MAGAZINE

MLSA

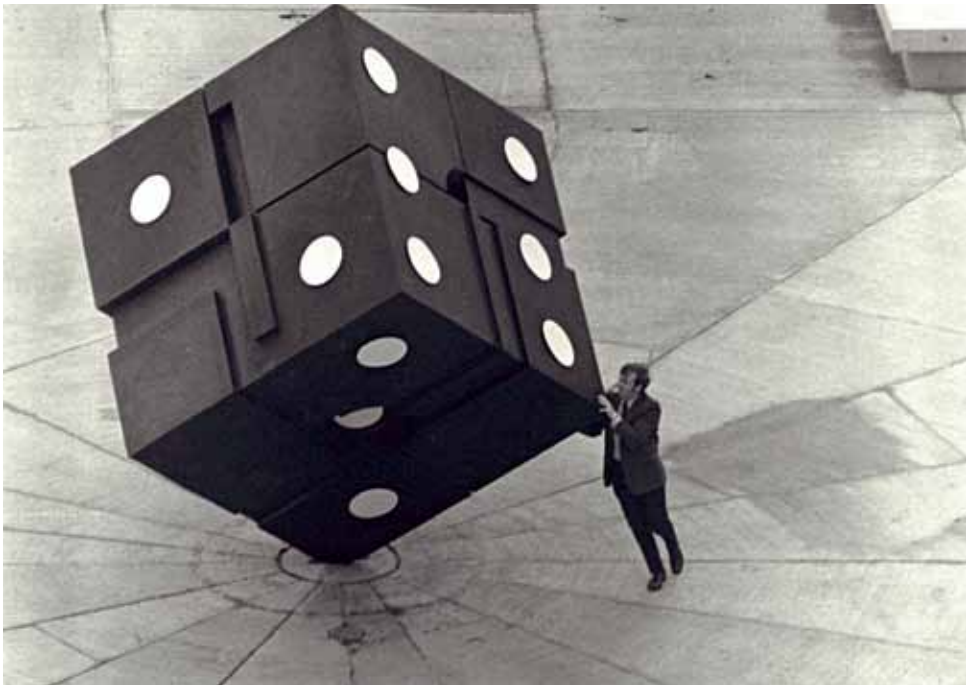
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Fall 2012

Red, White, and Blurred
Money, social media, and a schizophrenic democracy

Tiny Wars We Barely Understand
Microbial superorganisms and the battle primordial

Fight Club
"I don't coach girls, I don't coach boys. I coach people."



UPDATE

Recognize the Photo?

If so, chances are good that you were on campus in the late '60s — or that you have rather wisely liked the College of Literature, Science, and the Arts on Facebook.

THIS IMAGE, uncovered at the Bentley Historical Library, is one of the treasures we've recently shared via our Facebook page. From stories of students and alumni making the Michigan Difference to (un)healthy doses of nostalgia, we're offering new content every week — exclusive photos and videos that appear only on Facebook.

Each day, we discover new examples of why it's great to be a Michigan Wolverine. And you deserve to hear about them. So we're dedicated to telling you those stories — whether it's on these pages or through social media.

Like us at **facebook.com/UmichLSA**

Follow us at **twitter.com/UmichLSA**

Read and comment on new LSA stories every week at **www.lsa.umich.edu**

(Oh, and if you can't get enough of the Cube, check out our story on p. 61 about the physics of giving our campus icon a spin.)

PHOTOS (Front cover) Rob Hess; (this page) Bentley Historical Library

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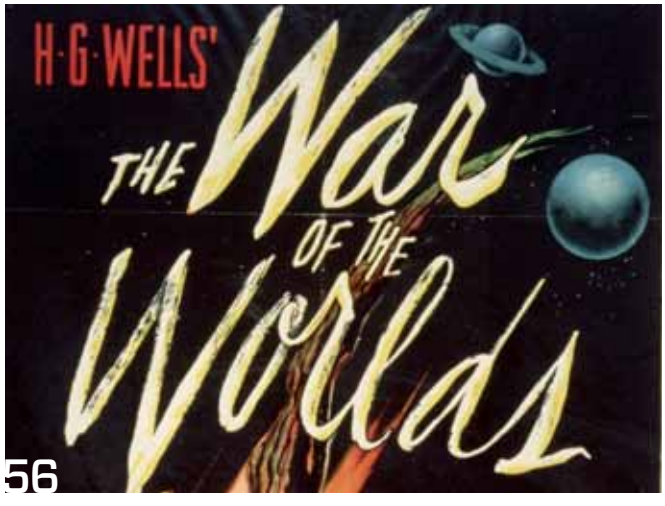

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A Decade as Dean

INSIDE LSA

SERVING AS DEAN OF THIS WONDERFUL COLLEGE has been one of the great privileges of my life, and I have found my time in the deanship to be endlessly interesting, energizing, and inspiring. University rules prefer that college deans serve no more than two five-year terms, and so I am writing to let you all know that my term as Dean of LSA will end at the end of my second five-year term on August 31, 2013. It is currently my intention to return to the LSA faculty at that time.

If this 10-year rule seems obscure it is only because, for a variety of reasons, so few Deans of LSA have served ten years or more. I have learned that the last person to do so ended his term in 1945! Because I was interim Dean for one year before becoming permanent Dean, I will have served 11 years in this position at the end of this term, thus becoming — surprisingly to me — the third-longest-serving Dean in the history of the College.

Our time together has been marked — not to say defined — by one of the worst economic storms in American history. I wish it had been otherwise. But, through the good work of literally hundreds of you, we have not only weathered that storm, but become a national model for how greatness can be achieved and maintained even in times of fiscal stringency.

The founders of this University in 1817 were inspired by the American Revolution to believe that knowledge would change the world. They worked under the aegis of the most radical outcome of that revolution, the Northwest Ordinance of 1787, written by Thomas Jefferson and promising that "religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." They bequeathed to us an astonishingly modern and ambitious plan for the University, called then the Catholepistemiad Michiganensis. It would be literally a place of universal knowledge covering all the disciplines known to man.

When the campus moved to Ann Arbor in 1841, the "Literary" College — which would come to be called the College of Literature, Science, and the Arts — was the heart of that vision: a place of breadth, depth, and the possibility of intellectual transformation. Every time we have touched the

PHOTOS (Left) Scott C. Soderberg/Michigan Photography; (right) Philip T. Dattilo

lives of the 70,000 students who have passed through our doors in the last ten years, we have fulfilled the hopes of the founders.

This then was our legacy, our inspiration, and our own responsibility to the future: to preserve and improve a place of surpassing international intellectual standing and powerful social relevance. When the state of Michigan plunged into fiscal crisis in 2002, we resolved to be true to our historical vision and role as a comprehensive liberal arts college of three divisions, combining state-of-the-art research with outstanding undergraduate and graduate training. We gambled that, through intellectual focus and fiscal discipline, we could strive for ubiquitous excellence. Ten years later, we have improved an already outstanding undergraduate program, recruited and retained a faculty of international renown, improved both the intellectual and financial prospects of our graduate students, and created new forms of recognition and career paths for our staff.

This then was our legacy, our inspiration, and our own responsibility to the future: to preserve and improve a place of surpassing international intellectual standing and powerful social relevance.

I have had a unique perspective from which to evaluate the success of our efforts because, since becoming interim dean in 2002, I have had the chance to "read" the college — literally. I have done so through the documents accompanying proposals to hire the 400 new tenure-track faculty members who have joined us, to promote 446 of our colleagues to various ranks, to honor 101 with Collegiate Professorships, to hire 117 lecturers III and IV; and to reappoint 188 faculty at those ranks; the long-range plans of every unit in the College; the Rackham reviews of every graduate program in the College; and the nominations for all the awards recommended for our wonderful staff.

I have been in office long enough to watch the steep ascent of the careers of many who have joined us as assistant professors and are now promoted to full, to have observed — and caused — a shift in unit leadership to a younger and more diverse generation, and to have presided over the decennial external reviews of just about every unit in the College. The strikingly positive results of these reviews have been no surprise to me. By steadily hiring, nurturing, and retaining outstanding faculty at all ranks, we have enlivened the intellectual atmosphere on this campus at the same time as we have become the envy of those evaluating our departments and programs. Comments like "model department in the field," "best junior faculty in America," "undergraduate curriculum that should be imitated everywhere," and "leading record of graduate placement in the field," are common in the external reviews these days. It is no surprise that a recent summary of the University's *U.S. News* rankings found that 40 of the University's 95 total top ten rankings were in LSA — more in LSA than the entire universities of Illinois, Minnesota, Penn State, and Ohio State.

The foundation of our success has been an enormous and continuous investment in our faculty. We have expanded the size of the tenure-track faculty by 10 percent over these years, and 44 percent of our tenure-track faculty members at all ranks are new since 2002. We have invested significantly in STRIDE training to ensure that the faculty members we hire represent the diversity of their field, and our annual trainings for tenure decisionmakers lay the groundwork for fair and thorough evaluation of faculty. The implementation of formal mentoring programs across the college, layered review for promotions, and the spread of uniform divisional standards for start-up packages have strengthened our historic commitment to a "real" tenure track.

Our reputation in many fields as the best place in America to launch a career is now matched by our very high faculty retention rate: More than 70 percent of those faculty members who have a chance to leave the College decide to stay. To adequately honor our senior faculty, we have also provided funding for 40 new Collegiate Chairs and continued funding in the Thurnau Professorships so that they are recognized at the same level as Collegiate Chairs. During the Michigan Difference campaign, we raised funds for 18 endowed chairs, bringing the total in the College to 70. At the same time we have added funds to our salary program to provide more rewards for outstanding teaching, encouraged departments to evaluate the full range of faculty activities annually, and founded a new set of college teaching awards — the John Dewey Prizes — for those recommended for promotion to full professor.

By adding space in North Quad and the Thayer Building to our total footprint and investing nearly $70 million in various capital projects since 2002, we have radically improved our infrastructure, including a program to improve and refit every classroom in the College. Projects range from the renovation of laboratories to $1.6 million to replace the cabins at Camp Davis to $2.4 million to outfit the North Quad

studios. We are currently in the planning stages for significant and larger approved renovations in East Quad, West Hall, the Dennison Building, and, most excitingly, the Ruthven Building.

In partnership with Rackham, nearly every unit in the College has made substantial improvements in its graduate program, enhancing mentoring and feedback, reducing attrition and time to degree, and publishing placement results. We have placed our graduate programs on firmer financial footings, having raised $18 million in endowment funds and much more than that in expendable funding for graduate students during the campaign. We restored all of the cuts in graduate fellowships that occurred in the rescission of 2002–2003.

We have revolutionized our fundraising enterprise by combining our efforts in development, marketing, and communications, and we have set new records for that fundraising, with donors contributing more than $340 million to the Michigan Difference Campaign and adding another $60 million since. Our LSA endowment has grown to nearly $700 million. Using these funds, we have launched nine new centers and institutes that enliven our intellectual lives, including one — in economics — just this summer. We have also instituted the tradition of fundraising that goes directly to the strategic funds of departments, adding new and more flexible funds in all units.

Using our enhanced fundraising prowess, we have made a major impact on the access of undergraduates to our College by raising more than $100 million for this purpose during the campaign and since. When I became Dean, there were about 200 LSA undergraduate scholarships; today there are more than 1,200 and the amount awarded has roughly doubled.

When *U.S. News* ranked the major universities in terms of their commitment to undergraduate education, some on campus were surprised to learn that the University of Michigan, again, was in the top ten. I was not. We in LSA teach almost 80 percent of the undergraduate credit hours on the Ann Arbor campus and we have done extraordinary things to broaden, enrich, and engage the intellectual lives of our students. The changes have been large and small. We have instituted new enrollment management practices that have significantly increased access to courses and we have asked faculty to do more undergraduate teaching. By enhancing the curricula of our spring and summer terms, we have made it easier for our students to complete their degrees. We have launched an astonishing array of new programs: 87 new minors and countless new tracks and changes in unit curricula.

The bulk of the academic leadership behind all these good things has been provided by the 99 chairs and directors that I have appointed for various periods in the last 10 years, the wonderful associate deans I have been privileged to work with, and the elected members of our College Executive and Curriculum Committees who invest so much time in our welfare. I am deeply grateful to all of them for their patience and hard work.

Nothing in my faculty life prepared me for the kindness, enthusiasm, and generosity of our thousands of alumni. I have been inspired and humbled by the loyalty of each and every one of them, from the 67,000 who participated as volunteers or donors in our campaign to the 40 wonderful members of my Dean's Advisory Committee.

We have been fortunate in the leadership of the University in these challenging times including President Mary Sue Coleman and Provosts Paul Courant, Teresa Sullivan, and now, Phil Hanlon. I am especially grateful to Paul Courant for selecting me for this position. He said he hoped we could "do some good and have some fun." He was right about both.

It is our privilege to work every day with the most outstanding undergraduate and graduate students in the country. My life has been enriched by every encounter with both. I am particularly grateful for the leadership provided by successive members of the LSA Student Government and the LSA Student Honors Council. Their ideas have resulted in many concrete improvements in the College, up to and including new academic programs. Knowing these wonderful young people makes it impossible to feel anything but optimism about the future state of our University, the nation, and the world.

When I returned from my interview here for a job as a tenure-track assistant professor many years ago, I told my friends that I had never been to such a stimulating place and that I could not imagine an academic career elsewhere. My selection for that position was my greatest good fortune. And in all the years since, the College, the University, and, most important, all of you have never failed to amaze me. It has been a privilege to be your Dean, but most important to me to be, first and always, a faculty member and educator. And so it is with excitement — and yes, a little anxiety — that I look forward to returning to that status.

Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History, and Dean

entrypoints

MORE CONTENT ONLINE.

Visit LSA Today for weekly web exclusives plus in-depth magazine-related content.

www.lsa.umich.edu

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

THE LOVELY BONES

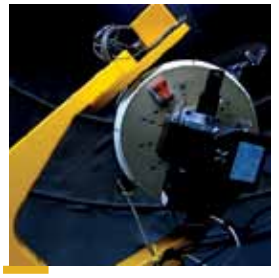
A time-lapse video from LSA's Museum of Natural History condenses the fascinating process of taking apart and reassembling a bat for study.

GUITAR HERO

How an alumnus with a computer background made a harmonious transition to rock and roll.

MARKING A MILESTONE

Forty years of feminist focus: The Department of Women's Studies celebrates its anniversary.



UNCOMMON CAMPUS

X marks the spot: A treasure map (p. 62) and behind-the-scenes tour of U-M's lesser-visited locales.

Plus!

Read past issues of *LSA Magazine*:
www.lsa.umich.edu/alumni/magazine

LSA Magazine is published twice each year by the University of Michigan College of Literature, Science, and the Arts

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your words

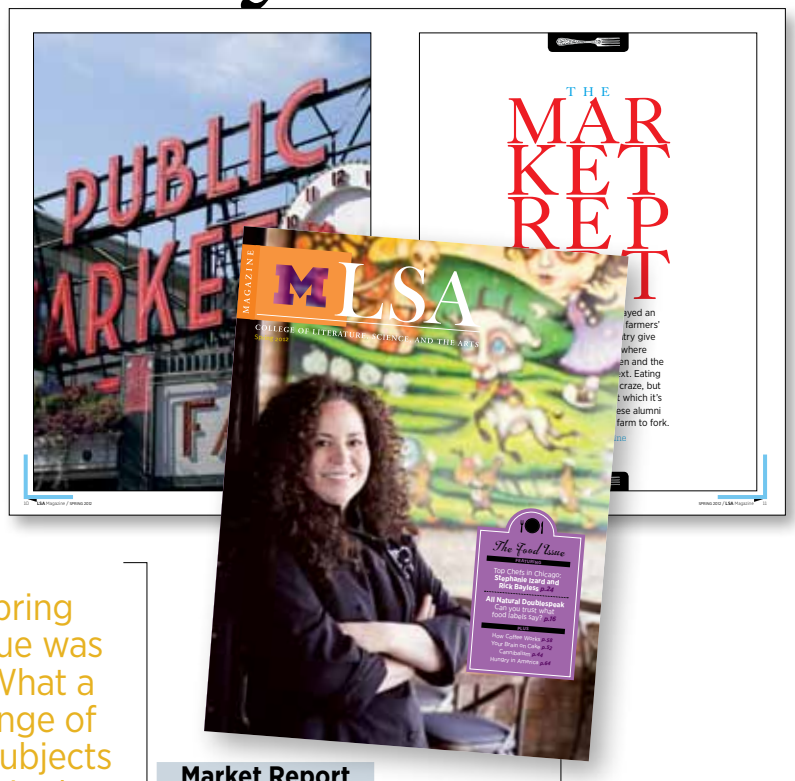
The Food Issue

I lived at all-vegetarian Muriel Lester Co-op on Hill Street during my junior and senior years, where I was the menu planner and chef one day per week. That led to a People's Food Co-op membership and volunteering. Now I'm employed driving a truck for a farm-direct co-op based in my home town, where members buy shares of locally grown produce. Thank you for this sustaining compendium of personal, political, healthful, and fascinating articles!

Jen Brehob ('80)

I look forward to receiving *LSA Magazine*. Each issue is usually filled with interesting, well-written pieces, and ones evoking my fond days in Ann Arbor. However, there are few topics which interest me less than food, the exclusive subject of the Spring 2012 issue. I look forward to the next issue, unless, of course, it is devoted to fashion.

Robert E. Klein (Ph.D. '78)



Mulch Ado About Composting

You might want to tell [Professor] Mike Shriberg that composting is very well but he could do a lot better with garbage digestion. This amounts to collecting all the garbage, sewage, and miscellaneous organic waste and chopping it into three-inch pieces. Dig pits in the ground some 10 feet deep, line them with plastic, and have a plastic cover. Then dump the mess in and wait about three weeks. He will find gas composed of 80 percent methane (natural gas) that is used for heating. The rest will be CO_2 that can be sold to local greenhouses. The liquid is almost pure water and can be used in the fields for watering. The solids can be dried, bagged, and sold to the public as fertilizer. If you think this is a dream, check the website for [the city of] San Francisco. They have done this for years and the Sewage Department actually makes money.

Stuart A. Hoenig ('51)

> The Spring 2012 issue was great. What a wide range of related subjects interestingly presented as only a fine University can gather.
>
> **Harriet Jackson Schirmer ('46)**

Hey, is that a fly egg in your tomato juice?

Although I have read stats about disgusting contaminants in our food before, your comparison with easily understood, U-M-related numbers casts the problem in a new light. Great job informing and entertaining, and I hope the FDA and the corporate food industry get their just desserts.

Tim Mantyla ('83)

Most popular letter-generating article:
Letters about our "Food" issue, writ large, far outweighed letters regarding any single article.

Market Report

In the very good article by Colleen Newvine I found one paragraph especially insensitive: the quote from Steve Sexton. "But implicit in the argument that local farming is better…than industrial agriculture is an assumption that a 'relocalized' food system can be just as efficient." That whole paragraph is simply wrong. To promote high crop yields and not factor in subsidization and the deleterious effects of genetic modification of both seeds and pesticides, and the attendant decrease in soil fertility of monocropping, is to ignore modern aspects of the export model of commercial agriculture. Thus many of the costs are not included and the long-term effects are not accounted for. Buying local from farmers who love the land will also encourage retention of local rural communities where commercial interests further abet depopulation. Otherwise, she hit all the right marks in the best article of the issue.

Bernol F. Soutar ('68)

How Coffee Works

I loved so many things about the "Food" edition, but especially loved the illustration of "How Coffee Works." What a fun read for me and my kids, who now understand what it takes to get Mom's morning perk-me-up in her mug. Keep up the good work!

Eileen Hoekstra ('92, M.S.E. '98)

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:

Editor
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48109-1382

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The number of current or former U-M coaches and athletes that participated in the 2012 Summer Olympics.

Don't Let the Bed Bugs Bite

For $100, Groupon offered Chicago area customers the opportunity to purchase a "bedtime tuck-in" from **Ben Kobold** ('06). The deal advertised that Kobold would "analyze your linen seams and pillow placement, planning a tucking strategy" and then "delicately raise each sheet and blanket over your body until you're comfortably bundled."

OMG!

Text messaging is a surprisingly good way to get candid responses to sensitive questions, according to a study conducted by **Fred Conrad** from LSA's Psychology Department and Michael Schober from the New School for Social Research. "There's just not the time pressure…that there is in phone interviews," says Conrad. "Respondents are able to take longer to arrive at more accurate answers."

