

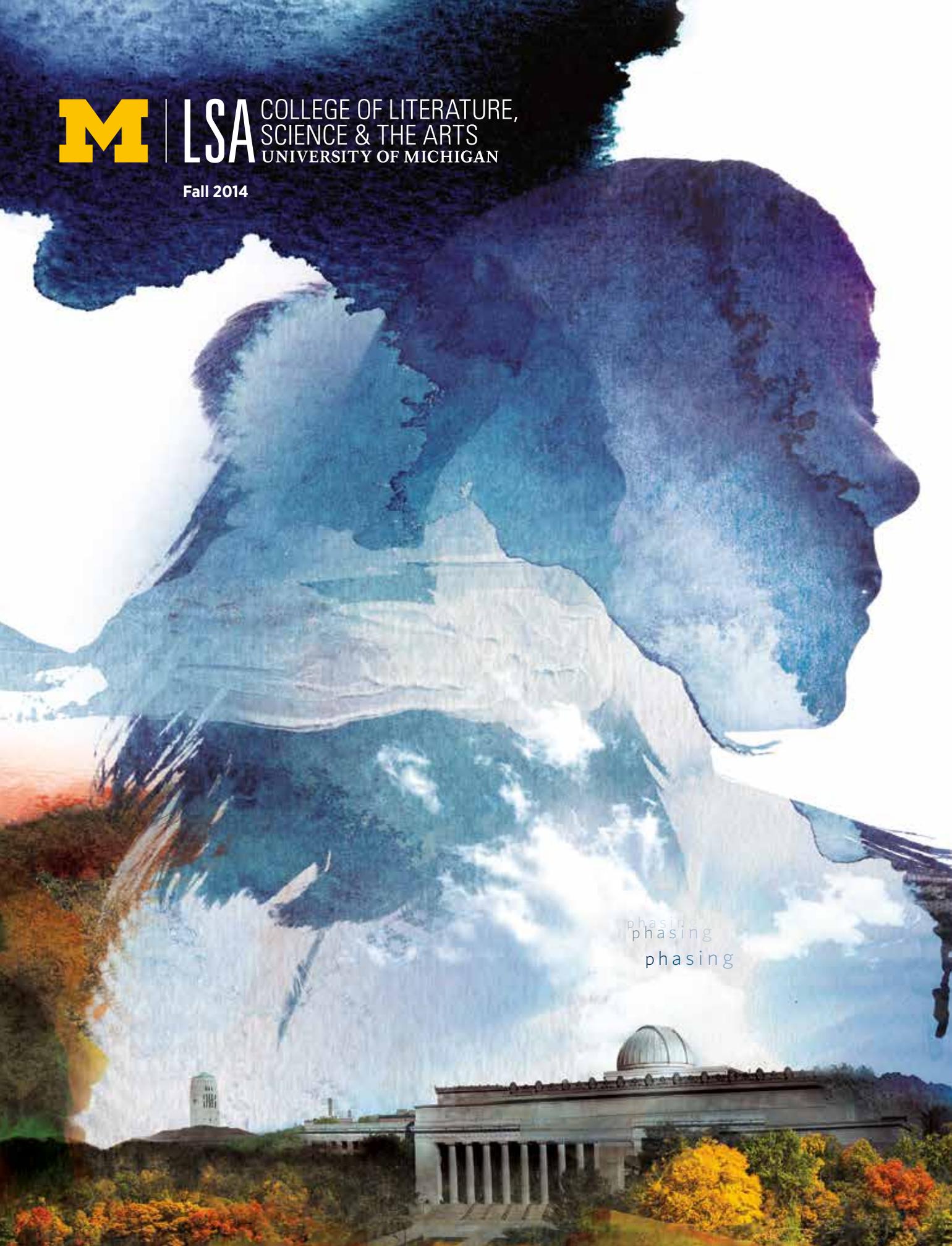


LSA

COLLEGE OF LITERATURE,
SCIENCE & THE ARTS
UNIVERSITY OF MICHIGAN

Fall 2014

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UPDATE

Burns Brightly

LSA MAGAZINE BIDS FAREWELL TO A CHAMPION AND FRIEND

EVERY ONCE IN A GREAT WHILE, higher education doesn't just get a great leader. It gets a gladiator, a titan — someone who doesn't simply run effective meetings or manage budgets well, but who fundamentally alters the academic landscape.

Assistant Dean for Advancement Peggy Burns has been that kind of leader for the College of LSA. To describe her as charismatic or larger-than-life would be accurate, but it would also be a disservice, simply because it's not just who she is that has transformed the College, but also what she's done.

Burns has overseen every issue of *LSA Magazine* since its first major redesign in 2001, when it began its transformation from a 32-page, black-and-white newsletter into what is now a 64-page, full-color publication that reaches more than 180,000 alumni. From the start, she envisioned it as a publication that would appeal to diverse audiences and that would highlight a range of ideas both inside and outside the academy. To that end, she has given *LSA Magazine* the editorial freedom to pursue topics from election fraud to illegal immigration to dinosaur digs to WWII physicists — not to mention another wholesale redesign in 2011. The result has been numerous awards from the Council for the Advancement and Support of Education, APEX, and the Society of Publication Designers.

As the magazine has grown, state of Michigan funds for higher education have shrunk: 2002 to 2012 witnessed a 26 percent decrease in higher-education dollars. Burns was determined that state shortfalls wouldn't cripple the College of LSA like they had at higher-education institutions elsewhere in the country. Consequently, she engaged a team of fundraisers in two enormously successful fundraising campaigns.

The Michigan Difference Campaign from 2000 to 2008 raised \$350 million for the College, and as of September 2014, the current Victors for Michigan Campaign has raised \$282 million. That's more than 70 percent of the College's \$400 million fundraising goal, even though the campaign doesn't conclude until 2018.

Burns herself raised the money for one of the College's most transformative gifts: \$50 million from the Zell Family Foundation, led by alumna Helen Zell ('64), to permanently fund the M.F.A. in Creative Writing Program, which was named the Helen Zell Writers' Program. It was the largest gift in the history of the College.

Her other multimillion-dollar transformational gifts include support for cognitive science study, scholarships, international programming, infrastructure, and student internships. These gifts will have a lasting educational impact on the College for decades to come.

This fall, Burns's 14-year tenure with the College comes to an end. The editorial staff of *LSA Magazine*, as well as her colleagues in the College and around the University of Michigan writ large, send her off with a heavy heart. But next time we stand beneath the pillars of Angell Hall, we'll do so knowing they're so much stronger because she was here.



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The Next Big Thing

Take a tour of tomorrow with LSA faculty and student prognosticators who aren't just predicting the future. They're building a better one.

by Susan Hutton, Brian Short, and Elizabeth Wason

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The Dead Elephant in the Room

Intrepid Professor Dan Fisher deals with dead elephants and pickled pond meat as part of his quest to understand how prehistoric humans survived in the ancient world.

by Elizabeth Wason

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The Searchers

In November 1942, a Coast Guard rescue plane vanished in southeastern Greenland. An LSA alumnus takes us inside the mission to find the plane and bring the men aboard it home.

by Nicholas Bratton

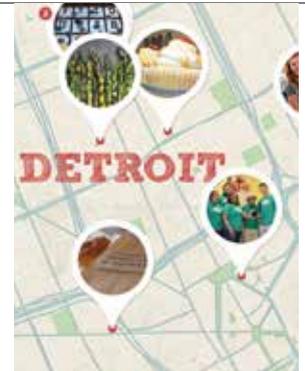
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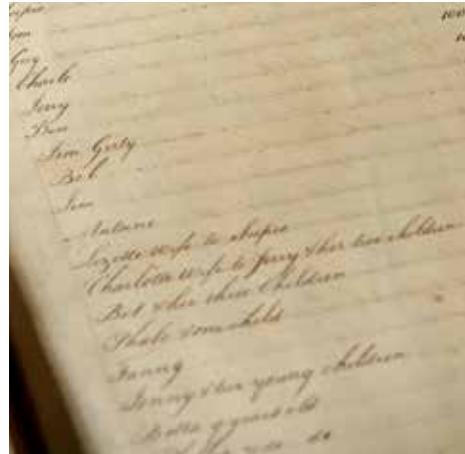
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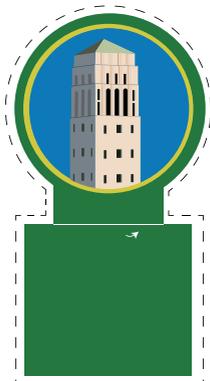
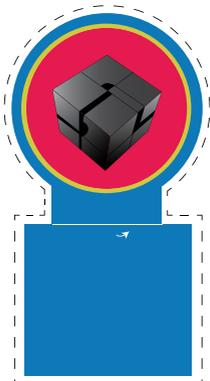


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A girl in tech



Our Next Phase

I AM BOTH HUMBLLED AND HONORED to be joining the College of Literature, Science, and the Arts at this point in its illustrious history. When I was offered the chance to become LSA's dean, I knew it was a chance to join not only the largest and most multifaceted of U-M's 19 schools and colleges, but also to further the legacy of the greatest public liberal arts college in the nation. My sincere thanks go to Dean Terry McDonald, Interim Dean Susan Gelman, and our outstanding faculty and staff for working so hard to make that so.

A commitment to academic excellence and the integrated value of a liberal arts education will always be the cornerstone of LSA.

In addition to my unwavering support of our academic pursuits, I begin my tenure with three other areas of focus:

1 ACCESS. Each of our students is different. They come from different high schools, different academic experiences, different families, and different communities. So when I speak of access, I mean not just providing support so that admitted students can enroll here, but also academic and non-academic support so that those who do come can reach their full potential. Every LSA student has the capability to graduate and to thrive; we have the responsibility to provide the tools necessary for them to do so.

2 DIVERSITY. Institutions of higher learning — especially public institutions of higher learning — should mirror the full diversity of the society they seek to challenge and improve. The research is nearly incontrovertible that universities with students from a variety of backgrounds, life experiences, and perspectives produce graduates most prepared to succeed in the world beyond campus. It's an idea that hit home with me last semester when teaching the political context of the *Brown v. Board of Education* decisions. Last academic year, this community renewed a discussion

about the role of diversity at the University of Michigan, and I look forward to being a voice at the table to safeguard and enhance diversity in all of its forms at U-M. My family and I recently made our own Victors for Michigan campaign gift in an area that will provide support to the broadest possible set of diverse students in LSA.

3 ENGAGED LEARNING. Through initiatives like the Undergraduate Research Opportunity Program, our Honors Summer Fellowships, and Research Experience for Undergraduates program, we are able to engage students in collaborative research. Programs like optiMize help empower our students to become social entrepreneurs and translate what they learn in the classroom to tangible results in communities. Through the Barger Leadership Institute, we help students develop as leaders on our campus and in our community so in the future they will be able to take that role in their chosen fields. Through the LSA Internship Network, we have provided summer opportunities for hundreds of our students to work in both for-profit and nonprofit sectors and demonstrate to future employers how liberal arts students can make vital contributions in a variety of organizations.

Ensuring access to a broad liberal arts education in a diverse atmosphere of engaged learning means that LSA graduates leave here ready not to take on the world, but rather to work with others to change it for the better.

I couldn't imagine a more important enterprise, or a better place than the College to be a part of it all.

Andrew D. Martin

Professor of Political Science and Dean



INSIDE LSA

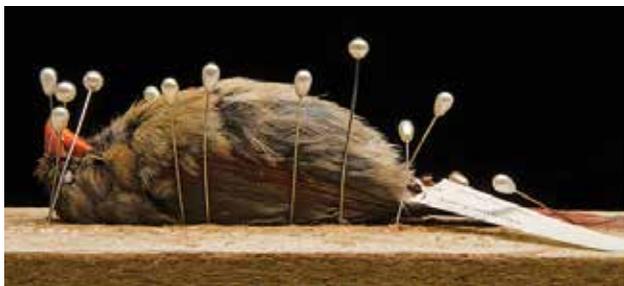
MORE CONTENT ONLINE

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www.lsa.umich.edu



Wherever this symbol appears in the magazine, you can find expanded content on the LSA Today website.



STUDY SKINS

Students studying ornithology in LSA's Department of Ecology and Evolutionary Biology get to know their birds inside and out — literally — learning how to preserve birds for future researchers. Take a slideshow tour as students transform birds into artifacts that can survive up to 500 years.



A BEACON OF HOPE

Pulitzer Prize-winning *Detroit Free Press* editor Stephen Henderson ('92) explains why Detroit's bankruptcy might end up saving the city.



#BIGDATA

Economics Professor Matthew Shapiro harvests unemployment data 140 characters at a time.



IN THE TINIEST DROP

Researcher Aniruddha Deb discovered that water trapped in tiny volumes behaves differently, opening up possibilities in energy and medicine.

Plus!



Read past issues of *LSA Magazine*:

www.lsa.umich.edu/alumni/magazine



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TOXIC TOURS AND CHIMP LASERS

The zip code about which you speak — 48217, commonly known as “Tri-City” — was, until the ‘70s, a very prosperous black community. Mary Wilson’s (of the Supremes) stepfather had a gas station (STANDARD) on the corner of Ethel and Schaefer, and there were other places: an A&P, S.S. Kresge’s, North Carolina Mutual, barber shops, drug stores, schools, grocery stores, hospitals, etc.

“Coke” [described in the article as “a dusty byproduct of oil extraction from tar sands”] is a valuable dry lubricant. There used to be coke plants all over the city. Henry Ford never let it escape! But coke is obsolete now because no one knows what to do with it. Lubricate iPhones? Think and grow rich!

Percy R. McClain ('77)

THE DIARY OF A CACTUS HUNTER

Elzada Clover had a big impact on me, as a student in the early 1960s. While taking her on-campus course, this grandmotherly professor had many surprises, from showing the film of her Grand Canyon cactus expedition to tales of her “technicolor dreams” after participating in a ceremony with the Hopi Indians (and you guessed it, this included a cactus). The next year I took a course she offered at the Biological Station, with students rushing to keep up with her as we slogged through fascinating bogs, sought out rare plants on sand dunes, and paddled through diverse marshes.

I was fortunate to be asked to participate in a post-station inventory of the Huron Mountain Club in the Upper Peninsula — an amazingly pristine complex of habitats, terrestrial and aquatic (the club allowed no motor boats on their lakes, ponds, and streams). The club members heard of Dr. Clover’s interest in cacti; one day they asked to show us a special habitat that they were proud to have protected. We hiked off to a distant scree slope, and there was the surprise, a native cactus, *Opuntia fragilis!*

It was good to read more details of the early work of this inspiring professor; she was certainly a big influence in my change of major to botany, which led to graduate studies and a career in botanical garden administration.

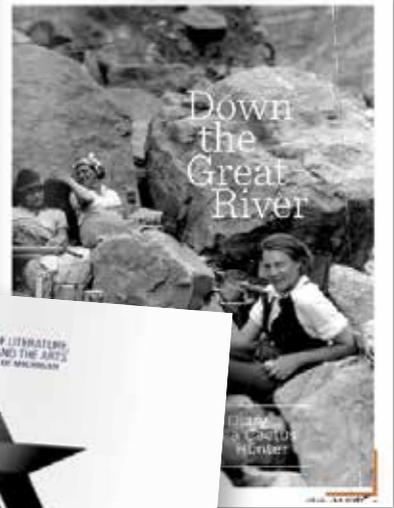
John D. Ambrose ('65)

A BEACON OF HOPE?

Thanks for this ‘good news’ story about progress in my hometown of Detroit. Even at the age of 70, I’ve day-dreamed about being an urban pioneer back home.

Marge (Noshay) Bevers ('66)

LSA TODAY



TALK TO US

We invite your feedback on *LSA Magazine* content or on topics related to the College. Letters for publication may be edited for style, length, and clarity.

Email: lsamagazine@umich.edu

Or write to:

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Most popular letter-generating article:
“The Diary of a Cactus Hunter”



The Boxing Girls of Kabul

A documentary shown as part of LSA's Sport and the University theme semester. Other classes and events include The Physics of Fly Fishing, Sport in the Ancient Greek World, and Poems for Athletes.

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The number of languages spoken by faculty and graduate students in LSA's Department of Comparative Literature, including Old Church Slavonic. Aminū!

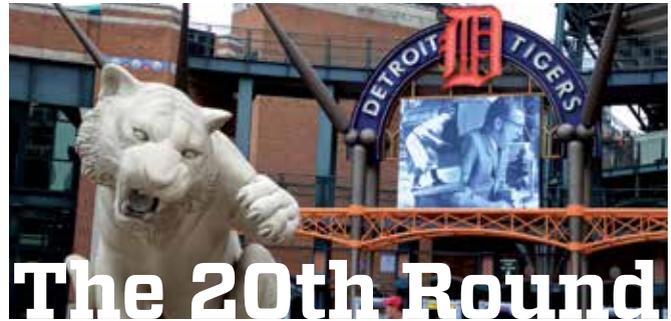
Dennison Denizens

The Dennison Building—originally designed by Albert Kahn Associates of Detroit in 1963—will be going through a major renovation to make it into a 21st-century study space with flexibly furnished classrooms and a “green wall” covered in vegetation. The updated space will be the new home of LSA's International Institute and its 17 centers and programs.



“I was tired of wearing so many layers.”

FASHION DESIGNER **BAYAN JONDY ('01)** ON SOME OF THE FRUSTRATIONS THAT LED HER TO START ZEENA, A COMPANY THAT DESIGNS CLOTHES TO MAKE MUSLIM WOMEN “FEEL CONFIDENT AND BEAUTIFUL.”



The round in which LSA senior **Trent Szkutnik ('15)** was drafted by the Detroit Tigers. Szkutnik will graduate next year with a 93-m.p.h. two-seam fastball and a degree in political science.

