move to the *Go* phase and enter the KickStart Accelerator, which has been operating since last fall.

"This space contains wet labs and is used by early-stage companies that need modest amounts of commercial space separate from the research labs where they were born. KickStart is about helping UNC-licensed companies in the first leg of the race," Clemens said. [*See story on pages 8-9 about two faculty startups that have benefited from KickStart.]*

The KickStart program can house 12 to 15 companies and is currently 75% full. "This shows the level of interest," Bolas added. "We had a backlog of faculty who were waiting for this kind of space to become available."

The KickStart Accelerator is managed and operated by KickStart Venture Services, one of Innovate Carolina's core programs.

Convergent solutions

Clemens began his own tech venture several years back, and the experience informs his perspective. His company, Syzygy Optics, makes optical diffraction gratings that have spectroscopy applications in astronomical research equipment.

"I think it's significant to have a faculty director of the ICS who is an inventor himself," Bolas said. "He understands what it takes and is well-suited to build a program to support faculty, to get them to a place where they hear 'yes' more than they hear 'no.'"

The genesis of the ICS and its operations in the Genome Sciences Building are the culmination of a decade-long innovation roadmap designed by the University, Bolas said.

"We're now taking that infrastructure that we've built and are identifying gap areas where UNC is uniquely positioned to address very pressing challenges that the market needs," Bolas said. "Those may be in areas like gene and cell therapy, or environmental engineering and energy. This is really an exciting moment."

continued

Chasing sunlight

UNC-Chapel Hill chemists are leading an effort to make next-generation liquid fuels directly from sunlight and air.

BY DELENE BEELAND

Carolina chemists are leading a multi-institutional effort to probe whether a new generation of sustainable fuels can be made by artificially accelerating the photosynthetic process. The effort is guided by a vision to reduce our reliance on fossil fuels and find a clean, sustainable energy source for generations to come.

The United States gets about 81% of its energy from fossil fuels such as coal, oil and natural gas, according to the National Academies of Sciences, Engineering and Medicine. However, such fuels are a limited resource and will one day run out. Burning them causes air pollution and is changing the planet's atmosphere in ways that affect our climate.

The ambitious goal of the Center for Hybrid Approaches in Solar Energy to Liquid Fuels (CHASE) is to make liquid fuels directly from sunlight and air — fuels that are clean and storable to boot.

Directed by UNC chemistry professor Gerald Meyer, CHASE received $40 million last summer from the U.S. Department of Energy to expedite basic research into artificial photosynthesis to create liquid fuels that can be stored and utilized when the sun has set.

The researchers intend to use only the components found in air — water, carbon dioxide and nitrogen — with sunlight as the only energy source.

"Shortly after we received the DOE funding, they told me that we were in this to see if it could be done," Meyer said. "Is it even possible?"

Thirty-one interdisciplinary researchers from UNC, Yale University, Brookhaven National Laboratory, the University of Pennsylvania, NC State University and Emory University aim to find out.

Three focal areas

To test the possibilities, CHASE investigators outlined three major lines of investigation.

In the first, the researchers' challenge will be to design novel molecules that can carry out a series of chemical reactions when energized by the sun's energy and fed only by water, carbon dioxide and nitrogen captured from air. They will also need to troubleshoot how to integrate these designer molecules with silicon, a light-absorbing material that is prevalent in solar energy applications.

"Silicon is the backbone of the photovoltaic industry," Meyer said. "It has strong light-absorbing and semiconductor properties."

The second focus will investigate how to design a system that can function well despite weather and over long periods of time.

"Sunlight can be very harsh," Meyer said. "And we're putting molecules on a black light-absorbing surface. What's to prevent them from just burning up?"

The final area of research will address the challenge of linking these designer molecules to achieve a series of desired chemical reactions to produce a single product. The linked reactions would continue until they create an end-product liquid fuel, such as butanol.

A team approach

The problem of designing innovative clean, renewable energy is vast. CHASE Deputy Director Jillian Dempsey

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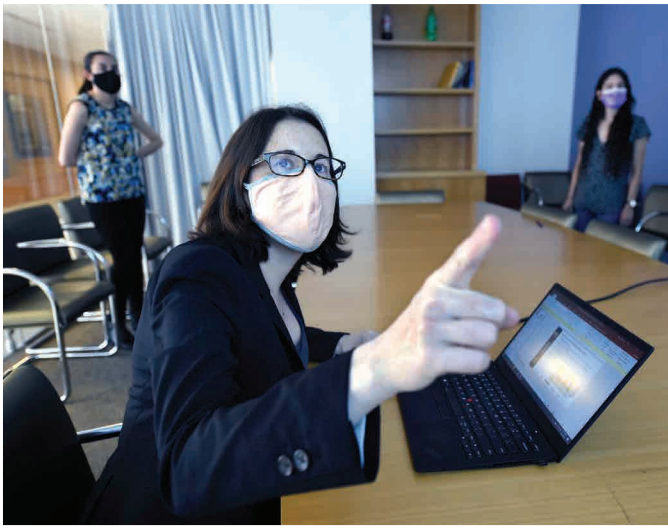
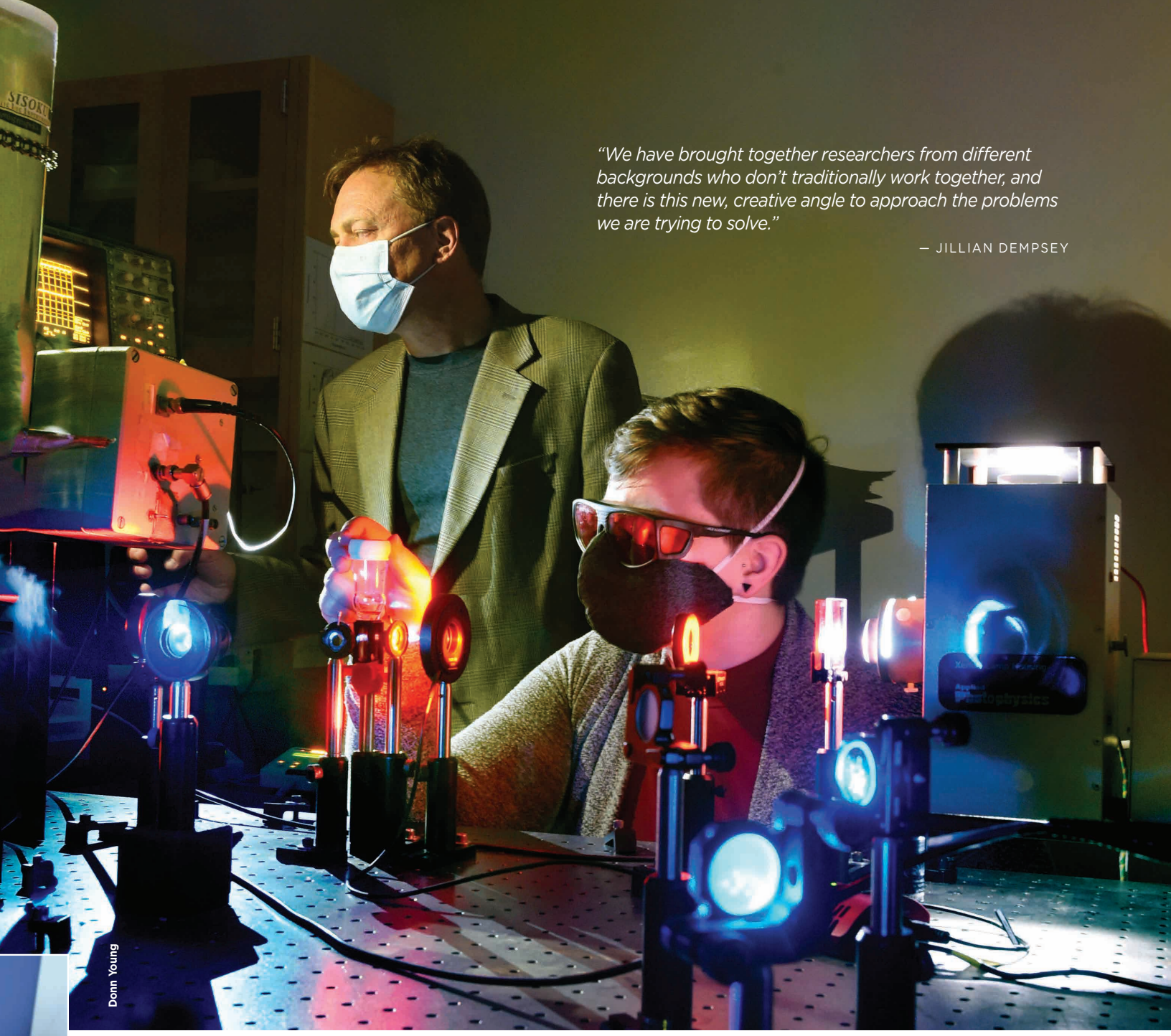


ABOVE, LEFT + RIGHT: *Gerald Meyer and Jillian Dempsey lead a $40 million solar energy project designed to reduce our dependence on fossil fuels.* FACING PAGE: *Meyer works with chemistry Ph.D. student Rachel Bangle in the laser lab in Murray Hall.*



"We have brought together researchers from different backgrounds who don't traditionally work together, and there is this new, creative angle to approach the problems we are trying to solve."

— JILLIAN DEMPSEY

Doun Young

Doun Young

points out that plants naturally do what the center is trying to replicate.

"They do this with 1% efficiency and their catalysts falling apart every hour," said Dempsey, who is the Bowman and Gordon Gray Distinguished Term Professor in UNC's department of chemistry. "Plants can do it because they are living systems, and they are constantly repairing those architectures. But we are trying to figure out how to do this with higher efficiencies than what nature does."

Solving such sprawling problems requires synergy between researchers from different disciplines. The CHASE team comprises organometallic chemists, inorganic chemists, spectroscopists, theorists and material scientists. Dempsey says that the interdisciplinary approach to problem-solving is the most exciting part.

"We have brought together researchers from different backgrounds who don't traditionally work together, and there is this new, creative angle to approach the problems we are trying to solve," Dempsey said.

Founding future technologies is heady work, and Dempsey says the team has been running on adrenaline since receiving funding. Its first step is to establish proof of concept.

"But our dream is to get things efficient enough that this system could eventually be used in people's homes," Meyer added. "I don't know if I'll see that in my lifetime, but I hope to."

Learn more at solarhub.unc.edu.

continued

ABOVE: *From left, Samantha Pattenden, Paul Dayton and Sunny Kasoji in Triangle Biotechnology's new 2,000-square-foot facility in Research Triangle Park.* FACING PAGE, TOP+ BOTTOM: *Scientist Alicia Wellman performs a quality control test at the Triangle Biotechnology lab. • Jinsong Huang in the Convergent Commons space in the Genome Sciences Building.*

Jump-starting startups

Two up-and-coming companies receiving support through the KickStart Accelerator in the Genome Sciences Building aim to revolutionize markets for medical imaging devices and laboratory products that extract DNA.

BY DELENE BEELAND

While many established businesses slowed down at the onset of the pandemic last year, startup ideas at UNC-Chapel Hill got a boost from a new program called the KickStart Accelerator.

Two life sciences ventures recently founded by College of Arts & Sciences professors, Perotech Corp. and Triangle Biotechnology, embody the University's culture of supporting faculty who have ideas with the potential for commercialization.

Both companies have benefited from the accelerator, part of a pilot program for the Institute for Convergent Science in the Genome Sciences Building. The accelerator mobilizes diverse teams of researchers, designers, entrepreneurs and others.

Perotech seeks to develop a next-generation medical imaging device. Triangle Biotechnology is developing products and equipment that labs can integrate seamlessly to save time and costs for processing biological samples.

Founders from both startups say they never dreamed of starting their own businesses — until suddenly they saw no reason not to.

Revolutionizing DNA extraction

Triangle Biotechnology was born from scientists seeking a shortcut at the lab bench 10 years ago.

Samantha Pattenden, an associate professor in UNC's Eshelman School of Pharmacy, was experiencing a common problem: breaking up DNA. A necessary step to prepare samples for next-generation genomic sequencing, this is typically achieved with ultrasound or enzymes.

Next-gen sequencing is used for large numbers of samples containing genetic material — say, saliva collected in tubes from people curious about their ancestry — and these are processed en masse, by a sequencing instrument. But for this technology to work, the DNA in the samples must first be broken up into very short, uniform segments, a feat that has proved stubbornly hard.

One of the technicians in Pattenden's lab had heard that another UNC lab — run by Paul Dayton, a professor in the department of biomedical engineering, a joint program with NC State University — used microbubbles for a similar problem. Dayton's work investigates ultrasound for clinical imaging and diagnostics, and microbubbles are frequently used as a contrast agent. The lipid-shelled, 1-micron gas-filled spheres wiggle and vibrate in the presence of high-energy acoustic waves.

"We were using the microbubbles therapeutically and for

imaging of various body parts, but it turns out they can also, by the same mechanisms of vibration and mechanical agitation, help the problem that Sam was having," Dayton said.