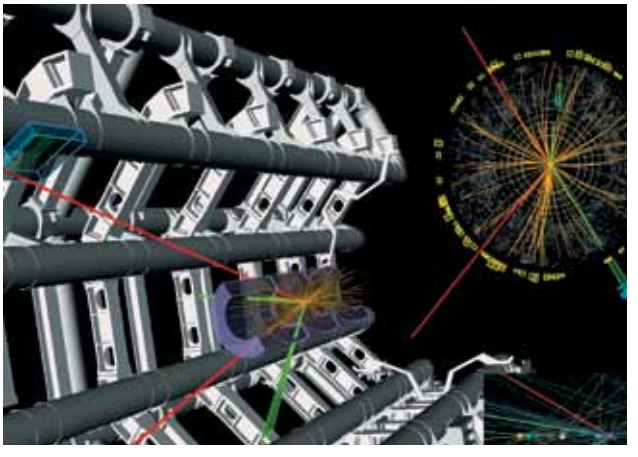
63,000

The amount of square footage added to **Crisler Arena** during the most recent expansion.

@Mad_money12
Just got to see the original papyrus scrolls of Homer's Iliad.…That's the #Michigan Difference

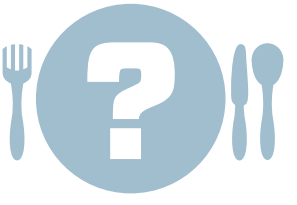
@UmichStudents
My maize shirt isn't maize enough. #umichproblems

Follow the College of LSA on Twitter @UMichLSA



Pay Up, Mr. Hawking

LSA physics professor **Gordon Kane** could be $100 richer. Years ago he made a bet with renowned physicist Stephen Hawking over whether the Higgs boson—the so-called "God particle" theorized to give certain elementary particles mass—would ever be discovered. Kane, along with other U-M researchers and students, is part of an international group of scientists that announced this past July that they've found a particle that is likely the Higgs boson.



MYSTERY MEAL

Fresh cod, red peppers, Roma tomatoes, pork loin, and dried cranberries were just some of the ingredients in a mystery basket that four chefs from U-M Residential Dining Services combined to acclaim in the 18th annual Tastes of the World Chef Culinary Conference this past June. Chefs Buzz Cummings, Lisa Demond, Andrea Randolph, and Frank Turchan placed second in the competition.

voices. buzz. intel.

$750,000

The amount that the Andrew W. Mellon Foundation awarded to LSA's International Institute for language instruction and other initiatives. The three-year grant restores some funding that was lost when Congress sharply cut federal financial support, known as Title VI funding, to the U.S. Department of Education's foreign language and area studies programs. The grant will help fund lectureships in the following less-commonly taught languages: Czech, Filipino, Persian, Quechua, Thai, Tibetan, Urdu, Vietnamese, and Bosnian/Croatian/Serbian.

ON THE COVER

Vintage Rock 'Em Sock 'Em Robots: **$45**

Brand New Rock 'Em Sock 'Em Robots: **$20**

LSA Rock 'Em Sock 'Em **Robot Animated GIF**: **priceless**

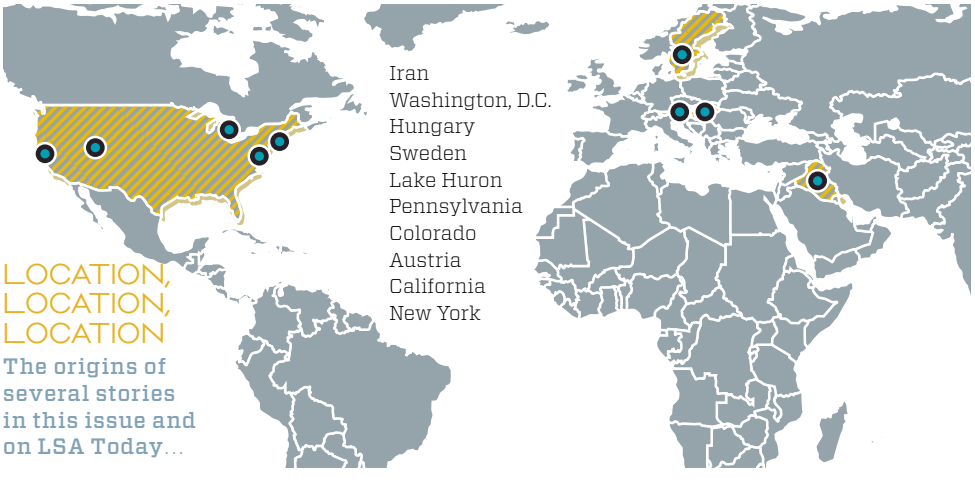
(www.lsa.umich.edu/rockemsockem)

Biggest. Class. Ever.

More than 50,000 people registered for Professor Scott Page's class this year, but they weren't all U-M students. Through Coursera, a new web-based platform, U-M now offers free online courses. Page taught a class called Model Thinking. "By most calculations, I had about 200 years' worth of students in [one] class," he told *The New York Times.*

SHOW ME THE MONEY

Panic over the economy filled the streets of Greece on the eve of its national elections in June. But that didn't stop **Kalliopi Kontou-Filis** (U-M '69) from battling frantic crowds in order to withdraw funds to send to U-M. "I told [bank personnel], 'Once you conclude my transaction, then I'll start worrying about the Greek economy.'" Kontou-Filis sent the money to establish an endowment in honor of her mentor, U-M Medical School professor Kenneth P. Mathews (B.A. '41, M.D. '41).



LOCATION, LOCATION, LOCATION

The origins of several stories in this issue and on LSA Today…

Iran
Washington, D.C.
Hungary
Sweden
Lake Huron
Pennsylvania
Colorado
Austria
California
New York

"I thought I would go away for two weeks, have a vacation, come back, and it would be forgotten about. **And I came back with a fiancée.**"

JORDAN (J.P) ROSENBAUM ('99) TO *THE NEW YORK OBSERVER* ABOUT WINNING THE SEVENTH SEASON OF *THE BACHELORETTE.*

4

Ann Arbor's ranking in ***The Daily Beast's*** "America's 20 Most Creative Cities" list.

LET'S DISH

As the new Moses Gomberg Collegiate Professor of Chemistry, **Melanie Sanford,** is now the keeper of the "Gomberg china." It's passed along among title recipients within the Chemistry Department.

PHOTO Bentley Historical Library

LSA IS PROOF THAT CONFLICT CAN YIELD ASTOUNDING RESULTS

BEFORE THE ERIE CANAL WAS BUILT, BEFORE THE TYPEWRITER WAS PATENTED, BEFORE THOMAS JEFFERSON AND JOHN ADAMS DUKED IT OUT IN OLD AGE TO SEE WHO WOULD BE THE LAST ONE TO SHUFFLE OFF THIS MORTAL COIL — BEFORE ALL OF IT WAS THE UNIVERSITY OF MICHIGAN. In the early-to-mid 1800s, it was a relatively diminutive institution offering classic languages and modest coursework in mathematics. Before *U.S. News* rankings and electron microscopes, before Bo Schembechler and Fielding Yost, before MacArthur Fellowships and North Campus, Michigan was a small school that did a fine job preparing intelligent young men for a life of religion and service.

Then along came Henry Philip Tappan.

Tappan (pictured on the left) was a progressive and a provocateur in an era when such terms would rarely be ascribed to academic figures. As President of the University of Michigan from

The By-Products of Rabble-Rousing

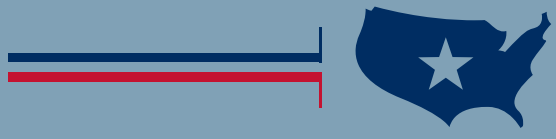
1852–1863, he argued for a more progressive educational model, publicly advocating for radical change in the academy. When the Michigan Legislature accused him and his Prussian educational model of godlessness, Tappan responded, "The day will come when my students will take your places, and then something will be done."

By 1880, less than two decades after Tappan was sent packing by the traditionalist Regents, U-M offered a graduate school, multiple degree programs, and 120 areas of study. In passionately arguing for a system of education based on challenging ideas and pursuing truth across every discipline, Tappan seemed to instinctively recognize something that organizational psychologists and management consultants readily espouse today.

Conflict can be good. And productive. Even necessary.

For all the horrors of war, the broken bones in sport, and the anger of political confrontation — elements in this issue's feature stories — there remains the joy of success, the clarity of epiphany, and the seed of inspiration. For every reason to avoid conflict, there's a reason to celebrate it — not the least of which is the headstrong approach of an intellectual rabble-rouser who helped build one of the greatest universities in the world.

RED, WHITE, AND BLURRED



It used to be that citizens participated in the political process primarily through voting.

BUT IS THAT ENOUGH ANYMORE?

Does it take deep pockets, or perhaps tweeting to thousands of followers? From finances to Facebook, we look at the new forces that are shaping the face of elections, and whether a **single vote ✔** counts for anything, anymore.

by MARY JEAN BABIC

A SCHIZOPHRENIC DEMOCRACY.

That's what Communication Studies Professor Scott Campbell calls American politics these days, referring to the divergent trends of money and technology. On the one hand, there is what he calls the "fairly undemocratic movement" of super PACS (political action committees). These organizations raise unlimited money from wealthy citizens and are free to spend it on anything, thanks to the Supreme Court's 2010 decision in Citizens United v. Federal Election Commission. The court threw out longstanding restrictions on corporate and union campaign spending, on grounds that such contributions are a form of free speech. On the other hand, there's a wealth of new online technology that allows would-be voters to absorb, create, and distribute information and provides, according to Campbell, "a very beneficial way to allow citizens to be more active and engaged, and to have a voice in public affairs."

THE WAYS IN WHICH THESE two forces are shaping the face of politics — or not — are on the minds and in the research papers of the College's faculty and alumni. Do Americans need deep pockets to have a voice in politics anymore? Or is political participation achievable just by "liking" something on Facebook?

POWER TO THE PEOPLE?

Money has always talked in politics, but ordinary talk between ordinary people is hugely influential as well. Digital technology, Campbell believes, allows more of those crucial conversations to take place.

"When we think of the public sphere, traditionally we think of town hall meetings and people in coffee shops having conversations, and that's still there," Campbell says. "But we have this new, added layer where people are bumping into one another and engaging and expressing their views," he says. "I think that's very constructive."

Campbell's research points to cell phones, for example, as a way to connect "with the political process and civic affairs." On the last day of the 2008 presidential campaign, he notes, AT&T reported a record-breaking number of text messages. "That's not a coincidence. People were texting about the election, getting citizens out to vote. A cell phone has become a very prominent tool of political communication."

Online social activism has given rise to the term "clicktivism," sometimes derisively referred to as "slacktivism," implying an unearned sense of virtue for a political act that takes almost no effort and never had much chance of making a difference in the first place. But in Campbell's view, small, everyday acts such as adding comments to an article, liking Facebook posts, signing an online petition, or forwarding a video add up to significant civic involvement.

"It's important not to overlook how meaningful it is for people to feel like they are citizens, that they know something," he says. "Reading the paper makes people feel efficacious. It makes them feel qualified to be part of our democracy." A sense of capability is a strong predictor of political participation, he says — not only of one's own ability but of others' as well. "It's important for people to feel that their fellow citizens collectively can make a difference," he says. In an era when an unprecedented amount of money is flowing into the political process, more people engaging online might increase that sense of being able to make a difference.

But Michael Traugott, a fellow LSA professor of communication studies, isn't optimistic that new media can do much to level the playing field in what he calls a "system that's completely broken down."

A single person is "relatively powerless" in electoral politics, says Traugott. While a voter can cast a ballot, the Electoral College's winner-take-all system* means millions of people are effectively left out of the process (think of Al Gore winning the

*Nebraska and Maine are the exceptions here. Both states allocate their electoral votes based on congressional districts.

popular vote, but George W. Bush becoming president). Countering that systematic flaw with social media or online advocacy doesn't fix the problem, in his view.

Traugott does agree that online media are great for mobilization — getting people out to the polls after the choir has been preached to — and Barack Obama raised half a billion dollars online in 2008, much of it in small donations. But to "convert" voters, as Traugott puts it, especially those all-important swing voters in swing states, campaigns need to bombard the airwaves with ads that pop up on voters while watching TV, not just on websites on which voters may or may not click.

Major campaigns know this. Between 75 and 80 cents of every dollar is spent on advertising, and despite the rise of the Internet, television is still a campaign's biggest expense. Certainly online ads are cheaper, and might go viral, but Traugott doesn't think they're as effective. Thanks to the Nielsen Company's audience measurement systems, better demographic data is available for television, allowing campaigns to target the elusive, pivotal swing voters.

Online media might not be the fix-all, end-all for problems in the political system, but it still can have a powerful effect. For one Michigan alumnus, money and technology intersect in a space that could give rise to a better-informed citizenry.

EMPOWERED BY INFORMATION

As outreach coordinator for the Center for Responsive Politics, Evan MacKinder ('08) sees firsthand the impact of money on politics — and how the Internet can put that information into the hands of voters. The nonpartisan center posts its research on money in politics at OpenSecrets.org.

"Citizens should have access to this information, because money has a voice," says MacKinder. Whether Tea Partier or Occupy protester, citizens have a common interest in transparent, responsive government, he says. "They should be able to follow the money themselves."

MacKinder hired on shortly before the 2010 *Citizens United* decision. Since then, the center's research has shown that few publicly traded corporations are putting money into super PACs. The lion's share of contributions flows from private corporations, owned by wealthy individuals who have been politically active for a long time, such as Harold Simmons, a Texas billionaire showering millions on super PACs devoted to defeating Obama.

Super PACs are technically forbidden from coordinating directly with candidates for federal office, but MacKinder says that many operatives running super PACs once worked as high-level staff members for the candidates and "are so attuned to the candidates themselves…that in effect they share the same brain." And sometimes the same lawyers, advisors, and office space. *The New York Times* reported in February that a number of political consulting groups working either for Romney's campaign or Restore Our Future, the super PAC supporting him, occupy the same office suite in Alexandria, Virginia. TargetPoint Consulting, one of the suite's tenants, counts both the Romney campaign and the super PAC as clients.

Another notable finding from the center is that, Obama's small-contribution success notwithstanding, "a very tiny elite of the population are funding elections," MacKinder says. In 2010, just one-quarter of one percent of the population gave a donation of $200 or more, delivering about 68 percent of all money that flowed to federal candidates and committees, according to the center. "That illustrates how small a pool [of influencers] this is," MacKinder says.

With discoveries like these, it seems cynicism would be an inevitable occupational hazard of MacKinder's job. But he finds his work energizing. Every day he engages with people of all political stripes — academics, reporters, students, activists — on the center's work. He also monitors discussion among the center's 45,000 Facebook followers.

"A lot of folks are angry about this information," says MacKinder, "but many are just so grateful to stumble onto our website and see what's there. You can see them [become] more empowered with every fact they get, and that's a great thing."

SUPER PACS

As of July 17, 2012, groups organized as Super PACs reported a received total of :

$280 million

in the 2012 cycle.

Total receipts:

RESTORE OUR FUTURE
$61,472,659

PRIORITIES USA ACTION
$14,580,589

Source: opensecrets.org

ADVERTISING

Total spent by candidate on television ads as of September 18, 2012:

OBAMA
$157.2 million

ROMNEY
$79.5 million

Source: washingtonpost.com


Voice Your Vote
VOTE
November 4

GENERATING CONTENT, AND A GENERATION'S VOTES

One interesting effect of current political trends is the way third-party actors are influencing major-party candidates in ways not seen before, says Michael Heaney, an assistant professor of organizational studies and political science.

Super PACs themselves, as much as they might "share a brain" with the candidates they are technically forbidden from coordinating with, can act independently in a way that risks undercutting the very campaigns they ostensibly support. This spring, for example, billionaire J. Joe Ricketts considered running ads that attacked Obama by resurrecting the 2008 controversy about his former pastor, Reverend Jeremiah Wright. Republican strategists themselves were alarmed by the plans, worried that personal attacks on Obama would backfire. No such ads ultimately ran, but they raised a worrisome specter.

The Internet offers another kind of third-party power. Think of the Obama Girl and will.i.am's "Yes We Can" videos that went viral in 2008, as did First Love's "Game On," championing Rick Santorum. On one hand, campaigns love this stuff; their candidate gets buzz for free. But campaigns crave control, which is precisely what they don't have over user-generated content, even though candidates are held accountable for what's done in their names. So if a famous rapper or winsome Christian sisters sing your praises, great. The Ku Klux Klan? Not so much.

Yet no matter how technology and money may be influencing people, the truth remains that relatively few people *do* much with the influence.

Important as it is, large numbers of Americans don't vote. Turnout in presidential elections has ranged between 53 and 64 percent of eligible voters, according to the United States Election Project of George Mason University. In midterm elections and local races, turnout often is much lower, sometimes even into the single digits for mayors and city council members. Young voters can be especially fickle. In 2008, voters ages 18 to 29 turned out in relatively high numbers — about 51 percent — largely out of enthusiasm for Obama's campaign on the themes of hope and change. But by 2010, less than 21 percent bothered to vote in the mid-term elections.

Todd Flynn wants to change those statistics.

Flynn, an LSA junior majoring in political science, chairs Voice Your Vote, a nonpartisan group that works to persuade students to exercise the power they command as a voting bloc. Volunteers register students, organize get-out-the-vote efforts, and help first-time voters sort out complications such as out-of-state balloting. One of the group's main events is Dorm Storm, when volunteers go door-to-door with registration forms to make the process as easy as possible. During another event, Diag Days, they set up informational tables on the Diag. The group's goal is straightforward: "We want everyone to vote."

Voice Your Vote helps U-M students fill out and submit voter registration forms, and provides nonpartisan election information.

Flynn, active in Voice Your Vote since coming to campus, believes passionately in the power of voting, despite super PACs, despite *Citizens United*, despite cynicism and polarization. "If you could turn around enough people to vote, then the idea that 'my vote doesn't count' will lose its bearing," he says.

Young people, especially, often don't appreciate the stake they have in elections, whose winners determine not only things that matter to them at the moment, such as student loan rates and tuition costs, but realities they'll confront within a few short years, such as economic policies, health care, and taxes.

When he confronts students who are apathetic or cynical about the money flowing into politics, Flynn urges them to vote for people who would work on campaign finance reform or champion a constitutional amendment to overturn the laws they find most noxious. Non-participation, in his view, is not a credible form of activism.

"The country will best be governed," he says, "when the most citizens influence its governance."

That would really give another meaning to the term "citizens united."

Mary Jean Babic is a freelance writer in Brooklyn, New York.

SOCIAL MEDIA

Twitter followers, as of September 7, 2012:

OBAMA
19,449,480

ROMNEY
1,065,149

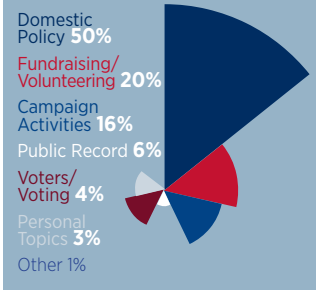
Facebook fans, as of September 7, 2012:

OBAMA
28,186,271

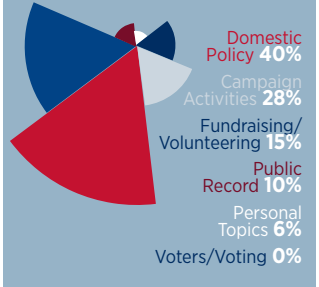
ROMNEY
6,264,279

Focus of campaign social media posts during June 4–17, 2012:

OBAMA



ROMNEY



Source: journalism.org

PHOTO William Archie/DFP

THE RIGHTEOUS GENTILE

When University of Michigan alumnus Raoul Wallenberg arrived in Hungary in 1944, more than half of the Jews there were already dead. His tireless quest to save those who remained would take his life, too — in the end. Had he survived, this would have been his 100th year.

by Fritz Swanson

PHOTO Keystone/Getty Images

IN JUNE OF 1933, RAOUL WALLENBERG STOOD ALONE IN A DITCH NEXT TO A WRECKED CAR, HIS TWO SUITCASES AT HIS FEET. The 21-year-old had just come from working at the Swedish Exposition at the 1933 Chicago World's Fair, and he was trying to get home to Ann Arbor, where he had just finished his second year studying architecture at the University of Michigan.

UNHARMED FROM THE ACCIDENT, his car mates had gone to find a tow-truck, while Wallenberg — also unscathed — had stayed behind in hopes of catching another ride before the sun went down.