@ProfADM
(Dean Andrew Martin)

Gotta love getting a “Go Blue” in downtown Sandpoint, Idaho on a Wednesday night. #GoBlue

@MorganRondo
(Morgan Rondinelli)

I love wearing maize and blue while interning @NMNH. Wherever you go, #GoBlue

 Follow the College of LSA on Twitter @UMichLSA



AIN'T THAT A KICK IN THE HEAD

Here's a hint: One of them is a scholar of Supreme Court jurisprudence and the other was friends with Sammy Davis Jr. Take our quiz on page 63 and see if you can tell the difference between Dean Andrew Martin (of LSA) and Dean “Dino” Martin (of *Rio Bravo*).



“She was the enemy.”

BRIAN P. CISCHKE ('11), A REPUBLICAN, ON THEN-CLASSMATE **ERICA G. TIBBALS ('10)**, A DEMOCRAT. THE POLITICAL COMBATANTS MET WHILE PARTICIPATING IN LSA'S MICHIGAN IN WASHINGTON PROGRAM IN 2010, ARGUING ABOUT HEALTH CARE LEGISLATION AND BONDING OVER RELIGION AND SPORTS. OPPOSITES ATTRACT, AND THE COUPLE WAS MARRIED ON AUGUST 2 OF THIS YEAR.

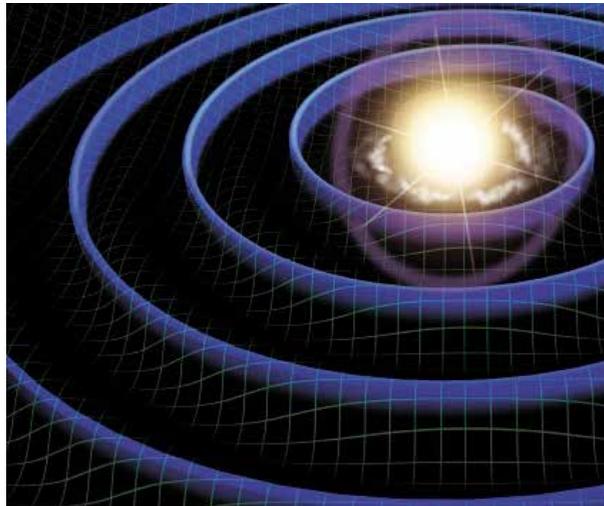


Remains in the Day

Fun (and possibly freaky) fact! William J. Hussey, a professor of astronomy, served as director of U-M's Detroit Observatory from 1905 to 1926. He loved the observatory so much that he asked that his ashes be interred in the building's central pier. His remains were starred — er, stored — there for a time, but were eventually moved to the nearby Forest Hill Cemetery.

Last Theory Standing

When researchers in Antarctica spotted evidence of B-mode polarization—sort of like a trail that gravitational waves leave behind them—the finding rendered a number of long-standing theories about the Big Bang obsolete. One of the few surviving theories was developed by LSA physics Professor Katherine Freese and colleagues. “No matter how brilliant and creative an idea is, it just may not turn out to be the way the world works,” Freese says. “Getting the right answer also requires a lot of luck.”



Take Your Time, Dude

What we learned about glaciers while researching this issue of LSA Magazine:

Glaciers can move up to 30 meters a day — that's four feet each hour — but they can also move just a few inches or not at all.

When a glacier reaches the coast, chunks of its icy body snap off, separating with a thunderous crack in a process known as calving. The glacier hunks then float away, reborn as icebergs.



LOCATION, LOCATION, LOCATION

The origins of several stories in this issue and online:

Greenland	Prison
Greektown	The Alexander G. Ruthven Museums Building
Congress	Perdido
Saginaw	Ohio
Morocco	
Chile	
Cyberspace	
A cupcake shop	



\$50 MILLION

The annual sales of Zinger-man's Community of Businesses, co-founded by **Ari Weinzwieg** ('78) and **Paul Saginaw** ('76). While the company has grown into a collection of nine businesses with 650 employees, its flagship is still Zinger-man's Delicatessen, the sandwich shop that the pair founded in 1982.



Adventurous.

YOU CAN HELP.

Stephanie Leitzel, an LSA senior majoring in history, had longed to see the remnants of the medieval Celtic world with her own eyes, but the cost had made her dream seem remote.

EXPERIENCE OF A LIFETIME.

Happily, thanks to support from generous alumni through the LSA Global Experience Scholarship, Stephanie was able to travel to Scotland, where she read books in the ruins of an ancient monastery, attended classes in the storied halls of the country's oldest university, and hiked the Scottish highlands to a 3,000-year-old fort.

TAKE ACTION.

Give a gift today to be a victor for Stephanie and help countless LSA students like her see the world and reinforce their thirst for knowledge.

Move forward.
Give back.

EVERY GIFT MAKES A DIFFERENCE.

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Supporting Excellence

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You can't begin at the finish line.

But there is a part of us that would like to. To zip right to the end of the marathon. To plug the cheat code in and beat up the last boss on the final level. To open our inbox in the morning and find no new problems to solve, just messages of praise and congratulations and maybe a funny video of a cat playing a keytar.

But there is a middle phase that has to be worked through. The race has to be run. The game has to be played. The people who search long and hard for the answers to tough questions — they're the ones who change the world.

These stories remind us that good intentions alone won't make our future better. It takes patience, curiosity, and determination to reach that goal. The work we do to get there doesn't just reshape the world — it transforms us right along with it.

cenozoic

mesozoic

paleozoic

precambrian

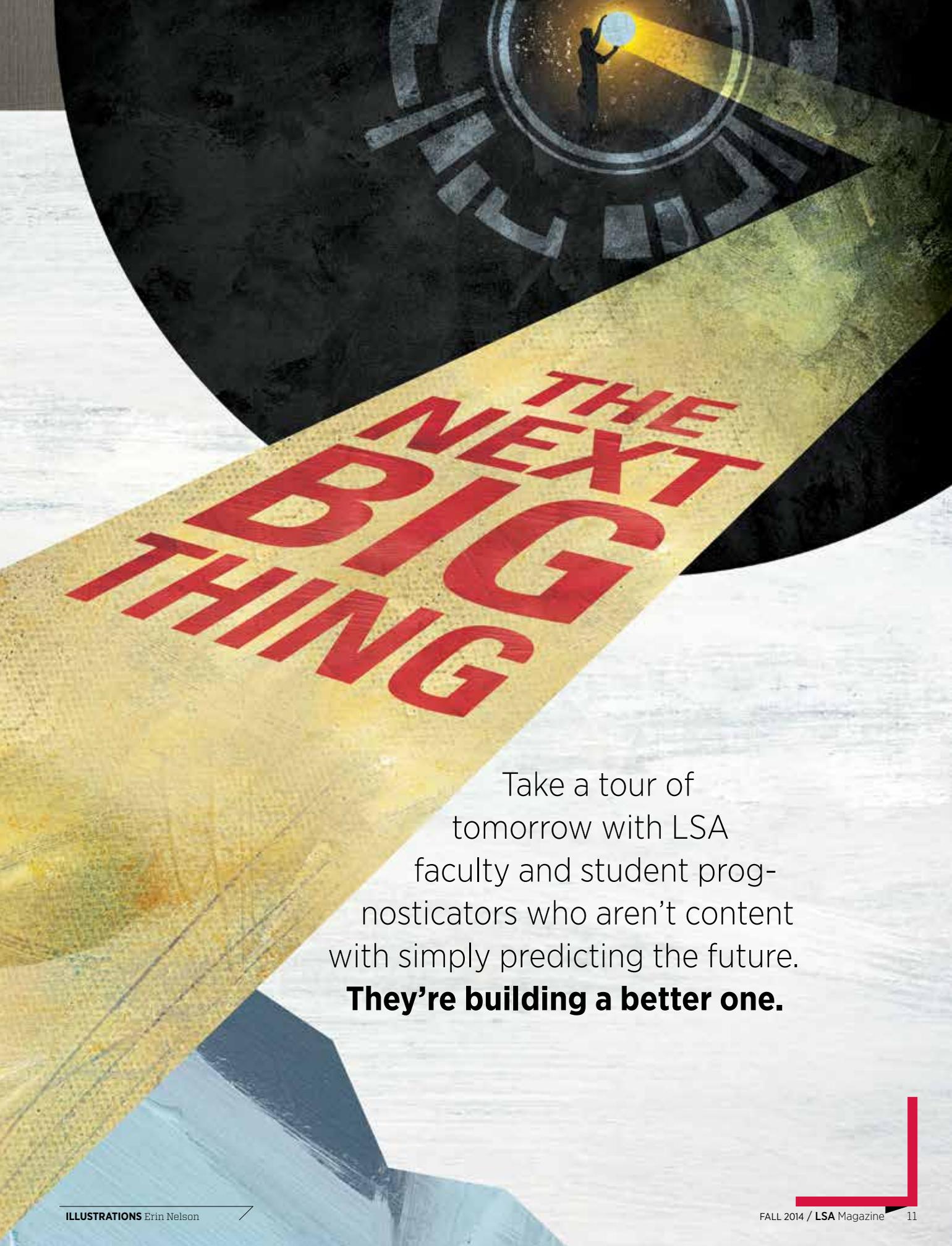
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gas

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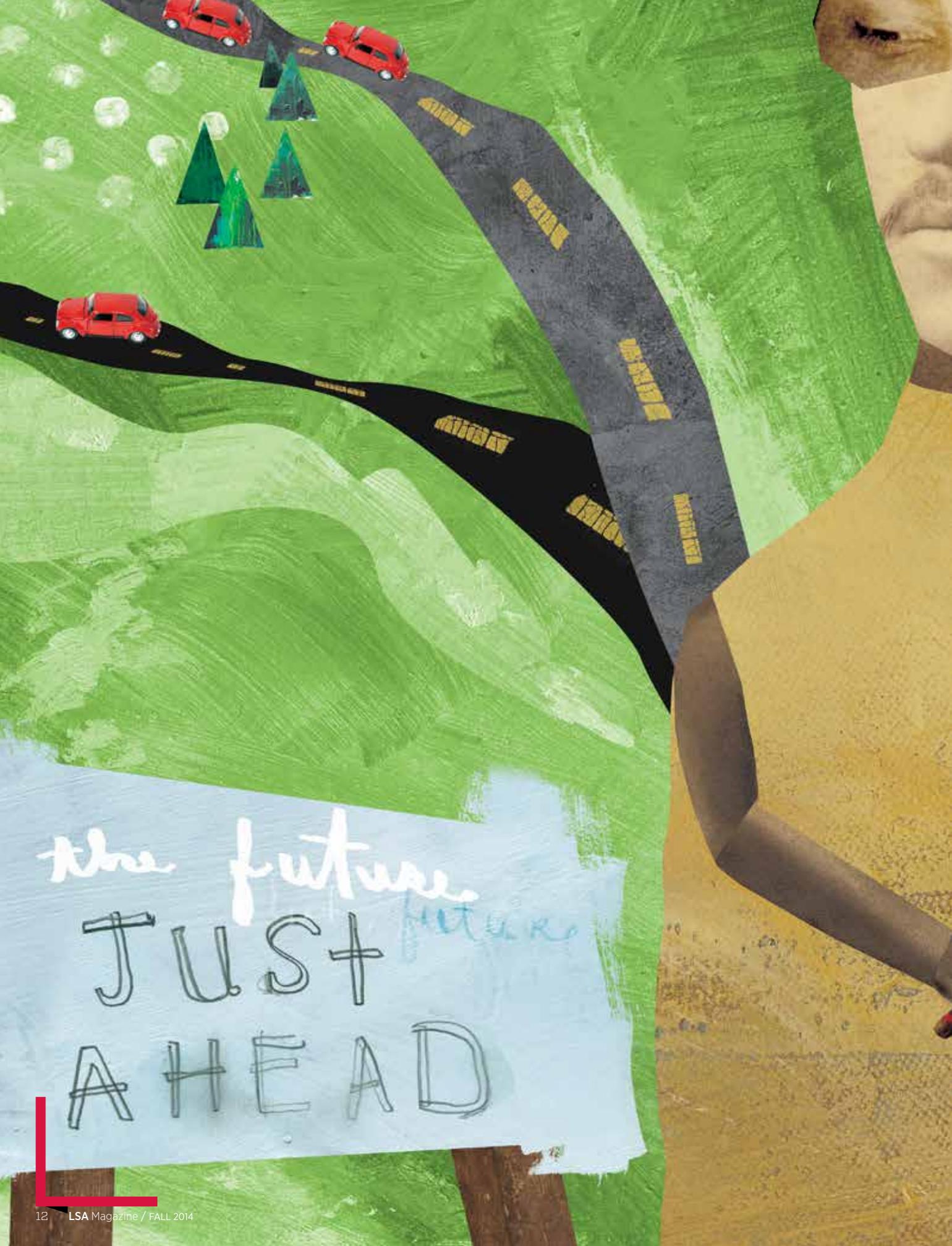
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THE NEXT BIG THING

Take a tour of tomorrow with LSA faculty and student prognosticators who aren't content with simply predicting the future. **They're building a better one.**

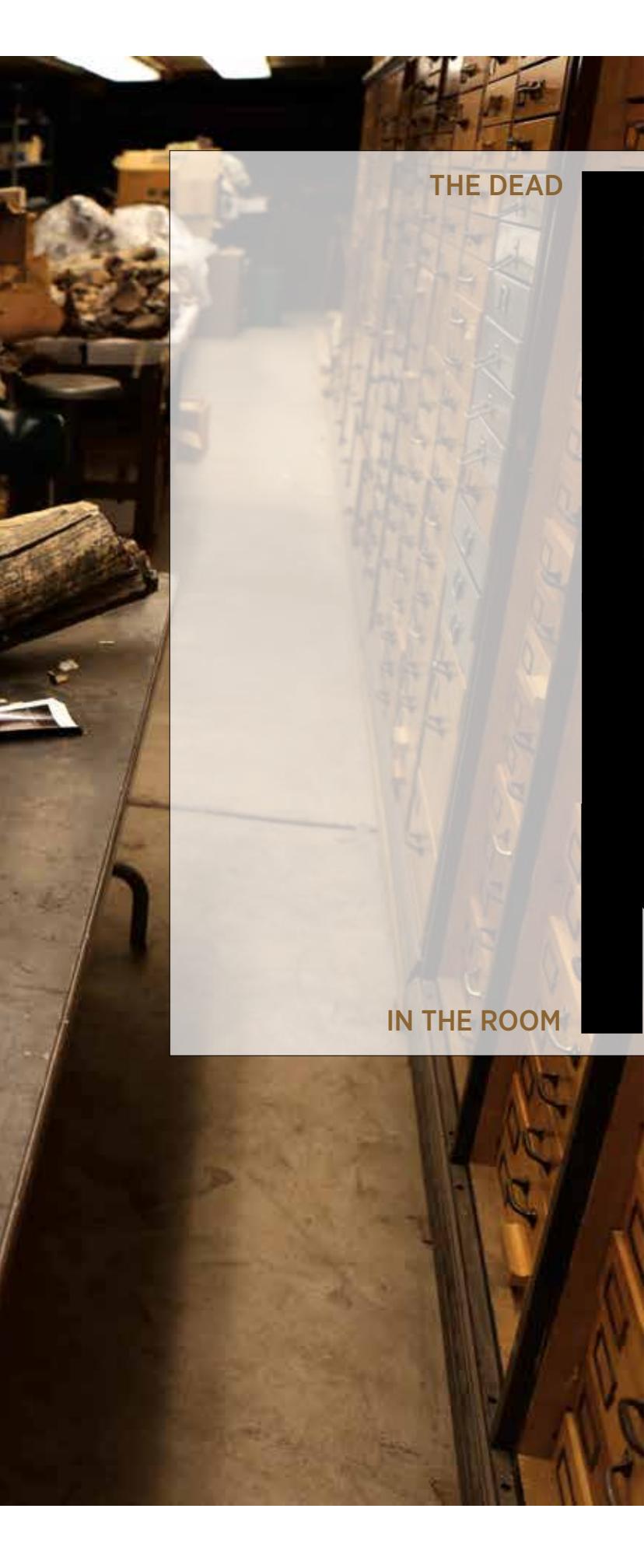


the future
JUST *future*
AHEAD









THE DEAD

IN THE ROOM

FELP NAT

Paleontologists like Dan Fisher can't afford to be squeamish. A mammoth and mastodon expert, Fisher hops into holes with preserved animals and fossils on a regular basis, going to great lengths to figure out how prehistoric humans used their available resources to survive.

by Elizabeth Wason

It's the mid-1990s, and Dan Fisher gets a phone call about a dead elephant.

That's no surprise. As a curator at LSA's Museum of Paleontology, Fisher often deals with the remains of dead mammoths and mastodons. But this is an unusual request. The Toledo Zoo asks Fisher to help exhume the remains of an elephant that it had buried in a city landfill when the animal died 17 years earlier. Space at the landfill has grown scarce, and the zoo has been asked to remove whatever is left of its elephant.

Fisher grabs his "Mastodon First Aid Kit" on his way out the door. He has assembled the kit for occasions just like this, when he needs to rush out to collect a specimen at a moment's notice. He has four or five students and colleagues from the museum in tow. Did someone bring the shovels? Check. Ropes? Got 'em. Meter sticks, buckets, tags, cameras, surveyor's flags? Load them all in the pickup truck. Let's go!

Fisher, who also is a professor in the Department of Earth and Environmental Sciences and the Department of Ecology and Evolutionary Biology, sees great value in having access to the zoo's elephant skeleton. He'll be able to use the bones to gain perspective on the ancient mammoths and mastodons that he digs up at sites in Michigan and around the world. He wants to closely examine the elephant's ribs and spine, so he can understand the anatomy of those bones from one end of the animal to the other. Wrists, ankles, and toe bones are especially hard to get, and Fisher has all kinds of questions that he'd like to answer about the foot anatomy of his mammoths and mastodons. A skeleton like that would offer truckloads of information,

and Fisher can't wait to get his hands on it.

How hard could it be to get elephant bones from Toledo to Ann Arbor, anyway?

The first problem — and it's a big one — is that nobody can remember where the elephant is buried. The Toledo landfill is flat and featureless; if any sort of identifying marker once served as the elephant's tombstone, no one can find it. Bum luck — Fisher takes his team back to Ann Arbor. But he soon gets word that they've found the corpse at the landfill and Fisher once again grabs the Mastodon First Aid Kit and his crew. Again, they head south in Fisher's covered pickup truck, eager for bones.