The pair collaborated and improved the efficiency by miniaturizing the microbubbles into nanodroplets — five to seven times smaller and filled with a liquid core instead of a gas — that sheared DNA into short, uniform segments of a predictable length when exposed to high-energy sound waves. They eventually obtained two patents related to this technology.

"I was encouraged when one of Sam's colleagues started using the nanodroplets too," Dayton said. "I thought, 'wait a second; others at UNC want this technology, so clearly there's a desire for it.'"

Though the pair were interested in launching a company, they did not have the expertise. They were connected to Joe McMahon, a businessman who had previously directed several biotech companies, and who became a co-founder and, later, Triangle Biotechnology's CEO.

Today, the company's main product is the nanodroplet reagent for biological samples, an innovation that simultaneously shreds 96 DNA samples in 10 minutes. Their biggest competitor takes two hours to process that number of samples.

The company's chief technology officer, Sunny Kasoji (B.A.'12, Ph.D. '18 biomedical engineering), says that their technology also costs less.

"Nanodroplets eventually ended up having a large market for us. Once we started doing customer interviews, we realized there were so many applications for this apart from just shearing the DNA," Kasoji said. Soon they were developing and marketing the nanodroplets to also break up tissues, bacteria and plants.

In early 2021, Triangle Biotechnology moved out of the KickStart Accelerator space that it had occupied for a year and into space in Research Triangle Park.

Kasoji, who was Dayton's graduate student and performed research on the nanodroplets, said that when he was a student, he thought startups were too risky for employment right after graduate school.

"But it's been a great experience for me to see my research through to the ultimate end," he reflected. "I consider myself very lucky and I've caught the bug. The startup space is where I want to be."

Transforming medical imaging devices

Imagine a portable medical imaging device that is flexible enough to wrap around injured limbs or brought to patients who can't be easily moved. Now imagine that the radiograph this device makes has an image quality that is 100 to 1,000 times better than what's currently on the market — all for a vastly lower cost.

That's the vision of Jinsong Huang, founder of Perotech. Huang has researched a special material structure called perovskite for the past eight years. While characterizing its properties for solar energy applications — it has good electronic properties — he and his team discovered that it also works well for detecting X-rays.

"Perovskite has a good stopping power; it has lead inside which can stop or absorb X-rays efficiently, and we can see the X-ray photons," said Huang, who is the Louis D. Rubin Jr. Distinguished Professor in UNC's department of applied physical sciences.

Perovskite is highly sensitive to detecting X-ray photons, which means it can make more detailed images from a comparatively lower dose of radiation.

"If we can make the detector more sensitive, then we can dramatically reduce the radiation dose to the patient," Huang said. "We can make X-ray imaging much safer for people."

The lightweight, portable nature of his concept has many different applications. Hospital patients who are too unstable, or too infectious, to be moved to a common radiography room can have the new imaging device brought to their bedside. Soldiers injured on a battlefield could be treated by a medic who unrolls the bendable, compact device to image injuries on the spot.

Perotech moved into the KickStart Accelerator in 2020, and Huang credits the incubator with providing not just lab space and equipment but also advice on grants and accounting. Perotech has established proof of its concept, and the company plans to produce a full-sized X-ray detector prototype by 2023.

"I researched perovskite for eight years, and I was waiting for someone to commercialize my work," Huang said. "Then I received calls from big companies saying they wanted to buy a product, and some asked me to make a product, so that made me think about it."

Huang said he hesitated, but that he thought it was worth pursuing due to the big improvements of perovskite over existing materials.

"There is already huge competition in the industry to solve this problem, and there are strong market leads," he said. "I will only see this opportunity once in my lifetime, and I really did not want to give this up."

continued

Building resilience for storm-battered N.C.

A diverse team of researchers is addressing the long-term impact of extreme weather.

BY ALYSSA LAFARO

The 2020 Atlantic hurricane season broke records on multiple levels. While the season usually runs from June 1 to Nov. 30, the first two storms — Arthur and Bertha — developed in May. Of the 30 storms that formed, 12 became hurricanes, the last of which made landfall in Nicaragua on Nov. 16. This tally represents the most storms on record, surpassing the 28 from 2005.

Over 127 million people live in coastal communities in the United States. That's 40% of the nation's population. What's more, these communities have a huge impact on the economy, accounting for more than $9 trillion in goods and services.

A team of researchers at UNC is addressing the long-term impacts of extreme events — hurricanes, floods and forest fires — on North Carolina's coast from an interdisciplinary perspective.

Led by Carolina Population Center Director and sociologist Elizabeth Frankenberg, the Dynamics of Extreme Events, People and Places (DEEPP) project brings together social and natural scientists, engineers, public policy researchers and data analysts to investigate extreme weather events from all angles, including impacts on health and well-being, economic hardships and environmental harm. Initial funding for this project came from the Creativity Hubs, a seed-funding program out of UNC Research.

Using satellite imagery, geophysical models and survey data, Frankenberg and her team hope to document the short- and long-term impacts of flood events and how people recover from them to help coastal communities in North Carolina and elsewhere prepare for the coming decades — and the storms they'll continue to face.

Frankenberg is interviewing people about how they've been affected by Hurricanes Matthew, Florence and Dorian. Conducted in-person and over the phone, the survey includes questions about damage to property and possessions, disruption to day-to-day life, stress, assistance to and from family and neighbors, and access to recovery programs. Frankenberg and her team hope to continue this work to understand the evolution of impact and recovery over time.

UNC Institute of Marine Sciences Director Rick Luettich is using a storm-surge modeling system called ADCIRC to recreate recent major hurricanes that have hit coastal North Carolina. The DEEPP team will then combine this information with remote sensing data from satellites and airborne sensors to create detailed maps of flooding produced during these storms. This tool will help guide and interpret Frankenberg's human health surveys and will inform people living in flood-prone regions about their vulnerability.

People who recognize flood risks to their property will sometimes sell their homes to the federal government. These are called floodplain buyouts. Todd BenDor, a professor of city and regional planning and director of the Odum Institute, strives to gather data on these transactions to understand their long-term financial impacts on cities.

Most recently, BenDor assessed buyouts in eight North Carolina communities and found that properties bought at random in various locations prevent effective land use. If several properties in the same area are purchased, though, that land can be converted into public parks or greenways, ultimately boosting the tax base. Most buyouts, unfortunately, end up as vacant mowed lots that are expensive to maintain. BenDor is particularly interested


Alyssa LaFaro


Alyssa LaFaro

"This is confirmation that we're on the right track. The NSF grant is the lift to get off the ground. You need that fuel to really climb."

— ELIZABETH FRANKENBERG

ABOVE: *The North Carolina coast has experienced several extreme weather events in recent years, and a team of interdisciplinary researchers is examining the long-term effects.* LEFT: *An aerial view of Corolla, North Carolina, from the top of the Currituck Beach Lighthouse.*

in studying local governments that permit new construction on floodplains.

UNC Institute for the Environment Director Michael Piehler, who is also a marine scientist, examines the impact on the coastal environment. He researches where land and water intersect, observing how natural and humanmade systems protect coastal towns before, during and after storm events. As part of this work, Adam Gold, a Ph.D. student working with Piehler, has created a stormwater network mapping tool for Wilmington, North Carolina, that shows all the stormwater pipes for the area, highlighting the ones that no longer function.

Frankenberg, Luettich, BenDor and Piehler are just a few of many researchers working on this project. Others are researching topics such as how natural disasters affect schools, contaminate water systems and lead to public policies that mitigate risk. This breadth of expertise is key to developing short- and long-term solutions to climate change.

Thanks to a recent $3.5 million grant from the National Science Foundation's Growing Convergence Research program, the team is confident that its approach is worth pursuing. This is UNC's first GCR award, given to researchers with big ideas to tackle specific, compelling, interdisciplinary problems.

"This is confirmation that we're on the right track," Frankenberg said. "The NSF grant is the lift to get off the ground. You need that fuel to really climb."

Alyssa LaFaro is the editor of Endeavors *magazine. Read a longer feature at go.unc.edu/storms.*

How to Think Like an Entrepreneur

New assistant professors Jiayi Bao (left) and Abhisekh Ghosh Moulick draw on their strengths in business and social entrepreneurship in teaching students.

BY PATTY COURTRIGHT (B.A. '75, M.A. '83)

New faculty in the Shuford Program in Entrepreneurship are bringing their backgrounds in public policy and creative teaching methods to help students learn how to think like an entrepreneur, and how to turn opportunity into possibility.

Students in the Shuford Program in Entrepreneurship learn to think like entrepreneurs, whatever career path they choose.

"We don't expect all of our students to be entrepreneurs, but we want them to be entrepreneurial in their thinking — to be curious and innovative as they engage with the world," said Bernard Bell, the program's executive director.

With a blend of academic research and real-world perspective, the faculty teach students to visualize opportunity and possibility. The newest faculty members, Jiayi Bao and Abhisekh Ghosh Moulick (both are assistant professors of public policy and entrepreneurship), have hit the ground running as team players since they came on board last summer, Bell said.

• A SPIRIT OF COLLABORATION AND SYNERGY

Bao's research focuses on the human capital aspect of entrepreneurship. She examines ways that business and government can enhance support for workers in various company settings.

"The theory behind what I study is not specific to one type of company, and entrepreneurship is the overall context. New innovative ventures are of special interest to me in terms of job creation and economic growth as well as global competitiveness."
— JIAYI BAO

Currently, she is studying how innovative perks and creative approaches to vacation and sabbatical programs, as well as the benefits of child care or educational assistance programs — or even restructuring the workplace itself — can lead to more motivated and productive employees.

"The theory behind what I study is not specific to one type of company, and entrepreneurship is the overall context," she said. "New innovative ventures are of special interest to me in terms of job creation and economic growth as well as global competitiveness."

Before she came to Carolina, Bao assisted with teaching MBA and Executive MBA students at the University of Pennsylvania's Wharton School, where she earned a master's degree in applied economics and managerial science and a doctorate in applied economics.

At Carolina, she teaches a public policy class in research design as well as Economics 125, "Introduction to Entrepreneurship," a foundational course focusing on the basic principles and mindset needed to create new ventures. Despite its size — last fall, the class had 400 students — and the synchronous online format, the course is very hands-on. Students work in five-person teams to turn the entrepreneurial skills they learn into a new project or venture.

Her co-instructor, Susie Greene, has high praise for working with Bao last semester. "Jiayi wasn't at all intimidated by having to teach a 400-person class right off the bat. She's super smart, detail-oriented and confident in the most wonderful way, and we balance each other very well," said Greene, entrepreneur-in-residence and professor of the practice, who has been involved with the course for several years.

This semester, Bao is teaching a smaller version of the course with only 40 students. She plans to keep the flipped aspect of the larger course in which the students complete assignments beforehand to prepare for the lectures, but she wants to increase her direct interaction with them. Bao plans to coach all eight student teams so she can provide feedback on their ideas, whereas the large class draws on guidance from 20 to 30 coaches from the business world.

She and Greene hope to apply some of the innovative pedagogical methods from the small "petri dish" class to the large class next fall.

Bao enjoys the flexibility in applying her research findings toward developing innovative teaching methods at Carolina. Another thing she enjoys is the collaborative, interdisciplinary atmosphere.

"I come from a pure business school background where I studied economics, my research is in the field of management, and I have an academic home in the department of public policy," she said. "That signals something about the interdisciplinary nature of the department here where the focus is collaboration and bringing synergy into different fields."

• A FOCUS ON SOCIAL ENTREPRENEURSHIP

After several years working in the private sector in India — initially in finance and business process outsourcing at JPMorgan Chase and then as part of a startup college prep company — Ghosh Moulick welcomed an opportunity to examine his career path from an academic perspective.

"I wanted to understand other entrepreneurial people like me out there and the ventures they create," he said, "and I thought it was fascinating that you could teach these skills to students." So he decided to blend his personal and professional interests to focus on using the myriad faces of entrepreneurship to benefit the public good.

"One of the joys of this profession I'm so lucky to have is to live vicariously through my students' different entrepreneurial and career successes."
—ABHISEKH GHOSH MOULICK

After earning an undergraduate degree in management from the University of London International Programme & London School of Economics and a doctorate with an emphasis in public management from Texas A&M University's political science department, Ghosh Moulick began his academic career at the University of Oklahoma. He came to Carolina four years later.

He is the first Ishna J. Hall Fellow in Entrepreneurship, named in memory of the late development officer, by Suzi and Lowry Caudill. Hall '00 was deeply devoted to Carolina and worked with the Shuford family and Chancellor Kevin Guskiewicz (then dean of the College) to raise $18 million to support the Shuford Program. It is the largest gift in the history of the College.

Ghosh Moulick co-teaches Economics 325, "Theories and Practices of Entrepreneurship," which varies in size from 44 students last fall to nearly 100 this spring. The course focuses on applying the skills that turn ideas into tangible products. Last semester the class provided consulting support for Carolina's University Career Services (UCS).