Four men in their mid-20s stopped in a car with Iowa plates. Suspicious that they didn't appear to have any luggage, Wallenberg warily hopped in.

"How much would it be worth to you if we took you all the way to Ann Arbor?" One of the men asked Wallenberg as they sped into the night.

"Nothing," Wallenberg replied coolly, "because in that case I would have taken the bus."

Wallenberg, the scion of a powerful Swedish banking family, had been in America since 1931 and was fluent in English. The men had no idea they'd just picked up a Swedish Rockefeller.

Wallenberg talked with the men calmly as they drove. But then they turned so abruptly off the main road, down a dark country lane, that the car almost rolled over. The car whipped through the dark forest, until finally it rumbled to a halt.

The men forced Wallenberg out at the point of a revolver. They took all the money from his pockets, then had him open his suitcases. They pulled out the envelope containing not only all of his remaining cash, but the key to his safety deposit box.

All the money his rich family had sent along with him for college was in that bank box.

Still at gunpoint, Wallenberg successfully persuaded them to return his key, that its only value was sentimental.

Then, stripped of all his cash, he convinced his nervous assailants to drive him back to the highway.

In a letter to his mother written after the event, he said: "They let me sit next to the driver." By this time, they were the ones who were frightened, maybe because he was so calm. "Maybe they thought I was planning to lure them into a trap."

Suddenly, overcome by their fear, the men tossed Wallenberg from the car into a ditch, sending his luggage with him.

Raoul Wallenberg had come to America, and to the University of Michigan, for just such an adventure. Wallenberg realized that the family money he had placed in that bank deposit box had not brought him to America to learn how "to build a skyscraper," but rather that the money was there to help him "catch some of the American spirit," and to catch "the desire to build" great and monumental things.

The American spirit was certainly one of the many things Wallenberg took with him when he traveled to Budapest 11 years later. He went into the heart of Hungary during the dying days of the Second World War to save Jews from Nazis.

NEUTRALITY, THE WANING WAR, AND HUNGARY'S JEWS

By 1943, World War II's military dynamics had shifted. For the first time, Germany was on the defensive. The battle of Stalingrad and the second battle of El Alamein in Egypt had cut a major swath of victory for the Allies. Germany was scrambling to regroup, yet, even as it fought to regain control, the Nazis were rooting out Jews and sending them, en masse, to concentration camps. Germany eyed Hungary's 800,000 Jews, the largest remaining population in Europe, with deadly intent.

As Germany's military prowess declined, Hungary's long-ruling leader, Admiral Miklos Horthy, began to doubt his partnership with Hitler. In 1943, Horthy reached out to the Allies, and Hitler, frustrated, demanded that all of the Hungarian Jews be deported into Germany's death camp system at once. Horthy refused.

Meanwhile, hundreds of miles to the north, Sweden began to use its position of ostensible neutrality in the war to help Jews across Europe. From Denmark to Norway to Finland, Sweden engaged in a large-scale humanitarian effort to save Jews from death camps. The unfolding situation in Hungary

became a top priority.

Switzerland, also largely neutral during the war, sent diplomats to work with Sweden to identify Jews with a connection to either country. It was the first line of defense: Once Jews in Hungary could be identified, international diplomats could issue protective paperwork. Passports and letters promising citizenship were disseminated, and, as demand grew, diplomats were even hurriedly typing out notes asserting Swedish protection and signing them on the fly. The number of "protected" international Jews trapped in Budapest swelled.

In early 1944, Hitler's dominance was waning, but still his army fought on, and still crimes against the Jews continued. At this late stage, the United States joined the neutral countries' humanitarian efforts by creating the War Refugees Board (WRB), which was tasked with saving the remaining Jews of Europe. One of the first countries the WRB visited to enlist partnership and help was Sweden.

Sweden and the WRB searched frantically for a man to formally lead the diplomatic effort to save Jews in Hungary. While they hunted, the Holocaust returned to the Hungarian countryside. In the spring of 1944, Nazis invaded Hungary and forced Horthy's government to deport the Jews. One hundred forty-five Nazi trains took 440,000 Jews out of Hungary, the majority straight to Auschwitz. On arrival, 320,000 were killed. Tens of thousands more died in the countryside during the deportations.

That same spring, Wallenberg was a partner in an import/export firm with a Hungarian Jew named Kalman Lauer. Through Lauer, Wallenberg's name was brought into negotiations to head up Sweden's efforts to protect Jews in Hungary.

By mid-June, Wallenberg was dining with Iver Olsen, the American head of the WRB's Swedish operations, who was also the United States' representative in Sweden for the Office of Strategic Services (OSS), a forerunner of the CIA. This seemingly insignificant detail in their first meeting would have enormous repercussions for Wallenberg later. But there, at that first early-summer encounter, all was right: Olsen immediately recognized that the young, intelligent, ambitious, American-educated businessman with contacts in the Hungarian Jewish community would be a perfect person to send into the chaos of Hungary.

Given the historic scale of what was happening, Wallenberg, who had for years been shunted to the edges of his own family's empire, was eager to show his quality. Equally important to him was wanting to alleviate the terror that his partner, Lauer, lived with day by day as he struggled to send and receive information about friends and family in Hungary.

Meanwhile, the removal of Hungarian Jews proceeded swiftly. The Germans were accelerating to 70,000 deportations per week. In June 1944, President Roosevelt publicly admonished the Hungarian regime, and for the first time in the war, Pope Pius XII spoke out against the Holocaust when he telegrammed Horthy asking that the suffering be stopped. Finally, King Gustav of Sweden sent a personal telegram to Horthy, and on July 6, the deportations ceased.

With the countryside mostly emptied, the largest Jewish population still left in Europe was now in Budapest. Only about 200,000 Hungarian Jews remained in the city, the rest scattered across the countryside.

When Wallenberg arrived on July 9, 1944, more than half of the Jews of Hungary were already dead.

GERMANY'S DEADLY LAST GASPS

1942
The Allies score a victory in Northern Africa at the second battle of El Alamein. The battle of Stalingrad begins in August of this year. Both battles result in heavy German losses, and major victories for the Allies — a turning point in the war.

Spring 1943
Hungary, technically an Axis power, engages in secret peace negotiations with the United States and Britain.

October 1943
Having dissolved the Danish government, Germany decides to systematically remove Denmark's Jews. Sweden's neutral status during the war allows the country to take in nearly all of Denmark's 8,000 Jewish citizens in a risky humanitarian rescue.

July 1944
Raoul Wallenberg arrives in Hungary and begins diplomatic work on behalf of Hungarian Jews.

HUNGARY'S TIRELESS PAPER PUSHER

Wallenberg landed amid relative calm. Though by usual standards Budapest wouldn't be characterized as "safe" for Jews at that time, the deportations were largely on hold. The primary threat to Jews in Budapest was detention by the Germans, who looked for any excuse to send Jews to work building border defenses in preparation for the imminent assault by the Red Army. These work camps were as deadly as any in the Reich. The only protection Jews had was still the quasi-legal protection conferred by diplomatic paperwork. In this context, Wallenberg's cool confidence, which he held staring down the prairie bandits 11 years before, allowed him to set about calmly and diligently expanding and perfecting the international operations already under way.

To that end, Wallenberg rented a large office flat and brought in more than 400 volunteer staff members from the surrounding Jewish community. Their job was to process the hundreds of protection requests sent primarily from Sweden, but progressively from around the world. From these lists they worked to identify if people were still alive, still in Budapest, and by what authority they might claim a legal grounding for diplomatic protection. This work freed the career diplomats to spend more energy negotiating with the Hungarian regime.

Wallenberg himself worked to standardize the existing jumble of protection paperwork. One key document, called the "Schutz-Pass," which had been

used for several years by the Swiss, was radically revamped. Though the document had no real basis in international law, Wallenberg understood the key to protective paperwork was the confidence it conferred to the person bearing it. Drawing on his training as an architect, he personally redesigned the Schutz-Pass to look more authoritative. He even had a unique number printed in the upper right hand corner. The number had no meaning, but it again conferred authority. He had thousands printed, and insisted on the quality of the document.

Wallenberg also began an urban planning project. He slowly assembled a collection of buildings, 32 by the end, and conferred on these buildings the extraterritorial status of embassies. With Schutz-Passes as his shield, and the apartment complexes as a home base, he slowly began expanding the number of Jews under Swedish protection.

When he arrived in Hungary, fewer than 1,000 Jews were under the protection of the Swedish delegation. By September 1944, the Swedes were protecting 6,000 Jews in the system Wallenberg built and managed. The Swiss, likewise, had protected more than 7,000 Jews by using strategies developed alongside Wallenberg and the Swedish delegation. These and other safeguarded Jews were brought together into what became known as the "international ghetto."

Wallenberg worked tirelessly alongside the other international diplomats. They constantly negotiated to have people released from custody, released from work camps, and exempt from wearing the yellow star identifying them as Jews. Wallenberg also worked to keep simple things like food rations flowing into the safe houses he controlled, and to keep plumbing functioning so that waste could flow out. Disease was as efficient a killer as a Nazi bullet.

But then, on October 15, 1944, the Germans grew tired of Hungarian resistance, and Horthy himself was deposed and replaced by Hungarian fascists. The deportations were set to resume. Wallenberg rode up and down the streets of Budapest on a borrowed women's bicycle, warding off looters and thugs and delivering sacks of food to hiding Jews. He sought and rescued as many of his staff and their family as he could, and eventually housed more than 700 people in the offices he had rented at the beginning of the summer.

Though Germany had, for all intents and purposes, already lost the war, and though the newly established Hungarian fascists were facing imminent destruction by the Red Army fast encircling the city, the fascists still worked with the Germans to kill as many Jews as they could. They had removed Jews from the international ghetto and the safe houses and consolidated them in one central ghetto with more than 70,000 residents, leaving the international diplomats with no choice but to try and protect them all.

Wallenberg was young and energetic, and entirely disposed to the task. Certainly he was not the only diplomat in Budapest working to save Jews' lives,

In a temple courtyard in Budapest, Hungary, officials view Jewish victims of a deadly Arrow Cross attack circa January 1945.

but, if Jews under protection were rounded up in a raid, or sent into the deportation lines, it was often Wallenberg who was sent out to rescue them, brandishing official paperwork at every turn.

In December 1944, University of Michigan Professor Emeritus Andrew Nagy was 14 years old and living with his mother in one of Wallenberg's safe houses. He watched as a neighboring safe house was emptied in the wintry night by Hungarian Nazis. The common practice at this point was to march Jews to the Danube, bind them into groups of three, and shoot the middle victim in the head. The dead body would fall into the river, pulling the other two down into the icy water. Nagy reports that Wallenberg and his staff retrieved 50 or 60 survivors from the river.

As the central ghetto was slated for liquidation in one last raid by the remnants of the Hungarian regime and its German collaborators, Wallenberg was contacted by a member of the Budapest police force, informing him of the planned attack. Wallenberg sent a message to Major General Gerhard Schmidhuber, the German officer set to lead the pogrom, stating that should Schmidhuber go forward and kill the Jews under international protection, Wallenberg would see him tried as a criminal, not a soldier.

The assault was called off.

A TRAGIC DISAPPEARANCE, AN INCALCULABLE LEGACY

In February 1945, the Red Army finally liberated Budapest and the Jews protected by the international community. The 70,000 Jews in the central ghetto were among the 100,000 Jews still surviving in Budapest. Of the 800,000 Jews living in Hungary before the war, only about 250,000 survived to see the end of it.

Several weeks before the liberation, Wallenberg had sought out the leadership of the Red Army. During the political chaos, Wallenberg likely had hopes that the Allied-aligned Russians would assist in his diplomatic efforts — not to mention bring relief to a population of people who badly needed aid. Food, water, and proper sanitation had been scarce for much of the war. Long term, Wallenberg had plans for helping rebuild the Jewish community in Budapest, and even for restoring Jewish homes and lost property. He wanted to meet with Russian officials as soon as possible. His spirits were high.

The Russians arrived to greet him on January 17, 1945, with a large escort of officers and soldiers. Before he departed, Wallenberg left a large amount of cash with members of his staff to continue his work. He was reported to have said, wryly, "They were ordered here for my sake, but I don't know if they are here to protect me or guard me. I don't know if I am [their] guest or their prisoner."

Wallenberg likely went into his meetings with the Soviets with the same calm confidence that had served him so well all the years of his life. Whatever spirit he had in him, in the end, it wasn't enough. Stalin had personally ordered his arrest.

The Soviets likely believed that Wallenberg was a spy. Though he was employed within the Swedish diplomatic corps and his position had been requested by the WRB, Wallenberg had been hired by Iver Olsen, a man who was also an OSS agent. It surely didn't help his case.

The Soviets took him to the infamous Lubyanka Prison in Moscow. Once he was gone, they looted the ghetto.

Wallenberg remained in Soviet custody for at least two years, but his case was only put before Stalin once. Stalin made no comment on the case, and so it was finished. Wallenberg was lost to the gulag. The Soviets claimed that, in 1947, at the age of 34, he died of a heart attack.

In 1963, Israel recognized Wallenberg as one of the Righteous Gentiles Among the Nations for his work saving Jews in the Holocaust. In 1981, U.S. Congressman Tom Lantos successfully lobbied Congress to grant Wallenberg honorary U.S. citizenship. Lantos had escaped Nazi labor camps twice, and then hid for a time with his aunt in a Budapest safe house set up by Wallenberg. In 1987, Wallenberg was granted honorary Israeli citizenship.

In 1990, the University of Michigan inaugurated the Wallenberg Medal for outstanding humanitarian work. Elie Wiesel, a Nobel Peace Prize winner and witness to the Holocaust, was the first recipient. In 1995, a sculpture was dedicated on U-M's North Campus by Swedish Ambassador Per Anger, who had worked with Wallenberg in Budapest. The title of the sculpture by Jon Rush is *Koszonom Raoul Wallenberg*. Translated: Thank you Raoul Wallenberg.

October 1944

Hungary signs an armistice with the Soviet Union, but Germany invades Hungary, dissolves the armistice, and briefly restores power. During this time, Hungary's ferocious and deadly Arrow Cross fascists torture and murder Jewish men, women, and children.

January 1945

Raoul Wallenberg is captured by the Russians. They declare him dead of a heart attack in 1947.

February 1945

The Red Army defeats German and fascist forces in Hungary. Only 30 percent of Hungary's Jewish population remains. Soon, Soviets abolish the Hungarian monarchy and install a Communist government. The last Soviet soldiers finally leave Hungary in 1991.

Fritz Swanson teaches in LSA's Department of English Language and Literature and is the founder of Poor Mojo's Almanac(k).

Sources: Schreiber, P., Lowenstein, J. *Remembering Raoul Wallenberg: The University of Michigan Celebrates Twentieth-century Heroes* (University of Michigan Press, 2001). Palmklint, I., Larsson, D. *Raoul Wallenberg: Report of the Swedish-Russian Working Group*. Stockholm: *Ministry for Foreign Affairs*, 2000. Wallenberg, Raoul. *Letters and Dispatches, 1924–1944* (Arcade Publishing, 1995).

by Karl Leif Bates


tiny wars
we barely
understand

Microbes are ancient creatures doing some of the world's oldest jobs. Making oxygen, for example. But little is known about these microscopic life forms that battle each other constantly and evolve at breakneck speeds. Two LSA professors have braved the bottoms of icy lakes and the insides of sweltering caves to study the teeniest building blocks comprising life on Earth.

TWO MILES OUT AND 70 FEET DOWN

there's a spot on the bottom of Lake Huron covered with an undulant rubbery skin of royal purple. It's a Dr. Seuss-ian landscape, punctuated by little patches of something else that's white.

Then, as the sun sets behind Alpena and the last of the dappled light fades from this submarine garden, one of the world's most ancient battles begins in earnest. The white patches start to expand, spreading outward over the top of the purple skin. Within a few hours, the bottom will appear white with purple patches. And at dawn, when sunlight arrives, the battle will reverse.

Despite its resemblance to blotches of spilled latex paint, this carpet is a living mat made of vast, uncounted armies of cyanobacteria, single-celled microbes that thrive around what's known as the Middle Island Sinkhole. The mat is a community of closely related species, doing subtly different jobs and communicating with each other. The purple and the white are each a sort of superorganism, allowing the individual bacteria within to communicate and coordinate their actions in the competition for resources. They're here because of groundwater that seeps into the lake from the earth below, rich in sulfate and low in oxygen. The purple mat harvests sunlight by photosynthesis and exhales oxygen; the white community of microbes, called chemosynthesizers, eat hydrogen sulfide contentedly in total darkness, and burp sulfur.

Though their charisma falls far short of the tropical rainforest, bacterial communities like this have at least as much claim to being the lungs of the planet, performing up to a third of the planet's oxygen-producing photosynthesis. (Free-floating microbes on the surface of lakes and oceans are so numerous they can be seen from space and may outnumber the grains of sand on all the world's beaches by at least a factor of ten.) Life on Earth isn't so much about soaring raptors and endless herds of grass-eaters on the savannah; it's really about the microbes. These simple creatures have been doing this work for three and a half billion years, long before the first plants. Lake Huron's purple mat is believed to be a close approximation of the creatures that first created oxygen on Earth.

The paradox of the microbes is that they're both very ancient and very new, capable of evolving at unimaginable rates with a new generation every 18 hours. But despite being literally everywhere, they are so mind-bogglingly diverse — and so tiny — that they've been very hard to study.

"We know next to nothing about them," says Gregory Dick, an LSA assistant professor of Earth and environmental sciences and of ecology and evolutionary biology, who studies the bugs in Lake Huron. When researchers run these simple organisms through the latest DNA sequencing machines to see what they're made of, "30 or 40 percent of the genes we see are totally new to us."

The fortunes of each kind of bacterial mat battling it out in the Middle Island Sinkhole wax and wane as environmental conditions shift. In this case, the rising and setting of the sun happens to be the oldest and most predictable environmental change of all, but what about microbes in a system that isn't so old and steady. How do they adapt?

Vincent Denef, an LSA assistant professor of ecology and evolutionary biology, had a petri dish for asking this question that might have been designed by Dante. It's a dark tunnel underground, dripping with acids strong enough to burn flesh. Carbon monoxide levels approach the human safety threshold and the humidity is 100 percent. The temperature holds steady at a nearly unbearable 118 degrees Fahrenheit. All of these conditions — the

PHOTO (Previous page) SuperStock

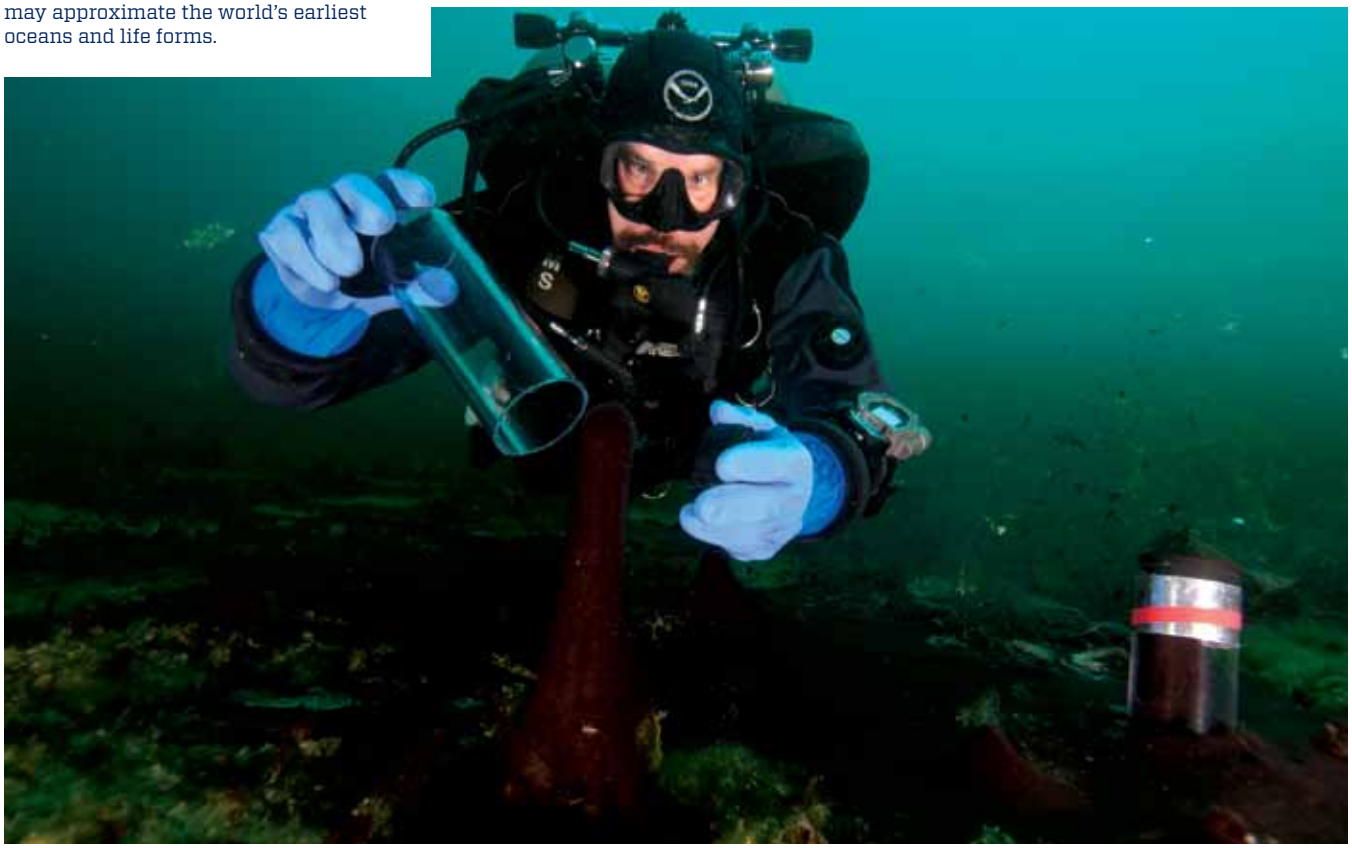
acid, the air quality, and the beastly temperature — are created by the action of iron-eating microbial biofilms that line the cave. Denef spent six years as part of a team exploring the northern California cave's tunnels for four or five hours at a time, clad head to toe in hot protective gear and dipping samples out of pools of greenish water matted with bright pink biofilms. "Ambient conditions are often close to the limit of human endurance," he and a U-C Berkeley colleague wrote in a recent paper appearing in the journal *Science*.