The second problem is unearthed with the elephant, when its carcass starts stinking up Toledo. Thoroughly uncovering the body has taken hours of shovel work, and Fisher now stands at

the edge of a very large hole, considering the massive body below and the equally huge odor wafting up. Fisher was hoping for a pile of well-ordered bones that the group could identify, label, and then load into his pickup for more detailed study back at the museum. Instead, Fisher is stuck strategizing how to remove and transport an intact, middle-aged, circus-sized, long-dead Asian elephant. If it's been underground for 17 years, why, Fisher wonders, does it smell so horrible? Not rotten, but strongly, strangely sour. Why hasn't the elephant decomposed?

Because the corpse is intact, Fisher decides that they can spear a towing strap through the elephant's body and under its spine, then hoist it out of the hole using some of the landfill's massive construction equipment. Of course, the whole elephant won't fit into Fisher's pickup; this job necessitates a much larger vehicle. But Fisher needs permission from the mayor of Toledo to drive a city truck full of elephant up to Ann Arbor. The mayor is enthusiastic about getting rid of the elephant. Fisher has permission to borrow anything he needs.



Fisher's Mastodon First Aid Kit contains the low-tech equipment that a paleontologist uses in the field: shovels, surveyor's flags, tape measures, buckets, and metal probe rods. Note: Digging up a long-dead elephant with these tools will give the items an awful stench.

(RIGHT) **The skull of the Asian elephant** that Fisher recovered from a landfill in Toledo, Ohio, shown here in the storage area of LSA's Museum of Paleontology on the U-M campus.

(OPPOSITE PAGE) **The unexpected** preservation of the Toledo Zoo elephant meant that muscles and ligaments still held its bones together at the joints. Simple tools made it possible for Fisher to test his ideas about the butchery practices of ancient humans, including their methods of disarticulating animal skeletons.



EVEN VULTURES STAY AWAY

Fisher takes the elephant to a farm just outside Ann Arbor. The Toledo truck driver opens the tailgate and raises the bed of the truck. The elephant begins to slide, spills out the back, and lands on the ground with a thunderous thud.

The elephant bones are still buried inside the elephant, and Fisher brainstorms a way to get them out. He realizes that this has become the perfect opportunity to replicate the experience of a prehistoric human, who would have had to butcher by hand any mammoth he killed. Fisher pulls out his stone tools, which he'd crafted himself with the same types of rock used by early Americans. The jagged edge of his stone knife allows clean cuts between the animal's muscle and skin, and the task carries him back to the late Ice Age.

It's not a straightforward translation from skinning a small game animal to skinning an animal on the scale of an elephant, though. Fisher can't casually lift up the leg of the elephant and flip it over, for instance, so he has to figure out a way to handle the gargantuan creature and gain access to its entire body. After some thought, Fisher devises a low-tech system of generating leverage to handle the massive limbs. Using a rope and a severed tree branch as a lever system, he manages to lift and secure each leg as he cuts. The primitive system works. Fisher butchers the elephant until he's satisfied that just one person, a set of stone tools, and some common sense are sufficient for the task. He then covers the remains with a massive pile of old cow manure, in hopes of accelerating their decomposition. The good news: The manure also covers the odor of the elephant.

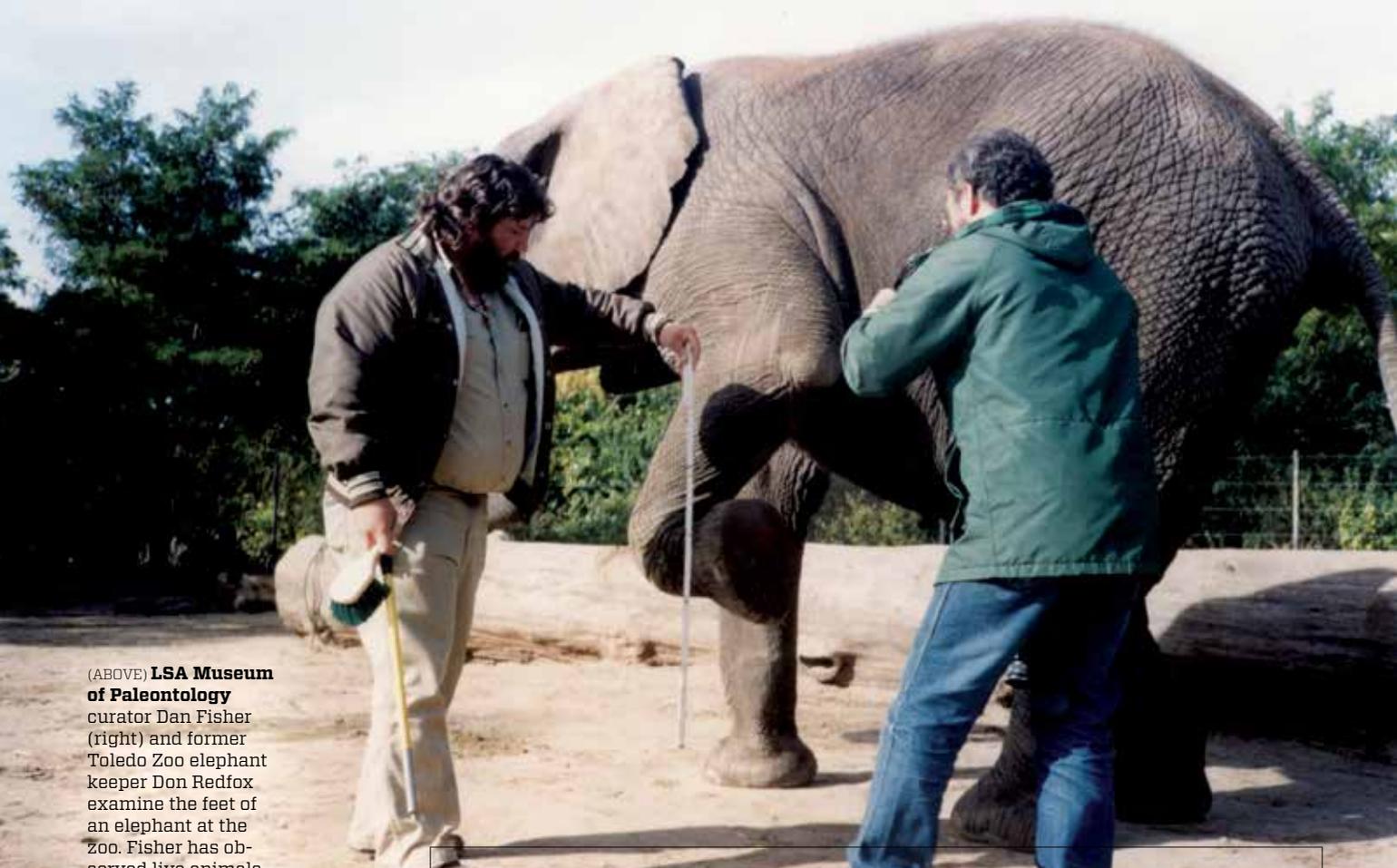
The bad news is that all of Fisher's shovels and the Mastodon First Aid Kit have traveled back from Toledo in his pickup; the truck is going to stink for the next few years. And so will the elephant. Even vultures stay away. More than three years pass

before the elephant decomposes to the point where Fisher can separate the bones without too much trouble, and it takes even longer for the fat to waste away.

When Fisher finally uncovers the skeleton, he takes carload after carload of bones to the museum, rolls them on carts past colleagues who plug their noses at the funk, and ends up with a pretty good specimen. But after Fisher has cleaned, tagged, and stored the bones, some questions about the elephant linger: Why did it fail to decompose after nearly two decades in the landfill? How was it successfully (if unintentionally) preserved? Back when Fisher unloaded the gear that he and the crew used to help dig up the elephant, he noticed that the metal equipment had badly rusted in the span of a single day. The rapid rust suggested that the corpse was extremely acidic, which could explain the elephant's sour smell and, perhaps, the delay in its decomposition. The rust seemed like a clue, leading Fisher to wonder whether prehistoric humans could have preserved mammoth-sized quantities of meat by exploiting similar conditions in the natural landscape.

Fisher has a way to test his guess in the real world. After all, dead animals are his expertise.





(ABOVE) **LSA Museum of Paleontology** curator Dan Fisher (right) and former Toledo Zoo elephant keeper Don Redfox examine the feet of an elephant at the zoo. Fisher has observed live animals to resolve some of his research questions, such as the identity of ancient footprints preserved at his dig sites.

(RIGHT) **Adam Rountrey**, museum collection manager, holds the left femur of the Toledo Zoo elephant that Fisher dug out of an Ohio landfill. Even after more than 20 years above ground, these bones haven't lost their pungent odor.

(OPPOSITE PAGE) **The skeletons** of elephants and their extinct relatives — including mammoths and mastodons — show five toes, yet their footprints are large and round. The cylindrical feet of the live animals have the surface area necessary to bear their massive weight.



N

NEVER LOOK A DRAFT HORSE IN THE MOUTH

During culling season at the E.S. George Reserve, near Ann Arbor, Fisher gets deer heads for free. He can use them as a proof of concept, to see whether ancient hunters could have preserved excess meat by using freshwater ponds and lakes as open-air refrigerators. He chooses different but complementary sites for this experiment: a bog, which is highly acidic, and a pond. The sites are the closest he can get to replicating the ancient environments in which the mammoths and mastodons that he studies have been preserved.

Fisher dunks the deer heads in the water, checking back every few weeks or so, and finds that the heads stay remarkably fresh in

both the bog and the pond. Emboldened, Fisher puts a few legs of lamb in the water, too. Each week, he returns to pull out the meat he's cached, and it looks much like leftovers from the fridge. Although it develops a scuzzy layer on the outer surface, the meat inside stays pink and fresh, despite smelling like stinky cheese.

Eventually, Fisher gets the chance to test underwater meat preservation on the scale a prehistoric hunter would have recognized. When a draft horse in the area dies, its owners donate the hefty body to Fisher for scientific study. Again, he takes the opportunity to practice butchery with his handcrafted stone tools. He then submerges sections of the horse under the frozen surface of a pond. As the months pass, Fisher sees that the horsemeat develops a familiar slimy layer on its outer surface, while the bright red meat inside stays preserved.

All signs so far point to the success of Fisher's underwater preservation tactics, but he wants to be absolutely sure that the method has kept the meat in good condition. Fisher sends samples of the lamb to a lab to see if any harmful bacteria have colonized the meat. To his surprise, the lamb that stayed in a pond for nine months contains fewer harmful bacteria than some lamb that he'd kept in his freezer.

By this point, Fisher has gathered enough experience and evidence to understand why. The cheese-like odor of the meat suggested that lactobacilli, the bacteria responsible for creating cheese and yogurt, readily colonized the dead animals, at least under acidic conditions. Lactobacilli release lactic acid as they metabolize, which probably created an environment that — in tandem with the acidic, low-oxygen conditions of the water — naturally pickled the meat and prevented the growth of putrefying bacteria. But cold water temperatures were not necessary to preserve the meats effectively; the lactobacilli kept meat from spoiling through the spring thaw and even into the summer.

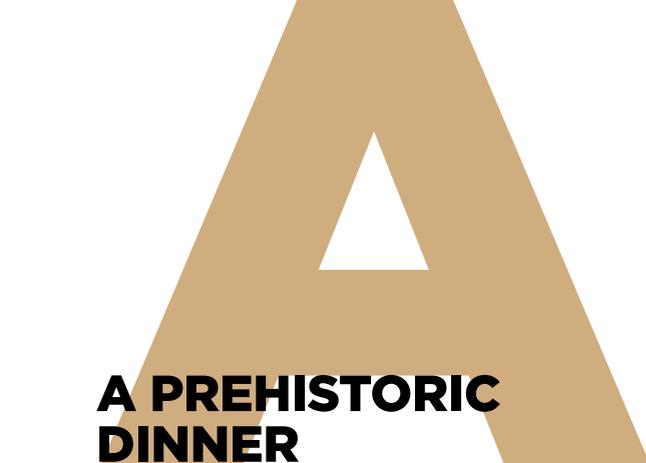
All of this means that that old, waterlogged horsemeat should be okay to eat, right?

Fisher, of course, knows how to find out.



(THIS PAGE) **The roof of an extinct mastodon's mouth, minus the tusks, which slid out of their sockets when the soft tissue holding them in place decomposed.** Researchers at the Aspen-area Snow-mass paleontological dig discovered that ancient salamanders inhabited the cavities at the base of disconnected tusks.





A PREHISTORIC DINNER

Fisher builds a fire on the ice of the pond and draws out a chunk of the horse. He slices a piece, stabs it on a stick, and holds it over the flames. It takes forever to cook, and the center stays cold and unappetizing. Fisher reconsiders, letting the fire burn to embers. He cuts a thick steak from the horsemeat and grills it directly on the coals. The method works beautifully — the moist meat conducts the heat inward, cooking the center before the exterior becomes charred. The horsemeat tastes kind of like beef, but sweeter.

Fisher sums up the benefits of ancient underwater meat storage pretty pragmatically. “Let’s say that you manage to kill a mastodon or mammoth,” he explains. “There’s no way you can deal with thousands of pounds of meat in an afternoon or even a week. What are you going to do with all of it? Make jerky? If so, will you carry the gigantic load on your back, when dire wolves the size of bears and bears the size of rhinos would be happy to get at the meat?” No, Fisher supposes. Probably not.

Fisher’s unconventional experiments have served as “an imperfect model of the Pleistocene world,” as he puts it. Of course, he’s stuck using modern methods to test hypotheses about ancient environments. But his successes — including his hard-won elephant-bone collection and his prehistoric dinner of horsemeat — show that he can empathize with ancient humans, understand how they interacted with other animals and each other, and come up with some wild (but plausible) conclusions about life when mammoths roamed the earth. The more that Fisher’s explorations of ancient hunting and meat-storage tactics work out, the easier it becomes for him to stitch his ideas and observations together into a credible historical account.

His nontraditional methods have made him a researcher who is renowned in his field — one of the first paleontologists to get word that a bulldozer has struck a mammoth tusk in Colorado dirt.

OLD BONES, NEW TRICKS

It’s October 2010, and Fisher gets a call about a dead mammoth.

The excavation of a reservoir for the Aspen-area Snowmass Village ski resort has stalled as the construction crew examines the unexpected objects poking out of their dig site. They’ve

found not just the tusk, but more skeleton fragments in other areas of the site.

Just like with the elephant, Fisher is ready to go at a moment’s notice. He hops a plane to Colorado with his First Aid Kit. He’s the first mammoth expert on the scene, but the Denver Museum of Nature & Science already has assembled a team of scientists to begin digging at the site. While some members of this “tusk force” pull out bone after bone of a staggering variety of animals, Fisher and others carefully uncover a mammoth at the spot where the bulldozer bumped the tusk.

Soon, the ground freezes enough that their shovels don’t work. The researchers regroup in the spring with more scientists, volunteers, funding, and equipment. They dig relentlessly for weeks and find a grand total of 4,826 bones that once belonged to animals like mammoths, mastodons, giant ground sloths, bison, horses, deer, and camels. Remnants of smaller creatures, like ancient snakes, otters, birds, salamanders, and rodents ratchet the bone count up to more than 20,000. The researchers also find insects, small crustaceans, ancient tree trunks, pine cones, pollen, and even prehistoric leaves that turn from green to black upon exposure to the modern air.

The team digs through layers of sediment that mark millennia. More than 150,000 years ago, the site was a glacial lake that may have refrigerated and certainly helped preserve the remains of entire communities of animals. “There aren’t many other places like that, other than the deep sea,” Fisher says, “with 60,000 to 80,000 years of history recorded in a stratigraphic sequence where you can see how animals have changed through that span of time.” For him, the Snowmass site offers a unique opportunity to study an ecosystem-level response to dramatic climate change that spans both glacial conditions and a major interglacial period.

Fisher approaches this opportunity with the same innovative spirit that he brought to the mystery elephant almost 20 years ago, only this time, his tools are somewhat more advanced than a stone knife. He and graduate student Michael Cherney (’02, M.S. ’11) have CT-scanned about 20 mastodon tusks from Snowmass at the U-M School of Dentistry, and Fisher looks forward to mapping in 3D the remains of a mammoth they found surrounded by boulders and preserved under strange circumstances.

The idea is to be open to new ways of piecing together evidence and testing what might be outlandish hypotheses by using whatever means are necessary and available. For Fisher, whether it’s an elephant in a landfill or a cache of bones in the bed of a prehistoric lake, one thing is for sure: You never know what you’re going to find.

Or what you’ll have to eat once you find it.

Elizabeth Wason is the science writer for the College of LSA.

The Searchers

In November 1942, a Coast Guard rescue plane carrying three American military men vanished in a storm of snow and wind in southeastern Greenland. Now, more than 70 years later, an unlikely team of civilian experts is partnering with the military to recover the plane. An LSA alumnus takes us inside the mission to find three men buried in the ice and bring them home.

by Nicholas Bratton



It's 6:00 P.M. on September 21, 2013, and the temperature on the southeastern coast of Greenland has already dropped to 24° Fahrenheit. My five colleagues and I are on a mission to find a 70-year-old Coast Guard rescue plane buried somewhere in the glaciers around our camp. We're packing up our gear, hoping to locate the plane and its pilot and passengers in the next few days, but we're also hoping not to get buried in one of Greenland's nasty and brutish sub-zero ice storms. We all have our own reasons to be here. For me, the biggest reason is probably my grandfather.

Vincent Bratton fought fascists in the deserts of North Africa and in the jungles of Burma, and he was one of the lucky ones who made it back to England. I can only imagine how I would feel if he had gone missing and how much it would mean to have him finally brought home. Returning these three lost soldiers from the Greenland ice is strong motivation, but the odds are stacked against us. Finding one tiny plane in an ocean of ice is an almost impossible task. But we're trying.

I should warn you: This story doesn't have a happy ending. At least not yet.