"Our student teams had a lot of buy-in for the project, especially since it's an ecosystem they're part of. They offered great advice about what UCS should offer, so not only was the work an important pedagogical tool, it also helped a living, breathing organization at UNC," he said.

His co-instructor for the course, Chris Mumford, a professor of the practice in strategy and entrepreneurship, provides the business-related "ears on the ground," in Ghosh Moulick's words, and their teaching partnership often highlights complementary perspectives on an issue.

"Abhi brings years of research with practical startup experience. We make a great team because we have very different life experiences but a similar approach and shared vision," Mumford said.

Like most classes, the course has been taught online this academic year. Instead of having student teams huddling in a corner of the classroom to develop their projects, they meet through Zoom breakout rooms. One advantage of this structure is that the students can be assigned to different project teams during the semester instead of gravitating toward people they know.

That's important, Ghosh Moulick said, because teamwork is a fundamental part of teaching entrepreneurship and preparing students for a modern workplace.

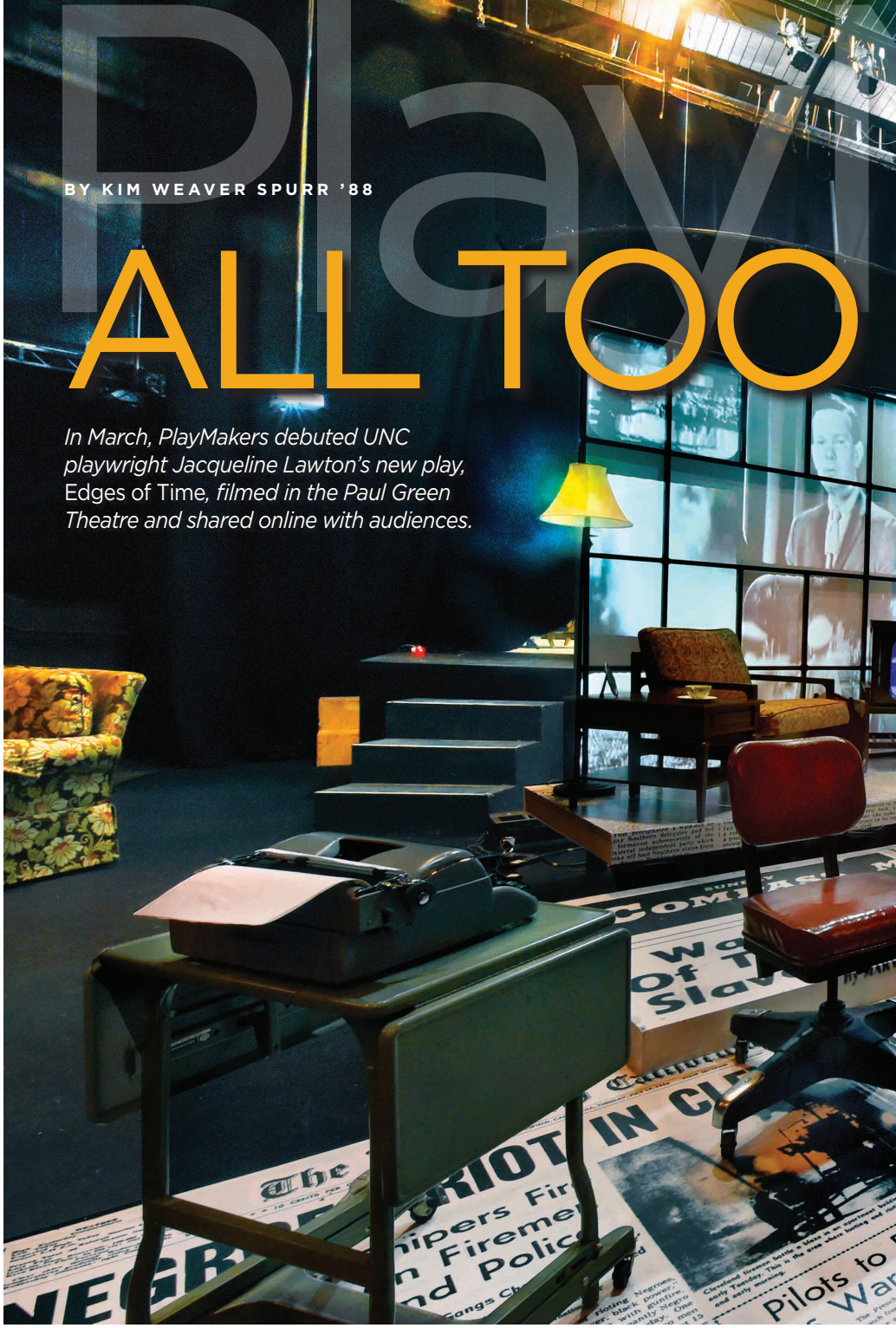
His students come first, both in Econ 325 and in the Honors public policy course in social entrepreneurship that he's also teaching this spring. After growing up in a family of modest means, Ghosh Moulick is mindful of the college debt many of his students incur, so he does whatever he can to help them find meaningful careers.

"One of the joys of this profession I'm so lucky to have is to live vicariously through my students' different entrepreneurial and career successes," he said.

BY KIM WEAVER SPURR '88

ALL TOO

PlayMakers Repertory Company's 45th season has been a season like no other. Amid a global pandemic, when other theaters were shutting down, the company programmed its first virtual season. With the theme "All Too Human," artists have tapped into their creativity and resiliency to explore our shared humanity in these challenging times.



In March, PlayMakers debuted UNC playwright Jacqueline Lawton's new play, Edges of Time, *filmed in the Paul Green Theatre and shared online with audiences.*

When COVID-19 forced PlayMakers Repertory Company to close its production of *Julius Caesar* shortly after opening night in March 2020, Producing Artistic Director Vivienne Benesch pledged a mantra of moving forward with "responsible optimism."

As many other theaters around the country have gone dark, PlayMakers, the professional theater-in-residence in the department of dramatic art, has kept its virtual — and in some instances, physical — doors open, serving audiences, students, staff, company members and faculty alike. In addition to an undergraduate major, the department offers three MFA programs in acting, costume production and technical production.

Last August, PlayMakers announced that its 2020-2021 season, with a theme of "All Too Human," would be digital. Benesch has remained committed to developing new works and showcasing under-represented voices, while keeping safety as a vanguard.

Six streamed performances have ranged from audio dramas to Zoom readings to solo performances filmed onstage. A previously recorded version of Kane Smego's hip-hop odyssey *Temples of Lung and Air* opened the season, followed by beloved company member Ray Dooley's "radio-style" performance of *A Christmas Carol*.

The company staged an online reading of the Thomas Wolfe International Playwriting Competition-winning play *The Storyteller* by Sara Jean Accuardi, followed by a performance of Mike Wiley's searing one-man show *Blood Done Sign My Name*. The world premiere of department of dramatic art playwright Jacqueline Lawton's *Edges of Time*, filmed in the Center for Dramatic Art on the UNC campus, highlighted the life of Black female journalist and activist Marvel Cooke.

And a special Zoom performance of Nora Ephron's *Love, Loss and What I Wore* featured company members alongside longtime friends of Benesch's

HUMAN

Donn Young

— screen and stage actresses Debra Messing, Marin Hinkle and Camryn Manheim, as a one-night benefit.

With a commitment toward accessibility, most of the performances have been published on the platform Sakai so they are free to all Carolina students.

"There have been some really difficult days, weeks and months," Benesch acknowledged. "It seemed like all possibility in the beginning, with the hope of reaching people around the globe. Some of that is happening — but the downside of that is Zoom fatigue. So the goal has been to make things that stand out, that have something special to offer our audiences."

"Keeping You Company" programming has provided additional online content for audiences to explore: "Virtually Viv" conversations — featuring artists interviewed by Benesch, "Think Like an Actor" coaching sessions with Dooley and "Stuck Monologues" — commissioned short pieces from local playwrights performed by company members. Professional Actor Training Program students developed online projects, "Some Kind of Universe," that explored their takes on the complex world in which they were living.

continued

Actor Kathryn Hunter-Williams (foreground) and playwright Jacqueline Lawton (wearing scarf) discuss Edges of Time *in 2018 with other production members.*

Debuting new works and under-represented voices

Kathryn Hunter-Williams, company artistic associate and teaching associate professor, experienced the challenges of performing in a digital world in both *The Storyteller* and *Love, Loss and What I Wore*.

She returned to the stage in the Paul Green Theatre to film *Edges of Time*, where she portrayed Marvel Cooke. It was a special role for Hunter-Williams because she was in a staged reading of the play in 2018.

Throughout the pandemic, the company has had to navigate the ever-changing safety guidelines of the University, county, state and Actors' Equity Association.

"For theater artists, what we do is plan, rehearse and execute — and so this has hit us in our soft spot," said Hunter-Williams. "But we are also problem-solvers. And I sense that maybe we'll learn to fine-tune our problem-solving in a different way going forward."

Theater as a research "bubble"

Michael Rolleri, professor of technical production and production manager for PlayMakers, echoed that thought: "In theater, there are no problems, just challenges, and you have to overcome those challenges." He's been doing just that for 35 years.

MFA technical and costume production students have been able to keep working because of the nature of what they do — production areas operate much like a research lab, and students and faculty have maintained their own safety "bubbles."

"What PPE do we need? How do we properly and safely use the copier? We broke it down very specifically — even how are we getting people in and out of the building?" Rolleri said of the precautions laid out in their operating document.

Professor and resident designer McKay Coble, who designed the set for *Edges of Time*, said students and professors have exemplified the idea of "resiliency."

"I'd like to underline that idea because it may be a trait endemic to theater people. Because things can go wrong. When everything is live, the potential for that is huge," she said.

Coble received both her undergraduate and MFA degrees from the department of dramatic art and has been with the company for 33 years, including time as department chair.

"I've seen some terrible budget times," she said, "but I would say this is really something. I don't think we can take care of each other enough during this time. I'm so proud of the people with whom I work."

Paul Edghill is a second-year MFA student in technical production who is originally from Barbados. He toured for 25 years all over the Caribbean as a lighting designer but decided to go back to school to enhance his skills.

He's also teaching an introductory class to undergraduates that covers sound, lights, props, scene construction and other aspects of technical production. A benefit of this remote learning world for his undergrads who are actually not in the shop — they are learning how to draft in 3D.

"We are pushing students to think outside the box," Edghill said. "As we create a 3D set, you can see all the angles the camera would move through. We are teaching students to be savvy with technology, and when they leave UNC, they will have a skill that can transcend their current course of studies."

'Sweet are the uses of adversity'

Chuck Bayang is PlayMaker's stage manager. He said his stage management mentor always used to say: "Create an atmosphere for the creative process to take place."

Through all the different styles of productions the company has undertaken this season, Bayang says he has gone back to that thought and how to make it happen.

And sometimes that's by trial and error — by experiencing the use of one digital platform's quirky latency issues over another, for instance.

"I keep joking that by our 15th show, we'll have it all down," he said. "This whole experience has been like trying to keep your home technology system updated. You buy a new DVD player, and it's got these new features, and then you realize you have to hook it up to 20 different cables. Then, once you do that, you realize you need to update your TV."

Very late this season, just like last spring, the company had to pivot again.

The plan was to end the current season with Shakespeare's *As You Like It*, filmed in the Paul Greene Theatre and shared online. Despite the company's meticulous safety plan, Actors' Equity

TOP: *Vivienne Benesch has led PlayMakers through a difficult year while remaining committed to a goal of developing new works and showcasing under-represented voices.* **BOTTOM:** *Michael Rolleri has been able to keep the production shop open safely for MFA students.*

nixed filming the production due to rising COVID-19 numbers in North Carolina.

As Benesch broke the news in a staff meeting, Tia James, who was set to direct the production, shared this quote from the play: "Sweet are the uses of adversity." (James, a teacher of voice and acting and resident vocal coach for the company, had also performed in multiple online productions throughout the season and was Marc Antony in last year's *Julius Caesar*).

The full quote is said by Duke Senior after being banished to the Forest of Arden by his brother.

"Sweet are the uses of adversity, which like the toad, ugly and venomous, wears yet a precious jewel in his head. And this our life, exempt from public haunt, finds tongues in trees, books in the running brooks, sermons in stones and good in everything."

James said the quote spoke to her because our troubles are part of being human.

"When those troubles come, Duke Senior says there's a precious jewel — in every situation, no matter how tough or hard, there is some jewel we can take forward," she said. "I didn't want the company to be discouraged that day. I was saying, 'let's look closer, because there might be a jewel here for us.'"

In this time of exile, part of that "jewel" has been more time to rehearse and find those "magical moments" together, she said. The company workshopped the play virtually for three weeks with the hope of filming it this August.