Though hostile to humans, the abandoned Richmond Mine in California provides an ideal model system for studying how microbial communities survive, adapt, and swap useful genes in their never-ending struggle for primacy and survival. The cave has relatively few microbe species and relatively little contact with the outside world that might introduce new microbes and their genes. Denef wanted to learn how biofilm populations adapt to a shifting environment. Is there a diversity of species with different abilities lined up for succession, like in the Lake Huron sinkhole, or do the microbes evolve in response to changing conditions? The answer turned out to be a bit of both.

SEEING LIFE IN A NEW WAY

The cave's ecology provided a glimpse of a complete kind of rainforest of unseen creatures eating other creatures. We often think of the base of the food chain as these microbes, but really it's elements like iron and sulfur, the stuff the microbes eat. They make energy by breaking molecules apart, starting the whole process in motion. "Once the biofilm builds this system up, other organisms can come in

> Then, as the sun sets behind Alpena and the last of the dappled light fades from this submarine garden, one of the world's most ancient battles begins in earnest. The white patches start to expand, spreading outward over the top of the purple skin. Within a few hours, the bottom will appear white with purple patches. And at dawn, when sunlight arrives, the battle will reverse.



In the cold depths of Lake Huron at the Middle Island Sinkhole, a location low in oxygen and high in sulfur, researcher Russ Green collects a microbial mat structure built by cyanobacteria. The tiny microbes comprise an ecosystem that may approximate the world's earliest oceans and life forms.

PHOTO Joe Hoyt, NOAA

LSA Professor Vincent Denef explores the Richmond Mine in California—a hot, humid, acidic locale hostile to humans but perfect for very particular microbes. Denef and others have worked to map changes in microbial genomes, documenting how subtle differences in DNA give these miniscule creatures distinct abilities, and change how they interact with the environment.

and either use this biofilm or supplement it with their own iron oxidation," Denef says. Acid-loving fungi move in to feed on byproducts of microbial chemistry, and little protists graze on the bacteria like tiny cattle. "We produced genomic information for 20 to 25 bacteria, archaea and eurkaryotes — all three domains of life — as well as viruses," Denef says.

Denef's painstaking assembly of complete genomes from the Richmond Mine revealed six distinct varieties of an iron-eating bacterium called *Leptospirillium* thriving in the isolated hothouse. Reading small changes in the genomes carefully over five years, he was able to estimate the rate at which a given letter of DNA might be changed by mutations, trading genes with other strains, and adaptation — that is, the evolutionary rate of just one species. This has been done in labs, but not in nature, where bacteria are hardly ever singular about anything.

Running that clock backwards indicates that the six varieties had sprung from a single ancestor in a matter of decades. Not eons or millennia, just decades. They could also see the rise and fall of some strains' fortunes. In some instances, a hybrid species that struggled to hang on in one condition suddenly became predominant when the environment changed.

The genomic vision required to see subtle differences across a microbial community and variations as small as a single letter of DNA distinguishing closely related strains didn't exist until about five years ago. This kind of science relies on something called "next-generation sequencing," sophisticated and very expensive robotic laboratory machines about the size of a dorm-room refrigerator. They can do as much DNA sequencing in a day as it took the Human Genome Project 13 years and $3 billion to achieve.

Rather than teasing out individual microbes, stretching out their DNA and carefully reading each letter of code individually, next-gen machines can tear through a slurry of many species at once, chopping them into short segments of DNA for reading in a massively parallel fashion. The magic is in "bioinformatics," sophisticated math and statistics that put billions of chunks of completed DNA sequence back together into a coherent picture of individual species like a giant word jumble. Without computers, it simply wouldn't be possible, and Dick's lab includes several people who just do bioinformatics.

This makes it possible to see, with great precision, that two microbes appearing very similar outwardly and sharing huge swaths of their genomes may be doing different chemistry to make a living, something Denef calls "microbial behavior." For the first time, next-generation sequencing is giving biologists the ability to see microbial behavior and really understand what tools a microbe has and how it may be using them.

PHOTO Mitch Jones

The microbes in a biofilm form an interdependent community, Denef says. And even though a given microbe may only be able to do a single job, it is surrounded by microbes doing other jobs that help it. For Denef, who started with an interest in using custom-tailored bugs to perform chemical cleanups, this helps explain why the engineered bugs don't always perform as they should. "They generally lose out because they're just not that good at competing with the indigenous microbes that were there," Denef says. "We put them in there without their natural partners."

Figuring out what makes each part of a microbial community tick has become a hot research topic. Like explorers of a vast new continent, biologists are fanning out to look at the microbes battling in the lungs of cystic fibrosis patients, in the guts of newborn babies, and on your skin. A Colorado researcher has found different microbes living on the human face than on the ears (because the ears are a little cooler), as well as communities on the left hand that share only 20 percent of their species with the right hand. It's been known for some time that the microbes thriving in your gut are essential to your digestion, but now the communities in your lungs, on your skin, and inside your nose are being examined with new tools, revealing them as co-dependents that evolved with us, and probably shaped our evolution too. "Even soil researchers are starting to assemble genomes from soil, and that is probably the most complex system of all," Denef says.

Fortunately, next-generation sequencing is able to see not just the spelling of the genes, but which genes are active at a given snapshot in time. This truer picture of microbial behavior — what tools are in use in response to given environmental conditions — comes from catching a real-time picture of its RNA, the molecule that translates the recipe of genes into specific actions. But with RNA's half-life of only minutes, and an organism that can change its stripes almost as quickly, microbial researchers sometimes need to work very fast to get an accurate picture of what RNA was doing when the microbe was just chugging along minding its own business. When Dick works in the deep sea, his team uses diving robots that can administer an RNA fixative to fresh samples while still on the bottom. In the Great Lakes, where he and Denef will be working now, it just requires some human hustle.

During the summers, weather permitting, Denef will drop a plastic sampling tube they call "Big Bertha" overboard from a research ship to capture 30 liters of water at a given depth. Working fast to catch the RNA in its native state, he'll run about 100 liters of water through progressively finer filters, precipitating out the viruses and then fixing a 10-liter sample with a high-salt solution to stop the RNA in action. "We just want their RNA to be the way it was in their environment. They're fast, so we have to be fast too." Some samples will be fast-frozen for reanimation and culturing later in the lab. Other samples will be set aside for microscopy, literally to see what's there.

Denef, a Belgian who fell in love with the Great Lakes while at Michigan State for his doctorate, will be working with Dick on characterizing the food web of the Great Lakes starting from its microbial base in cooperation with the National Oceanic and Atmospheric Administration's Ann Arbor-based Great Lakes Environmental Laboratory, the U.S. Environmental Protection Agency, and the U.S. Geological Survey. They'll sequence and characterize bacterial, archaeal, and viral communities in water columns under day and night conditions, at varying depths, inshore and offshore. "There's incredible diversity, and we've barely scratched the surface," Denef says.

Like explorers of a vast new continent, biologists are fanning out to look at the microbes battling it out in the lungs of cystic fibrosis patients, in the guts of newborn babies, and on your skin. A Colorado researcher has found different microbes living on the human face than on the ears (because the ears are a little cooler), as well as communities on the left hand that share only 20 percent of their species with the right hand.

Not only do we not know what microbial communities are there now, we have no idea how they may have changed or will be changing under the constant assault of new invasive species, Dick says. Regional climate change may also alter the communities, he adds.

This past summer, Denef also enlisted inland lake homeowners in the northwestern Lower Peninsula to measure water quality and zebra mussel infestation, in cooperation with the Tip of the Mitt Watershed Council. Remarkably, some of the inland lakes still haven't been invaded, giving Denef an opportunity to see microbial communities before, during, and presumably after the dramatic changes brought on by mussel invasion.

Microbes form ancient living communities, Dick says, doing some of the world's oldest jobs — like making oxygen. But what happens when their conditions change very rapidly? With the temperature and acidity of lakes and oceans changing at an unprecedented rate and scale, the bigger question isn't just what these microbes are contributing to life, but how their contributions may change. They'll adapt; they always do. But how?

Karl Leif Bates is a freelance science writer in Chapel Hill, North Carolina.


FIGHT
CLUB

by Richard Rothschild

PHOTO Neil Leifer/Sports Illustrated/Getty Images

At home they didn't have a dedicated place to practice. Away, they weren't provided with a per diem for food. Or lodging. They weren't given sweatshirts, much less uniforms, and what they did wear couldn't sport a Block M — that was for the men. As Title IX celebrates its 30-year anniversary, we look back at the battles fought by U-M's game-changing female athletes, who helped alter the course of sports both on campus and off.

ONE WONDERS WHAT DR. MARGARET BELL WOULD HAVE THOUGHT.

Bell, the longtime (1923–1957) director of the Department of Physical Education for Women at U-M, strongly believed competitive athletics, other than intramurals, was no place for a female.

"I think a girl should be a girl," Bell said. "The social position of women does not stand this exploitation [in varsity sports] and competition. Participation in varsity athletics could disrupt the functioning of the female reproductive system."

Bell's observations represent a bygone age as female athletes from Michigan have triumphed in both the collegiate and Olympic arenas.

"Women's sports were a sleeping giant, and the sleeping giant woke up," says U-M softball coach Carol Hutchins, who took over the team in 1985 and has led the Wolverines to 15 Big Ten regular season titles and the 2005 national championship. "Michigan is now a great place to be a female student-athlete."

After an embarrassingly slow start, the University has reached a level of compliance with landmark Title IX legislation that impressed 1972 Olympic springboard diving champion Micki King ('66) enough to say, "I couldn't be more proud to be a graduate of Michigan."

King may be the most accomplished female Michigan student-athlete never to have competed for the University during her years at Ann Arbor. There were no varsity sports for Michigan women in the 1960s, nor could they join the marching band or become cheerleaders. King perfected her craft at the Ann Arbor Swim Club and by training with Wolverines men's diving coach Dick Kimball.

Kimball recognized King's talent when he saw her working out at Michigan's women's pool, where the springboard was only one meter high instead of the regulation three meters.

"Coach said, 'This is for the birds; I want you training in the men's pool,'" King recalls. "I was told there was only one rule: I would not date any male swimmers — ever. But I was the social contact for setting people up, and some of them are still married."

King became a national Amateur Athletic Union champion, qualified for the 1968 Mexico City Olympics, and barely missed a medal when she broke her arm on her next-to-last dive and fell to fourth place.

Kimball, however, encouraged King to take another shot at the '72 Games in Munich. The combination of his coaching and the start of her 26-year career in the Air Force provided the background for a gold-medal run for King, who eventually attained the rank of colonel.

"I should split my gold medal in half, half to Dick Kimball and half to the Air Force," King says. "Kimball was asked what it was like 'to coach a girl,' and he said, 'I don't coach girls, I don't coach boys. I coach people.'"

(PREVIOUS PAGE) **Alumna Micki King** in pike position during trials for the 1971 Pan American Games. King went on to win gold in the 1972 summer Olympics.

(OPPOSITE PAGE) **Alumna Ginny Duenkel,** center, wins gold in the 400-meter freestyle at the 1964 summer Olympics. Silver medalist Marilyn Ramenofsky is to the right; to the left is bronze medalist Terri Stickles.

PHOTO Art Rickerby/Time Life Pictures/Getty Images

WINNING WOMEN

These days, there are many more women playing sports than there were pre-Title IX. Here's a glimpse at the numbers from the 2011–2012 season.

Basketball:
15

Cross Country:
35

Field Hockey:
25

Golf:
10

Gymnastics:
11

Rowing:
54

Soccer:
29

Softball:
19

Swimming and Diving:
33

Tennis:
8

Track & Field:
62

Volleyball:
14

Water Polo:
24

WHEN AWAY GAMES WERE BETTER

Although King never represented U-M in collegiate competition, Sheryl Szady ('74, M.A. '75) did, in field hockey, volleyball, and basketball between 1970 and 1974. Those were years of change and challenge, particularly when most other Michigan colleges and universities had formed varsities for women and U-M was still in the club stage.

"We were on our own," says Szady, who would later become manager of marketing and research data for U-M's Office of Development. "We were putting signs up around campus for field hockey meetings. Someone had to take the reins to be the manager and call other schools. After freshman year I took over that. I was a student talking to varsity coaches at other schools."

A part-time volunteer coach and limited practice hours came with the territory. So did providing food and beverages for the matches. Szady remembers having six cases of soft drinks stacked in her dorm room.

There was minimal coverage of women's sports in the *Michigan Daily* and none in the Detroit-area media. The teams often preferred away games where locker rooms actually provided towels.

"[At Michigan] there was a very small locker room with two toilets, one that never worked," Szady says. "There were showers that you would never set foot in.

"There was always the question of who could get access to a car [for away games]. Those cars could carry six, maybe eight people. You were expected to give the driver a dollar or two for gas. But we had a lot of fun. Women students left to their own means probably did some things that wouldn't be sanctioned by a coach."

But a crisis was developing. The other state schools had decided that their varsities would no longer play Michigan women's club teams. U-M needed to form its own varsities.

Szady, after talking with Michigan athletic officials and administrators, made a simple plea to a meeting of University regents in April 1973: "Could you help us?"

"We told our story, how no one would play us and we needed to move to a different model," Szady says.

Despite resistance, particularly from athletic director Don Canham ('41, M.A. '48), who feared women's sports would sap resources from the already financially strapped men's programs, female varsity athletics came to Michigan. Six sports were formed for 1973–1974: tennis, basketball, swimming, field hockey, volleyball, and synchronized swimming (since discontinued). Softball and track joined the roster later in the '70s.

"We were very appreciative," Szady says. "It was a step up but not a big step up. Nobody on our team came to Michigan to play field hockey. You fit the sport into your academic schedule. We only practiced an hour or 90 minutes a few times a week. The coach had the equipment in her car. There were no shoes, no socks, no Gatorade or water. When it came to scheduling facilities and practice times, we were at the bottom of the totem pole.

"There was no help with admissions, no help with academic schedules, no tutoring, no scholarships."

INCHING TOWARD ONE BLOCK M FOR ALL

The year Micki King struck gold in Munich was the same year Title IX became federal law, outlawing racial and gender discrimination in "any education program or activity that receives federal financial assistance." This included athletics.

But change came slowly in Ann Arbor, be it with facilities, practice fields, or recognition in the media.

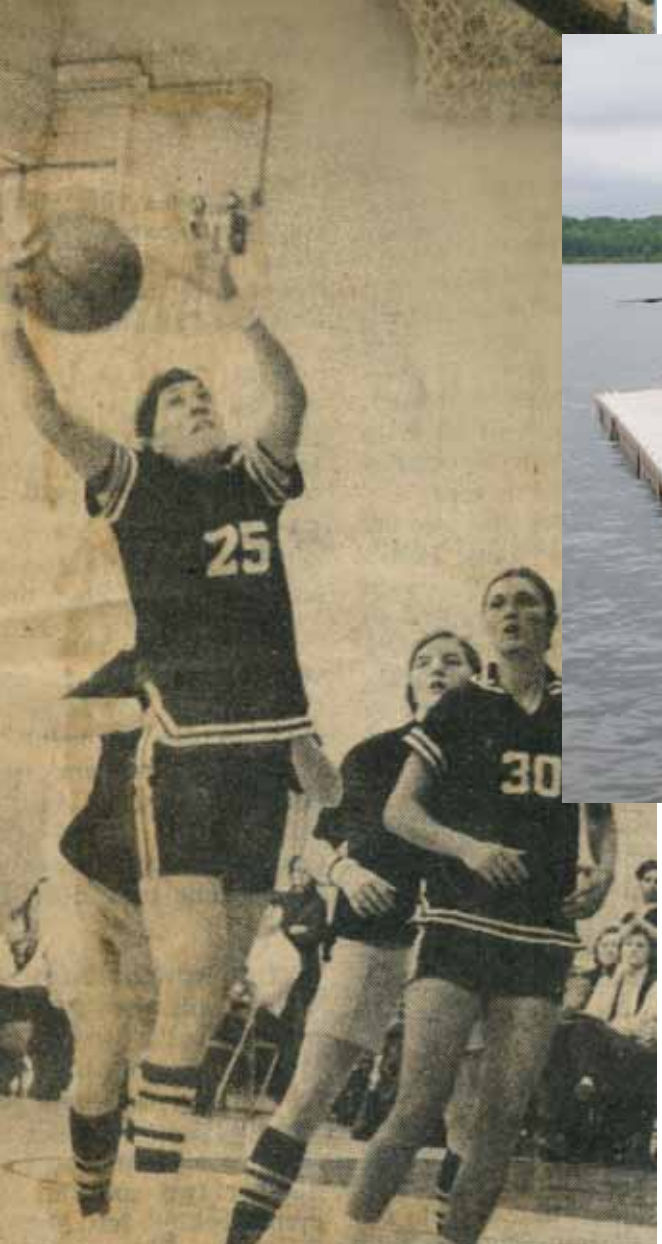
Hutchins, a former Michigan State basketball and softball player, said U-M was practically the last school in Michigan "to come aboard" with Title IX.

"When I came here many of the other [college] programs were way ahead of us," Hutchins said. "A receptionist said 'We don't have softball.' She didn't know we'd started a team.

"When I became coach it was 50 percent athletics, 50 percent clerical. Men who coached were 100 percent athletics, but I was answering phones from 8:00 A.M. to noon for one of the professors. I was a secretary and a damn bad one. I know the baseball coach didn't do that. The football coach certainly didn't do that."

There also was the matter of the Block M letter that was awarded to all varsity athletes. Legendary football coach Bo Schembechler and basketball coach Johnny Orr signed a letter stating that "softball players and synchronized swimmers should not receive the same Block M that [football and basketball athletes] have sweated and bled for."

The irony was Michigan had no softball team in the early '70s and the synchronized swim team was among the best in the nation. Michigan women were told they could have a blue M, a script M,



(CLOCKWISE FROM TOP LEFT)
During the 1972–1973 season, women's basketball was still a club sport, though they played varsity teams including Michigan State, whose own *State News* snapped this image. Behind number 30 is U-M player and alumna Sheryl Szady.

The women's rowing team in May 2012, prior to the NCAA rowing championship in West Windsor, New Jersey. U-M finished second in the competition.

The 1973 women's varsity field hockey team. Back row, left to right: Nathlie (Rennell) Strefling, Gail (Washburn) Jackson, Shellee Almquist, Gray Gilfillan, Cathy Nachman, Sheryl Szady, Sylia (Lang) Aretakis. Front row: Ellen Swagman Bruisma, Deb Lewis, Liz Eagan, Mary Forrestal (Borden).