A SNOWBALL'S CHANCE

1942. England, besieged by Germany, needs to import a massive amount of equipment from its allies to support battles on the western front, but German air and underwater attacks on cargo vessels send millions of tons of supplies to the bottom of the ocean. Shipping losses force the Allies to fly many of their cargo shipments to Europe instead. But flying poses other risks.

Aircraft of the 1940s lacked the range and navigational

technology to fly from the United States to England, so planes executed a series of shorter flights, hopscotching from Canada to Greenland to Iceland en route to British airfields. Although hundreds of planes made the journey, many never reached their destination because of the savage and unpredictable weather along the so-called "Snowball Route."

On November 5, a cargo plane returning from Iceland to a base in Greenland went missing. Four days later, a B-17 Flying Fortress out searching for the cargo plane became trapped in a sudden whiteout and crashed into a heavily crevassed area of one of Greenland's many glaciers. Thankfully, all nine men aboard the B-17 survived the crash. They sent a distress signal, and American forces made a plan to rescue the men.

And they had the perfect tool for the job: a Duck.

THE MIGHTY DUCK

Suspended from a crane on the stern of a Coast Guard cutter, the Grumman J2F-4 Duck was an odd-looking machine, with a long, ski-like pontoon jutting out from under the propeller. That ugly pontoon made the Duck amphibious, though, and the plane's versatility greatly expanded the search-and-rescue abilities of the USS *Northland*, the cutter that this particular Duck called home.

The *Northland's* Duck, piloted by Lt. John Pritchard, spotted the crashed B-17 from the air and returned later to ferry two men back to the ship. The plan was to keep on like this, to bring the men back a few at a time until everyone was out of danger, but the ice and the weather made each trip perilous. The Duck's initial trip was the first time a plane had ever landed on and taken off from a glacier. Now Pritchard and his radioman, Benjamin Bottoms, wanted to do it five or six more times.

On November 29, Pritchard and Bottoms returned to the crash site, quickly landing and taking aboard Cpl. Loren Howarth, the B-17's radioman, before attempting a return flight to the *Northland*. As the plane flew over Koge Bay, visibility deteriorated until Pritchard could no longer distinguish sky from ground. Disoriented, Bottoms radioed the *Northland*, requesting a signal to guide them home. Turning the plane toward the *Northland's* signal, the Duck flew blindly into a glacier, killing all three men aboard.

The men on the Duck were lost, but the remaining six men camping in the crashed B-17 survived, lasting through the winter with food and supplies dropped to them from the air. Mitchell Zuckoff tells their story and those of the Duck's crew in his bestselling book, *Frozen in Time*. While those men returned home, the three victims of the Duck crash remained in Greenland, buried in the ice for 70 years before a search was mounted to retrieve their bodies and bring them back. The man who organized that search was a professional adventure-seeker named Lou Sapienza.



(TOP) **Bratton and the Duck search team** made base camp during the 2013 expedition on a nunatak overlooking Koge Bay. A nunatak is a ridge or peak at the edge of a glacier that isn't covered with ice.



(BELOW) **Meal time in base camp.** (From left to right) Brian Kimball, U.S. Air Force, forensic photographer; Mindy Simonson, JPAC civilian archaeologist; Isaac Moreno, U.S. Marine Corps, communications officer.

North South Polar Safety Officer Brian Horner signals to Air Greenland pilot Siggí Asgeirsson during loading operations at the end of the 2013 mission. Because of terrible weather — including 36 inches of snow falling in the span of 30 hours — it took three days of helicopter flights to transport the camp materials to nearby Kulusuk, Greenland.



THE RIGHT ONES FOR THE JOB

Lou Sapienza is a gregarious guy with curly, silver hair and an energy that belies his age. He formed the company North South Polar, Inc. (NSP) for the specific purpose of finding and recovering the bodies of the men from the USS *Northland's* Duck. In 2009, he recruited specialists from an eclectic array of fields for the mission: a NASA scientist, a handful of geophysicists, a military medic, and a mechanical expert. He also needed mountaineers to help keep the team safe as it searched for the Duck in freezing temperatures and howling arctic winds. That's where I came in.

Mountaineering is often described as “the art of suffering in style,” and it is a grueling, demanding endeavor. I have been a mountaineer since 1995, climbing in the French Alps, the Rockies, and the Cascades of Washington state. The Cascades in particular offer important practice for serious climbers because they feature many of the toughest challenges of the sport, including climbing snow, ice, glacier, and rock, along with rugged wilderness travel. Climbing in the Cascades prepares mountaineers for challenging expeditions in the Andes, Alaska, and the Himalayas. And, it turns out, Greenland.

When Sapienza approached me about the mission to rescue the Duck, I had been climbing glaciated peaks for 12 years. Listening to the tale of the vanished plane, I was moved by the story of those three lost men. I accepted Sapienza's offer and started a mental list of what I would need to take with me when we left.

WAITING FOR GUSTAFSSON

Greenland is a strange place. It's barren and bleak and almost entirely inhospitable to life, but it also possesses a severe beauty. The soaring peaks along the coasts and the long, snowy expanses of the inland landscape are majestic, drawing your eye up and across the ice. But it punishes any living thing that tries to stay there.

We arrived on August 23, 2012, with only a week to work. Several Coast Guard officers were supporting the effort, eager to see their fellow servicemen returned. We set up our camp near Koge Bay, organized our equipment, and packed the things that we needed for the first day's search. Sapienza and the Coast Guard had done extensive research on where the Duck might have ended up, piecing together possible crash locations and making estimates about the flow and movement of glaciers. At base camp, the NSP team divided into groups, locating the different potential Duck sites that Sapienza had mapped out using GPS receivers.

After arriving at each of the sites, geophysicist Jaana Gustafsson scanned the area with ground-penetrating radar. Gustafsson carried the radar in a 30-pound backpack linked to a 12-foot sensor cable that snaked behind her across the surface of the

ice. Deep crevasses spider-webbed the glacier, and the danger to life and equipment was constant and serious. A wrong step could mean a smashed camera or a snapped femur. A rope team accompanied Gustafsson at each site to ensure her safety. After surveying each point, we all returned to camp where Gustafsson downloaded the data onto a computer for analysis.

With no luck at the pre-selected locations, the NSP team looked further afield for targets. With only one full day left on our trip, Gustafsson scanned a point atop a broad ridge two miles from camp and found a radar anomaly under the ice. Something was there. But time was running out.

HOTSY AND THE ANOMALY

The NSP crew had a secret weapon to find the Duck, a customized Hotsy industrial pressure washer that could melt holes in the ice. Once a hole was created, the team dropped a video camera in to get a better view of what was down there. But the Hotsy was a heavy piece of equipment with a slew of bulky accessories. Without helicopters available to move the Hotsy and its equipment, the team had to haul the half-ton washer up the ridge to the site of Gustafsson's anomaly. Once in place, we hurriedly melted as many holes as we could before the helicopters arrived to pluck us from the ice as a storm bore down on the coast.

That night, we crowded around the laptop to review the video footage. The screen clearly showed debris at a depth of about 40 feet. Further analysis confirmed that we were looking at a plug and fuse panel — wreckage from the Duck. The team was elated. We were shocked that we had somehow found a small piece of one long-lost plane in all of that ice, and we were relieved that our mission had produced concrete results. We were one step closer to finding the men on the Duck.

THE SECOND SEARCH

The discovery of the plug and fuse panel caught the attention of some people in the American military, and Sapienza and Commander Jim Blow of the Coast Guard were able to convince the Pentagon to support a second trip to Greenland. This time, the mission would be funded and managed by the Joint POW-MIA Accounting Command (JPAC), an agency within the Department of Defense that specializes in recovering missing service members.

In 2013, the search team took 39,000 pounds of machinery and gear, including four Hotsies, two front-end loaders, a fleet of trench-diggers, and enough supplies to support a team of 19 for six weeks on the ice. Two massive C-130 Hercules planes flew everything to Iceland, where we transferred much of the equipment onto a freighter bound for ice-choked Koge Bay. Helicopters ferried our remaining gear from the freighter to our new base camp perched on a rock outcropping half a mile from the search area.

JPAC researchers set up a search grid around the location where we had found the Duck's plug and fuse panel the year before. Mysteriously, the readings didn't show up on the radar this time. Members of NSP, JPAC, and the Coast Guard melted holes at various points in the grid and inspected the depths of the glacier. New anomalies were discovered at the same depth as the plug and fuse panel, but no fuselage — the main body of the plane that might contain the bodies of the crash victims — was found.

As we continued our search, equipment problems and inclement weather ate up precious time. Heavy use caused the Hotsy pressure washers to malfunction, and our master mechanic, WeeGee Smith, had to cannibalize parts from broken machines to keep others working. Winds as high as 78 miles per hour howled across the icy sheet of the glacier's surface, damaging tents and forcing the team to take cover. Whenever the forecast came in for sustained high winds, JPAC ordered the team to evacuate by helicopter to the village of Kulusuk, where we waited out the weather. Of the 45 days scheduled for the mission, weather prevented us from working on all but 27 of them.

As time started running out, the team's focus shifted from discovering new material to retrieving the debris identified in 2012. The team was one day away from melting its way down to the target depth when Greenland struck its knockout blow, dumping 36 inches of snow on our camp in 30 hours. JPAC declared the mission over five days early and evacuated everyone to Kulusuk. For now, the Duck had to stay where it was.

GOING OUT AND COMING BACK

No matter how hard the work was and no matter how frustrated we became with the pace of the search, none of us ever forgot why we were there: to find those three men beneath the ice. Our challenges paled in comparison to the suffering of the families who lost a father, son, or brother in the Duck crash. My grandfather came back from the war. We owed it to these men to see if we could help them do the same.

The Coast Guard has an unofficial slogan: You have to go out, but you don't have to come back. As JPAC and NSP make plans to return to Greenland to continue the search for the Duck, I am reminded of the selfless determination and sacrifice that Lt. John Pritchard, Radioman 1st Class Benjamin Bottoms, and Cpl. Loren Howarth showed in 1942, and of how eager they were to risk their lives to save their fellow soldiers. And I am humbled and eager myself to go once more into that frozen country to scour and search the ice, doing whatever I can to bring three men home.

A 1998 Residential College graduate, Nicholas Bratton lives in Seattle and describes his adventurous pursuits at nicholasbratton.com.



Unsolved Mysteries

The Duck isn't the only missing plane to leave a trail of mysteries in its wake. Here are some other crashes and vanishings that have stumped searchers and spawned conspiracy theories.

MALAYSIAN AIRLINES FLIGHT 370

On March 8, 2014, Malaysian Airlines Flight 370 — bound for Beijing — disappeared from radar around 2:15 A.M. Despite finding a series of oil slicks at possible crash sites and criminal activity linked to some of the plane's passengers — including two traveling on stolen passports, and money withdrawn from four passengers' accounts months after the crash — investigators never found the plane, and the cause of the crash has not yet been determined.

FLIGHT 19, STAR TIGER, STAR ARIEL

Between 1940 and 1969, five planes — including Flight 19 in 1945, the Star Tiger in 1948, and the Star Ariel in 1949 — all crashed in unexplained circumstances somewhere between Florida, Bermuda, and Puerto Rico, in what is commonly known as the Bermuda Triangle. That same period saw a series of mysterious events, including the sinking of the USS *Proteus* in 1941 and the disappearance of two unlucky lighthouse keepers from the Great Isaac Lighthouse in Bimini, Bahamas, in 1969.

THE ELECTRA

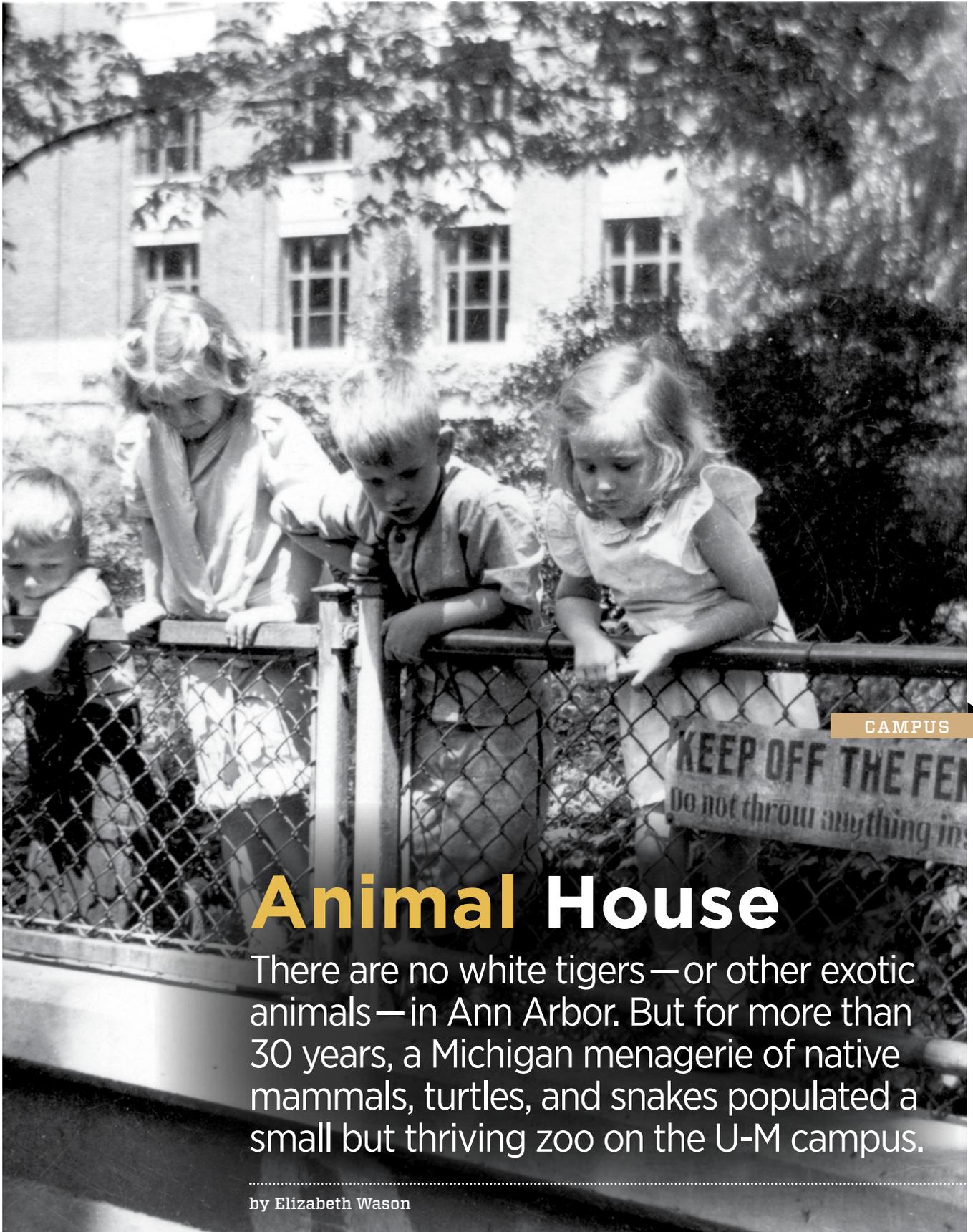
On July 2, 1937, Amelia Earhart took off from Lae, New Guinea, and flew toward Howland Island, a mile-and-a-half-long speck of sand in the middle of the Pacific Ocean. She and her navigator, Fred Noonan, rode together in Earhart's Lockheed Model 10-E Electra for more than 2,500 miles, but couldn't find the island. In one of her final transmissions, she said, "We must be on you, but we cannot see you. Fuel is running low." A \$4-million rescue mission scanned 250,000 square miles of ocean searching for the pioneering aviatrix, but the plane and both of its passengers were lost.

STAR DUST AND STENDEC

In 1947, a British South American Airways plane called the Star Dust crashed into Mount Tupungato in the Andes Mountain range. Before the plane went down, though, the letters "STENDEC" were transmitted by morse code to the Santiago airport three times in a row. It's not clear what STENDEC meant, but armchair historians are eager to guess: There have been suggestions that it might have been an anagram of the word "descent" or an acronym for "Stardust tank empty no diesel expected crash." The mystery has spawned a number of much wilder theories, also, including alien abductions and international sabotage. No definitive explanation for the term has been uncovered.

42.22° N, 83.75° W

From **coyote cages** to the **Screen Mavericks Archive** our tour of campus starts here.



CAMPUS

Animal House

There are no white tigers—or other exotic animals—in Ann Arbor. But for more than 30 years, a Michigan menagerie of native mammals, turtles, and snakes populated a small but thriving zoo on the U-M campus.

by Elizabeth Wason

IT WAS A MODEST ZOO.

Built in 1929, the “Animal House,” as it came to be called, was tucked behind the Alexander G. Ruthven Museums Building on campus, where the museum’s parking lot and east wing addition now sit. The brick, hexagonal building held six enclosures that formed a ring around a central room, where graduate students and staff prepared food for the animals that lived there. A narrow moat, guardrail, and chain-link fence surrounded the cages. A rotating cast of as many as four foxes, six raccoons, two porcupines, four skunks, four black bears, three coyotes, a badger, and possibly otters, bobcats, and opossums occupied the animal pens, although accounts vary for the latter animals. Even a wolverine, the byproduct of football coach Fielding Yost’s failed attempt at showcasing a team mascot at home games, wound up at the zoo early on.

Within a year of being built, the zoo expanded to include an enclosure for turtles and snakes adjacent to the main Animal House. Up to nine turtle species and seven snake species inhabited about 210 square feet of concrete equipped with a shallow pool and running water, all surrounded by a wire fence. Missing was the massasauga, Michigan’s only venomous rattlesnake. Perhaps rightly so. If one had escaped, as live mice meant for snake snacks sometimes did, then U-M would have had a serious problem.

Funding for the zoo came from an anonymous donor, along with an appropriation from the Board of Regents. The aim was to expose kids to Michigan fauna and use the zoo as a teaching tool in conjunction

with the museum. As a bonus, researchers could study animal behavior. When the Animal House acquired a pair of four-week-old bear cubs in 1933, the zoo grew in popularity, and museum staff obtained valuable information by measuring the growth rate and development of the young bears.