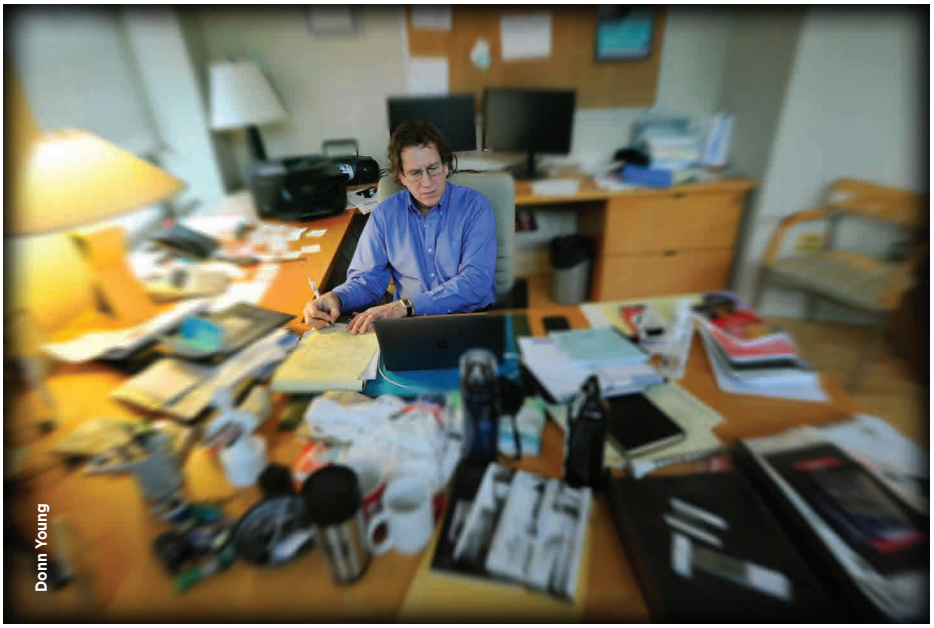
If all goes well, PlayMakers plans to share the play with audiences next season.

The energy of live theater

When she thinks about returning to live theater again — whenever that might be and however that might look — Benesch said it "makes her weep." That's exactly what she did when she had a chance to watch *Blood Done Sign My Name* being filmed at a performing arts center in Clayton, North Carolina.

"As actors, we are taught that communication is born of that exchange of breath. No matter how much work we do across this two-dimensional medium, that exchange of breath doesn't happen," Benesch said. "And so the molecules exchanged, how *you* are changed, isn't the same. I'm incredibly excited about being in live theater again and letting molecules from a performance change me.

"But I also don't want us to go back to who we were, but rather who we can be. Because I think all of our personal molecules have changed a great deal."



Adam Versényi teaches the COIL class from his office in the department of dramatic art.

STUDENTS, AN OCEAN APART, STUDY DRAMA AND THE PLAGUE

BY KIM WEAVER SPURR '88

An international online course connects students from three universities to explore how theater-makers can adapt, recover and thrive amid the COVID-19 pandemic.

The first page of the syllabus for Adam Versényi's undergraduate international theater course features this 1933 quote from French artist Antonin Artaud:

"If the essential theatre is like the plague, it is not because it is contagious, but because like the plague it is the revelation, the bringing forth."

Versényi, chair of the College's department of dramatic art and a dramaturg for PlayMakers Repertory Company, is teaching a spring Collaborative Online International Learning (COIL) course, "Theatre and the Pandemic, Theatre After the Pandemic." His collaborators include Patrick Lonergan of the National University of Ireland in Galway and Kurt Taroff of Queen's University in Belfast.

In the 2020-2021 academic year, UNC-Chapel Hill faculty are teaching 19 COIL courses in partnership with universities in 13 countries.

Artaud was bemoaning the fact that theater had become largely moribund and repetitious, Versényi said.

"He was looking for a kind of theater that would be visceral, that would affect people through the skin," Versényi said. "Artaud was talking about theater as a punch to the gut, a physical and emotional response rather than a detached, cool intellectual response."

Throughout the course of the semester, students are hearing from guest artists who are making new work in new ways. They are also examining case studies from theater history, including Shakespeare's reaction to the plague.

Lonergan said the course is forging connections with students in Chapel Hill but also bringing students from two parts of Ireland together.

"This COIL program gives students the chance to learn about each other and to see that we have a lot in common, but there are also differences," he said. "We're excited to see how our students grow by working together."

The UNC cohort meets on Mondays, and the three universities come together on Wednesdays each week. Early on, students were paired with classmates and challenged to interview each other, then perform what the idea of "home" meant to their partners.

Alice Knight, a first-year student from Boone, North Carolina, said the exercise highlighted how students share "a similar hope for the future." She said she has enjoyed hearing from artistic directors from Big Telly Theatre Company (Northern Ireland), Druid Theatre (Galway) and The Cherry Arts (Ithaca, New York).

"Feargal Hynes of Druid Theatre explained the company's 'local global' focus, highlighting how they perform internationally but also tour their professional productions to rural parts of Ireland," Knight said. "Learning from such speakers in the same Zoom room as our Irish cohorts is great because I'm able to glean their perspective on the material by listening to their questions and ideas."

At the end of class, students will develop collaborative online performances.

"The idea is for them to create something based upon what they've been learning in the course," Versényi said. "Obviously, the huge thing that we lack in the virtual space is that sense of a communal experience. You can create a sense of interconnectivity to a certain extent, but it is by no means the same as live theater. … Given that, how do you create something that is true to that sense of theatricality and that makes use of the medium?"

Both Versényi and Lonergan said it was important, via the course title, to focus not only on what's happening to theater *now*, but what artists will take forward.

"The pandemic has operated as a kind of truth serum upon our societies. … That 'moment of truth' allows us to think about our future," Lonergan said. "Artists everywhere are using this time to devise new ways of making art. The years ahead will be challenging, but theater shows us that we are most resilient when we work together."

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The UNC Institute for Convergent Science builds and supports talented teams of innovators in spaces that are made for collaboration.

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Pictured above are Theo Dingemans, principal investigator for the Sustainable Access to Clean Water Creativity Hub and professor of applied physical sciences, and Anna Fraser, a graduate student. With their team they are changing the way water is made safe for people around the world.

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• *Anthropology graduate student Sierra Roark, at the Charlotte Hawkins Brown Museum, is working on an exhibit of African American medicinal practices.*

If plants could talk

Sierra Roark seeks to tell a more inclusive history by studying plant remains and the medicinal uses of plants in the South.

BY PAMELA BABCOCK

Through her archaeological work examining plant remains from hundreds of years ago, Sierra Roark is digging beneath the surface and discovering details about the lives of often marginalized groups and the signs of resiliency and ingenuity often left out of history books.

"Plants are an integral part of life," said Roark (M.A. '20), a Ph.D. student in anthropology. "They provide everything from food to medicine to the clothes we wear. And they played a huge role in Colonial America and how the English and the other colonies found fortune and the ability to be sustainable."

For her master's thesis, Roark studied plant remains to try to understand how Siouan-speaking peoples used plants before and during the colonial period when Europeans arrived in the Piedmont region of North Carolina and Virginia. In addition to scientifically examining the remains, Roark used historical documents and social theory to help interpret what she found and to better understand people's relationships with plants and artifacts.

A common narrative among historians is that the Native American population was drastically affected by diseases such as smallpox, influenza, yellow fever and measles that came over with the colonists. Roark subscribes to a different theory that suggests the decline was more often caused by warfare and enslavement by colonists, captivity by other Native American groups and land encroachment that led to food scarcity.

In other research, Roark has found evidence that suggests Native Americans were industrious and creative about using plants to treat symptoms and address disease. Sumac bark and roots were used as a dermatological aid, dental aid and cough medicine. The leaves and seeds of jimsonweed (also known as thorn apple or devil's snare) were used to treat skin ailments, wounds and congestion. And while tobacco was smoked, it also was used to fight intestinal worms, and as an antispasmodic and cathartic aid.

Roark chose Carolina because it was one of a few programs that specializes in paleoethnobotany. Kandace D. Hollenbach, her adviser and a faculty member at the University of Tennessee where Roark received her B.A. in history and anthropology, is a Carolina Ph.D. alumna. Hollenbach highly recommended the program.

As a Charlotte Hawkins Brown Public History fellow, Roark is preparing an exhibit for the Charlotte Hawkins Brown Museum in Gibsonville, North Carolina, that will look at African American medicinal practices in the American South and how plants were used for folk healing. The fellowship is part of the Humanities for the Public Good initiative, a program funded with support from the Andrew W. Mellon Foundation.

After she receives her doctorate, the Flat Rock, North Carolina, native hopes to stay in academia or do public outreach for a museum and continue helping people look more closely at history.

"That's one of the things I really like about archaeology," said Roark, who also enjoys hiking and horror movies. "It's not just the people who wrote records that we're studying. It's everyone who lived in that space, so archaeology allows us to create a more equitable picture of the past."

Everything becomes real as she sifts through dirt. And looking at a plant under a microscope, she speculates that the corn before her eyes is from somebody who struggled to get enough sustenance a couple hundred years ago: "That's when it kind of clicks and I realize that this is something that very few people get to interact with like we do."

In the end, Roark doesn't want to erase history, just make it more accurate. Given the recently charged political climate, she's saddened and frustrated by people who get upset when scholars challenge the narrative that they grew up with.

"The reality is those views fit a narrative of American exceptionalism," Roark said. "And that's just not how it went."

Through a filmmaker's lens

Watching the sunrise on Mount Fuji is among the memorable experiences in senior Michael Sparks award-winning film about his trip to Japan.

INTERVIEW BY LAUREN MOBLEY '22

Michael Sparks '21, a communication studies and computer science major, was recognized as one of three finalists in the International Education of Students Study Abroad Film Festival for his short film My Trip to Japan. *We spoke to Sparks about his 2019 study abroad experience, his passion for filmmaking and his aspirations for travel once COVID-19 restrictions are lifted.*

Photos courtesy of Michael Sparks

• *CLOCKWISE FROM TOP LEFT: Michael Sparks atop Mount Fuji, with his host mother in Japan and with friends at the Ghibli Museum in Tokyo.*

Q: ***What made you choose to study abroad? Why Japan?***

A: When I was looking for a class to fulfill my language requirement, several of my friends suggested the Asian languages department. I already loved Japanese culture and media, so I thought I'd immerse myself in a new language. In the second semester of class, my professor told us about a summer study abroad opportunity in Japan. The chance to visit the country that created my favorite shows, books and movies was too good to pass up.

Q: ***What did your study abroad program focus on, and why did you make a film about it?***

A: Aside from language studies, the program facilitated several events around Tokyo and Southern Japan that let us experience the country's culture in a way most tourists never can. We attended tea ceremonies, went on trips through ancient shrines and spoke the language rather than working through a translator. I knew I would film everything I saw while abroad, so when I heard about the festival after I got back to the United States, I had to enter it.

Q: ***What were the highlights of your time in Japan?***

A: Spending time with my host family, learning how to cook rice properly and attending my host brother's high school festival were all highlights, but my favorite memory was hiking Mount Fuji. When we got to our hut after a full day of hiking, I had both a terrible sunburn and awful elevation sickness. After tossing and turning for hours, we woke up at two in the morning to finish our climb. After what seemed like ages hiking through pitch blackness, we reached the summit. The winds were so strong it felt like we'd fly off. But none of that mattered. The sun was rising.

Q: ***How did you get started with filmmaking? What interests you about this medium?***

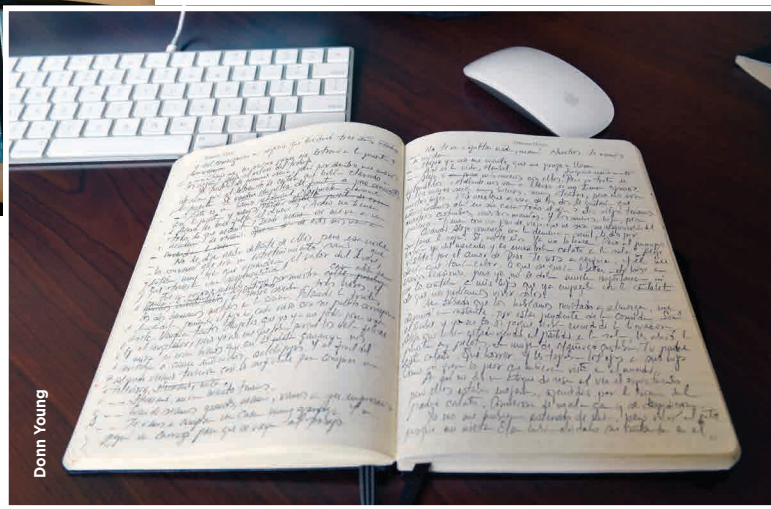
A: In the 10th grade, my English teacher gave us a project with one direction: Make something. I took on the responsibility of filming a short and instantly immersed myself in dozens of YouTube videos and articles, anything that could make me a better filmmaker. From then on, I started making several videos a year, ranging from sketches to vlogs and wedding videos. I love film because it lets me blend my passions of music, storytelling and visuals to create something that channels emotion and captures a moment forever.