Alumna Jennifer Brundage, number two, slides into base, playing for the U.S. women's softball team during the 2000 Olympics in Sydney, Australia. The U.S. women's team won gold.

PHOTOS (Clockwise from top left) courtesy of Sheryl Szady; Gene Boyers/Michigan Photography; courtesy of Sheryl Szady; Andy Lyons /Allsport/Getty Images

TITLE IX PRIMER

What it is, and why it matters

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." —Title IX

Bernice Sandler was a part-time teacher at the University of Maryland in 1969 and had just completed her doctorate. But she was rejected for one of several faculty openings in her department. Not because of her qualifications but because, she was told, she came on "too strong for a woman."

Her complaints eventually led to the creation of a bill, authored by Indiana Senator Birch Bayh and signed into law on June 23, 1972.

Although most people think of Title IX as an athletics-based law, sports is only one of the 10 key areas covered in the law. The others areas include access to higher education, sexual harassment, employment, and more.

Opportunities for girls and women in athletics have increased exponentially since Title IX's passage.

During the 1971–1972 school year, immediately before the legislation passed, fewer than 300,000 girls — or seven percent of all high-school athletes — participated in high-school sports. In 2010–2011, the number of female high-school athletes was nearly 3.2 million, or 41 percent of all high-school athletes.

The numbers for female college athletes are equally stunning. In 1971–1972, fewer than 30,000 women participated in college sports. In 2010–2011 that number exceeded 190,000.

Since its passage 40 years ago, attempts have been made to repeal the law, or at least amend it. Opponents say it has forced schools to cut sports and athletic budgets for men, among other complaints. Supporters say that is just one of the many myths about the law, and that thousands of schools nationwide still are not in compliance.

"anything but the men's Block M," Szady says.

The night before a final decision on awards, U-M women received a huge assist from an unexpected source: WDIV-TV sports anchor Al Ackerman, who later created the phrase "Bless you, boys" for the 1984 world champion Detroit Tigers.

"Ackerman went on TV and said if Michigan doesn't give women the same Block M as the men, 'I will never mention another Michigan score on this broadcast,'" Szady says. "This tipped the fans that something was going on."

Canham tried once more to persuade Szady to accept a different award, but, in the end, all but one member of the athletic council voted to give U-M women the Block M. Szady's photo appeared on the front page of the *Ann Arbor News* — alongside a shot of Secretary of State Henry Kissinger.

"Al Ackerman certainly helped us," Szady says. "But when we got our letter jackets our M's were smaller and more orange. We were told the manufacturer couldn't fit the regular Block M on our jackets because our sizes were smaller."

EQUAL OPPORTUNITY TO WIN

Hutchins, who was part of the Michigan State women's basketball team that filed a class action lawsuit against that university over unequal treatment for female athletes, said attitudes at Michigan began to change when Schembechler took over as athletic director in 1988.

Despite his earlier resistance to women wearing the Block M, "Bo wanted Michigan to win in all sports," she says. "He watched one of our softball practices and wondered why we had only one jersey and one sweatshirt. We had new practice uniforms within a week."

When Michigan became the first team east of the Mississippi to win an NCAA softball title in 2005, Schembechler placed a congratulatory phone call to Hutchins.

"Bo wasn't about men or women," Hutchins says. "He was about Michigan."

Szady says that under Schembechler, there was more "standardization" for men's and women's athletics. If the men were being bused to Columbus or Indiana, so were the women. If the men were being flown to Minneapolis, so were the women.

She praised Schembechler's successor, Jack Weidenbach, for being an even bigger supporter of women's sports. Even the retired Canham began bringing his granddaughter to women's gymnastics events at U-M.

Michigan women went on to win an NCAA field hockey championship (2001) and placed second in swimming (1995), gymnastics (1999), and crew (2001).

Swimmer Samantha Arsenault (U-M 2001–2002) and softballer Jennifer Brundage (M.A. '05) have won Olympic gold medals, following in the footsteps of King and swimmers Joan Spillane (U-M 1960–1962) and Ginny Duenkel ('69), who won Olympic crowns in the pre-Title IX era, in 1960 and 1964, respectively.

"[Michigan] women now have the resources with facilities, totally funded scholarships, and academic support," Hutchins says. "Men and women are treated the same; we're all given the opportunity to win. I can't say that was true when I got here."

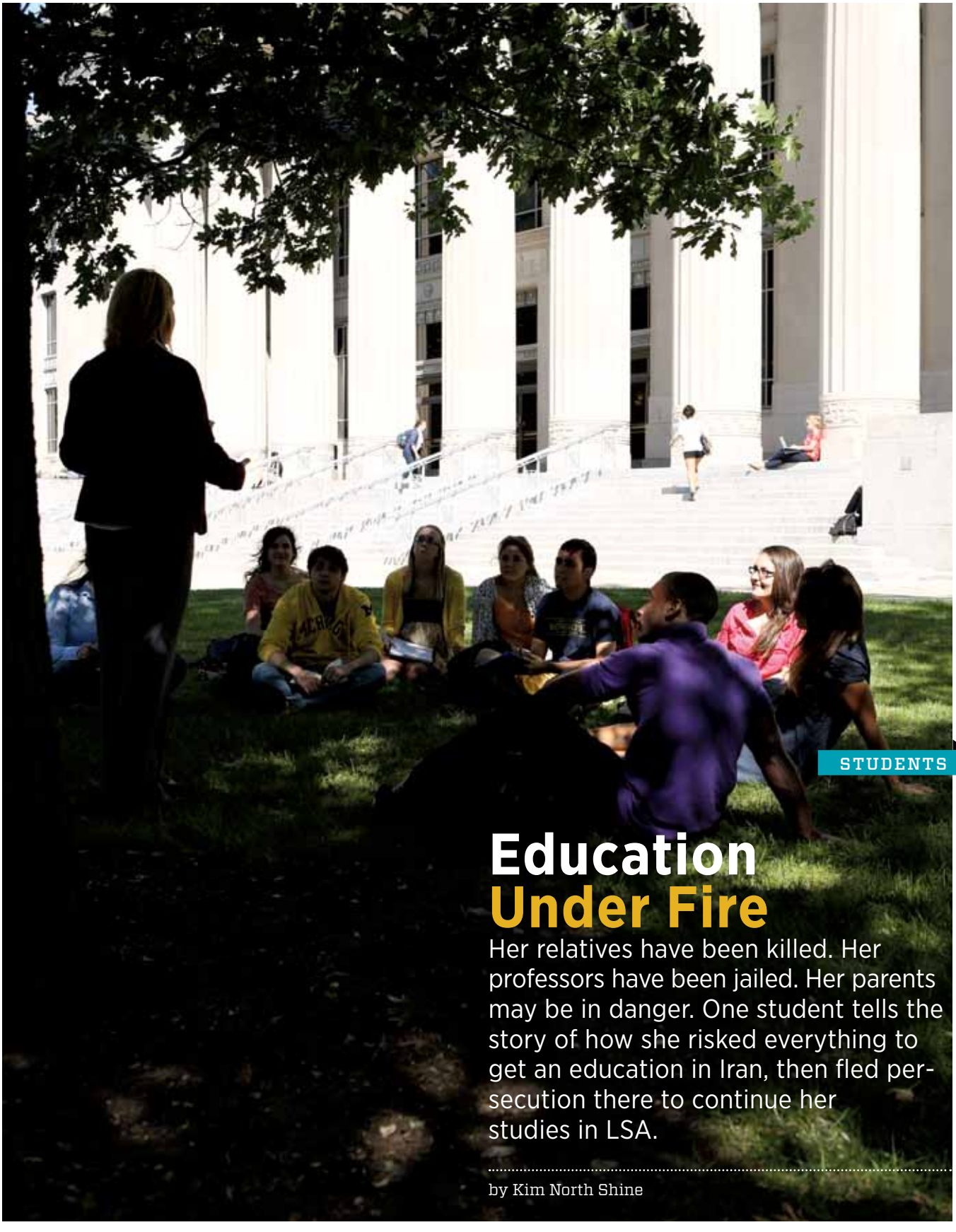
No, Margaret Bell never envisioned Michigan fielding 14 varsity sports for women or U-M female athletes appearing on national television or playing before packed houses in state-of-the-art athletic facilities. But neither did Carol Hutchins.

"I could never have envisioned playing on ESPN or in filled stadiums," Hutchins says. "It's hard to imagine universities would ever treat us like boys. I have older women telling me, 'I never had this opportunity when we were young.'

"But it is an opportunity that should not be taken for granted. There are still battles to be fought with equal pay and equal opportunities. But today's female student-athletes are the winners."

Richard Rothschild is a former editor and writer at the *Chicago Tribune*. As a freelancer he regularly contributes to SI.com.

From **escaping Iranian oppression** to **satanic Abe Lincoln,** our tour of campus starts here.



STUDENTS

Education Under Fire

Her relatives have been killed. Her professors have been jailed. Her parents may be in danger. One student tells the story of how she risked everything to get an education in Iran, then fled persecution there to continue her studies in LSA.

by Kim North Shine

PHOTO Rob Hess

WHEN KATAYOON "KATY" SABET walks across the U-M campus, going from class to class, mixing with students and professors, immersing herself in the college experience, her thoughts often turn to Iran, her homeland, where school was nothing like here. Not this open, not this free, not this promising.

Sabet's Iranian university had no campus to cross. Seldom were there students to sit with in a classroom. Only occasionally did she speak face to face with professors — and often only after taking clandestine carpools to unmarked buildings. For Sabet and other Iranians of the Baha'i faith, attending college was a secretive, even dangerous, undertaking.

Unorthodox as the education was, Sabet was grateful for it. She knew, though, that she had to leave Iran. The Islamic-controlled government, which views the Baha'i faith as heretical, has a long history of persecution, including policies denying Baha'is access to higher education and job advancement. For Sabet, this meant working as a pharmacy tech, even though her pharmacy degree qualified her for a more senior position. She also lost a volunteer position she felt was her calling: working with women and children with AIDS. Her boss apologetically said the agency's mission might be jeopardized because of her Baha'i faith.

"It was a really hard decision to make, to leave. I wanted to stay with my parents. I wanted to stay in my own country," says Sabet, an LSA junior concentrating in women's studies and pre-med.

/INSIDE AN UNDERGROUND UNIVERSITY

College schooling would have been impossible for Sabet and most Baha'i students if not for the Baha'i Institute for Higher Education (BIHE). It's a mostly underground university where living rooms and kitchen tables double as classrooms, and volunteer professors in Iran, England, Canada, the United States, and other countries share their knowledge of medicine, science, and more. They do it in person, via Skype, by email, and occasionally in nondescript buildings so they're not caught.

Some of those teachers are currently serving prison sentences for their roles in BIHE. Many college-educated Baha'is have lost their jobs as intolerance by an Islamic-controlled government has grown in the years since the 1979 revolution.

"It felt like you were doing something illegal, and you just wanted to go to school," Sabet recalls. "There are people who have devoted their lives to this, to keep the university running, even though they can get arrested."

Sabet landed in Ann Arbor in 2009 after escaping Iran and waiting in Austria for six months for her refugee status and departure to Michigan to be approved. Her brother, Amir, a Ph.D. student at U-M, arrived in 2003. He had escaped service in the Iranian military, where his faith could have put his life at risk.

Stories of Baha'i students' struggles to get an education, to be treated fairly, to move on after the executions of their parents, are told in the documentary *Education Under Fire*. The Baha'i Club at U-M brought the film to campus this past March. Katy Sabet was a presenter. She hopes the film, which also conveys the post-revolution educational efforts of Baha'is, shines a light on human rights abuses.

BIHE formed in 1987 and has weathered two major raids — in 1998 and 2011. In May 2011 several administrators and teachers were arrested. Some are still serving prison sentences, which has bolstered interest in the documentary and strengthened the push to stop what's been called educational apartheid.

The arrests continue still.

/ AN EQUAL EDUCATION

"I could not have an ID…I could not go to the library," Sabet says. "Sometimes Muslim friends would take me to school with them and I would say, 'This is amazing. This is what a college campus looks like,'" she says.

The same feeling comes back as she goes to classes freely in Ann Arbor.

"When I came here I was speechless," she says. "I would think, 'Oh my God, this campus! I cannot believe this campus!'"

As excited as she is, it was hard leaving friends and family behind.

Sabet's aunt, an obstetrician and gynecologist in Franklin, Michigan, who left Iran many years ago, has been in the same painful refugee position as Sabet and her brother. Sabet's parents, however, have chosen to stay in Iran, which is holy land to Baha'is.

They stay even though her father's cousin has been executed. Other relatives have lost homes. Part of growing up was worrying that her parents, who were supporters of BIHE, would be arrested. It could still happen.

For now, Sabet focuses on the future and discovering what life-changing work she'd like to do, without religion coming into play. And she thinks about the friends and other students who are still in Iran, struggling for an equal education, as she did. Some attend the national university and are among the few non-Muslims accepted, though odds are high that they'll eventually be asked to leave. Others have opted for BIHE.

"If you were to travel to Iran you could never see what is going on. Some Baha'is may go to university and then they are denied their records, or told to leave, or they're told their records are lost. For BIHE students, they do not know if they will work in the field they are studying. Professors' computers are hacked. Some students are driving for hours or days to go to a science lab. Some are being arrested," she says. "They do not know if they'll get a job at all. Some of them are leaving. Others are staying and hoping this will all get better. I think it will get better." ■

(PREVIOUS PAGE) **Freedom to Learn.** Katy Sabet seated in the sun outside Angell Hall. In her native country, Iran, discriminatory policies often prevent people of her religion from access to higher education. Sabet and her older brother escaped this oppression to attend U-M. Her parents, however, remain in Iran.

42.22° N, 83.75° W

by Katie Vloet

STUDENTS

Dystopia Cornucopia

RACHEL FENTIN THINKS KATNISS EVERDEEN — a formidable teenager who fights government oppression with a bow and arrow in *The Hunger Games* series — is far more interesting than the young women in many classic novels, with their corsets and doomed relationships and haunted castles.

"I think Katniss is inspiring a whole new role model: A young woman going out into the world, fighting and surviving," says Fentin, who graduated in 2012 with a bachelor's degree in English and women's studies. "She's really a revolutionary character."

It was that revolutionary quality that inspired Fentin to write her women's studies thesis about two dystopian young adult series: *The Hunger Games* by Suzanne Collins and *The Giver* by Lois Lowry, which also features a young protagonist fighting an oppressive regime. In both series, young people lead the charge against adults.

"Young adults are really marginalized within a conventional political structure," she says, both in the real world and in these books. "But they're also powerfully drawn to change."

Today's real-life economic woes form a perfect backdrop for dystopian novels, as does the post-9/11 world in which Fentin and her peers have come of age. "During times with a great deal of doubt and change, that's when you see a lot of dystopian novels being published as well as a lot of interest among readers," says Fentin.

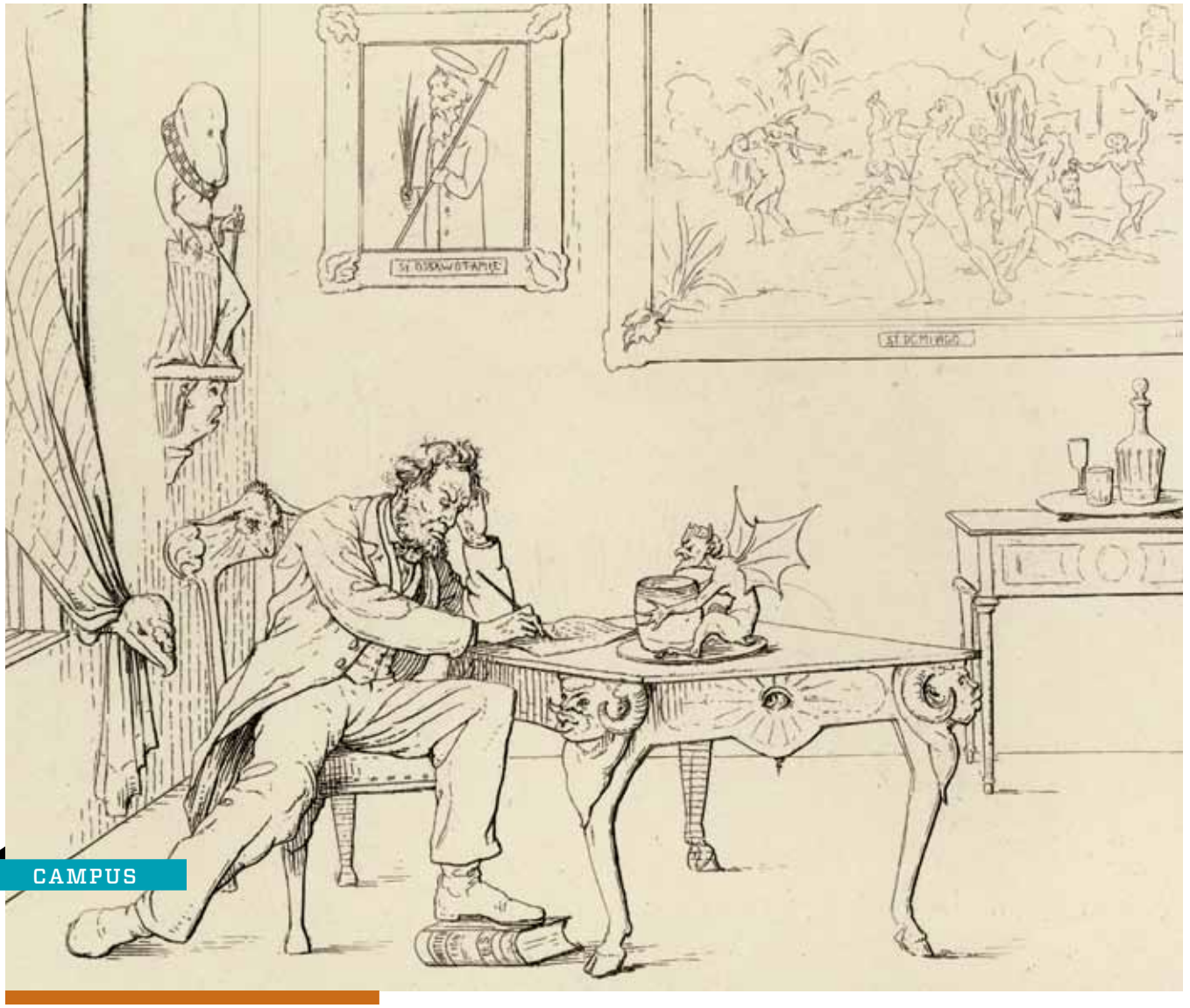
Similarities between the books and real life go beyond the geopolitical backdrop, though: Teens and young adults don't have access to usual means of political involvement, such as voting, so they must find ways to make their voices heard, sometimes through acts of civil disobedience.

Fentin — currently an instructor at a Detroit school through Teach for America — understands the need to find a forum for civil disobedience. She was raised in what she calls the "Detroit peace community"— a small group of activists who raised their kids together. At U-M, Fentin was involved in feminist organizations.

"That's probably why I'm so drawn to the characters in these series. These are things I'm always thinking about," she says. "Like a lot of young readers, I'm always looking for characters in books who reflect my own experience of being a creative, questioning person." ■

PHOTO Valerie Macon/Getty Images

by Lara Zielin



CAMPUS

Satanic Abe Lincoln

LONG BEFORE *ABRAHAM LINCOLN: VAMPIRE HUNTER* was a book-turned-Hollywood-movie, there was Abraham Lincoln, the right arm of Lucifer himself. Or so thought Adalbert Johann Volck, a German-born supporter of the Confederacy, who drew political cartoons during the Civil War under the pseudonym V. Blada. A dentist by trade, he secretly published a number of scathing, Union-critical drawings. Here, he depicts Lincoln sitting on a chair, on the back of which is carved an ass's head. As the devil holds his inkwell, Lincoln writes the Emancipation Proclamation. As celebrated as the Proclamation is today, it was nothing if not controversial at the time. The order was decried by many to be a gross abuse of executive power, shown here by Lincoln trampling the Constitution with his foot.

This image is part of the Proclaiming Emancipation exhibit at the William L. Clements Library, open now through February 18, 2013.

Cartoons have long been popular mediums for social commentary, dating back to the 1700s. The Clements Library holds a vast collection of American graphic satire, illustrating myriad social issues in addition to slavery. "Bloomerism in Practice," for example, depicts a house in disarray after suffrage-minded women return from a rally (the artist is unknown). Victor Gillam's colorful illustration, "The reason why pauper immigration is not restricted," shows a number of people benefitting from the arrival of an impoverished immigrant — from the steamship owner who pockets his fare, to the cheap labor contractor who profits from the immigrant's backbreaking work.