For more than 30 years, thousands of people visited the zoo, sometimes hundreds each day, strolling through walkways in the surrounding courtyard. But in 1962, the *Michigan Daily* published

the news that the zoo was slated to close under the headline, “Zoo Doomed to Make Way For Biosystematics Center.” The Animal House was dismantled, its resident creatures relocated from their campus home. Researchers ended up studying contemporary and evolutionary biodiversity in the east addition of the museum, at the very spot where live animals had once attracted local visitors. ■



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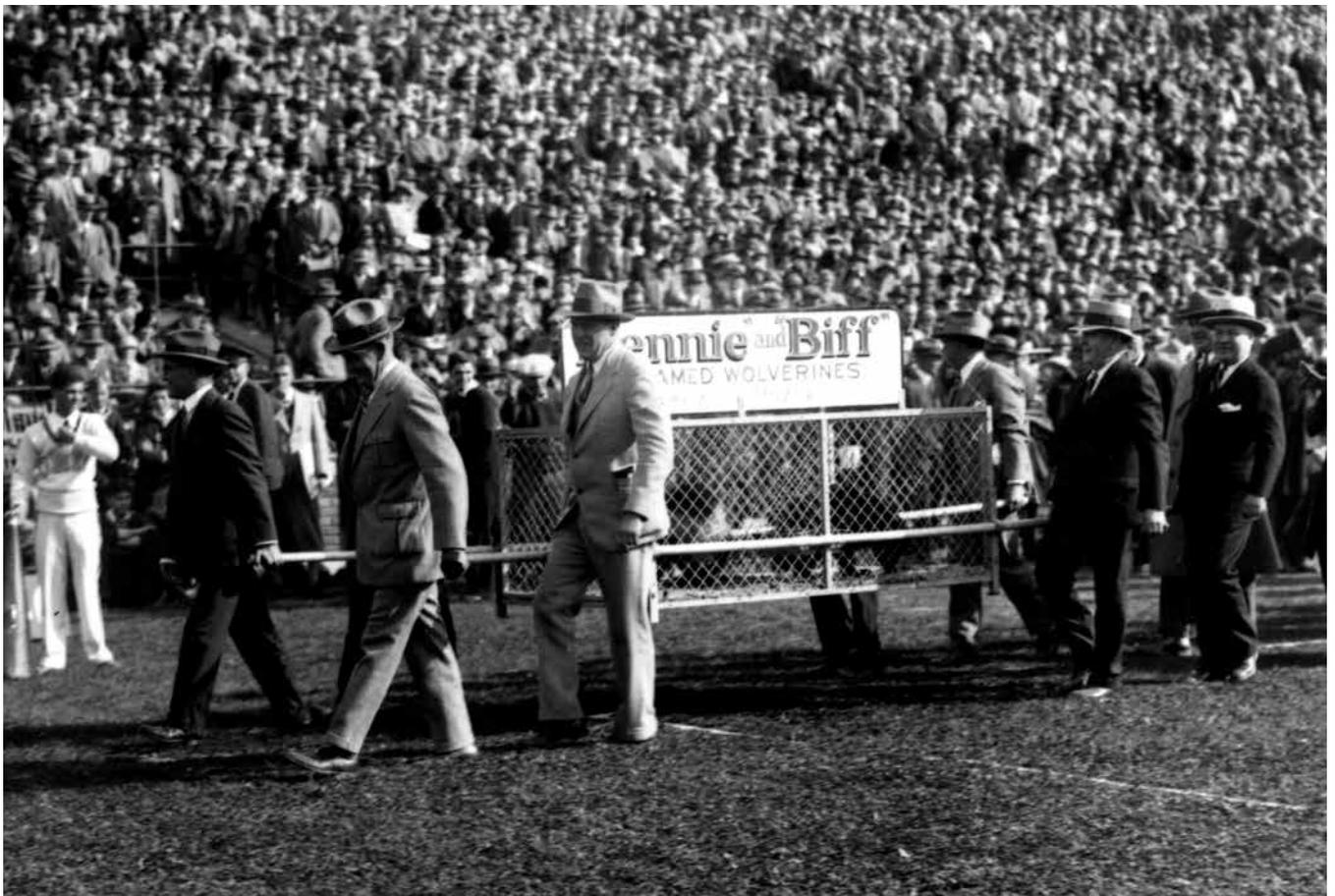
(PREVIOUS PAGE) **Wystan Stevens**, Ellen Yurick, Chuck Yurick, and Eve Stevens peer into the reptile enclosure, which held snakes and turtles (pictured opposite page). This photo dates back to the 1950s, when the Yuricks visited Ann Arbor almost every year.

(RIGHT) **“Kayo” the coyote**. Because they’re primarily nocturnal animals, the coyotes in the mammal house may have interacted only rarely with daytime visitors.



(LEFT) **The U-M zoo** sits in a courtyard just behind the Alexander G. Ruthven Museums Building. A chain-link fence encircles the mammal house, while the Ruthven Museum stands at the far left of the photo.

(BELOW) **U-M briefly employed a pair of live wolverine mascots** — named Bennie and Biff — on the field. Coach Fielding Yost got the idea after seeing badgers trotted out during a University of Wisconsin game, but Bennie and Biff grew increasingly aggressive and had to be retired as mascots after only a single season. Biff lived at the U-M zoo through the 1930s.





CAMPUS

The Outsiders Archive

What is it like to root around in a genius's creative process? A few lucky Screen Arts and Cultures students found out last spring after **filmmaker John Sayles** donated an archive of film-related materials to the University, including 199 boxes filled with journals, research notes, script drafts, letters, and more.

SIFTING THROUGH A BOX in the John Sayles archive feels a bit like taking a private tour of the acclaimed writer-director's brain. Students can see Sayles's inspiration in stacks of yellow legal pads, each crammed front to back with story notes. They can sense his personality in the piles of testy business communications that Sayles and producer Maggie Renzi — who is also Sayles's partner — had with difficult marketers and distributors and through candid photographs of Sayles goofing off on set.

The collection — part of the Special Collection Library's growing Screen Mavericks Archive — provides a vital resource for students, says Philip Hallman ('87), the film studies field librarian for Screen Arts and Cultures and the curator of the Screen Mavericks Archive.

"Students have this perception of what they want to do," Hallman says. "And as we get more of the archives into their hands, they begin to realize all that goes into producing a movie.

"It's not just about having a vision or writing a story or making it look a certain way on set," Hallman says. "It's about making lots of decisions and just keeping at it."



OUTSIDE THE SYSTEM

John Sayles made *Return of the Secaucus 7* in 1979 for \$40,000. He kept the budget low by shooting in a ski lodge that he rented for a dollar a day and in a bar that a friend of his ran. Made for a fraction of the cost of a Hollywood blockbuster, *Return of the Secaucus 7* was a hit, playing in theaters across the country and landing on a number of end-of-the-year Top 10 lists. The film launched Sayles's film career and is credited with jumpstarting the American independent film movement, proving that you don't need massive star power or a \$100-million budget to be successful. All you need is a great story and to tell it well.

Nominated twice for Academy Awards in the Best Original Screenplay category, Sayles has built a career outside of the studio system, financing, writing, and directing 18 feature films and working with actors like Angela Bassett, John Cusack, and Matthew McConaughey.

With hundreds of boxes of material gathered over decades of work, Sayles and Renzi began looking for an institution that could both preserve their collection and use it to teach the next generation of

film students. According to Hallman, a friend told the pair early on in their search: "There are a few places that you should look at, but you'll end up at Michigan."

Michigan — already home to the archives of Orson Welles and Robert Altman, both outsider filmmakers who achieved popular success while insisting on their personal artistic visions — seemed like a natural fit.

WHAT IT TAKES

U-M Library Special Collections Curator and Archivist Kathleen Dow and a team of library archivists spent a year sorting through the collection, making finding aids and grouping boxes together by project and topic. But even before the archive had been fully cataloged, LSA students were given early access and a rare chance to explore items that no one other than Sayles and Renzi had seen in years.

As part of a course in the Department of Screen Arts and Cultures, students worked to select content for an exhibit in Hatcher Library that took place earlier this year. Screen Arts and Cultures major Katherine Sherry, who was part of the class, says the project gave her a deeper

(OPPOSITE PAGE) **A poster depicting** John Sayles and (below) a slate from the film *Lone Star*. The Sayles archive includes items from throughout Sayles's life and career, including school papers, drafts of novels and short stories, personal photographs, marketing materials, film props, and costumes.

(LEFT) **Many of John Sayles's films** deal with working class characters, including this miner from *Matewan* (1987), whose 1920s-era cap lamp is part of the Screen Mavericks Archive.



understanding of what it takes to make a film independently.

“You only get so much from a lecture, from a book, or from watching a film,” Sherry says. “But when you’re handling the actual materials, you get a real sense of what it takes. Marketing, distributing, all of that. John and Maggie had to do all of that themselves.”

It wasn’t the first time Sherry had worked with an archive. She had participated in a similar class that worked with the Robert Altman collection in 2013, although she was the only one “brave enough to come back” for the class on Sayles.

“Michigan — already home to the archives of Orson Welles and Robert Altman, both outsider filmmakers who achieved popular success while insisting on their personal artistic visions — seemed like a natural fit.”

Finding material in either archive wasn’t easy. You couldn’t google where a particular item might be. Sherry and her classmates sifted through boxes, flipped through photographs, and read letters to search for content for the exhibit. It was time-consuming but rewarding work.

“You don’t have to search really hard to find sources, generally because everything is digitized now,” Sherry says. “But you don’t have the same kind of ownership that working with an archive allows you to feel. It’s a very tactile experience.”

THE NEXT GENERATION

When the exhibit for the Sayles archive opened, Sherry toured it with Sayles and Renzi, which Sherry calls an “amazing experience.”

“With John and Maggie, they would look at something and then they would remember something,” Sherry says. “And just to hear their stories about what they went through to get these films made meant so much.”

Sherry has broad interests, including museum studies, screenwriting, and set design. Working with the Screen Mavericks Archive has had an impact on how she thinks about all of those things, and she hopes that other students will take advantage of the tremendous resources available to them in LSA to expand their studies.

“U-M’s film experience is unique,” Sherry says. “And I think that adding this archival aspect to the department’s program just offers so many new and rich opportunities. I can’t wait to see what comes out of it.” ■

TAKE A VIDEO TOUR OF THE SAYLES ARCHIVE
www.lsa.umich.edu



FAST FORWARD

An LSA student takes her place at the top of the next generation of filmmakers.

Zaineb Abdul-Nabi ('14) was doing homework when she got the call telling her that she would be at the Academy Awards.

Abdul-Nabi (pictured above, second from right) had entered a contest to be part of Team Oscar. Contestants entered videos and essays explaining what they were going to contribute to the future of movies. Abdul-Nabi’s video mixes black-and-white with color footage, celluloid with video, static photos with motion shots. In one scene, subway commuters stand wreathed in darkness like civilians huddled inside a bomb shelter during WWII. In another, the lights in a corner grocery glow with a strange green tinge as if the whole store were underwater. Abdul-Nabi packs a feature film’s worth of grit and wonder into just 53 seconds. It’s easy to see why the Academy of Motion Picture Arts and Sciences chose her for Team Oscar.

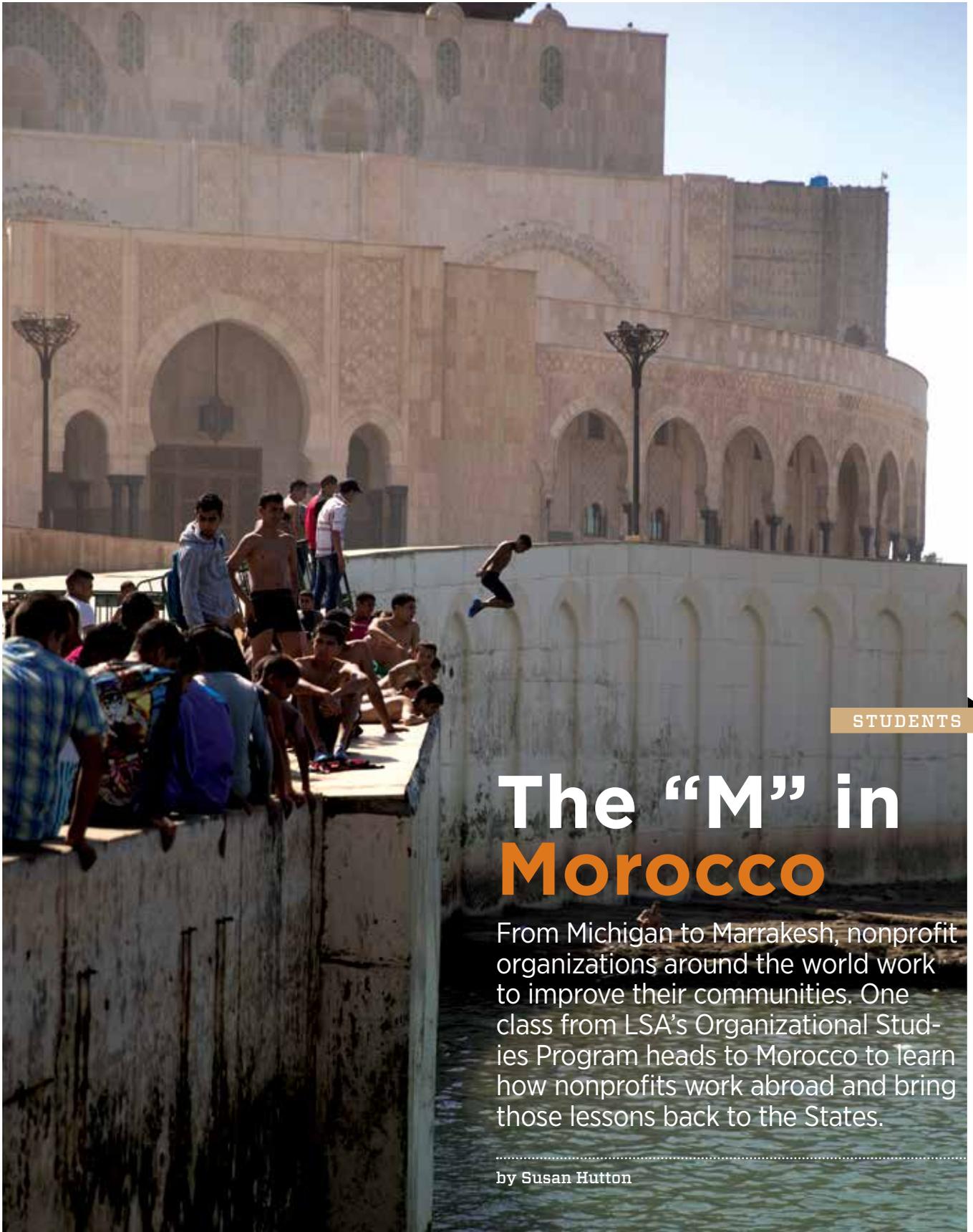
Winners were invited to hand out Oscar statues on the live broadcast of the awards program. Abdul-Nabi and the five other Team Oscar winners flew out to Hollywood a week before the show, attending rehearsals and touring studios. Abdul-Nabi handed out four awards on Oscar night, including Best Director to Alphonso Cuarón. As a member of Team Oscar, Abdul-Nabi reminded herself to “absorb the whole experience.”

“I didn’t go out thinking I was going to network,” Abdul-Nabi says. “The Academy is so far removed from what I’m doing right now. I’m still a student. I just wanted to remember everything.”

Abdul-Nabi isn’t sure what she’s going to do now that she has graduated. But the Team Oscar experience has given her the confidence to stick by her voice, trusting that she will find meaningful projects to be a part of.

“People do recognize talent,” Abdul-Nabi says. “That’s one of the major things that came out of this competition. Somebody recognized that six of us were talented. And they were investing in that.”

From **Reserve Rick's Café** to a **deeply disgruntled gridironer**, the worldwide LSA impact starts now.



STUDENTS

The “M” in Morocco

From Michigan to Marrakesh, nonprofit organizations around the world work to improve their communities. One class from LSA’s Organizational Studies Program heads to Morocco to learn how nonprofits work abroad and bring those lessons back to the States.

by Susan Hutton

IN THE UNITED STATES, nonprofit organizations are primarily defined by what they are not: They are not part of the government; they do not return profits to their directors. They do, as a rule, exist to benefit their communities — however those communities are defined. Last spring, students in the International Nonprofits class in LSA's Organizational Studies Program studied how organizations operate at home and around the world, learning what similarities — and what differences — they have with American groups.

For class, each student focused on a specific country, researched how nonprofit organizations are structured and organized there, and shared what they learned with the rest of their class. Halfway through the semester, all of the students trained their attention on Morocco — not because they were going to write a paper or give a presentation, but because they were going to Morocco in May.

“Because Morocco is a place where so many cultures intersect, the nongovernmental organization presence there is exceptionally rich and varied,” says Professor Victoria Johnson, who teaches the International Nonprofits class. “It’s a good place to find different examples of the way such organizations can work internationally.”

SERVICE LEARNING

In Morocco, the class’s 11 students worked at one of three locations: the special-needs ward of an orphanage, a hospital, and a school that teaches English to adults. And students didn’t just observe workers or push paper: They were there to serve.

LSA senior Heather Kendrick worked at the orphanage. She and the other students began each day by bathing more than 40 different people from the ages of six to 40, all with severe physical and mental disabilities. None of the students were fluent in French or Moroccan Arabic, and they had to improvise communication with full-time nurses while helping lift, bathe, and dress disabled patients together in a very small space.

Next, students fed the patients breakfast before enjoying more leisurely activities such as playing with children outside and strolling with wheelchair-bound residents on sunny days.

“I loved that we focused on learning about a topic throughout the semester,” says Kendrick, “and that we got to continue our educational experience in a very hands-on and involved way.”

And because this part of their education was practical, the trip gave students a glimpse of what nonprofit work is

often like.