Q: ***What were the biggest challenges in making this film?***

A: Honestly, the biggest challenge was stress. I carried my camera gear everywhere I went, so I was never able to relax. Around the halfway point of the trip, I decided to schedule filming more clearly. This revelation shifted my filming process. It made me think more intentionally about every shot and how it would fit into the final product.

Q: ***Once the pandemic is under control, where do you long to travel?***

A: What I miss most is meeting and getting to know new people. When we're able to travel again, I want to go back to Japan. I want to see all my friends and my host family. I applied to the Japan Exchange and Teaching Program for the fall to potentially work there, but whether that goes through or not, I know I'll be going back eventually.



ABOVE: *Oswaldo Estrada is interviewing Latino immigrants in North Carolina about their experience for a collection of stories.* RIGHT: *Estrada's journal notes for the project.*

IAH fellows explore race and place

BY GENEVA COLLINS

The Institute for the Arts and Humanities' Faculty Fellowship Program provides semester-long leaves for faculty to pursue research and creative work. In 2019, the institute announced it would award additional fellowships dedicated to faculty projects focusing on race, reckoning and memory.

The first two faculty to receive IAH Race, Memory, and Reckoning Initiative funding are Oswaldo Estrada, professor of romance studies, for a hybrid book of stories about the Latino immigrant experience in North Carolina, and John Sweet, associate professor of history, to explore how the built environment of Chapel Hill was shaped by Jim Crow. The initiative will fund two more fellowships next year and again in 2022-2023.

A HYBRID SPACE

In 2019, Oswaldo Estrada was teaching a first-year seminar on immigrants crossing the U.S.-Mexico border when he had a revelation: The stories that Latino students at UNC had shared with him about their immigrant experience were every bit as compelling as the ones he was teaching. It was time to gather these stories, and the stories of other Latino migrants who had made their way to North Carolina.

Estrada had the perfect background to embark on such a project. Although he was born in the United States and is a U.S. citizen, he spent most of childhood in his native Peru, and Spanish is his first language. His family returned to the States when he was 14, and he has lived like an immigrant ever since, having to learn English and adjusting to American culture.

"When you cross the border, it changes your life deeply. It's not just a physical change. Mentally and forever, it changes you. There's a 'before' and 'after' you come to the United States, and you learn how to inhabit an intermediate zone, a hybrid space where you don't always feel at home," he said.

He is working on a book of short stories on Latinos in North Carolina, that he hopes to complete during his research leave under the IAH fellowship this semester. Although the stories are based on real accounts, they have been fictionalized.

"Fiction allows me the liberty to gather from several stories at once," said Estrada, the author and editor of several books of literary and cultural criticism as well as works of fiction that have received the International Latino Book Award. "It also lets me protect the identities of those who have trusted me with their stories."

In one of the pieces, "A Sip of Benadryl," a young woman recounts a story her mother told her of being smuggled into the country as a toddler, and how the experience has shaped her life today. Estrada said the story, based on several conversations with his undergraduate students, captures what it's like "to always be afraid. Because you see a cop down the road and you don't have the papers to be here. And it's not your fault — you came when you were 2 years old."

In addition to interviewing students, Estrada is gathering stories from others

in the community — including Lenoir Hall food staff, area nannies, day laborers and workers at the Carrboro Farmers Market.

North Carolina has the fastest-growing Latino population in the United States; growing by 394% since 2000. They are "the workers who are keeping our economy going, cleaning our office buildings, the day workers. There are so many of them, but we don't always see them and they remain invisible," he said.

"We think we are so far removed from the Mexican border. But this is a North Carolina story."

• *John Sweet and his students, with assistance from University Libraries staff, built a multilayered interactive map tracing the 20th-century development of Chapel Hill.*

SEEING SEGREGATION

John Sweet's specialty is Early American history, but a few years ago he developed a first-year seminar, "Seeing History in Everyday Places," that explored Chapel Hill's physical development over the 20th century.

"I designed this class to introduce students to a way of seeing the world around them, in which they see manmade features like buildings and roads and transportation networks as products of history," he said, noting, for example, that many of North Carolina's major highway routes have their origins in Native American trading paths.

He also wanted to show students the enduring legacies of slavery and racial segregation. "It was a story I thought I knew," he wrote when applying for the IAH fellowship. "But my students and I were astonished at what we uncovered."

With assistance from University Libraries' digital specialists, Sweet and his students used GIS technology to create a map that layered data from the 1930 U.S. Census and a detailed 1932 fire insurance map on top of current town property maps. The students then combined the geographic and quantitative data with recordings from the Southern Oral History Program archives, 1930s film footage and other sources to provide more context. They examined property values, migration patterns, employment and education records.

The results showed just how starkly the geographic color line cut through Chapel Hill.

The power of GIS mapping is that it reveals patterns that would normally not be apparent, said Sweet. For example, on the east side of Chapel Hill, which was predominately white and populated by faculty and other employees of the University, the 1930s census data show that people moved here from all over the country. However, in Black neighborhoods, residents came primarily from elsewhere in North Carolina or parts further south.

"For Black Americans in the early 20th century, migration typically meant moving northward," Sweet said. "Chapel Hill was a place of opportunity for a wide range of white Americans but was not a place of opportunity for Black people from most of the country."

Sweet and his students also found that town directories published at the time — which supposedly listed all inhabitants of Chapel Hill —listed only white residents, a sobering reminder of how racial segregation involved not just separation and hierarchy but also symbolic erasure.

Another enduring legacy is the way public school district boundaries were drawn — starting with the first graded school district in 1915, which carefully excluded Black neighborhoods. These neighborhoods had to fund their own schools until much later.

"Flash forward 100 years and Northside Elementary School still has a convoluted district that includes almost all of the historically Black areas we've been looking at," Sweet said. "And it has consistently been the worst-performing school in the Chapel Hill-Carrboro district, according to state rankings. That educational inequality has continued to the present, within a half-mile of a great university."

Sweet will be teaching the first-year seminar again in fall 2021 and plans to continue the research for his project, "Seeing Segregation in Everyday Places," perhaps mapping Carrboro, or delving more deeply into the area's historic Black business districts. His hope is to produce an essay or other work using the physical landscape of Chapel Hill to create a window into the lived legacies of Jim Crow and Black equality struggles.

• *Rahima Benhabbour's company, AnelleO, has the motto: "Where 3D printing meets women's health." Carolina KickStart provided seed funding.*

Rethinking drug delivery systems

Rahima Benhabbour's innovative medical devices have the potential to benefit marginalized women around the globe.

BY MARY LIDE PARKER '10

Listening to Rahima Benhabbour describe the research in her lab feels a bit like peering into the future of medicine — *are these things already possible?*

Injectable HIV prevention. 3D printed intravaginal rings. Patented hydrogel. Biodegradable implants. Just to name a few.

"We focus on developing polymer-based devices that can go into the human body," Benhabbour said. "The challenge is to make them feasible and bio-compatible."

Take the patented hydrogel, for example. Made of all-natural polymers, this novel substance was developed by Benhabbour and her team to be used in regenerative medicine applications — from regrowing bones to treating cancer.

Benhabbour, an assistant professor in the UNC-NC State joint department of biomedical engineering, says her career in developing drug delivery systems stems from a lifelong love of chemistry.

In grade school, she enjoyed the problem-solving components of her math and science classes, but chemistry quickly became her favorite subject.

"I loved the *making* of chemistry," Benhabbour said. "It was all passion from day one."

Born and raised in Algeria, Benhabbour grew up listening to her father, a geologist, talk about earth science. After high school, she attended the Algerian Petroleum Institute, where she earned a degree in engineering. She came to the United States to pursue a master's degree in chemistry, completed her Ph.D. work in Canada, and then joined the UNC Eshelman School of Pharmacy in 2011 as a postdoctoral fellow.

Going into pharmacy was a departure from the "traditional" career path for a Ph.D. chemist. But Benhabbour knew she was in the right place.

"They were experts in drug delivery — making platforms I hadn't used before, and I wanted to learn something different," she said. "I wanted to extend my knowledge beyond everything I knew at that stage."

She became a faculty member in the biomedical engineering department in 2017 and holds an adjunct appointment in pharmacy. Her thirst for knowledge naturally evolved into a desire to help people — especially at-risk populations.

"As a woman from Africa, I wanted to find a way to help those women," Benhabbour said. "They are so vulnerable — I wanted to create a mechanism they could use to protect themselves."

Inspired by a project she worked on in her postdoctoral research, Benhabbour decided to make an intravaginal ring that could serve a variety of women's health needs — from infertility to HIV prevention — empowering marginalized women in Africa (and elsewhere) to take their health care into their own hands.

The challenge came in manufacturing the device — the time required made it impractical to help a large number of women.

After watching then-Carolina professor Joseph DeSimone give his TED talk on faster 3D printing, Benhabbour wondered, "what if we could make an intravaginal ring with complex geometry at that speed? It would completely overcome all the manufacturing hurdles."

In collaboration with the DeSimone lab, Benhabbour developed prototypes, filed a patent and started thinking about forming a company.

In 2016, Benhabbour officially founded AnelleO with the simple motto: *where 3D printing meets women's health*. In May 2017, AnelleO received its first seed funding from the Carolina KickStart program.

The motivation for starting a company, Benhabbour said, has always been philanthropic. By focusing on a for-profit product, the company can rapidly develop the technology, then direct needed resources into humanitarian causes.

Benhabbour considers the supportive, innovative environment at Carolina an essential component of her success — especially the direct access to clinicians.

"As a bench scientist, you really have to have that connection," she said. "If I don't know what their hurdles are, how can I design the right technology? Hearing about patients' experiences is what gets ideas going."

Publishing pioneer

Alumna Rebecca Wesson Darwin redefined Southern magazines with the award-winning Garden & Gun.

BY PAMELA BABCOCK

"Garden" and "gun" are words that don't seem to go together, but Rebecca Wesson Darwin (history '75) has succeeded in combining the two to create a magazine that speaks to the "soul of the South."

Garden & Gun, which Darwin launched in 2007, seeks to dig deeper to tell the stories of the South and its diverse people. An example is a piece about CNN analyst Bakari Sellers and his book on the "long-ignored lives of rural African Americans."

"We're also known for our coverage of arts and culture, food, travel, music, design and, of course, the sporting life," said Darwin, a one-time New York publisher with an entrepreneurial spirit who is now president and CEO of the Charleston, South Carolina, media company that owns *Garden & Gun*.

The goal from the outset was to be a national magazine about a region rather than a regional magazine about the South. About 40 percent of the magazine's circulation comes from outside the South, a demographic largely unchanged since the publication was launched.

Garden & Gun has a passionate and loyal following in part because of its reputation for polished writing and beautiful photography as it tells the stories of musicians, chefs, artisans, entrepreneurs and other interesting people. The magazine has published such celebrated writers as Roy Blount Jr., Clyde Edgerton, Daniel Wallace, Allison Glock, Donna Tartt, Kim Severson, Jessica B. Harris and the late Randall Kenan.

With its success, the magazine's memorable title has evolved into a brand that includes a restaurant — The Garden & Gun Club in Atlanta — and Fieldshop, a store featuring items inspired by the magazine. The award-winning publication and media company also have published five books including *Southern Women*, *The Southerner's Cookbook* and *The Southerner's Handbook* and have produced a "wildly successful" trivia game called "Bless Your Heart."

Numerous popular events have also spun off of the brand, including an annual Keeneland Cocktail Brunch before the races in Kentucky, fly-fishing trips for women in Cashiers, North Carolina, and artist-in-residence programs.

After UNC, Darwin originally considered law school but headed to New York City. She attended the Tobé-Coburn School for Fashion Careers for a year, then interned at *GQ* magazine and was later hired in promotions. In 1985, Darwin was named vice president and publisher of *The New Yorker* — the first woman in that role. From there, she served as publisher of the now-defunct *Mirabella* and later as marketing director of *Fortune* magazine.

She and her family moved to Charleston in 2004 after her husband, Texas native Cress Darwin, graduated from the Princeton Theological Seminary and became senior pastor at Second Presbyterian Church of Charleston. The two met at a Super Bowl party in New York and have two daughters.

Darwin was a founding member of the advisory board for the Institute for the Arts and Humanities and continues to serve on that board. She was the recipient of the General Alumni Association's Distinguished Young Alumni Award in 1989, the year the award was established.

She was inducted into the North Carolina Media & Journalism Hall of Fame on April 9 in a virtual ceremony.

"I'm very proud of being a UNC graduate," Darwin said. "Not only do I feel that I got a strong education, but it opened the world up for me."

These days, Darwin takes great pride in watching *Garden & Gun* flourish. Indeed, there is a certain satisfaction in giving the South a more prominent spotlight compared to the famously myopic *New Yorker* cartoon that depicted a map with Manhattan encompassing most of the world.

"I'm proud of the product that we have created and how it is a metaphor for the South — its land, people and their heritage."

Courtesy of *Garden & Gun*

• *CEO Rebecca Wesson Darwin calls* Garden & Gun *"a metaphor for the South." Forty percent of subscribers live outside the South.*


Courtesy of Jim Tanner

• *Jim Tanner, founder of Tandem Sports + Entertainment, which represents professional athletes, says Carolina is "the perfect college experience."*

A champion for athletes

Jim Tanner is certified as an agent by the NBA and has represented multiple former Tar Heels as clients.