Some of the images may be more than 100 years old, but the themes they explore — from women's rights to immigration to how much power the president should have — are certainly evergreen. ■

ILLUSTRATION William L. Clements Library

From **"New Left" 1960s activists** to **science fiction DNA strings,** the worldwide LSA impact starts now.

ALUMNI

Radical Transformation?

This year, as *The Port Huron Statement* turns 50, we look back at what changed when this manifesto was written, calling for a nation of activists to rise up and revolutionize society. Sixty-thousand copies of the statement were distributed in the 1960s. Today, scholars and alumni weigh in on whether the writing had an impact—or whether it was dust in the wind.

by Gregory Parker

PHOTO C. Clark Kissinger

IN JUNE 1962, 59 ACTIVISTS, MOSTLY STUDENTS, were holed up in a United Auto Workers (UAW) camp in Port Huron, Michigan. They were debating the contents of a manifesto that, they hoped, would be a clarion call to build a movement of college students to challenge the state of American society: the hypocrisy of racial segregation, the overblown rhetoric of the Cold War, the pervasiveness of poverty in the world's richest nation, and the apathy of its citizenry.

The discussions were personal, intense, and dramatic. At one point, after the group had adjourned for the night, the lead author of the draft, Tom Hayden ('61), unrolled his sleeping bag in the doorway between the meeting room and the cafeteria, where everyone would eat breakfast. The delegates would literally have to trip over him — and wake him up — before resuming their discussion. He didn't want to miss anything.

The resulting manifesto came to be known as *The Port Huron Statement* and was the formative document for the Students for a Democratic Society (SDS), a then-nascent group that would later become the nation's largest radical student organization. Along with other "New Left" groups, it would help mobilize millions nationwide in the 1960s.

SDS self-destructed in 1969, but despite its short existence, it achieved mythical status among both the celebrants and detractors of 1960s activism. It also contributed to U-M's reputation as an activist campus. But what did this short-lived group really achieve, if anything? SDS was, after all, a bunch of white, middle-class students inspired by the civil rights movement, nuclear disarmament, labor activism, socialism, and Communism. They embraced existing causes, but their novel way of framing them attracted hundreds of thousands of followers.

On the 50-year anniversary of the publication of *The Port Huron Statement,* scholars, participants, and alumni weigh in on what changed because of SDS — and, perhaps equally important, what didn't.

/ CIVIL RIGHTS ROOTS

In the years after the landmark *Brown v. Board of Education* case and the Montgomery bus boycott, when the specter of the H-bomb haunted humanity and Sputnik challenged American hegemony, student activists were building the foundations of a mass movement. In 1960, Alan Haber ('65), a longtime campus radical, organized SDS at U-M with the broad vision of focusing on national and international issues that could unite students on multiple campuses.

Haber and Sharon Jeffrey ('63) formed the early SDS leadership core. In 1960, they organized the conference "Human Rights in the North," the first of its kind at U-M. They invited the students from North Carolina A&T College, who had famously staged

PHOTO © Bettmann/CORBIS

sit-ins at a racially segregated F.W. Woolworth store in Greensboro, North Carolina. The Greensboro students captivated the nation, and they and others from the Student Nonviolent Coordinating Committee (SNCC) attended the conference.

"[The conference] was a meeting place for . . . black and white and students and labor and church. That's really where the first relationships of trust and mutual humanity began in the development of SDS," says Haber.

Around that same time, another campus activist was making waves: editor of the *Michigan Daily,* Tom Hayden ('61).

In 1960, Hayden was working with other students to oust Deborah Bacon, the Dean of Women, who was known for her draconian enforcement of paternalistic standards for U-M's female students, whose private lives she tracked. Hayden and other students pursued the matter with the Board of Regents, forcing Dean Bacon to resign.

Shortly thereafter, Hayden was recruited to SDS.

As the southern civil rights movement gained greater national attention, SDS used its multi-campus network and its ties to southern activists to help build a group of sympathetic white activists in the North. In its early days, SDS dedicated most of its attention to the civil rights movement, but the group advocated for a wide range of issues — student civil liberties, economic equality, and others — within the framework of a broad critique of American society. With its lively, seminar-style discussions, SDS also offered a welcome antidote for students frustrated with an often banal classroom atmosphere.

> "We are the people of this generation, bred in at least modest comfort, housed now in universities, looking uncomfortably at the world we inherit."

SDS, under Haber's leadership as president, grew. The organization wanted to articulate a vision for not only SDS, but also for a broader student movement. In December 1961, the leadership met in Ann Arbor and selected Hayden to draft a manifesto that would do just that.

In late May 1961, Hayden was sequestered in his New York City apartment, trying to finish the first draft of the manifesto in time for the June 12 convention, where its discussion, debate, and revision would dominate the agenda.

Membership in Students for a Democratic Society burgeoned after *The Port Huron Statement* was signed and helped propel demonstrations like this one on State Street in 1968 in protest of the Vietnam War. Pictured here, just to the right of the car (LEFT TO RIGHT), are Diana Oughton, William C. Ayers, and Milton "Skip" Taube.

Hayden finished a draft with less than two weeks to spare, and he joined 58 other activists from SDS and beyond at a UAW camp in Port Huron for the convention. Sharon Jeffrey utilized the connections of her mother — a UAW activist — to secure the venue at the last minute.

The camp pulsed with activity and enthusiasm, and the attendees split into groups to consider various sections of the draft. After days of debate, with little sleep, the attendees approved a revised draft, with suggestions for more changes. Before they departed, Hayden was elected the second SDS president.

"We are the people of this generation, bred in at least modest comfort, housed now in universities, looking uncomfortably at the world we inherit." This paragraph — with echoes of the Constitution, allusions to America's post-war prosperity, and explicit emphasis on young people — opened *The Port Huron Statement*.

/ NOT ENTIRELY NEW

The manifesto presented a comprehensive critique of the American political system. The verdict: It was broken. The Democratic Party was held hostage by racist Dixiecrats, a segregationist offshoot; the Cold War threatened to destroy humanity with two superpowers strategizing mutually assured destruction; rabid anti-Communism was often a red herring that distracted politicians from tackling real social ills; the wealthiest country in the world had substantial numbers of citizens living in squalor; and postwar prosperity had bred complacency.

None of this was entirely new. These were common critiques among leftist groups of the era, and many had already been working for years on these causes. What made *The Port Huron Statement* so important is that it linked all of these issues into a single, larger cause with a unique vision: It called for the radical transformation of the American political system, and it called on student activists in universities to help lead the way toward building a "participatory democracy" that involved citizens in all of the day-to-day decisions.

"The most important thing about SDS is that they connected issues in a fresh way. That's what made them a radical organization, and what made them distinctive and appealing to many people," says Howard Brick ('75, M.A. '76, Ph.D. '83), the Louis Evans Professor of History in LSA.

The Port Huron Statement gave activists the language with which to articulate their ideas for social change. It called on radicals to challenge the established order as a whole. This strategy instantly made every leftist student protest action on every campus part of the same cause. Want to challenge segregation in the South? Fight for free political speech at your northern college so you can spread the word about SNCC and the struggle for civil rights. Want to build a participatory democracy nationwide? Start organizing the disenfranchised in an underprivileged neighborhood near your campus.

Many of the Port Huron participants felt they were on the verge of something big, even as they were participating.

"*The Port Huron Statement* wrote us, not the other way around," recalls Hayden. "In other words, there were feelings in the air, blowing in the wind, that made it possible for us to articulate a yearning, a protest, a strategy, and a vision — of students as the catalysts of a great social movement leading towards a more participatory democracy."

"You have this document which is innovative, eloquent, comprehensive, sophisticated in its language . . . and it's a phenom. It was written by people who were 22–25 years old," says Brick. "At certain times, young people do remarkable things."

An estimated 60,000 copies of *The Port Huron Statement* were sold or distributed in the 1960s, though this certainly underestimates the number of people who actually read it. It's easy to imagine dog-eared copies passed among dozens of like-minded friends. Beyond these numbers, it was cited and anthologized by other leftist publications.

Brick is careful to note that "a publication does not create movements. Movements provide the seedbed for publications." *The Port Huron Statement* can be viewed as a reflection of the times, a deep look into the movement's underpinnings, as opposed to a recipe for action.

After the Tonkin Gulf incident in 1964, the Johnson administration dramatically escalated military action in Vietnam. In March of 1965, U-M professors and students — with SDS participation — held an all-night teach-in on the Vietnam conflict. It attracted thousands of students and was copied on campuses nationwide. In April, SDS played the key role in organizing the "March on Washington to End the War in Vietnam," the first national protest against the growing war. It attracted an estimated 25,000 activists.

The anti-war cause took off, in part, because it was building upon the participants and networks established by more than a decade of work by proponents of civil rights, nuclear disarmament, student activism, and women's rights.

"The anti-war movement was the product of these movements synthesized into one," says Brick. And SDS grew along with the broader anti-war movement. With scores of chapters at campuses nationwide, and with its ability to incorporate Vietnam into its broader political critique, SDS was well placed to receive a huge influx of anti-war students. Membership exploded.

/ AN EARTHQUAKE IN THE BEDROCK OF SOCIETY

By 1968, SDS had an estimated 100,000 members at more than 300 campuses. It was the nation's largest radical student membership organization, and its members and leaders were seemingly omnipresent at nearly every significant student protest.

Then, at the height of protest activism in the late 1960s, SDS fell apart.

1968 witnessed a series of cataclysms including the assassinations of Martin Luther King Jr. and Robert F. Kennedy; the Tet Offensive; and the violence at the Democratic National Convention in Chicago. Different factions within SDS debated how to respond, and the group simply could not contain the divergence of opinion.

In 1969, the group split into rival factions, and one of the splinter groups, the Weathermen, co-founded by Bill Ayers (A.B. '68), embraced violence. By then, Hayden, Haber, and Jeffrey were long gone.

"The civil rights movement, the anti-war movement, they really did attack rather fundamental aspects of the way American society was organized and its conventional rationales, notions of 'American' values," says Brick.

"It was like an earthquake in the bedrock of society. Protest unleashed forces — sharp conflict, reaction, and repression — that these groups simply didn't have the institutional strength or the experience to withstand."

Still, SDS remains an important element of a phalanx of New Left groups dedicated to social change during the time.

Beyond its roles in the civil rights and anti-war movements, SDS membership and alumni went on to play prominent roles in women's liberation and gay and lesbian liberation movements. *The Port Huron Statement* has reflected and shaped the goals and aspirations of countless activists around the world.

That's not to say SDS was faultless while it was in existence. Perhaps most egregiously, women were largely relegated to minor, if any, leadership roles. Others have argued that, at key moments in the 1960s, SDS opted for the wrong course, choosing to embrace a multitude of projects instead of concentrating its efforts on a few strategic fronts.

These debates have raged for 50 years. Scholars, SDS alumni, and activists old and new will be able to make their case at the conference, "A New Insurgency: *The Port Huron Statement* in Its Time and Ours," which takes place on U-M's campus from October 31–November 2, 2012.

"The 50th anniversary gives us a chance to study how radical dissent back then took on new life after a time of conservatism, the Cold War 1950s," says Brick, one of the lead conference organizers. "The resurgence of protest around the world during the last two years has stirred a lot of interest in the 1960s New Left. Everyone's talking about the parallels — and the differences — between that time and ours."

The conference will bring Hayden, Haber, Jeffrey, and others back to campus. It's unlikely any of them will be occupying administrative buildings. Now, the radicals are honored guests. ■

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by Laura J. Drouillard

ALUMNI

Lights. Camera. Cake!

"YOU CAN BE YOUR OWN WORST ENEMY," Heather Anne Leavitt (U-M '07) says of cake construction. "Maybe you design an overly complex structure, or one that doesn't necessarily play to your strengths. Plus, there's always one last thing you can do — one more tweak you can make — which isn't always ideal under time constraints."

Leavitt learned these lessons, among others, while serving as an assistant to Courtney Clark of Ann Arbor's Cake Nouveau bakery on Food Network's *Last Cake Standing* in 2009. The television series challenged six pastry chefs from across the country to perform tasks such as designing a self-portrait cake, a surprise wedding cake, and an extreme superhero cake.

Leavitt and Clark were among three teams competing in the finale, which, at 24 hours, was the longest in Food Network history. The challenge: to create a cake for a "celebration" that they later learned was the Dilley sextuplets' 16th birthday (the first set of surviving sextuplets in the United States). The bottom of the five-foot-tall cake resembled a bridge, suspending a personalized cake for each teenager on an arched structure. The pair finished in second place.

They also finished second in Food Network's "Miley Cyrus' Sweet 16 Cake" special, in which they built a four-foot-tall birthday cake with enough glitter and glam for a Disneyland celebration.

"We aimed to design a cake that would appeal to a 16-year-old's interests. But it turned out that representatives from [Cyrus'] fan club, who were in middle school, judged the cakes instead. They selected one more appealing to their age group," Leavitt says. "You're provided limited information with limited time, so you just work with what you can."

While time pressure is intense, Leavitt says reality television's dramatic footage isn't always authentic.

"You're competing against your idols that represent bakeries across the country. So you wouldn't necessarily say something bad about them," she says. "What you say in an interview may be taken out of context."

Since filming, Leavitt opened her own cake studio, Sweet Heather Anne in Ann Arbor. She says she continues to keep tips and tricks learned while competing in mind — from how to handle cakes in the heat to how to best construct complex internal structures.

"You're at your creative best in these competitions, so you end up learning a lot from yourself, too." ■

PHOTO Abby Rose Photo

by Karl Leif Bates

FACULTY

Beyond Bickering

All siblings fight, but is there a point at which the rivalries can go too far? Two LSA professors rip the Band-Aids off the myths and take a close look at the rarely studied but widely reported occurrence of sibling abuse.

STABBING AT THE LAST TATER TOT, fighting over space in the back seat of the car, or planting dark rumors about Santa Claus are all part of the sibling rivalry game. It's normal and ubiquitous for offspring to verbally and sometimes physically jostle and joust.

These sibling contests are among some of the most important family dynamics, but also some of the least-studied, says Brenda Volling, LSA psychology professor and director of the Center for Human Growth and Development, and a specialist in early childhood development. "It's almost as if they're the forgotten family relationship."

Sibling rivalry is essential and constructive, Volling says. It's where a child can learn both to prosecute a conflict and to resolve it, like wolf pups wrestling and play-biting to get ready for the real hunt. And as such, you can view sibling rivalry something like a hockey game, Volling says. There is sure to be some checking and loud crashes against the boards — all well within the rules of the game.

But she is quick to note that there is also such a thing as unnecessary roughness and unbalanced aggression. At some point, the ref has to blow the whistle and send somebody to the penalty box. Without referees, the rivalry can turn into something darker and less constructive, entering the realm of abuse that can create long-lasting physical and psychic scars.

"The abuse of one sibling by another is a serious and often unrecognized problem in families," says Sandra A. Graham-Bermann, a professor of psychology and psychiatry. "The assaults can include mild or severe injury, beating up, intimidating, and threatening to do harm."

Volling adds to the list: pinching, biting, hitting with objects, choking, suffocation, drowning, and sexual assault. This goes well beyond an impulsive child dishing out a roundhouse punch over a toy. Abuse has a deliberateness to it; it's intentional hostility, cruelty, and repetition, Volling says.

"You can tell when there is sibling abuse when one child is clearly the bully and the other is consistently the victim," Graham-Bermann says. The victim is left with feelings of worthlessness, helplessness, and shame that may prevent them from seeking help, even into adulthood.

A large national study in 2009 found up to 14 percent of siblings between the ages of three to 17 experienced severe forms of violence, such as beatings or altercations with a gun or knife, Graham-Bermann says. Another study in 1999 found eight percent of college students reported ongoing physical abuse by a sibling during childhood. These studies reveal that psychological and physical aggression between siblings may increase the odds of a person's future behavior problems, including delinquency and aggressive behavior in dating and intimate partner relationships.

Though some conflict is to be expected, it's not enough to say "let them work it out" or "that's just what siblings do," Volling says. Children aren't born naturally knowing how to resolve conflict; they need help developing their tools for dealing with it. Parents need to "help them learn conflict resolution when they're young," and model good behavior. "You can't spank a kid and then say, 'don't hit your sister.'" The evidence shows that physical aggression by parents who have a harsh and coercive parenting style is consistently linked to aggressive behavior in children, Graham-Bermann says.

Volling says parents need to pay attention to subtle cues and intervene when a line seems to be crossed, even though most abuse might occur out of their sight and hearing.

"As for therapy, I think that someone with a family systems perspective would be best as they wouldn't restrict their focus to an individual child," Graham-Bermann says. "Nor would such a family therapist leave out the contribution of the parents to the problem. The parents are both part of the problem but also an important part of the solution." ■

LEARN MORE VIA THE U-M HEALTH SYSTEM
www.med.umich.edu/yourchild/topics/sibabuse.htm

GROWING PAINS

Possible signs of sibling abuse:

- One child always avoids their sibling
- A child has changes in behavior, sleep patterns, eating habits, or has nightmares
- A child acts out abuse in play
- A child acts out in sexually inappropriate ways
- The children's roles are rigid: one child is always the aggressor, the other, the victim
- The roughness or violence between siblings is increasing over time

How can I prevent abuse from taking place?

- Set ground rules to prevent emotional abuse, and stick to them. For example, make it clear that you will not put up with name-calling, teasing, belittling, intimidating, or provoking.
- Don't give your older children too much responsibility for your younger kids. For example, use after-school care programs, rather than leaving older children in charge.
- Set aside time regularly to talk with your children one-on-one, especially after they've been alone together.
- Know when to intervene in your kids' conflicts, to prevent an escalation to abuse.
- Model good conflict-solving skills and non-violence for your children.
- Teach them to say "no" to unwanted physical contact.
- Keep an eye on your kids' media choices (TV, video games, and Internet surfing), and either join in and then discuss the media messages or ban the poor choices.

Compiled by Kyla Boyse ('90) and Psychology Professor Brenda Volling.

Resilient.

YOU CAN HELP.

When Antoyrie Green was a child in Detroit, her parents were severely injured in a car crash, rendering them unable to work. Despite their challenging financial situation, Antoyrie's parents never stopped dreaming of a U-M education for their daughter. Thanks to scholarship support, their dream — and Antoyrie's — is now a reality.

CONSIDER THE FUTURE.

Today, Antoyrie is an LSA junior looking ahead to obtaining her master's and doctorate degrees. Through her intended career as a clinical psychologist, she hopes to one day give back by working with children and families.