“It was an extreme example of embracing a ‘just do it’ mentality,” recalls Kendrick. “If you saw that help was needed, you just jumped right in no matter what the circumstance. As someone who wants to be a teacher, I am particularly thankful for the opportunity to work with groups of children with such diverse ages, abilities, nationalities, backgrounds, and languages. Now I’m able to take those teacher-student possibilities back to my classroom and recreate them.”



(ABOVE) **Students enjoy** a beachside view of the Atlantic Ocean.

(RIGHT) **A red-and-blue sign** hanging over Reserve Rick’s Café, created for American tourists who came to Morocco looking for Rick’s Café Américain from the movie *Casablanca*.

(PRECEDING PAGE) **Swimmers** leaping from the wall beside the Hassan II Mosque in Casablanca.



HOME AWAY FROM HOME

In the afternoons, the students returned to what they called home base: a house in a residential neighborhood of Rabat where they reconvened to eat communal Moroccan lunches — vegetable tagine eaten with round flatbreads and couscous steamed over vegetables — before visiting Moroccan tourist sites and preparing for the next day's work.

The community meals gave students a chance to discuss what they were seeing in the three Moroccan nonprofits where they were stationed. For LSA senior Jenna Fiore, who worked in the Children's Hospital, that process continued into her summer internship as a New Sector Alliance Summer Fellow. "I still notice things that remind me of our time in Morocco," she says, "and I have continued to learn from the trip by comparing the nonprofit systems I see now at my internship with those I saw in Morocco."

She adds, "I chose an international nonprofit class to learn about practices other countries use to address issues U.S. nonprofits also face because I hoped to find new ideas and perspectives I could bring back to the United States."

There are all kinds of benefits to an experience like the Morocco trip, Kendrick says, including an ability to compare problem-solving methods in American nonprofits with other approaches while building leadership skills. But another important takeaway from the trip wasn't professional, she says. It was personal.

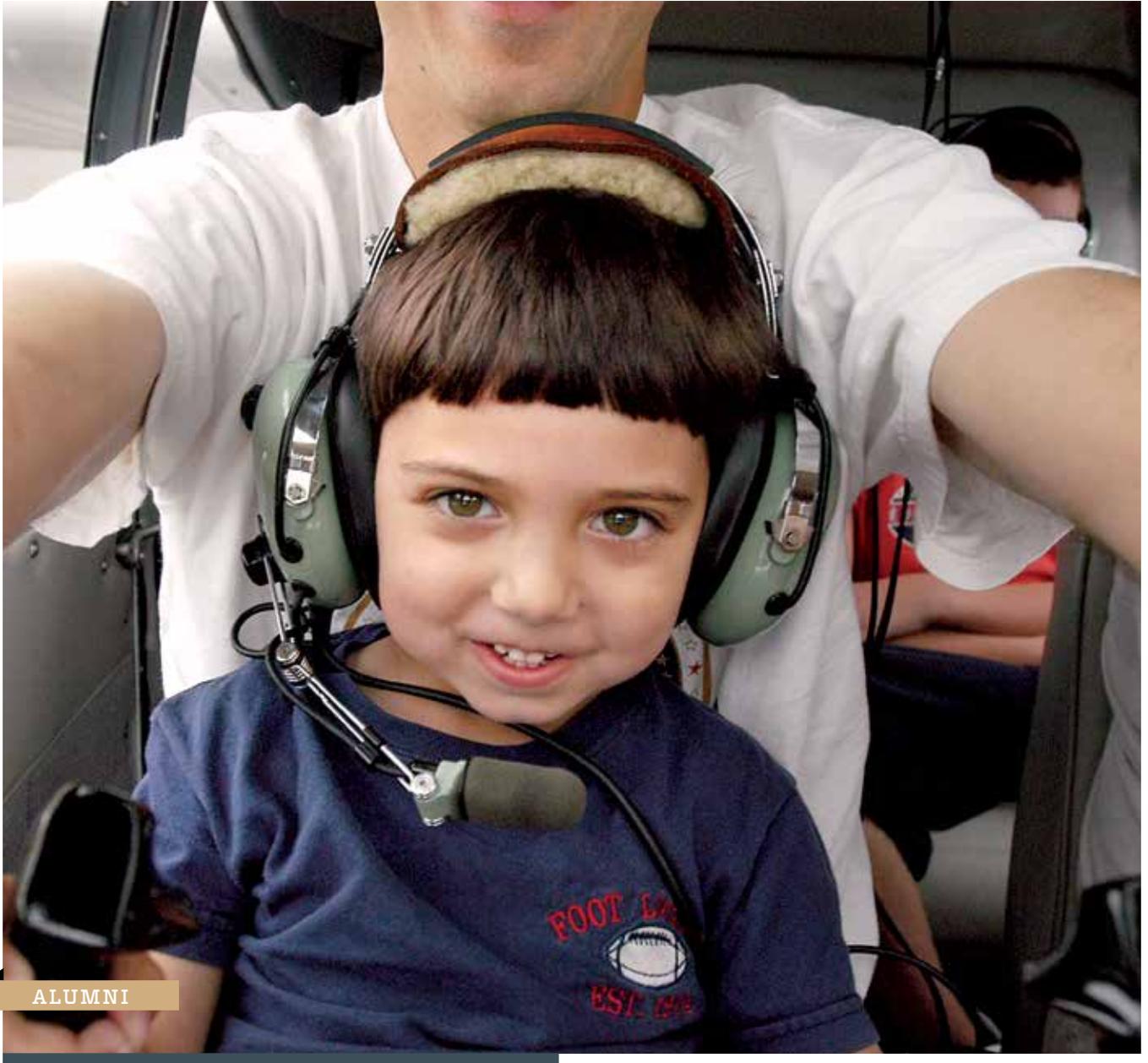
"Part of what made our trip so memorable was that we emphasized the importance of being a team when we traveled overseas," Kendrick says. "It was a community-building experience, and

there was always a component of our course that cultivated that. We worked together. We shared and supported one another academically and personally. And we evolved into better people throughout this experience." ■

(THIS PAGE) **In the afternoons** students were able to explore different parts of Rabat, including the medina, or old town (bottom left) at the center of Rabat, from which they could see the ancient city of Salé. They also visited the Andalusian Gardens of the Kasbah des Oudaias (bottom right), and the newer parts of Rabat along the outskirts (directly below).



by Brian Short



ALUMNI

No Such Thing As Typical

Dan Habib fights for inclusive education for kids with disabilities, making documentaries and flying all over the world to speak on the subject. His inspiration came when his son Samuel was diagnosed with cerebral palsy and his family found out how hard — and how important — it is to make sure everyone is included.

WHEN 3-YEAR-OLD SAMUEL HABIB was placed in a medically induced coma after post-surgery complications, Samuel's father, Dan ('87), began taking pictures of Samuel and their family in the hospital. Habib took shots of people hugging and talking, of Samuel crying. One image shows Samuel — who experiences cerebral palsy — lying in bed with a platoon of IV poles towering over his body, a powerful statement on the fragility of the human body.

The photos were part of a profound change that was happening in Habib's personal and professional life, and they were the beginning of a larger project that eventually became the documentary *Including Samuel*.

"Samuel's neurologist suggested to me, 'Why don't you tell the story using your journalism and photography background to say what it's like to be the parent of a child with a disability?'" Habib says. "In the beginning, I did it just to burn off some of the stress and anxiety that I was feeling. But some of those pictures of him in the hospital are in the film. That was how it started."

TRAINING GROUND

Dan Habib began his career at U-M in the art school, but says he wasn't a great art student. He was talented at photography but "terrible at painting and drawing and sculpture and everything else." Habib switched majors from art to political science, and he started working at the *Michigan Daily*, which he calls the "training ground" for his career in photojournalism.

"Working at the *Daily* was like working at a real newspaper," Habib says. "It gave me the ability to parachute into people's lives, to see and experience all of these things that you wouldn't get to do otherwise and meet incredible people."

Habib became the photography editor of the *Daily* during his sophomore year, and he stuck with photojournalism after graduation. His images have appeared in *Time*, *Newsweek*, and the *New York Times*. But when his second son, Samuel, was born in 1999, Habib's life and work both changed.

(OPPOSITE PAGE) **Dan and Samuel Habib** in the pilot's seat of Samuel's grandfather's seaplane, getting ready to take off.

(ABOVE RIGHT) **Isaiah Habib** (on the right) comforts his brother Samuel in the intensive care unit of Mary Hitchcock Memorial Hospital. Samuel had recently emerged from a medically induced coma. Isaiah was 7 years old; Samuel was 4.

(RIGHT) **Samuel Habib** (left) and his mother, Betsy McNamara (center), meeting then-Senator Barack Obama during the presidential primaries in Concord, New Hampshire, in 2007.

When Samuel was less than a year old, a neurologist diagnosed him with a mitochondrial disorder, and Habib says he did what "no parent should do but every parent would do": He googled it. The first prognosis he read: "Usually fatal."

Habib ultimately learned that there are thousands of mitochondrial disorders, and Samuel's variety is not life-threatening. But the disorder caused cerebral palsy, which prevents muscles from communicating accurately with the brain. *Including Samuel* — released in 2008 — documents the family's process of envisioning Samuel's future: his life, education, and happiness.

Samuel is a natural star. Whether he is telling jokes in the bathtub or roughhousing with his brother, Isaiah, Samuel's



laughter is contagious. He speaks slowly, but his eyes have that rare quality that allows them to express emotion with absolute clarity. When Samuel feels something — curiosity, joy, focus, hilarity, mischief — the viewer feels it, too.

But putting so much of his family on film wasn't an easy choice for Habib.

"It was a lot to ask of my family," he says. "There was honest vulnerability we had to show in order to make the story real, because if I had sugarcoated it or made it look easy for our family, that would have done a disservice to all the other families who are really struggling trying to make sure a child with disabilities is a part of their school and their communities."

ALL BOATS RISE TOGETHER

In *Including Samuel* and a number of films that he has made since, Dan Habib has documented the issue of inclusive education from all angles, including the perspectives of families, educators, administrators, and students. He follows kids who succeed in inclusive education — like Samuel, a perennial honors student now in ninth grade — and those who struggle.

"I try to show education in a way that's realistic," Habib says. "Because it's a very complex topic. I take on issues that I feel passionately about, topics I feel a light needs to be shined on, but I try to do it in a way that is journalistic in nature, that doesn't take a superficial look at the topic."

Habib cites research that shows that on average kids with disabilities are better communicators, get higher marks, and have

fewer behavioral problems when they're included in a general education classroom. What surprises many people, though, isn't that kids with disabilities do better in inclusive educational settings, but that so-called "typical" kids benefit, too. A recent Vanderbilt University study found that "typical" peers who were struggling academically gained an average of 1.5 letter grades as a result of supporting a fellow student who had a disability.

But there are more important things than good grades, Habib says. Children in inclusive classrooms practice patience, learn to help each other, and get better at meeting each other "exactly where they are."

And the message is getting out.

ROOM FOR EVERYONE

Including Samuel aired nationally on public television in 2009 and has been translated into 17 languages. His new film *Who Cares About Kelsey?*, which focuses on a student struggling with emotional and behavioral challenges, airs on public television this fall. Habib has shown his films at national and international conferences on disability and education. He attributes his successes as a photojournalist and filmmaker to a strong foundation in critical thinking, which he cultivated at Michigan.

"I have hired and mentored a lot of journalists over the years, and I tell them it's not just about learning to handle a camera or a microphone or writing; it's truly about critical thinking and research," Habib says. "You have to build a body of evidence. You have to present it in a compelling way. And you have to be able



to defend it. That's what I learned at Michigan, and that translates directly into all of the work that I've done in journalism and filmmaking."

Habib's filmmaking and advocacy earned him an appointment to the President's Committee for People with Intellectual Disabilities, which Habib joins this fall. Established by President Lyndon Johnson in 1966, the advisory committee works to "support independence and lifelong inclusion of people with intellectual disabilities in their respective communities."

Meanwhile, Habib continues to make films that resist easy answers, fighting for increased access for students with disabilities while acknowledging the very real challenges that students and educators face.

Because it isn't just about including Samuel, Habib says. It's about including everyone. ■

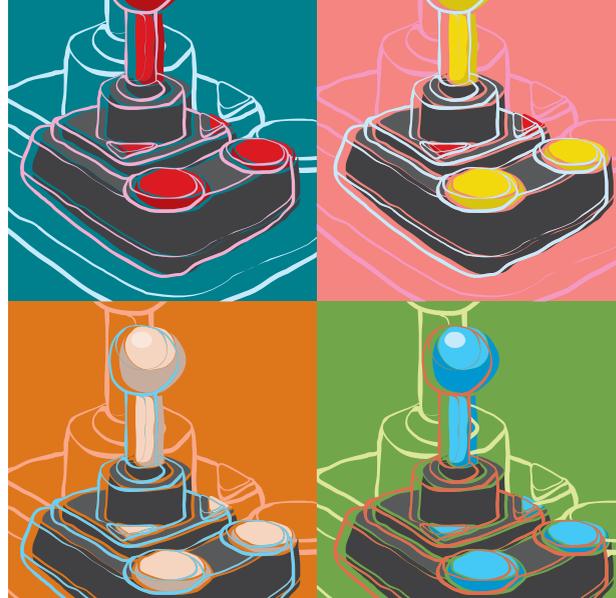
SEE A SLIDESHOW OF HABIB'S PHOTOGRAPHS AND FILMS
www.lsa.umich.edu

(OPPOSITE PAGE) Dan Habib films his son Samuel smacking a T-ball. Samuel, a proud Red Sox fan, has played from the time he was in grade school, hitting the ball off the T and using a bicycle and help from the coach to run the bases.

(BELOW) "The vision that became obvious to us was that we needed to make sure that Samuel belonged," Habib says. "That he belonged in our neighborhood, in our community, and perhaps more than anything, that he belonged in his local school."



PHOTO Dan Habib



The Simple Things

One LSA student uses joysticks and video games to teach about disability.

In the video game "Still Happy," you play as a person affected by cerebral palsy. Words appear on the screen — "Look at birds" or "Wave at passerby" — and the player has to type those words very quickly and without a mistake in order to perform the action. Because it's so hard to get right in the short time you have to type, performing these simple actions gives the player a feeling of real satisfaction.

When you fail to type the words fast enough, though, there are feelings of sadness and frustration. When the words "Put mail in mailbox" aren't typed quickly and correctly, an in-game helper says "Let me do it!" which is intensely frustrating. These feelings are the point, says Steven Uy ('14), one of the designers of the game.

"The game mechanic is meant to be difficult," Uy says. "Every time you fail, the aide still helps you, but you don't gain satisfaction like you would if you had completed the action yourself."

"We wanted to help people realize that it's not always the best thing to just do tasks for someone with cerebral palsy, for example, or else they'll never gain the same satisfaction that we do," Uy says.

Uy and Deng Ke Teo designed the game together as part of an LSA class on race and digital games, part of the Department of American Culture's new digital studies minor. The pair took inspiration from Uy's brother, Nathaniel, who has cerebral palsy and who delivers mail around his community as part of a special education program.

Uy graduated in May and now works as a software engineer for Sapient Corporation in Chicago, and he's proud of the game, which he dedicated to Nathaniel.

"He'll always have a special place in my heart," Uy says. "Despite all the things that have happened to him, he always has a smile on his face."

by Richard Johnson

the MICHIGAN DIFFERENCE



ALUMNI

Too Much Football

Two controversies — one about college athletes and concussions, the other about football players' right to unionize — dominated sports headlines in 2014, but these problems have a long history. LSA takes a look at Allen Jackson, a Wolverine who aired similar grievances more than 60 years ago — and stirred some passionate reactions by speaking out.

WITH MICHIGAN TRAILING CAL 6-0 AT HALFTIME of the 1951 Rose Bowl, a three-year-lettermen named Al Jackson ('51) stood up in the locker room and made a fiery speech to his teammates. The speech was so powerful that several players later attributed the Wolverines' second-half rally to Jackson's pep talk. Michigan won the game 14-6, and the next day's *New York Times* featured a picture of Jackson alongside the paper's account of the game.

Jackson started all nine games in the 1950-51 season. He made big plays in the storied "Snow Bowl" victory over Ohio State in November, and the *Times* proclaimed him a "hero" of the 1951 Rose Bowl win. But he was troubled by what was required of a big-time college football player. Jackson estimated that he had spent about 810 hours in the six history courses he took, while his hours on the gridiron came to 1,350. And that didn't even include football film study.

After graduating from LSA with an English degree in 1951, Jackson decided that what had been done to him was wrong, and he decided to say something about it.

STUDENT OF THE GAME

The October 1951 issue of the *Atlantic Monthly* features a 6,600-word article by Allen Jackson titled "Too Much Football" that told his side of the Michigan football story. The article — delivered in calm, considered prose — blamed alumni and fans for a "distortion of the sporting spirit" of football, and for placing too

much emphasis on winning at the expense of the education and well-being of the young men on the field. The article deemed college football "a poor bargain for the boys who play the game."

Reaction was immediate and widespread. Both the Associated Press and the *New York Times* wrote articles on Jackson's piece. *Time* magazine showed the article's effects reaching well beyond the Big House, affecting football fans across the country: "From West Point to William and Mary, college football had been thrown for a loss even before the season got under way. Last week, while football fans were flocking by the thousands to watch the slightly tarnished Saturday heroes in action, an ex-University of Michigan guard named Allen Jackson brought the ball carrier down again with a flying tackle."

(OPPOSITE PAGE) **Allen Jackson in his Wolverines uniform.** The footballer led an adventurous life after U-M, doing graduate study in England; working in a copper mine in Butte, Montana; and writing and narrating an album of satire on Folkways Records called *Varsity Cheer: A History of Western Civilization at Halftime*.

(BELOW) **A scene from the famous 1950 "Snow Bowl,"** in which Michigan bested Ohio State by a score of 9-3, winning the conference championship amid gusts of 35 mph winds and sub-zero temperatures. Jackson stands in the middle of the frame here in his No. 64 jersey.