BY LAURA J. TOLER '76

Of the dozens of athletes, coaches and broadcasters he has represented as a sports agent, Jim Tanner (B.A. English '90) said he doesn't have a favorite.

However, he will always hold a special place in his heart for Marvin Williams, who helped lead the Tar Heels to a national basketball championship in 2005.

"He was one of the first guys to select me as his agent," said Tanner, who also earned a minor in speech communication at Carolina. "He and his family putting their trust in me — I will always remember that and be supremely grateful for it."

Williams, who left UNC after his freshman year but later earned his Carolina degree, played pro ball for 15 seasons for four NBA teams. He retired only recently. Williams remembers a time when he was between teams, feeling troubled. He called Tanner at midnight.

"He had young kids at home at the time," Williams recalled. "I just wanted to talk ... and I knew in that moment that this guy will always be there for me. ... I wouldn't have a career if it wasn't for him."

Tanner, who is president and founder of Tandem Sports + Entertainment in Arlington, Virginia, has represented and guided professional athletes and others in contract negotiations, sponsorships, endorsements and public relations. He has also worked with his clients on ways to give back to their communities. He is certified as an agent by the NBA.

Tanner has been recognized several times on *Washingtonian*'s list of top lawyers for media and sports law and been chosen twice by *Sports Illustrated* as one of the "101 Most Influential Minorities in Sports."

Tanner grew up in High Point, North Carolina, the son of a teacher and a textiles executive. He was admitted to Duke, New York, Stanford, Columbia and Princeton universities as well as the U.S. Naval Academy. He chose Carolina after receiving a Morehead-Cain Scholarship. Now he serves his alma mater as a member of the Arts & Sciences Foundation board of directors.

After Tanner scored high on the LSAT, the law school dean at the University of Chicago encouraged him to apply, which he did.

At Chicago, Barack Obama was among Tanner's professors. (From 1992 until his election to the U.S. Senate in 2004, the future president taught at the law school.) Tanner even played pickup basketball with him.

After getting his law degree in 1993, Tanner went to work in Washington, D.C., for a large law firm, practicing corporate finance, mergers and acquisitions.

He took a leave of absence in 1996 to work on the Clinton-Gore campaign. Then a call came from another D.C. law firm with a partner who represented sports figures.

Tanner, a basketball fan since his Carolina days, accepted the job.

He left that firm and founded Tandem in 2013. Tandem merged with YouFirst Sports, a global agency based in Madrid that represents soccer and basketball stars, last June.

Tanner said he has enjoyed working with former Carolina players including Tyler Hansbrough, Justin Jackson, Raymond Felton, Luke Maye, Joel Berry, Brandan Wright and John Henson. He's represented a number of women, including Tamika Catchings, a five-time WNBA Defensive Player of the Year, and Nikki McCray-Penson, whose WNBA career got her into the Women's Basketball Hall of Fame.

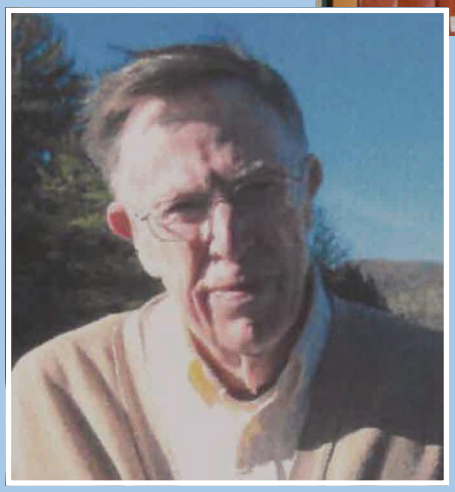
Tanner said he is proud of his son, a 2020 UNC graduate who works for Merrill Lynch, and his daughter, a Carolina sophomore.

"I think UNC is the perfect college experience," he said. "Rigorous and excellent academics. A diverse student body. Incredible athletic teams. A beautiful campus. An amazing social life. I want to go back!

"I have this overall memory of it being four of the best years of my life."

A doctor's love of ancient medicine leads to gift for classics department

BY SAMANTHA WEBER



ABOVE: *Donald Haggis holds a copy of* Hippocrates on Head Wounds*, edited and translated by Maury Hanson.*
LEFT: *Hanson got his Ph.D. in classics and bequeathed a planned gift to the department.*

Maury Hanson Jr. (Ph.D. '88) was no ordinary doctoral candidate.

In fact, he was already a medical doctor when he arrived in Chapel Hill to study classics. After specializing in neurosurgery at Cornell University, Hanson spent his career as a surgeon in New York City and the Washington, D.C., area.

After retiring, Hanson decided to become a Tar Heel and study ancient medicine.

Today, his legacy will live on in Chapel Hill in a unique way: When Hanson died at age 100 last spring, he bequeathed an unrestricted planned gift of nearly $300,000 to the department of classics and a collection of rare books and manuscripts of Greek and Latin literature to University Libraries.

"It was a very pleasant surprise," said Donald Haggis, professor and chair of the classics department. "This comes as a welcome gift for a number of reasons."

Unrestricted gifts are particularly helpful because they are not designated for specific uses and thus allow the department to address the most urgent needs, Haggis said. Though no formal decision has yet been made, Haggis said the Hanson gift will likely be used for faculty development and graduate student support, primarily for research and fieldwork.

Classics faculty and graduate students participate in conferences across the United States and Europe, and many travel to conduct archaeological work on excavations and in museums. Haggis said the department's students and faculty have worked in Greece, Turkey, Italy, Romania, Spain, Morocco, Egypt and Israel.

During his time at UNC, Hanson produced a dissertation that the 1988 classics department newsletter called "eye-opening." In "Eye Terms in Greek Tragedy" (1987), Hanson reinterpreted passages in ancient texts in light of his own medical experience, all under the direction of the late professors Henry Immerwahr and Edwin Brown and professor emeritus George Kennedy.

"Obviously, his work in classics here had a great impact on him and his life," Haggis said. "He made a conscious decision to devote the rest of his life to studying ancient medicine."

After graduating with his Ph.D., Hanson continued his personal research, traveling to libraries around Europe to translate and edit ancient Greek texts. He focused on the writings of Hippocrates, who is often referred to as the "father of medicine." Hippocrates is credited with revolutionizing medicine, establishing the practice as a profession and coining the Hippocratic Oath, still recited by doctors today.

In 1999, Hanson published a book, *Hippocrates On Head Wounds*, in which he translated Hippocrates' treatise by the same name and provided commentary.

"It's an impressive piece of work, and my understanding is that it's still commonly used today," Haggis said. "Ancient medicine is a rather specialized field."

Hanson was a man of many interests. After publishing his book, he moved to Virginia and devoted his time to historic preservation and gardening. He is survived by a brother and two cousins.

"I love Dr. Hanson's story," said Terry Rhodes, dean of the College of Arts & Sciences. "What an interesting life he led! While we weren't able to thank him for his selfless generosity, his gift will create a lasting tribute to his life and benefit so many in the department who share his passion for classics."

Hanson is one of more than 50 late alumni and friends of the College who have left planned gifts in recent years, providing $16 million for College people and programs.

"Our department has loyal alumni who are very committed to the idea of our department and of supporting classics in American research universities," said Haggis. "We are grateful to Maury Hanson for realizing the value of this."

• *Vicki and David Craver*

New gift from the Craver family to name the College of Arts & Sciences deanship

Longtime Carolina advocates and supporters Vicki '92 and David Craver '92 have made a transformative commitment to establish the Craver Family Dean in the College of Arts & Sciences. This forward-thinking gift will allow the College to remain nimble and responsive to immediate and strategic needs in the future and is a vote of confidence in how the College serves students at UNC-Chapel Hill.

Vicki, a Campaign for Carolina co-chair and Carolina Women's Campaign Cabinet member, and David, a board member of the University of North Carolina at Chapel Hill Foundation Investment Fund, Inc., have supported the College for more than 20 years, building relationships with Dean Terry Rhodes '78, Chancellor Kevin Guskiewicz and several other past deans.

"The Cravers have long demonstrated their thoughtful and generous commitment to Carolina. I know they have thought long and hard about where their new Campaign for Carolina gift would have the most impact," Guskiewicz said. "As a former dean of the College, I appreciate their strategic approach and how much they care about Carolina. I also know that transformative philanthropic commitments, like this one from the Cravers, truly provide the margin of excellence for which the College and the University are known."

Once fully invested, the deanship will provide a lasting endowment that will give deans of the College the resources and flexibility to seize emerging opportunities and advance key priorities, such as the recruitment of full-time tenure-track faculty and the best and brightest graduate students. This commitment could also enable the hiring of new staff members to assist undergraduates with obtaining access to high-impact learning experiences such as credit-bearing internships, research opportunities or study abroad.

"Carolina is a family affair for us. David's parents and brother and both of my sisters all attended. In addition, many of our closest, dearest friends are the friends we made at UNC. So, the school has always had our hearts. In thinking about this gift, we were excited to enable Carolina, with its public mission, to be responsive to whatever opportunities are most important at any given time."

— VICKI CRAVER

"The impact of this remarkable commitment will be felt by students and faculty across campus," said Rhodes. "The Cravers are benefactors in the truest sense of the word. The Craver Family deanship will be linked with the College for the rest of its history, and we are forever grateful."

The College's deanship dates back to 1935, when the University's oldest school took its modern-day name, and includes a strong lineage of academic leadership, honors and contributions. The Cravers' endowment will build upon this history and further distinguish the College of Arts & Sciences among its peers. As the largest academic unit on campus, the College of Arts & Sciences forms the academic core of the Carolina experience, or what Vicki calls "**the heart of the University**."

"Carolina is a family affair for us. David's parents and brother and both of my sisters all attended. In addition, many of our closest, dearest friends are the friends we made at UNC. So, the school has always had our hearts," said Vicki. "In thinking about this gift, we were excited to enable Carolina, with its public mission, to be responsive to whatever opportunities are most important at any given time."

The Cravers' most recent generous gift counts toward *For All Kind: the Campaign for Carolina*, the University's $4.25 billion campaign. Their previous contributions helped equip a lecture room in the Carolina Physical Science Complex and supported the Honors Carolina Study Abroad Scholarship Fund and the Kappa Kappa Gamma Distinguished Professorship. In the 2018-19 academic year alone, their contributions supported faculty and students in nine departments through the Vicki and David Craver Fund for Faculty Leadership.

As Rhodes noted, "The Cravers' philanthropic commitments over the years have propelled the College forward and enabled so much for our students and faculty, which makes naming the deanship for them even more meaningful for the College."

Learn more about the gift at ***go.unc.edu/cravers.***

New gift endows speaker series promoting constructive public discourse

$8 million gift to fund Abbey Speaker Series in the UNC Program for Public Discourse.

A major gift from Nancy '74, and Doug Abbey will foster meaningful public discourse about the most pressing issues of the day. Their $8 million investment established the Abbey Speaker Series in the Program for Public Discourse in the College of Arts & Sciences.

The first two Abbey Speaker Series events were virtual panel discussions, open to the public, on "Defining Racial Justice in the 21st Century: Competing Perspectives and Shared Goals," and "The Future of Conservatism."

Four times each year, the Abbey Speaker Series will bring noteworthy scholars to campus to share their perspectives about timely issues while fostering dialogue with others who think differently about the topic.

"We embrace the notion that one comes to a more sophisticated, thoughtful, reasoned and successful resolution to a complex issue if there is more diversity of thought brought to bear on the issue," Nancy said. "Imagine if every student experienced a welcoming atmosphere in which to express their educated opinion on a subject, where dialogue, debate and listening are valued."

"This gift from the Abbeys recognizes a deep commitment to supporting a healthy culture of discourse and reasoning inside and outside the classroom," said Terry Rhodes, dean of the College of Arts & Sciences. "We are deeply grateful to the Abbeys for the resounding vote of confidence in the Program for Public Discourse and its commitment to establishing the speaker series as a permanent fixture on campus."

In addition to the speaker series, the Program for Public Discourse offers curricular and other extracurricular opportunities for students to practice and investigate public discourse in a cooperative, experiential learning environment. The program also offers faculty consultations and classroom workshops to instruct faculty on how to teach these deliberative skills, encourage civic engagement and use structured advocacy, rhetoric and dialogue in the classroom.

The Abbeys' gift creates another opportunity for the University to fortify its commitment to promoting democracy, which is one of eight strategic initiatives in the University's strategic plan, *Carolina Next: Innovations for Public Good*. The Program for Public Discourse is one of the College's major strategic priorities, and the program's work is one of the University's means for accomplishing the worthwhile objective of working constructively across differences in society, starting with promoting respect and listening.

"Doug and I believe in public education, and that there is no better place than Carolina to model this behavior and develop a Program for Public Discourse that has the potential to impact global decision-making for the better," added Nancy.