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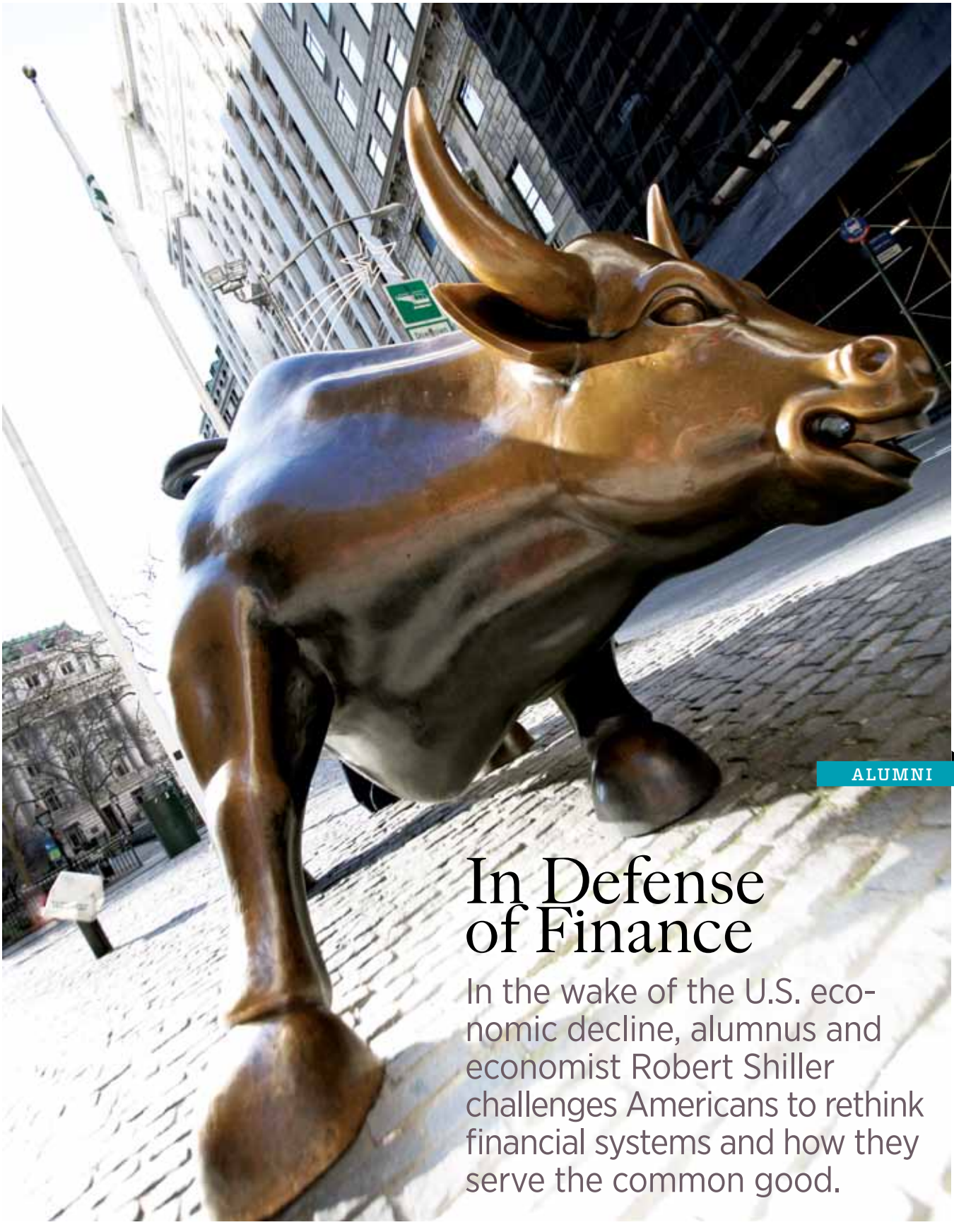
by John Masson



ALUMNI

In Defense of Finance

In the wake of the U.S. economic decline, alumnus and economist Robert Shiller challenges Americans to rethink financial systems and how they serve the common good.

AMID 2008'S SPIRALING FINANCIAL MELTDOWN, collapsing auto industry, avalanching home prices, tumbling employment figures, disappearing 401(k)s, and teetering financial institutions that the government deemed "too big to fail," the financial industry's reputation went from bad to worse. It is now arguably at an all-time low in the United States.

Yet Yale economics professor and author Robert Shiller ('67) says that much of the good in modern society is directly attributable to advanced systems of finance.

No dewy-eyed apologist for the excesses of financial capitalism, Shiller, who earned his B.A. in economics from LSA before getting his Ph.D. at the Massachusetts Institute of Technology, is perhaps the only person to correctly predict both the 2000 dot-com stock market bubble and the calamitous real estate bubble from which the world economy is still struggling to recover.

Most recently, Shiller is the author of *Finance and the Good Society* (Princeton University Press, 2012), which he says grew out of his experience teaching undergraduate economics. Featured in Bloomberg Markets' list of the 50 most influential people in global finance, Shiller also writes a periodic column for *The New York Times.*

So, when he argues that, rather than constricting the role of the finance industry, we should instead harness its energy and creativity to serve the interests of what philosophers have referred to as the good society, he's clearly earned the right to a careful hearing.

In keeping with his observation that Americans need better financial education, Shiller dedicates the first part of *Finance* to explaining financial occupations, including some of those most maligned by the Occupy Wall Street movement: CEOs, investment managers, investment bankers, lobbyists, and even mortgage lenders and securitizers.

"There's always been some negativity associated with bankers and financiers, but I think that it doesn't have to be this extreme. We have to think about what their role in society is," Shiller says.

Many may be surprised to learn, for example, that mortgage securitizers — the people who bundle mortgages together and then re-sell them — add social value through their work, says Shiller. While he writes that the defects in the securitization process became painfully clear during the housing crisis, financial innovations such as mortgage bundling have made the cost of borrowing lower. For at least some people, those lower rates put the "social good" of home ownership within reach.

So, he writes, people who issue blanket condemnations of financial innovation "have not thought about the possibility that they

President Obama, along with members of the administration, signs the Dodd-Frank Wall Street Reform and Consumer Protection Act in July 2010, the most comprehensive set of financial regulations since the Great Depression. Dodd-Frank supports greater investor protection, increased financial market regulation, and includes the Volcker Rule, which restricts banks from foolhardy investments that cheat customers.

PHOTO Saul Loeb/AFP/Getty Images

might not be living in a house at all, and that certain things that they value in life (e.g., having a home of one's own from the time the children are young) might have been made possible by it."

And, while acknowledging the importance of all the players in a system of financial capitalism, he doesn't let them off the hook for their foibles. For example: Shiller argues that huge compensation packages larded with stock options aren't always out of line in relative terms for a uniquely qualified CEO who is ultimately responsible for a company with billions of dollars in revenue and thousands of employees. But in the cases of key, systemically important firms, a "moral hazard arises because the CEOs and other top officers . . . have incentives to take extraordinary risks," he writes. "Because the failure of their companies would be simply too disruptive to the economy as a whole, they reason that the government will not allow that to happen."

Thus, faced with balancing the possibility of reaping a personal windfall from a successful gamble that inflates the value of their stock options, on the one hand, and the possibility of creating an international financial crisis, on the other, Shiller points out that some CEOs won't mind taking the risk. After all, they're playing the game with other people's money. And that's why Shiller was an advocate of regulating such compensation well before the idea became a part of the Dodd-Frank Act, a federal statute signed in 2010 to help reform Wall Street and protect consumers.

"What I'm enthusiastic about is the institution of finance, not all the people who are in it," says Shiller.

Even with the system's faults — which Shiller doesn't sugarcoat; he's got one chapter called "Some Unfortunate Incentives to Sleaziness Inherent in Finance"— he cites education, pharmaceuticals, food and drug protection, advanced medicine, and many other benefits that wouldn't be available without a system of financial capitalism. You need an MRI? Shiller says you can bet there were some complex financial machinations leading up to the placement of that multi-million dollar machine in your local hospital.

"We have to think of what they do as essential to our civilization," Shiller says of those involved with financial capitalism. "I really want to say that, because I think people don't generally appreciate what they do."

The system, obviously, is far from perfect. As a scholar of behavioral economics, Shiller is only too aware of human shortcomings.

"When you study human nature, it isn't always inspiring," he says. "Fortunately, civilization seems to be advancing, and we're doing things better."

It is to the advancement of financial capitalism that Shiller devotes the second part of *Finance,* which focuses on fixing the system's existing problems. He lays out several suggestions, including financial innovations such as derivatives and government pensions tethered to the gross domestic product, and novel forms of insurance against natural disasters, longevity, and even against income inequality.

Shiller's own family history is on the side of his arguments. "I was at a recent seminar at Michigan, and I pointed out that I probably have deeper Michigan roots than anybody else in the classroom," he says with a laugh.

Those roots extend back almost a century to Shiller's grandfather, a stove seller from Massachusetts, who moved to the booming city of Detroit in 1914, lured by the promise of Henry Ford's $5-a-day wage — double his Massachusetts pay. Shiller himself was born in Detroit and lived in the city until his family moved to suburban Southfield when he was in the ninth grade. A few years later he was studying in LSA, where he says his undergraduate years were "just a great time."

Who knows where he would have ended up if Henry Ford hadn't offered what shocked critics called a princely daily salary to workers? At the time, many economists were convinced that Ford wouldn't be able to sustain such a wage for the working class.

And they may have been right, Shiller says, except that World War I came along and permanently altered American society's financial and industrial underpinnings — and those of the rest of the world, as well.

"Our species is competitive. And it hasn't always been nice — humans kill other humans," says Shiller. "But the reality is that modern civilization is more kind and gentle, and I equate a lot of things that happen in modern finance with this modern civilization." ■

IS MY RETIREMENT SAFE?

ONE LSA ECONOMICS PROFESSOR SAYS THAT THE STOCK MARKET IS STILL A GOOD PLACE FOR RETIREMENT FUNDS. HERE'S WHY.

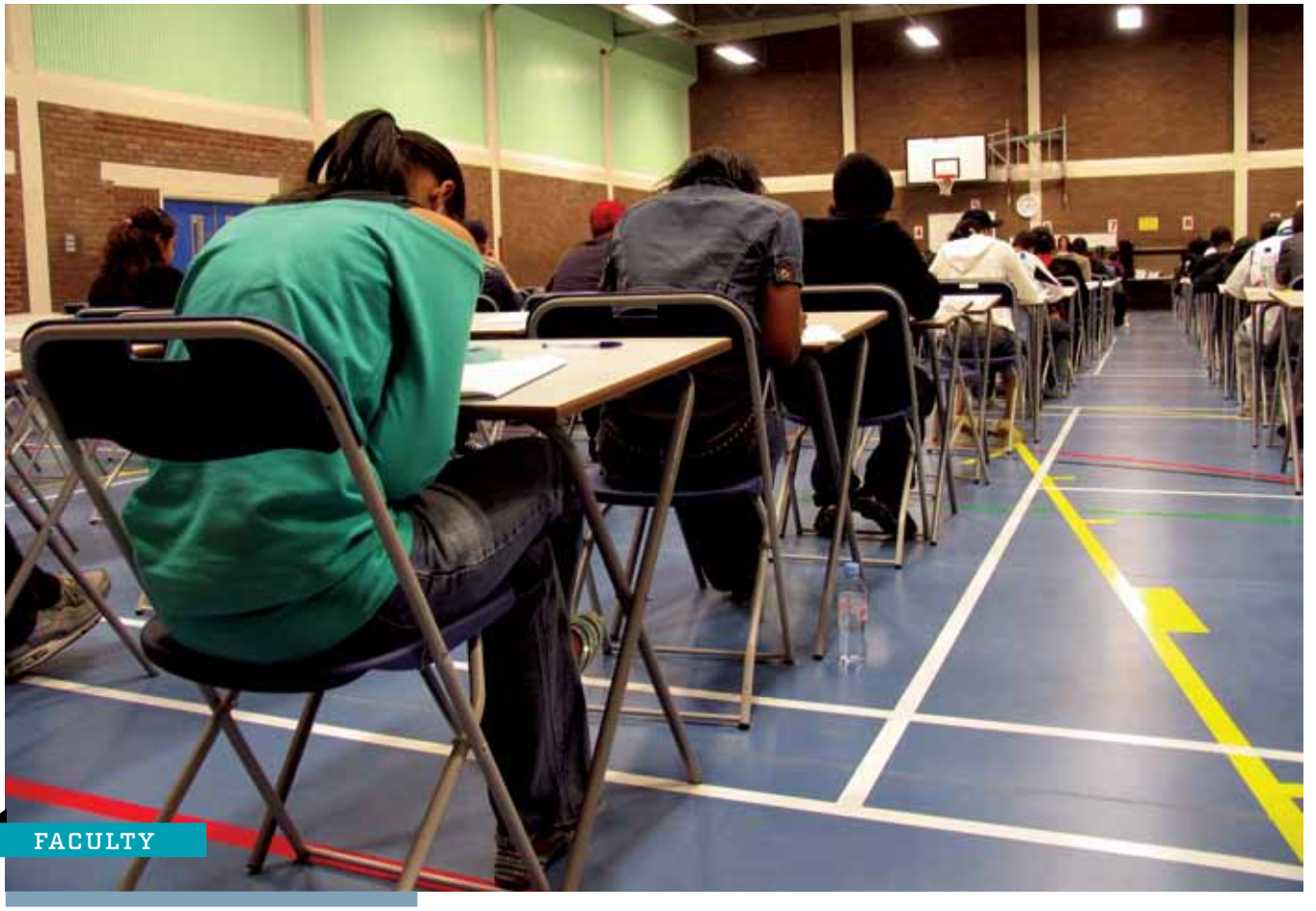
The recent financial crisis has shaken the confidence that some people have in Wall Street. But LSA Professor of Economics Miles Kimball, who also writes the blog "Confessions of a Supply-Side Liberal" (www.supplysideliberal.com), makes the case that the stock market is still a great place for retirement savings.

Kimball uses himself as an example. In spite of market fluctuations, his retirement account has returned to its pre-crisis level. His paper assets might all be in stocks, but Kimball is still relatively young — early 50s — and figures to have another 20 years of income.

Economists like Kimball call the asset value of this future pay "human wealth." He says one of the most ignored principles of asset allocation and portfolio choice is that a person needs to think about human wealth — the money they have yet to earn — when choosing how much stock to hold. That's because the size of the portfolio that includes human wealth is bigger.

"Even a conservative read of past history suggests that stocks are likely — though there is no guarantee, of course — to earn several percentage points more than bonds annually over the next few decades," Kimball says.

by Neil Shurley



FACULTY

Motivation by the Numbers

A study of SAT test-takers in 50 states reveals that the drive to perform well and win has much to do with the size of the competitive field.

MAYBE YOUR LESS-THAN-PERFECT SAT scores weren't entirely your fault.

Sure, you could have studied more, or gone to sleep earlier the night before. But there were things you couldn't easily control: The place where you took the test and, more specifically, the number of other people in the room with you at the time.

According to the work of LSA's Stephen Garcia, the more people there were in the room, the lower the overall test scores from those participants.

Garcia, an associate professor of psychology and organizational studies, attributes this tendency to the "N Effect," the discovery that increasing the number of competitors (N) decreases the motivation to compete. Along with his research colleague, Avishalom Tor, a professor of law at the University of Notre Dame Law School, Garcia says the effect stems from the idea that if you compete in a large group, there are fewer opportunities to engage in direct social comparisons, and, therefore, less concern about how you might rate against another individual.

"If I perceive a discrepancy between my performance and a rival, I behave in ways that will close that gap," Garcia explains. "But as the number of competitors increases, we become less concerned about how we stack up compared to other people."

To test their N Effect theory, Garcia and Tor examined SAT test takers in all 50 states. They compared, on average, how many people took the SAT in each state against how many test-taking opportunities were available, and how many people showed up at each of those venues.

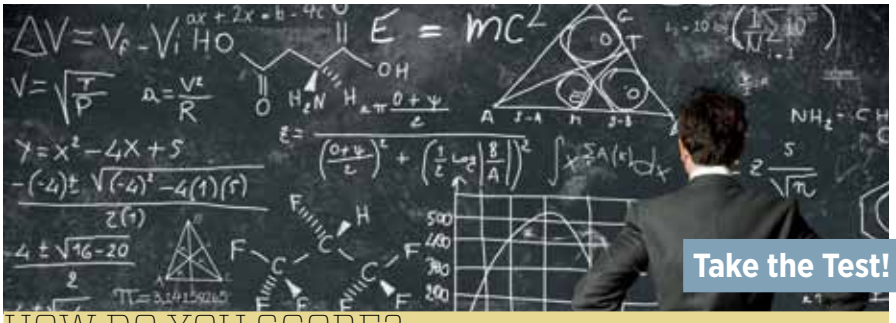
"What we found was that when you

correlate the average number of people showing up to take the SAT at a state's test-taking venue versus the state's average SAT scores — there was an inverse correlation: the more people who showed up on average at a particular venue, the lower the average scores." Garcia also says that they controlled for variables such as parents' educational level, the percentage of ethnic minorities taking the test, and the percentage of those who also took the ACT.

Once they had observed the pattern in this "real world" data, Garcia and Tor set up a number of experiments on campus and via email to further test for the effect. In one typical experiment, they invited undergrads to participate in a competition. Subjects were asked to take an easy quiz (sample questions included "Who's the President of U-M? " and "True or False: Michigan is shaped like a shoe") with the top 20 percent of competitors winning a cash prize. But some subjects were told there were only 10 total competitors, while others were told there were 100. And despite the fact that, statistically, the odds for "winning" were the same in each group, Garcia reports that the students in the 10 condition performed significantly faster than the ones in the 100 condition.

The N Effect seems to stem from how you rate yourself against others. "Social comparison concerns go down as the number of competitors increase," Garcia says. This may have an impact on the ongoing debate about class sizes, intimating that smaller classes provide students with a higher motivation to succeed.

Garcia even detected the N Effect in his own past. "When I first took the SAT exam, I recall that test-takers were assigned to one of four or five classrooms at a local high school," he recalls. "However, the second time I took the SAT, there were lots of other test-takers — the parking lot was crowded, and I had no idea how many classrooms were being used. Not surprisingly, the pattern of my two SAT scores exhibited the N Effect: My score was significantly higher the first time compared to the second time." ■



Take the Test!

HOW DO YOU SCORE?

In 1926, the Scholastic Aptitude Test, or SAT, was administered to high school students for the first time. By 1948 it had become the recognized college admissions exam nationally. Now known as the SAT Reasoning Test, it takes slightly less than four hours to complete and covers math, critical reading, and writing. Possible scores range from 600 to 2400 based on the three 800-point sections.

HERE ARE SOME SAMPLE SAT QUESTIONS. DO YOU REMEMBER IT BEING HARDER OR EASIER WHEN YOU WERE IN HIGH SCHOOL? (Answers are provided at the bottom of the page.)

Reading

Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

1 The students who had the flu had a(n)_____reason for missing school. They normally have perfect attendance, and their absence that day was a(n)_____.

- ⬭ **A** unjustifiable…travesty
- ⬭ **B** legitimate…aberration
- ⬭ **C** unwarranted…anomaly
- ⬭ **D** sensible…farce
- ⬭ **E** inconsolable…fluke

2 The threat of rain didn't _____her stroll through the grounds. Even the first drops were no _____, and she continued her walk.

- ⬭ **A** hinder…incentive
- ⬭ **B** thwart…refuge
- ⬭ **C** impede…deterrent
- ⬭ **D** permit…provocation
- ⬭ **E** prevent…enticement

Math

Solve the problems below.

3 If ***k*** is divisible by **2**, **3**, and **15**, which of the following is also divisible by these numbers?

- ⬭ **A** ***k*** + 5
- ⬭ **B** ***k*** + 15
- ⬭ **C** ***k*** + 20
- ⬭ **D** ***k*** + 30
- ⬭ **E** ***k*** + 45

Noontime Temperatures in Hilo, Hawaii

M	Tu	W	Th	F	Sa	Su
66	**78**	**75**	**69**	**78**	**77**	**70**

4 The table above shows the temperatures, in degrees Fahrenheit, in a city in Hawaii over a one-week period. If ***m*** represents the median temperature, ***f*** represents the temperature that occurs most often, and ***a*** represents the average (arithmetic mean) of the seven temperatures, which of the following is the correct order of ***m***, ***f***, and ***a***?