The Wolverines' victory qualified the team to enter the 1951 Rose Bowl, where Allen Jackson gave a fiery halftime speech. Some players credited the speech with inspiring their 14-6 victory over the California Golden Bears.



“Jackson estimated that he had spent about 810 hours in the six history courses he took, while his hours on the gridiron came to 1,350. And that didn’t even include football film study.”

READ AND REACT

Michigan coach Bennie Oosterbaan (’28) answered Jackson’s charges with polite equanimity, saying, “Jackson is entitled to his opinion, but I believe it is an isolated one. If many of the charges were true, I would not be part of this staff.”

Athletic Director Fritz Crisler was more blunt. “I am not surprised at anything [Jackson] might write,” Crisler said.

According to Jackson’s sister, Caroline Jackson Blakemore, the very public way that Jackson criticized Michigan’s athletic program was symptomatic of a broader dissatisfaction that Jackson had with the world.

“Allen had a difficult life,” says Blakemore. “He was extremely smart and had a wonderful memory. He could recite Shakespearean sonnets and Tennyson poems. He read everything and was a wonderful writer.

“But how can I say...he was a bit difficult,” she continues. “He burned his bridges. He would do what he did at the University of Michigan [throughout the rest of his life]. He would find stuff to criticize and then he would criticize it.”

For Dan Dworsky (U-M ’50), Jackson’s teammate in the 1940s and a famed architect whose works include the Crisler Center, Jackson’s article was just part of his toughness. Dworsky describes Jackson as a “hard-nosed player, a guard, a lineman who would come up bloodied.”

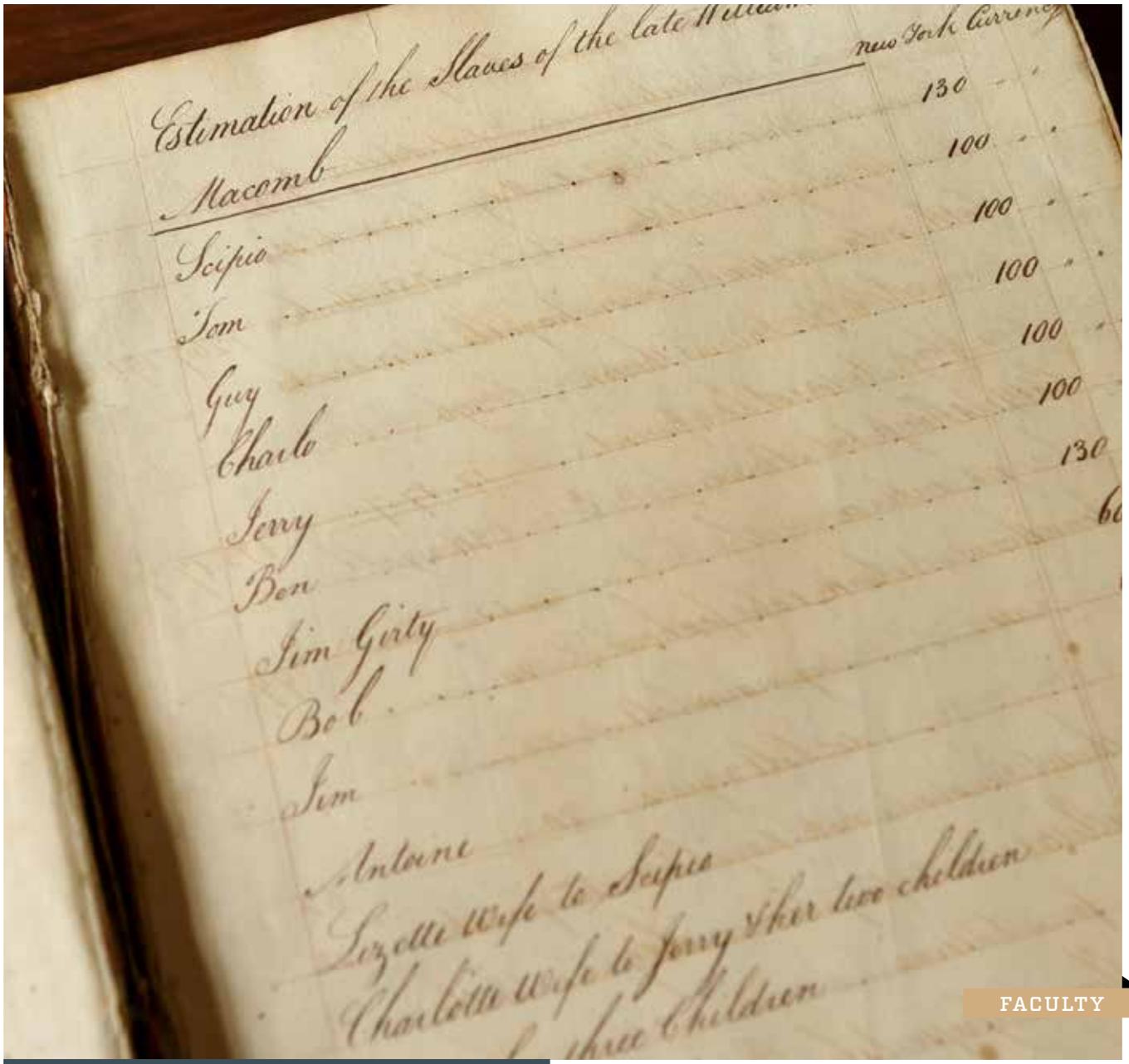
“I respected the way he played football,” said Dworsky.

At a team reunion decades later, Dworsky and his wife went out of their way to have lunch with Jackson, who was shunned by other former players because of what he had written.

“Too Much Football” was anthologized occasionally and now seems prescient in its articulation of the pressures facing student athletes, a topic that is still in the news. But football didn’t define Jackson. He wrote plays and made spoken word recordings in the 1960s, and he continued working as an artist, writer, and performer, entering poetry slam competitions until very close to the end of his life. He died in August 2010 in Trenton, New Jersey, at the age of 83. ■

(BELOW) **Former Northwestern quarterback Kain Colter** (second from right) speaks at a news conference last January, announcing the formation of the first labor union for college athletes. A vote to unionize came after a regional National Labor Relations Board ruled that student athletes at private universities were actually “employees.”





FACULTY

Mapping Slavery in Detroit

Professor Tiya Miles and a team of students have spent two years researching the history of slavery in Detroit, mapping the locations and lives of slaves and former slaves and reclaiming an essential part of the city's history.

THE INTERSECTION of Brush and Macomb streets in Detroit's Greektown looks like a lot of corners in the city. Trash freckles the sidewalk. There are only a handful of cars — two Fords, one Chevy — parked on the road. The top floors of both the Greektown Casino and GM's headquarters are visible in the distance, the GM's Renaissance Center a sleek silver cylinder, the casino's windows a range of darker blues like the river at night. You can see a century of history on that street corner, but any obvious hint of the place Detroit used to be before the car makers came — when the city was a French outpost, and later an American territory — is gone.

For example, where a pay-by-the-hour parking lot sits now, there once was a house that belonged to a woman named Elizabeth Denison Forth in the early 19th century. Forth was born a slave, obtained her freedom by running away with her family to Canada, and returned to Michigan, where she built a career as a local businesswoman. But her story and the story of other African American and Native American slaves isn't widely known to Detroit residents or visitors and goes unremembered in the monuments and memorial markers in the city. Professor Tiya Miles — professor of

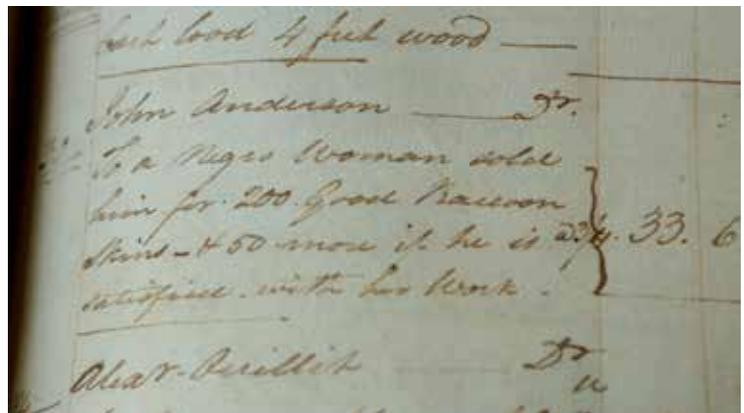
Afroamerican and African Studies, American Culture, and History — is working with a team of LSA students on a project that aims to change that.

"I am one of those people who really feels like history is critical to how we think about ourselves as individuals, as members of a global society," Miles says. "We develop a sense of who we are and where we're headed based on our past, and if there are huge gaps in our knowledge of the past, I think we're going to carry those gaps forward into how we think of ourselves or try to solve problems for the future."

(PREVIOUS PAGE) **A list of estimated prices for slaves** living on the Macomb property. The appraisal occurred after the patriarch of the Macomb family died, and stock was taken of his possessions.

(RIGHT) **From the Macomb ledger:** "To a negro woman sold him for 200 good raccoon skins — 50 more if he is satisfied with her work."

(BELOW) **Miles** (center) and undergraduate Kaisha Brezina (left) and graduate student Emily Macgillivray (right) searching for the location of Elizabeth Denison Forth's home.



While researching Michigan abolitionism in 2010 as a fellow in LSA's Eisenberg Institute for Historical Studies, Miles discovered that while slavery was made illegal in Michigan directly prior to the Civil War, the territory permitted slavery in some cases before then. Miles decided to partner with Michigan's Undergraduate Research Opportunity Program (UROP), which pairs first- and second-year students with faculty for mentoring and research, on a project that would gather information about slavery in Detroit and then share that research.

"I didn't know what we would do with the material at first," Miles says, "but I wanted to make sure that it was the kind of project that would allow students to do field research and take ownership of the material and share it with a broader public."

CHILLING DETAILS

Beginning in 2012, the team — consisting of four undergraduate researchers, two graduate students, and Miles — worked together to find and transcribe a series of documents from the time period to learn more about the lives of slaves and slaveowners in Detroit.

Details from the documents are chilling. The will for William Macomb, head of one of the largest slave-owning families of the time, lists slaves alongside items that Macomb intended to bequeath to his wife such as "cattle, household furniture, books, plate, linen, carriages and all my utensils of husbandry." The Macomb family's financial ledger includes a list of estimated prices for slaves on the property, including prices for a nine-year-old girl named Betta (\$50) and a

seven-year-old named Phillis (\$40).

Some stories that came out of the team's research were more heartening than harrowing. One narrative that emerged was the story of the Denison family. The Denisons were slaves belonging to the Tucker family until that family's patriarch died, and the Denison family was split apart. The parents — Hannah and Peter — went to live with Elijah Brush, a wealthy lawyer, while Hannah and Peter's four children — including Elizabeth Denison, later Elizabeth Denison Forth — remained with the Tuckers.

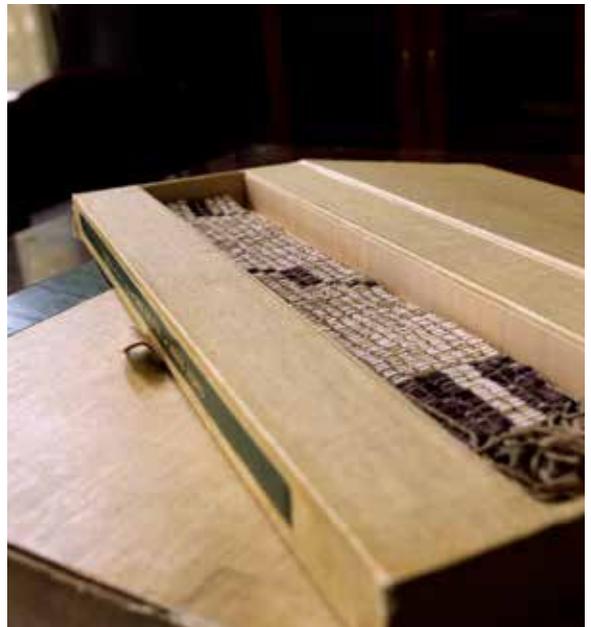
After a year, Peter and Hannah became free, and sued for the freedom of their children. After Judge Augustus Woodward sided with the Tuckers, the Denisons escaped to Canada, and though they returned to Detroit later, none of



(LEFT) **The parking lot at Brush and Macomb** where Elizabeth Denison Forth's home once stood.

(BOTTOM LEFT) **Very little of Detroit's pre-20th century** history has been preserved, leading to odd juxtapositions like this United Way torch standing on the spot where a public whipping post once was.

(BELOW) **The wampum that served as part of the original** deed to Belle Isle, preserved in the Detroit Public Library's Burton Historical Collection, which also includes the Macomb ledger.



the family members were ever claimed as slaves again. Elizabeth Denison grew up, got married, and became a business-woman, earning enough to buy property in the city. She even became a cook of some renown in Detroit and, during a brief trip abroad with the family she cooked for, in Paris.

While stories like the Denisons' were an essential part of Miles's project, her team also worked as a group to solve research problems and make critical decisions about the direction of the endeavor. They decided together, for example, that they wanted to take their research and make a website that would link their work with real locations in Detroit.

"Making a website is an immediate way to share what you find and to get feedback," Miles says. "From the beginning, we thought we would do something online, but we didn't know what it would consist of. At some point we thought it was going to be transcribed documents, but I don't think that would have been quite as exciting as what we ended up with."

MAPPING SLAVERY

What the team ended up with was mappingdetroitlavery.com, a website — designed by LSA alumna Ariela Steif ('10) — that includes a description of the project, graphs showing census data on slave populations, and an interactive map featuring 11 sites related to the team's research — including churches, farms, and houses. Because many of the places were so close to each other, the team did a walking tour of downtown Detroit, seeing firsthand the places where slaves lived, worked, and worshipped.

As with Elizabeth Denison Forth's house in present-day Greektown, though, not much remains of early Detroit. A Courtyard Marriott stands where former territorial Governor William Hull once lived. The Spirit of Detroit statue sits across the street from where a public whipping post once stood. While the students were able to overlay what they knew about early Detroit with what they saw, not much remains of the world the Denisons lived in.

And while the Macomb family has a street — and a Michigan county — bearing its name, and Judge Woodward's surname adorns one of Detroit's main thoroughfares, the history of slavery in Michigan has largely been forgotten, creating a specific kind of amnesia that Miles and her team's website is dedicated to correcting.

Miles believes that hearing these stories can lead to personal transformation for people reading and learning about slavery in Detroit, and that it can also lead to bigger changes where "people take what they've learned and feed that into positive community building." She credits her students with the project's success.

"I would have had such a different project if I hadn't been working with them," Miles says. "Seeing things through their eyes and going through the process of teaching them how to do research really reorients the project for you, the researcher. There's such a huge benefit to that." ■



WATCH A DOCUMENTARY ABOUT SLAVERY IN DETROIT
www.lsa.umich.edu



The team out on the streets of Detroit. (From left) Undergraduate Paul Rodriguez, graduate student Emily Macgillivray, Professor Miles, and graduate student Michelle Cassidy. Rodriguez, Khan, and Cassidy all completed travelogues for the Mapping Slavery in Detroit website, recording their thoughts on their research and what it means to the city.

From “**Michigarg**” to **Dean Martin or Dean Martin**, our interactive ride accelerates this second.

CAMPUS

Socket to Me

Buying pre-fab lab equipment off the shelf is an option for students and profs, but sometimes unique research requires unique tools. At U-M, researchers can create custom devices in a precision machine shop right here on campus. Come with LSA as we take a peek inside the College’s **Scientific Instrument Shop**.

by Elizabeth Wason

TO GET TO LSA'S Scientific Instrument Shop, pass through the courtyard filled with leafy bushes and sculptures that's between West Hall and Randall Laboratory. Continue into the basement of Randall Lab and follow the sound of buzzing machines until you reach a metal door. Step through that door, and you'll find a row of hulking milling machines. They look like awkward behemoths, but these machines can shave layers of solid material to specifications within a thousandth of an inch.

"Can you picture what a thousandth of an inch is?" asks Mike Folts, who supervises a team of four highly skilled instrument makers at the shop. "Your hair is probably three thousandths of an inch in diameter. Divide the thickness of your hair into three pieces," he continues. "That's how thin this machine can cut." Case in point: The team of instrument makers has built a device that holds a capillary so small, biological cells have just enough space to flow through one at a time. The shop creates such precision

apparatus not only for research labs in the physics, chemistry, and astronomy departments of LSA, but also for departments and programs across campus.