• *Nancy and Doug Abbey*

ABOUT THE ABBEYS

Nancy, a member of the Chancellor's Philanthropic Council and the Carolina Women's Leadership Council, and Doug Abbey, a former Parent's Advisory Board member, are longtime champions of Carolina. Prior to their most recent gift, they have provided support for faculty, vital unrestricted and emergency support for students, innovative teaching and student support services.

After graduating from UNC-Chapel Hill, Nancy earned an MBA from the Haas School of Business at the University of California, Berkeley. She serves on the Board of the Nantucket Historic Association and on the Advisory Board of Nest, a nonprofit organization building a new handworker economy to increase global workforce inclusivity. She also served as a board member at the Grabhorn Institute, an organization committed to preserving and perpetuating the use of the last integrated type foundry, bookbinding and letterpress printing facility in the United States.

Doug holds a B.A. from Amherst College and a master's in city planning from UC Berkeley's College of Environmental Design. He co-founded AMB Property Corporation (merged with Prologis: NYSE) in 1983, now the largest global industrial REIT, and IHP Capital Partners, formed in 1992, a provider of equity to the single-family homebuilding industry. He is a leader in a number of nonprofit organizations related to affordable housing and land use issues.

The Abbeys have three children, Robert, Katherine and Graham '15.

• *Chloe Russell, shown in her Steele Building office, wants each student to have "a personalized plan that incorporates academic, career and post-UNC goals."*

'We're here to champion each student's individual story'

INTERVIEW BY MICHELE LYNN

Chloe Russell (B.A. journalism and mass communication '07), who was named associate dean for academic advising in September, says growing up in the Winston-Salem funeral home run by her family has been a seminal influence in her life. "A lot of my work ethic comes from seeing my family take care of a wide variety of needs when people are at their lowest point." Russell's childhood experience taught her to eliminate hassles and reduce complexity — skills that she puts to use in her current position.

Q: ***After Carolina, you went on to UNC-Greensboro to receive a master's in education in 2012. Tell us about your career path.***

A: I fell into journalism as an undergraduate student unintentionally and ended up loving it! After I graduated, my plan was to attend law school; however, my senior year was quite stressful. About two weeks prior to law school starting, I decided not to enroll. Luckily, because of my experience as a student working in New Student & Family Programs, I was offered a full-time job where part of my responsibility was helping coordinate the orientation schedule. As a part of that work, I met academic advisers and was encouraged to apply for a position when one opened. After working in advising for about a year, I decided to go back to school.

I use what I learned in journalism every day: understanding your audience, understanding strategies and tactics, how to communicate and manage your message.

Q: ***In the strategic plan* Carolina Next: Innovations for Public Good, *"Strengthening Student Success" is one of the initiatives. What does that look like to you?***

A: We're here to champion each student's individual story through purposeful interactions so that students achieve their academic, personal and post-UNC goals. We need to be their partner in deed and thought, celebrating their accomplishments while also holding them accountable for their decisions. It's important that we come together as a university and place students in the center of all that we do.

Q: ***You provided the strategic vision for the Hardin Hub for Career & Academic Advising. Tell us about that hub in Hardin Residence Hall.***

A: We learned a lot from Hardin — launched in fall 2015 — which was the beta test to see how we can share services. What really works are aspects that are simple: operating hours to align with student needs; a physical environment that is relaxing, warm, colorful and inviting to students; and shared services so that students can come to one spot for everything.

Hardin was the beginning of opening people's eyes to the fact that it's possible to support our students by making services easier to access.

Q: ***Tell us about the plan to develop a network of similar centers across campus.***

A: As we go on this journey, I expect students to be placed in the center of all operations. I expect us to learn, grow and develop knowledge together. We want to build rapport to create purposeful interactions. I would like a caseload model where a student has a staff person who reaches out to them and to whom the student can respond. I want students to have a personalized plan that incorporates academic, career and post-UNC goals, whether that is a career or graduate school.

Q: ***How does your work foster equity in success across the student body?***

A: There has to be a commitment on our end as a department to uphold the ideals of diversity, equity and inclusion and include them in the fabric of the organization. It starts with us being able to celebrate who students are at all times. We work to ensure that our practices and policies are not inadvertently leaving people out. We have to be willing to ask ourselves consistently, "Who can't take advantage of this? How can we ensure equity?"

#Throwback: WOLFE'S WING ALIGHTS ANEW

In 2006, the Thomas Wolfe Memorial found a new home on campus. A gift from the Class of 1966 and designed by UNC art professor Richard Kinnaird, the 850-pound bronze relief depicts an angel with outstretched wing and a passage from *Look Homeward Angel*, one of the best-known works from Wolfe, Class of 1920.

The monument was originally erected near Person Hall, then relocated to near New East in 1972. Thirty-four years later, it was restored and placed in a memorial courtyard near Greenlaw Hall. English professor and Wolfe scholar Joseph Flora was among the speakers at the dedication ceremony. As English and comparative literature prepares to celebrate its 225th anniversary, do you have memories of classmates who went on to achieve literary fame? Email us at college-news@unc.edu.

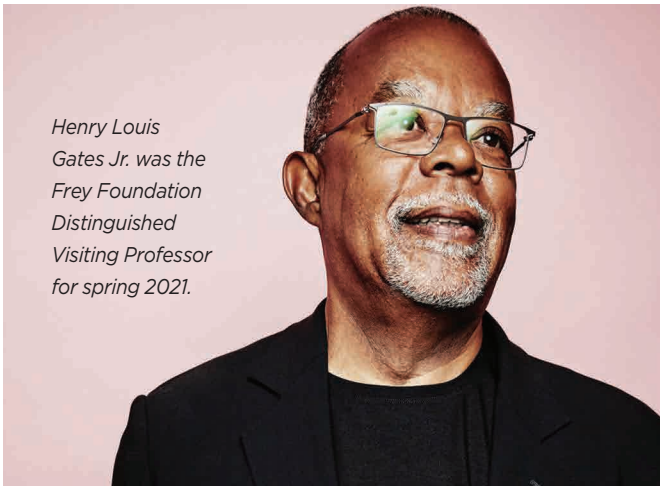
Lecture draws parallels between post-Reconstruction and today

Emmy Award-winning literary scholar, filmmaker and cultural critic Henry Louis Gates Jr. offered commentary on how Reconstruction after the Civil War gave rise to Jim Crow, and how the impact of those eras shaped inequities we see in America today, in a webinar on Feb. 9.

Gates, the Alphonse Fletcher University Professor at Harvard University, was the spring 2021 Frey Foundation Distinguished Visiting Professor. He was joined in conversation with moderator Karla Slocum, director of the Institute of African American Research, and an anthropologist.

Gates showed a film clip from his PBS docuseries, *Reconstruction: America After the Civil War* to illustrate how the years after the Civil War brought a taste of freedom for Black Americans that was followed by a strategic reversal of rights and the rise of white supremacist ideologies.

Gates developed the idea for the docuseries and his book *Stony the Road: Reconstruction, White Supremacy, and the Rise of Jim Crow* after visiting Michigan's Jim Crow Museum of Racist Memorabilia during Barack Obama's first presidential term. He was shocked to find racist images of the sitting president already in the collection. He said his knowledge of history foretold what could come in the years following Obama's election: a rollback of progress that had similarly followed Reconstruction.



Henry Louis Gates Jr. was the Frey Foundation Distinguished Visiting Professor for spring 2021.

After 12 years of increasing rights for Black Americans during Reconstruction — including the ratification of the 13th, 14th and 15th Amendments — those opposed to Black freedom wove white supremacy into discriminating state legislation, a systematic campaign to soften the image of slavery and the Confederacy in the public's eye, the proliferation of demeaning images of Black individuals in popular culture and racist voter suppression tactics.

"The right to vote is inextricably intertwined with economic power. The rise of white supremacy is not just some idle mischief — it is about the anxiety of scarcity of resources," he said.

Johnny Andrews

Three College professors named AAAS fellows

The American Association for the Advancement of Science (AAAS) has tapped three College faculty members as fellows. Fellows are recognized for their research; teaching; services to professional societies; administration in academia, industry and government; and communicating and interpreting science to the public. They are elected annually.

New fellows include:

- **James Anderson** *(computer science)*: For contributions to the implementation and analysis of multiprocessor and multicore real-time systems and for service to the real-time systems research community.
- **Gregory Copenhaver** *(biology)*: For distinguished contributions to the field of plant molecular genetics, particularly for novel insights into plant reproductive biology.
- **Richard Smith** *(statistics and operations research)*: For distinguished contributions to statistics, particularly the statistical analysis of extreme events and environmental applications, including climate change and air pollution. Smith holds a joint appointment in biostatistics in the Gillings School of Global Public Health.

AAAS is the world's largest general scientific society and publisher of the journal *Science*. It was founded in 1848 and includes more than 250 affiliated societies and academies of science.

Learn more at aaas.org/fellows.

$38.2 million NIH grants will support study of adolescent-to-adult health

• *Add Health, now in its 28th year, just received a new round of funding.*

The Carolina Population Center has received two grants, providing an expected $38.2 million over five years, that together will fund a new wave of the National Longitudinal Study of Adolescent to Adult Health (Add Health). Now entering its 28th year of National Institutes of Health funding, Add Health is the largest, most comprehensive, nationally representative and longitudinal study of the health of adolescents who have now aged into adulthood ever undertaken in the United States.

The new grants, funded primarily by the National Institute on Aging with co-funding from five other NIH institutes and offices, will enable researchers to follow the original adolescent cohort into their 40s with a sixth wave of data collection and dissemination. This five-year project will focus on the cognitive, mental and physical health of Add Health participants, with particular attention given to disparities in health across racial/ethnic, socioeconomic and gender subgroups of the population.

The project will collect a new round of social and biological data from as many of the original 20,000+ respondents as possible, who live in all 50 states, when they are in their mid-40s.

The study's new director, Robert Hummer, is the Howard W. Odum Distinguished Professor in the department of sociology. Kathleen Mullan Harris, the James E. Haar Distinguished Professor of Sociology, who served as the director of Add Health from 2004 to 2021, stated that "the new wave of data collection will advance knowledge for how early life — during adolescence and young adulthood — matters for health and well-being in midlife."

Harris will continue to serve as one of the study's research investigators for the next five years.

• *Sarah Mackenzie and Peter Andringa*

Carolina alumni named Rhodes Scholars

Peter Andringa and Sarah Mackenzie are Carolina's 50th and 51st Rhodes Scholars. As the world's oldest international fellowship award, the scholarship funds study at the University of Oxford in England.

Andringa '20 graduated from Carolina with degrees in journalism and computer science. He was also a Robertson Scholar, a Carolina Honors laureate, a member of Phi Beta Kappa, a student representative on Faculty Council and a fellow at the Reese Innovation Lab. He was among 32 Americans selected for the award.

A Morehead-Cain Scholar, Carolina Honors laureate and member of Phi Beta Kappa, Mackenzie '20 graduated from Carolina with degrees in public policy and global studies and a minor in Arabic. She was an active member of Campus Y's Criminal Justice Awareness Action Group and the Community Empowerment Fund. Mackenzie also served as an honor court member and teaching assistant in the global studies curriculum. She was one of 11 Canadians selected for the honor.

Internships with *The Wall Street Journal*, *NBC* and *The Guardian* helped Andringa land a position at *The Washington Post*, where he currently works as a data visualization engineer on elections coverage and projects that integrate technology into the newspaper's reporting.

Since graduating last May, Mackenzie has worked as a Thomas W. Ross North Carolina Leadership Fellow in Carolina's public policy department and is currently a client advocate for the Center for Appellate Litigation in New York City. She has long-term plans of becoming a public defender.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Depression and anxiety among students worsen during pandemic

First-year college students are reporting symptoms of depression and anxiety significantly more often than they were before the coronavirus pandemic, according to a UNC study.

The study is based on the experiences of 419 Carolina students, and reflects the challenge faced by colleges nationwide to support student well-being. Researchers from the Carolina Population Center and the UNC School of Medicine published the study findings in *PLOS ONE*.

"First-year college students seem to be particularly struggling with social isolation and adapting to distanced learning," said lead study author Jane Cooley Fruehwirth, an associate professor in the department of economics and a CPC faculty fellow.

Her collaborators include Siddhartha Biswas, a doctoral candidate in economics, and Krista Perreira, a professor of social medicine and a CPC fellow.

Using survey data, researchers found the prevalence of moderate to severe anxiety in first-year college students increased 40%, from 18.1% before the pandemic to 25.3% within four months after the pandemic began; and the prevalence of moderate to severe depression in first years increased by 48%, from 21.5% to 31.7%.

The study is unique among the growing number of reports about COVID-19's mental health toll: researchers were able to follow the same group of first-year college students before and after the pandemic began and asked them about a broad range of stressors.

Hardest hit by depression were Black students, whose incidence of depression grew by 89%. Depression and anxiety increased dramatically among sexual and gender minority students.

The study showed students' mental health struggles were associated with distanced learning and social isolation more so than other stressors such as work reduction or worries about the coronavirus infecting them or their family or friends.

Fruehwirth said the results speak to the difficulties colleges face as they determine how to best help students who are relying on remote instruction during the pandemic.

Course exposes students to global research pathways

As a first-generation college student, Carmen Huerta-Bapat knew that she wanted to be involved in research, but she didn't know how to connect with professors and begin a research career as an undergraduate.

Now a teaching assistant professor in the curriculum in global studies, Huerta-Bapat is helping Carolina students get involved in research on campus. That goal is at the core of the new course, "Contemporary World Problems."

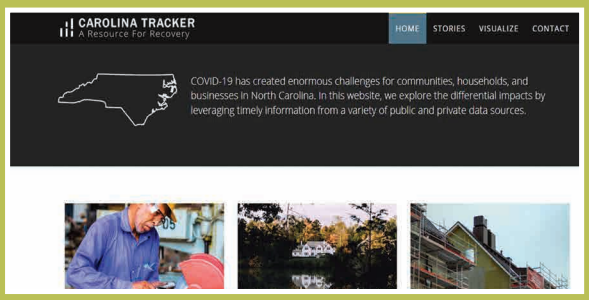
Co-taught by teaching associate professor of global studies Erica Johnson, the course introduces ways to conduct research on politics, economies, cultures and societies around the world by connecting students with current professors and researchers examining these topics at Carolina.

The course is part of Carolina Away, which includes one-credit, remote courses that encourage small-group experiences with classmates, faculty and staff. The curriculum is open to all students but is specifically designed for Carolina Away, which pairs virtual courses and social opportunities for first-year and transfer students who opted to attend Carolina remotely.

"The goal of the class is to be able to expose students to all of the global opportunities and the global centers that are present at the University that students might not necessarily be familiar with," Huerta-Bapat said.

By inviting faculty members and researchers to speak to the class and share their own research journeys, Huerta-Bapat and Johnson designed the course to help students develop personal research roadmaps — complete with questions, values and the connections to pursue them.

Creating that roadmap early in students' careers, Johnson said, can help students make the most of their time at Carolina and open more opportunities.



• *Carolina Tracker is a tool for policymakers and others.*

UNC researchers launch resource for pandemic recovery

The COVID-19 pandemic — and recession — have profoundly affected the lives of North Carolinians.

The Carolina Tracker project is a website offering day-to-day information on how North Carolinians' lives have changed since the onset of the pandemic. Produced by faculty, staff and students in the department of city and regional planning, Carolina Tracker presents easy-to-use, publicly-available data for policymakers and North Carolinians to use.

Datasets available at the Carolina Tracker site include:

- Layoffs, labor force participation and unemployment insurance
- Small business revenue, business closures, office space vacancy and local tax revenue
- Vehicle travel, commuting and personal mobility
- Evictions, home sales, construction and foreclosure filings
- Childcare, police stops and air quality.

Policymakers and the general public can use Carolina Tracker's visualization tools to investigate changes in trends over time or view maps that show geographic patterns across North Carolina.

The team has also composed a series of data stories, blogposts meant to help users understand the economic, health and social impacts visible in datasets.

The team is led by city and regional planning faculty members Noreen McDonald, Nikhil Kaza and Nichola Lowe.

The project was sponsored by the North Carolina Policy Collaboratory.

Learn more at carolinatracker.unc.edu.

• *Jesse Moorefield in the Moeser Auditorium control booth in Hill Hall.*

Lights on the Hill spotlights employees who go above and beyond for others

Lights on the Hill, a new monthly website feature highlighting College people who are putting service at the forefront, was launched in January. These "unsung heroes" are keeping the University going during the COVID-19 pandemic … and beyond.

Jesse Moorefield, production manager for the department of music, shares his story.

What chief challenge or challenges have you had to overcome in doing your job in the middle of a pandemic?

We have been unable to have musical performances with in-person audiences during this time. Also, our faculty and students who play wind instruments or our vocalists have been unable to rehearse or perform in the same room together. So we decided to get creative and engineer an audio/video pod system that has no latency within our buildings on campus. This allows for musicians to play safely alone in separate rooms without the delay that platforms like Zoom introduce. It's been a success so far, and we hope to continue to use the technology to host rehearsals and livestream concerts this semester.

Why are you passionate about what you do? What keeps you committed to doing your job in the College?

Music is my No. 1 passion. I can't imagine a world without live music. It's been a little quieter around here the last few months, and I can't wait to manage a live in-person performance one day in the future. In the meantime, we hope the technology we have in place will give students a chance to safely enjoy making music together again.

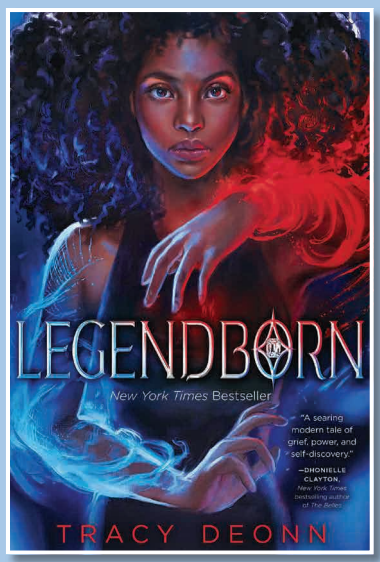
Visit college.unc.edu and search "Lights on the Hill" for more spotlights.

A seat at the Round Table

BY KRISTEN CHAVEZ '13

It's a familiar setting: a bell tower, a cemetery — and just off campus, a castle that's home to a secret society and its own legends.

The glow of magic and the occasional hellhound is less expected, however — unless it's the Chapel Hill of Tracy Deonn's *Legendborn* (McElderry Books, 2020).



Tracy Deonn's bestseller brings Arthurian legends and magic to the UNC-Chapel Hill campus.

Deonn's debut young adult novel brings Arthurian legends and magic to Carolina's campus. As someone who earned her bachelor's and master's degrees in communication studies here, she knows it well.

"Old settings are a great fit for contemporary fantasy because of the mysteries they hold over time, and Carolina has so very many untold and recovered stories," Deonn said.

Legendborn takes its title from the ones who make up the secret society at the heart of the novel: the descendants of the Knights of the Round Table. The main character, Bree, is the lone Black teenager who joins the group, attempting to learn the mystery around her mother's death.

"Old settings are a great fit for contemporary fantasy because of the mysteries they hold over time, and Carolina has so very many untold and recovered stories."

In her note at the end of the book, Deonn writes, "Bree's story is, at its core, a story about someone who wants to understand the role of death in her life" and "to understand and honor her mother and ancestors."

Deonn lost her mother at a young age, and soon learned that her mother and grandmother had suffered similar losses. "Being a writer, I immediately wondered what story could explain such a pattern in my family."

"That's really the source of Bree's story: a book-length, contemporary fantasy answer to an impossible real-world question," the author said.

Themes of grief and trauma resonate throughout the book. Bree grappling with her mother's sudden death is one example; Deonn points to another: the ties to slavery that old institutions like Carolina have as part of their history, and how to reckon with that disturbing legacy today.

While some superficial details are changed for the book, Bree encounters sites on campus like a statue of a Confederate soldier.

Deonn was influenced and inspired by those she met in UNC's performance studies program, including former faculty member Soyini Madison, now retired from Northwestern, and communication professor emerita Della Pollock.

"Performance studies introduced me to the practice of putting different art forms and texts in conversation with one another in order to understand something in a fresh way," Deonn said.

There is no one story about King Arthur. For centuries, the story has been added to and evolved over time — whether it's by Geoffrey of Monmouth or Chrétien de Troyes, who introduced Lancelot. To Deonn, *Legendborn* follows the same tradition.

On one hand, the book has shown how a story can grow beyond the page — as a self-described fangirl, Deonn is delighted to see readers respond with their own art and analyses of her book.

Writers — particularly those who are Black, indigenous and other people of color — are increasingly reimagining stories that have long been represented by predominantly white characters.

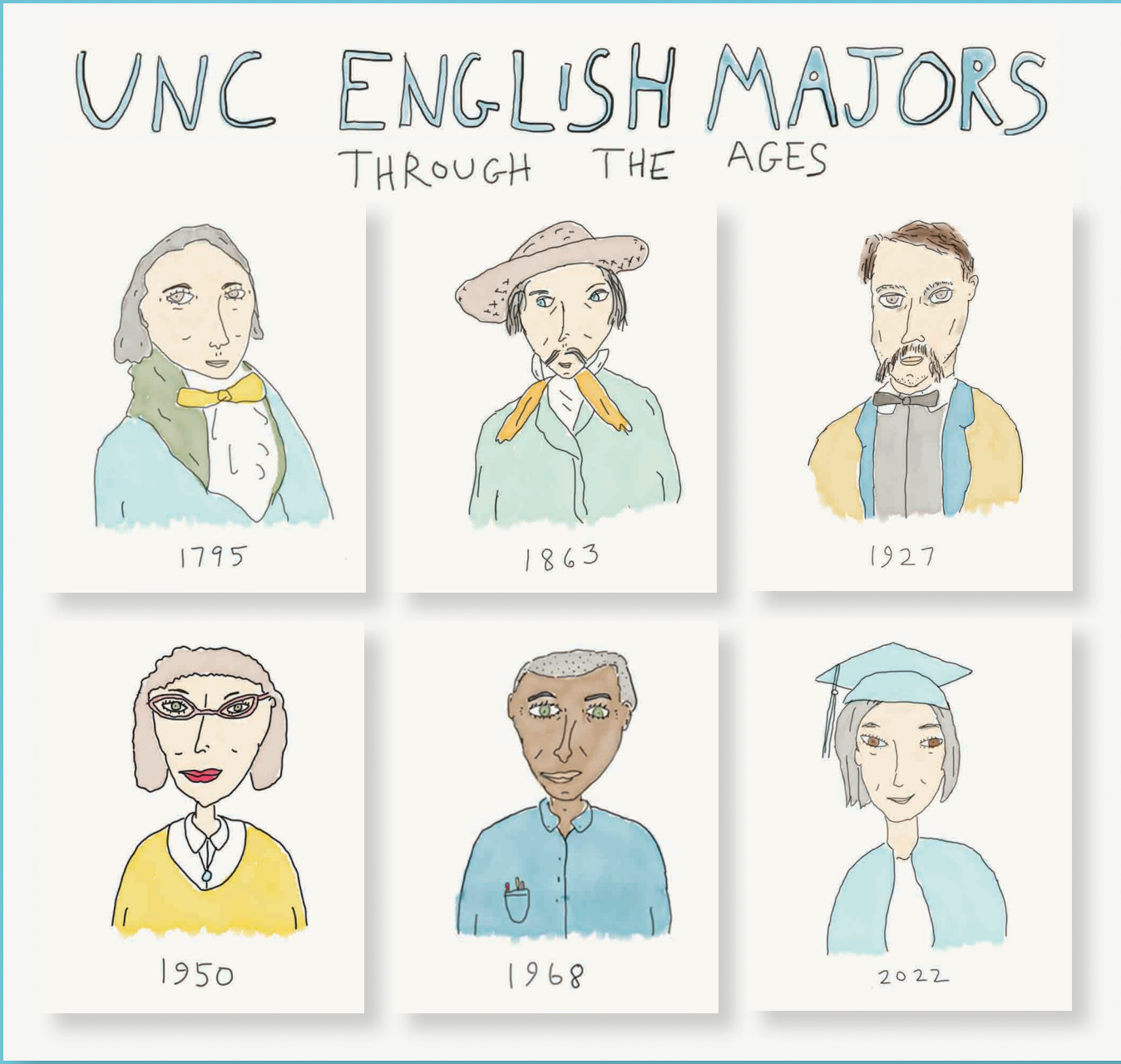
"What we're seeing is that when marginalized creators take a crack at a classic trope, there's always a slight spin in the execution," she said.

Legendborn debuted at No. 5 on the *New York Times* bestseller list. It also recently won the American Library Association's 2021 Coretta Scott King-John Steptoe Award for New Talent.

In a recent episode of the Southern Futures podcast, Deonn discussed the idea of reimagining the South. "The South has its own mythology. And this myth is getting challenged right now in a lot of spaces," she said.

"We need to reimagine the South because the South was never portrayed with the layer of complexity that we are seeing now — that it has always had."

Read more books by College faculty and alumni at magazine.college.unc.edu.



YOU'RE INVITED TO A BIG BASH IN FALL 2021

Illustration by Daniel Wallace, J. Ross MacDonald Distinguished Professor and director of the Creative Writing Program. We asked the prolific author to help us generate excitement for a big birthday; English was first taught to students in 1795. Due to the pandemic, a delayed celebration will be held Oct. 28-30, 2021. Keep up with all the happenings at **ecl225.unc.edu**.

"With the celebration of the 225th year of English at Carolina, I began to imagine the kind of students we might have had through the ages. I did my research and came up with this. They're all fictional characters but correspond to what students might have looked like at the time."

— DANIEL WALLACE

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