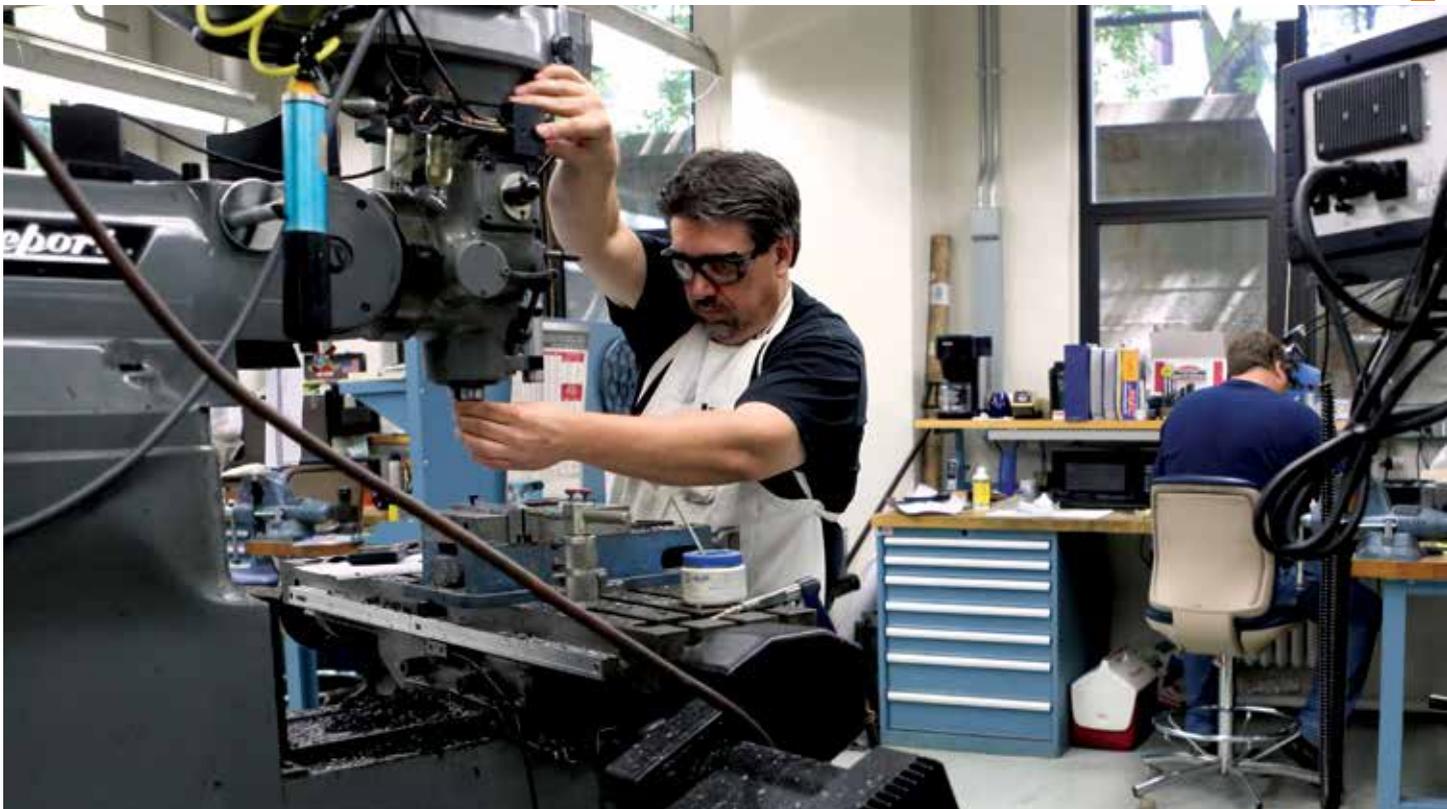
Around 1892, the physics department established its own independent machine shop. Back then, physicists had to build many of their own research devices, and the shop became an important part of the department's success, especially the pioneering research that involved infrared spectrometers and particle accelerators. The shop eventually moved to Randall Lab, where it has been since 1963. In 2010, the separate machine shops in physics, chemistry, and astronomy consolidated to form the LSA Scientific Instrument Shop, which has a staff of five instrument makers. One of the machinists supervises the Student Shop next door, where researchers on campus can learn to custom build their own equipment.

The shop houses dozens of precision machines, at least 600 different tools, and more than 4,000 types of hardware of incremental size. Stacks of drawers

labeled "tiny end mills," "boring heads," and "jewel saws" neatly occupy much of the space. Metal pieces pile onto shelves that line the walls, and you can dip your hands deep into barrels filled with plastic shavings.

The shop's projects are as diverse as U-M's campus. The team of instrument makers has built an artificial sky that captures light for a graduate student project; a device that converts sunlight to electricity for a physics lab; wheel covers for the solar car team; artificial aquatic ecosystems for a lab in the School of Natural Resources and Environment; and for the U-M Health System, an accessory that treats retinal cancer with radioactive pellets. The shop also helps maintain or build components for telescopes in Angell Hall, the Detroit Observatory, and the Las Campanas Observatory in Chile.

The skilled instrument makers in the shop are not trained scientists, Folts admits. "We try to understand the science to the degree necessary to create an apparatus," he says. "But we also need to know



when not to be precise.” The aim is not to perfect every project to the thousandth of an inch — that would take too long and isn’t necessary for every piece — but rather to keep labs up and running with optimum precision, expense, and effort. “It’s a continuous judgment call,” Folts says, and the staff has decades of experience among them in making those decisions.

The sculptures in the courtyard outside of Randall Lab commemorate some of the discoveries by U-M physics faculty that wouldn’t have been possible without the instrument shop. They include pieces that celebrate the observations of magnetism in electrons by H. Richard Crane and the groundbreaking research on antimatter by Arthur Rich (Ph.D. ’65). Physics Professor Emeritus Jens Zorn designed the sculptures, and if they look particularly well made, that’s

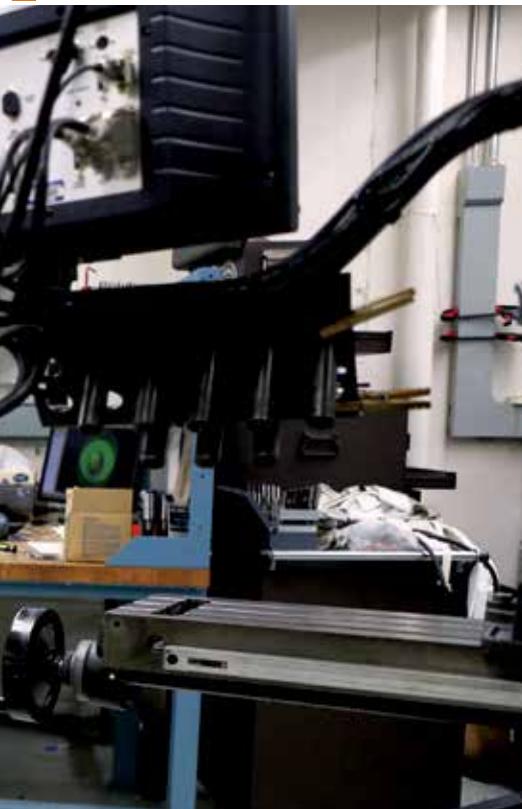
because the team of instrument makers at LSA’s Scientific Instrument Shop had a hand in building some of those, too. ■



(BOTTOM LEFT) **Steve Donajkowski** (left) works at a milling machine as Scott Webster examines a project design at his desk in LSA’s Scientific Instrument Shop.

(PREVIOUS PAGE) **Teeny-tiny end mills** and plug gages (pictured above) are some of the pint-sized tools used in the shop.

(LEFT) **A component** made for a telescope.



Finding the Right Tool

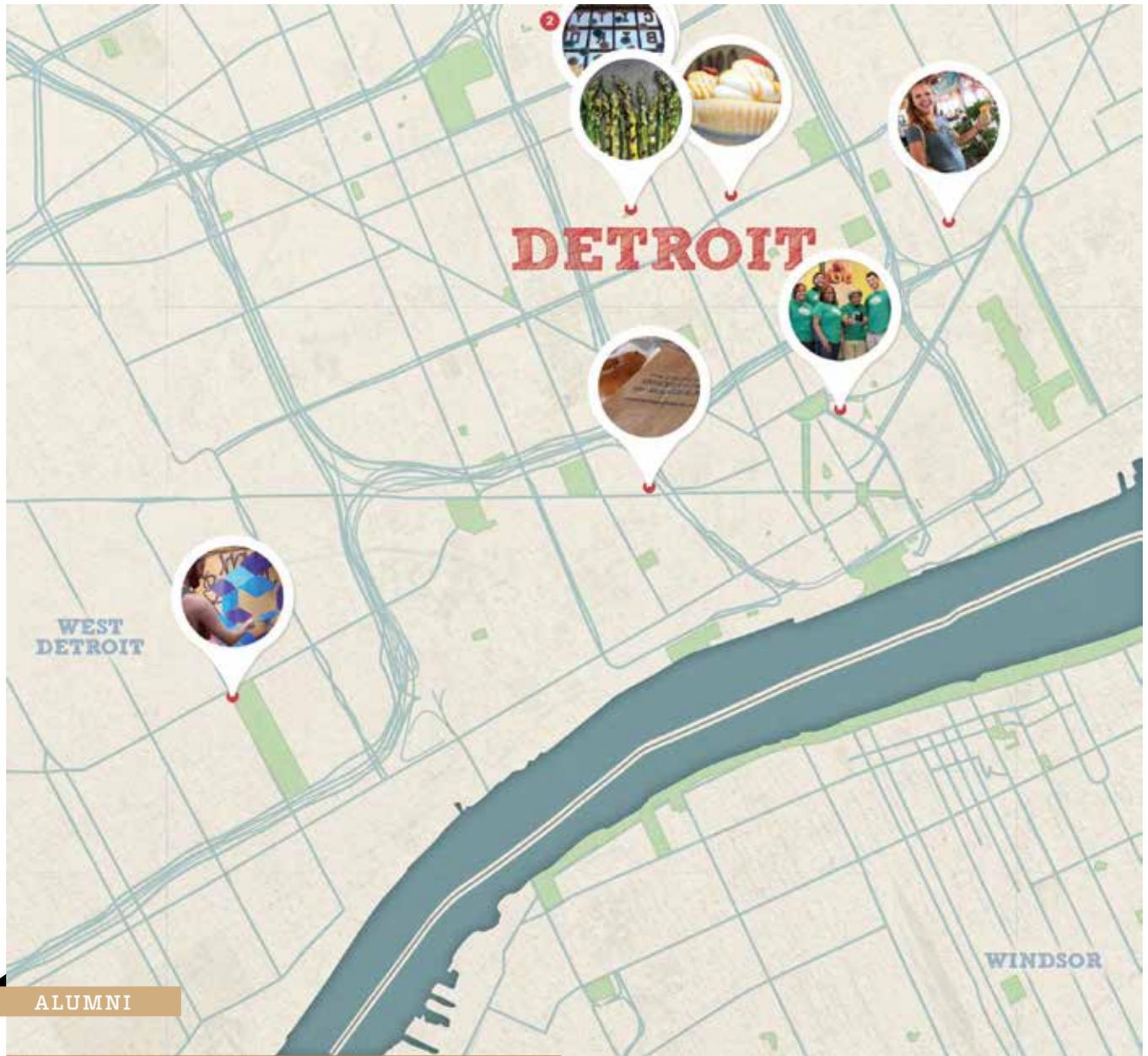
Earn the title of armchair master instrument maker by finding these machine shop terms in our word puzzle.

TERMS:

- Prototype
- Cryostat
- Coping Saw
- Riveter
- Gasket
- Mandrel
- Caliper
- Shim Stock
- Tap Wrench

P	O	R	E	Z	T	O	R	C	O	P
M	L	A	N	E	C	F	V	A	R	I
A	Z	H	C	X	R	X	E	L	E	N
N	F	G	N	W	Y	R	N	I	T	G
D	P	R	O	T	O	T	Y	P	E	S
R	G	T	E	K	S	A	G	E	V	A
E	S	C	U	H	T	X	L	R	I	W
L	F	W	C	M	A	J	Y	B	R	V
S	H	I	M	S	T	O	C	K	B	U
S	H	C	N	E	R	W	P	A	T	I
R	A	V	E	T	R	I	X	Y	O	L

by Lara Zielin



ALUMNI

In Detroit, LSA is on the Map

DON'T ORDER FLOWERS. Don't sign the card.

Don't offer your sympathies.

Detroit is far from dead.

The media shows Detroit as a city filled with empty factories and abandoned office buildings, a place on its last legs. But that's only a fraction of what's going on in the city, which is becoming a bigger, more dynamic place determined to reinvent itself.

Take a tour of Detroit where culture, commerce, and cuisine are front and center, with LSA alumni leading the way. Start your morning with a cup of sustainably grown coffee from Red House Imports. Sample local fare and small plates at Selden Standard. End your outing with dessert at Taste Love Cupcakes (try sweet potato — it's a big seller).



PLAN YOUR TRIP WITH THE LSA IN DETROIT PINTEREST MAP
www.pinterest.com/uofmichigan/umich-lsa-in-detroit

Dean Martin or Dean Martin?

Get to know the 18th dean of the College of Literature, Science, and the Arts by seeing how well you can match up the statements below with him or the King of Cool. (For the record, we think — and as anyone following @ProfADM could attest — our Dean Martin's pretty cool, too.)



1.

Boxed under the name Kid Crochet and won “all but 11 of 12 fights.”

2.

Known for being an expert in the study of judicial decision making, specifically in the Supreme Court and lower federal courts.

3.

Daughter’s name is Olive.

4.

Although born in Ohio, spoke only Italian until age 5.

5.

First New York gig: teaching at Stony Brook University.

6.

First New York gig: singing at the Riobamba Room.

7.

Earned an A.B. in mathematics and government from the College of William and Mary and a Ph.D. in political science from Washington University in St. Louis.

8.

Style of singing owes much to Harry Mills of the Mills Brothers.

9.

Was a principal investigator on eight grants from the National Science Foundation.

10.

Jobs growing up included working in a casino and a steel mill.

11.

Likely hashtag: #scotch

12.

Likely hashtag: #SCOTUS

ANSWERS: 1. Dean Martin; 2. Dean Martin; 3. Dean Martin; 4. Dean Martin; 5. Dean Martin; 6. Dean Martin; 7. Dean Martin; 8. Dean Martin; 9. Dean Martin; 10. Dean Martin; 11. Dean Martin; 12. Dean Martin.

The Only One

by Sarah Granger ('96)



“THIS IS THE FUTURE,” my dad said. “I want you to learn it.” He unveiled our first computer, and I instantly became a girl in tech.

My dad didn’t need to push me into anything: I dove willingly into technology, filled with wonder, examining every corner of our Apple][+. I was fascinated by the microchips and the modem, and I mastered the word processor in the first week.

My parents quickly enrolled me in typing and programming classes. I was the only kid there, but soon enough I was helping the adults with their class projects. By the time I took the one programming course offered at my high school, I had grown accustomed to being the only girl in the room. I undertook the art of fitting in with the boys, with whom I shared a passion for technology.

As a U-M student, I struggled to find my place. I suffered from low self-esteem, self-doubt, anxiety, and depression, wavering between Engineering and LSA before taking my sister’s advice to design my own major. I called it “Technology and Society,” comprising courses in

engineering, entrepreneurship, network administration, technology policy, and screenwriting.

For the first time, I felt like I didn’t need to decide between technology and the arts: I could do both. I became an active student leader. I started making more friends — other explorers — men and women. I wrote, directed, and produced the first (as far as I know) cyberpunk stage play, *Invasion of Cyberspace*.

I knew I wanted to go to Silicon Valley after I graduated, so I headed west and joined my first startup, founded by a woman. My manager was also a woman. Finally, I wasn’t the only woman in the room.

Looking back now, I realize how lucky I was to have women mentors in college and in my early professional life. I read a lot about “tech’s gender problem” — how enrollment of women in computer science programs is dropping, how underrepresented women are in Silicon Valley companies, how high-tech investors are

biased against women, how women are harassed in the workplace and online. It’s all real; I’ve lived it.

I wish I could say the solutions to these problems are simple, but they’re not. Women face challenges at every stage of our careers. To be a woman in tech is to rise above stereotypes, to move beyond classroom hurdles or corporate stalemates, to fight for equal treatment, and to forge your own path.

In the years since I moved to California, I’ve played many different roles — engineer, manager, entrepreneur, consultant, journalist, connector, philanthropist, blogger, advisor, investor, and now author — but I never stopped being that girl in tech. I’ve found strength in communities of other women in tech — innovators, thinkers, and polyglots like me.

I’m still filled with wonder when I explore new technologies. The difference is: I’m no longer the only one. ■

Sarah Granger is the founder of the Center for Technology, Media & Society and the author of *The Digital Mystique*.

The Future in 1995

Enjoy an excerpt from Sarah Granger's one-act play for a taste of what the future looked like almost a decade ago.

Popular singles from 1995 include TLC's "Waterfalls" and Montell Jordan's "This Is How We Do It."

From *INVASION OF CYBERSPACE*,
a one-act play
By Sarah Granger

A virtual reality rendering of the global computer network, alternately called the Grid, the Net, or the Matrix.

Ian Kazmekrovsky, age 27. Kaz is a "fixer," a shady wheeler-dealer, smuggler, and information broker who operates in the shadows.

Produced on U-M's campus in 1995—an era in which people used dial-up modems to check their "electronic mail."

KAZ

I won't hurt you this time. Not as long as we're honest with each other.

GUEN

Guenevere (no last name given), age 25. Guen and Kaz have a complicated backstory involving broken hearts and an unsolved murder.

I was never dishonest.

KAZ

Shh... You held things back, so did I. It's in the past. Relax. Get better.

Guen has had a virus implanted into her cyberware—implanted technology that interacts directly with the body. The plot of the play revolves around Guen and Kaz's quest to destroy the virus.

GUEN

I thought I'd lost you once, I don't want to deal with that pain again.

Markosh Allen, age 22. Alley is a "netrunner," a computer programmer whose abilities allow him to explore cyberspace.

KAZ

The pair's star-crossed romance makes *INVASION OF CYBERSPACE* a little like *Casablanca* set in a busted-down cybercafé.

Me either.

[Kaz continues to hold Guen as she holds him, and rocks her gently. They remain this way as Alley begins to react to what he sees in the net, shaking, occasionally mumbling, exclaiming in surprise. The scene should continue with these opposing actions while Alley speaks.]

The idea of "the net" as a plane of virtual reality was made popular by William Gibson's sci-fi classic *Neuromancer*, which influenced many later novels and films including *The Matrix*.

ALLEY

Wow! This is pretty intense. The speed of the net is incredible. I think they did some new attachments. And the system sequences have been changed. It's no big deal, though. I'll get in. [beat] Damn. The grid's changing colors. [beat] This is beautiful. I think I'll live in the matrix. Someday. Someday I'll code a way to get in here and never leave.

Netrunners use their programming skills against corporate counter-hacking programs in a kind of simulated combat.

Slang for "killed."

KAZ

Don't worry, Guenevere. I won't let you be deleted by a bunch of binary. We'll kill this thing. [He kisses her.]

Slang for "destructive computer code."

Love wins! For now...

DID YOU MISS IT?

Make sure you check out these stories!



It was a modest but thriving
zoo. **P.37**

Can you picture what
a thousandth of an
inch is? **P.57**



A POOR BARGAIN FOR
THE BOYS WHO PLAY THE
GAME. **P.50**

Dean Martin or Dean
Martin? **P.63**