- ⬭ **A** ***a*** < ***m*** < ***f***
- ⬭ **B** ***a*** < ***f*** < ***m***
- ⬭ **C** ***m*** < ***a*** < ***f***
- ⬭ **D** ***m*** < ***f*** < ***a***
- ⬭ **E** ***a*** = ***m*** < ***f***

Writing

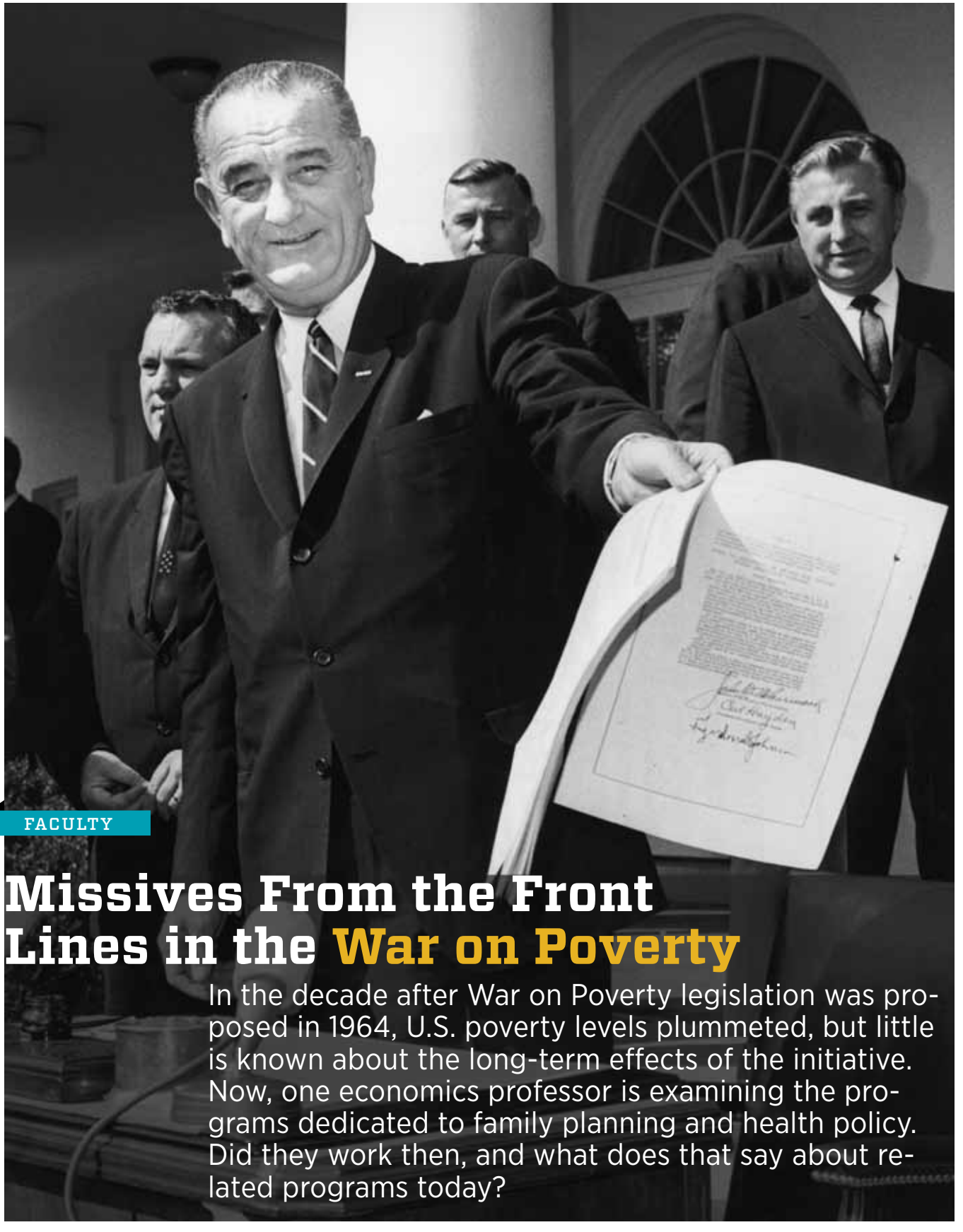
Read choices (A) through (E). Replace the sentence below with one that is clear and precise and meets the requirements of standard written English.

5 She was at the top of the rollercoaster looking down and she was made to feel sick.

- ⬭ **A** She was at the top of the rollercoaster looking down and she was made to feel sick.
- ⬭ **B** The rollercoaster, looking down from the top, made her feel sick.
- ⬭ **C** Looking down from the top of the rollercoaster made her feel sick.
- ⬭ **D** The top of the rollercoaster, looking down, made her feel sick.
- ⬭ **E** Watching down made her feel sick at the top of the rollercoaster.

ANSWERS: **1** B, **2** C, **3** D, **4** A, **5** C

by Sheryl James



FACULTY

Missives From the Front Lines in the War on Poverty

In the decade after War on Poverty legislation was proposed in 1964, U.S. poverty levels plummeted, but little is known about the long-term effects of the initiative. Now, one economics professor is examining the programs dedicated to family planning and health policy. Did they work then, and what does that say about related programs today?

PHOTO Arnold Sachs/Consolidated News Pictures/Getty Images

FEW SOCIAL PROGRAMS IN U.S. HISTORY LOOM larger than President Lyndon B. Johnson's War on Poverty. Launched in the social-domestic cocktail mix known as the 1960s, the War on Poverty introduced programs such as Medicaid and Medicare in an effort to boost opportunity by reducing poverty.

One large and contested tenant of the reduce poverty/increase opportunity formula was the introduction of federal funding for family planning. This began in 1964 as part of the Economic Opportunity Act, the heart of the War on Poverty, and continued in 1970 under Title X of the 1970 Public Health Service Act, under President Richard Nixon.

These programs were controversial at the time, especially paying for women to use the newly introduced birth control pill. And even today, controversy tinges some aspects of federal funding for family planning programs.

So, looking back on this big step in domestic policy, one must ask: Did it work? Did family planning funding reduce fertility rates and the size of families? Did poor women, by having fewer children, end up with more money and more time to improve their lives and those of their children?

The answers, in short, are yes, and, we don't know.

These are the conclusions of a study by Martha Bailey, assistant professor in LSA's Department of Economics. The study, titled, "Reexamining the Impact of Family Planning Programs on U.S. Fertility: Evidence from the War on Poverty and the Early Years of Title X," was published in the April 2012 issue of the *American Economic Journal: Applied Economics.*

The study's central conclusion was that from 1964 to 1973, among the populations the federal funding served, the overall birth rate dropped by just under two percent — but a whopping 19 to 30 percent among poor women.

"Surprisingly, 50 years out, social scientists know little about many of the programs begun in this era," says Bailey, whose research focuses on "revisiting the long-run effects of War on Poverty programs." These programs, she says, "redefined U.S. social and health policy. The architects of the War on Poverty thought that family planning programs were integral to reducing poverty, and would promote opportunities among poor women and their children.

"Whether or not these programs succeeded seems key to the current policy debate about funding Title X."

Using a quasi-experimental, econometric analysis, Bailey studied county data from Vital Statistics birth records over a 30-year span, from 1959 to 1988, to get broad perspective as well as detailed specific data about family planning and the effects of the funded programs.

Here are some of her key findings:

- The introduction of the programs resulted in a "significant and sustained reduction in childbearing" in the communities receiving the funds as compared to those that did not. The reduction was spread across teens and women in their 20s, and in delay or reduction in second and third births among older women.
- Bailey estimated that the funded family planning programs prevented about 1.8 million births in 10 years at a cost of $2,700 federal dollars per birth averted.
- From 1969 to 1983, annual family planning service use quadrupled. By 1983, Bailey reported, 5 million women a year were family planning patients, 83 percent of them below the 150 percent poverty line. Seventy percent were white and about 25 percent were black women. The programs helped poor women gain access to the pill, a hugely impactful and new form of contraception. Studies at the time had shown that, indeed, poorer women were having more children than they had wanted or had planned. Bailey finds that federal support for family planning programs "diminished the income-based differences in childbearing that motivated the programs."

While the above findings are concrete, "this study leaves open the question of whether delaying/preventing these births allowed poor women to alter their life circumstances, finish school, get better jobs, marry more stable partners, and give their children more time and resources," says Bailey.

"But this was the hope of the architects of the War on Poverty, and one that I am examining in a new project." ■

20th August 1964: President Lyndon B. Johnson smiles as he holds up the War on Poverty Bill after he signed it into law at the Rose Garden of the White House, Washington, D.C.

A Primer on the Pill

Today, more than 10 million women take the oral contraceptive known as "the pill," which has endured a long battle on its way to the corner drug store.

1957: Enovid, the first prescription birth control pill in America, gets FDA approval but only for menstrual "disorders."

1960: FDA approves the sale of an official birth control pill, but it's prohibitively expensive. An annual supply sells for the equivalent of about three weeks of full-time work at the 1960 minimum wage.

1961: Some states prohibit the sale of the pill, including Connecticut, where it's a crime to use birth control.

1963: Costs slowly come down, and 2.3 million American women now use the pill.

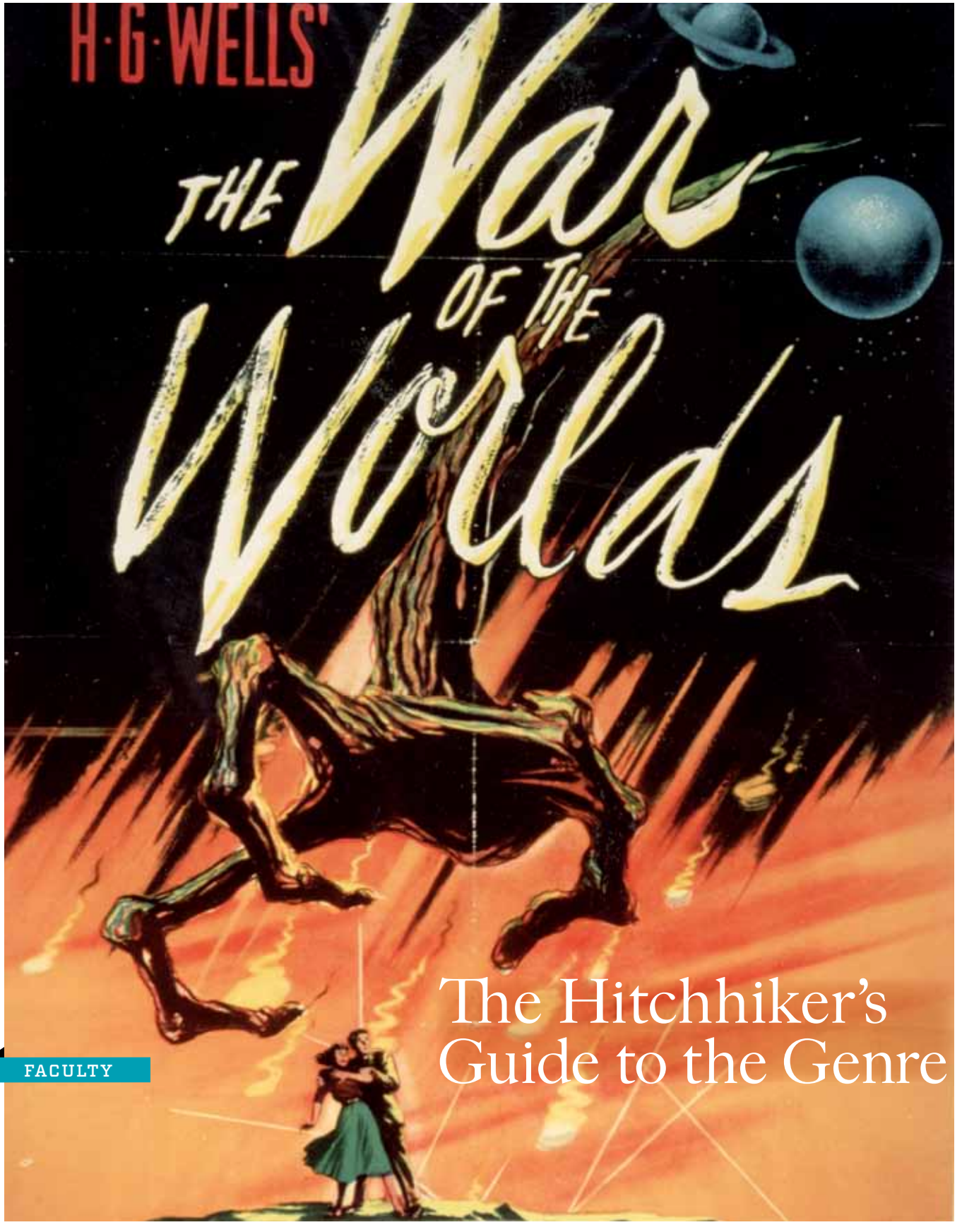
1965: The U.S. Supreme Court strikes down the Connecticut law prohibiting the use of birth control. Massachusetts prohibits the sale of the pill to unmarried women, a law that is struck down in 1972.

1982: The workforce benefits: 60 percent of women of reproductive age are employed in America.

2012: The Health Care Reform Law mandates insurers provide birth control without additional co-pays or deductibles. Passed in August 2012, the rule is already being challenged in courts.

Source: American Experience: "The Pill" timeline, PBS.org.

by Robert Havey



The Hitchhiker's Guide to the Genre

FACULTY

PHOTO Paramount Pictures/Getty Images

Two professors — one math, one English — collaborated on a 14-year project to record and study American science fiction short stories, from 1926 to 1999. Each text comes to life — not through literary prowess, but through computer analysis, which gives every tale a unique DNA code of sorts. Big brother is . . . number crunching?

IN 1997, LSA PROFESSOR OF ENGLISH ERIC RABKIN was invited to a Michigan seminar to discuss the emerging field of complex systems, a method of study that allows researchers from a variety of disciplines to use advanced mathematics and computer modeling to solve difficult, dynamic problems. The work covers everything from the growth of terrorist networks to the spread of disease. Complex system modeling was being applied to biology, epidemiology, computer network design, and economic decision modeling, but not yet, as far as Rabkin could tell, to any areas of cultural research. Art. Anthropology. And, yes, English.

Could the same models that follow and predict the spread of the influenza virus also track the evolution of literature, he wondered?

At that seminar, Rabkin met LSA Professor of Economics and Mathematics Carl Simon, one of the experts on complex adaptive systems at U-M. "After the meeting, he came up to me and said he had some idea of how this might work in studying literature," Simon recalls.

Tentative though the ideas may have been, it was enough to launch what would eventually become the Genre Evolution Project (GEP), a collaboration to use advanced mathematics and computing to understand the cultural impact of science fiction.

Now, after 14 years, nine presentations, seven published papers, and more still in the pipeline, the largest portion of the GEP is complete. It's now possible to say whether Hugo and Nebula award winner Ursula K. Le Guin was a pioneer for women in science fiction, or part of a general trend. Or to say whether one's publication odds for a science fiction short story are better if the story is about aliens or medical technology.

But how did this happen? And how does one actually code stories?

The first meeting of the GEP was held in Angel Hall in the winter of 1998. "The first exciting piece was the understanding that maybe we could link literary genre and complexity," says Simon. "The second piece was having the students build the structure."

Linking literary genre and complexity was something Rabkin was all too ready to try. Through his own research, Rabkin had begun to suspect that just studying the masterworks was too narrow to understand literature's cultural impact. Complex systems appeared to offer a way to view a genre holistically. "This always had been clear to me: the traditional approaches of literary criticism are incomplete," says Rabkin. "Everything that functions in human culture functions in a larger context. To be able to answer even so simple a question as, 'is this a good book?' is improved if you can find a way of looking at that larger context."

Together, Simon and Rabkin came up with the idea of treating every story in a given literary genre like a pseudo-organism and the publication process like biological evolution. Each story is treated as a very complex organism consisting of traits ranging from the simple, such as publication date, number of characters, and presence of space travel, to the more subjective, such as complexity of the main character and theme development. If the story is well suited to the environment of editors and readers, the story gets reprinted. "If a story is published in a science fiction magazine, then a year later it is in an anthology, then three years later it is in another . . . people keep thinking, 'yes, this is a story we want to bring before the public.' That's a measure of evolutionary successes," says Rabkin.

"It's sort of like having a DNA string for these stories," says Simon.

Student volunteers read the stories in pairs each week, then broke the story down into key characteristics. The results were then compiled in the database for analysis. As of this year, student research assistants have read, analyzed, and created a database of almost 3,000 American science fiction short stories written between 1926 and 1999.

Unlike most other research projects, the students doing the legwork had a strong influence on the project's definitions and goals. "To a large extent, the students set the ground rules," says Simon. "They set the categories, set the definitions, chose the boundaries."

The approach wasn't without its drawbacks. Not every story fit neatly into chosen criteria. H.G. Wells' *The Time Machine*, for example, could be considered both a story about time travel and about exploration.

"Inter-coder reliability is difficult," explains Simon. "If two smart people would read the same story, would they come to the same conclusions? I think the answer is: not always. Hopefully enough stories make up for that. We kept refining the definitions to make them sharper."

While they worked, the group had to deflect criticism for in-depth study of a genre many in the academy felt was too low-brow. Rabkin, however, knew the value, having published a book and several papers on science fiction before the start of the project. He knew how deeply ingrained the genre is in American culture. "Science fiction is something that not only produces

stories, but also turns out to be the underlying genre for the vast majority of box office movies. It also influences city planning and popular music," Rabkin says. He also argues that science fiction is the only genre explicitly engaged in understanding the consequences of new technology and the uneven distribution of knowledge — topics relevant in the current culture. "Of course science fiction is better suited to deal with these issues than the other genres. It's the genre that's supposed to deal with them."

Armed with a unique database of quantifiable evidence, the GEP has produced several papers and presentations over the past decade. It is now possible to debate about the genre of science fiction without being restricted to abstract concepts. For example, in a paper published in 2008, Simon and Rabkin were able to show the science fiction stories that women wrote had the same characteristics as the stories male authors wrote, including the likelihood of a hard-science background. The exceptions were that women authors wrote shorter stories with younger main characters, and half the stories by women authors had female lead characters, compared to only five percent of the stories by male authors.

The work is nearly completed, and the weekly meetings were reduced to once a month in 2011. In the summer of 2012, the meetings were suspended altogether. Side projects are continuing, however.

Simon and Rabkin hope other schools will benefit from their collaboration and that it might even be modeled at other research institutions. "Michigan really has the thinnest wall of any university I know," says Simon. "This kind of thing, the fact that it rose from this interdisciplinary sort of meeting of minds, where people purposely got together to see how ideas in other fields might affect how they think and about what they do — that's a real Michigan thing. That was the catalyst for this whole project." ■

LEARN MORE ABOUT THE GENRE EVOLUTION PROJECT
www.umich.edu/~genreevo

SCI-FI BEST-SELLERS

THE TOP FIVE BEST-SELLING SCIENCE FICTION BOOKS of all time are, by their very nature, widely popular. But the list may not reflect some of the classics that helped define the genre. What sci-fi novel would you get into the hands of more readers if you could? What's missing from below?

TELL US WHAT WOULD MAKE YOUR LIST
www.lsa.umich.edu

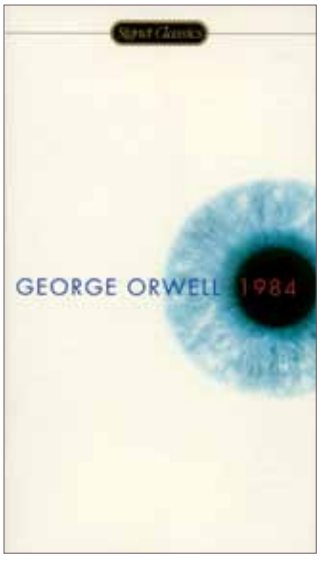
***1984* by George Orwell: 25 MILLION COPIES**
Some of the terms from this novel about people being tyrannized by a totalitarian government — Big Brother, thoughtcrime, Thought Police — have remained part of the popular lexicon. Even the term Orwellian is still used today to describe a policy of surveillance, propaganda, and deception.

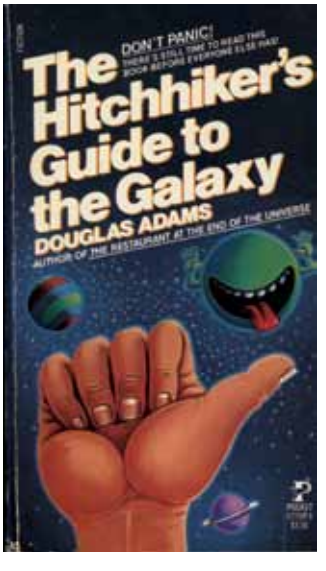
***The Hitchhiker's Guide to the Galaxy* by Douglas Adams: 14 MILLION COPIES**
This comedy chronicles the adventures of hapless Englishman Arthur Dent, who escapes the destruction of Earth and rides aboard a stolen spaceship to find the question to the ultimate answer.

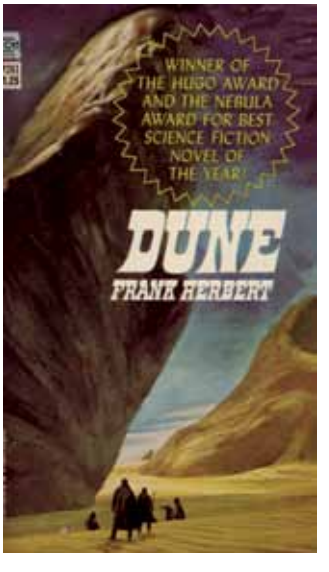
***Dune* by Frank Herbert: 12 MILLION COPIES**
Dune addresses politics, religion, ecology, technology, and human emotion through the story of young Paul Atreides. He and his family relocate to a planet that is the only source of the most important and valuable substance in the universe.

***Fahrenheit 451* by Ray Bradbury: 10 MILLION COPIES**
The novel is set in the future, when books are banned and burned, and critical thought suppressed. The main character, Guy Montag, is a fireman and book burner, but he is conflicted about his role in this dystopian society. The title refers to the temperature at which book paper catches fire.

***Ender's Game* by Orson Scott Card: 7 MILLION COPIES**
Taken from home at age seven and surrounded by enemies, Andrew "Ender" Wiggin is Earth's last hope. Luckily, Ender excels at combat and leads an attack against aliens. The book is a longstanding title on the Marine Corps Professional Reading List.

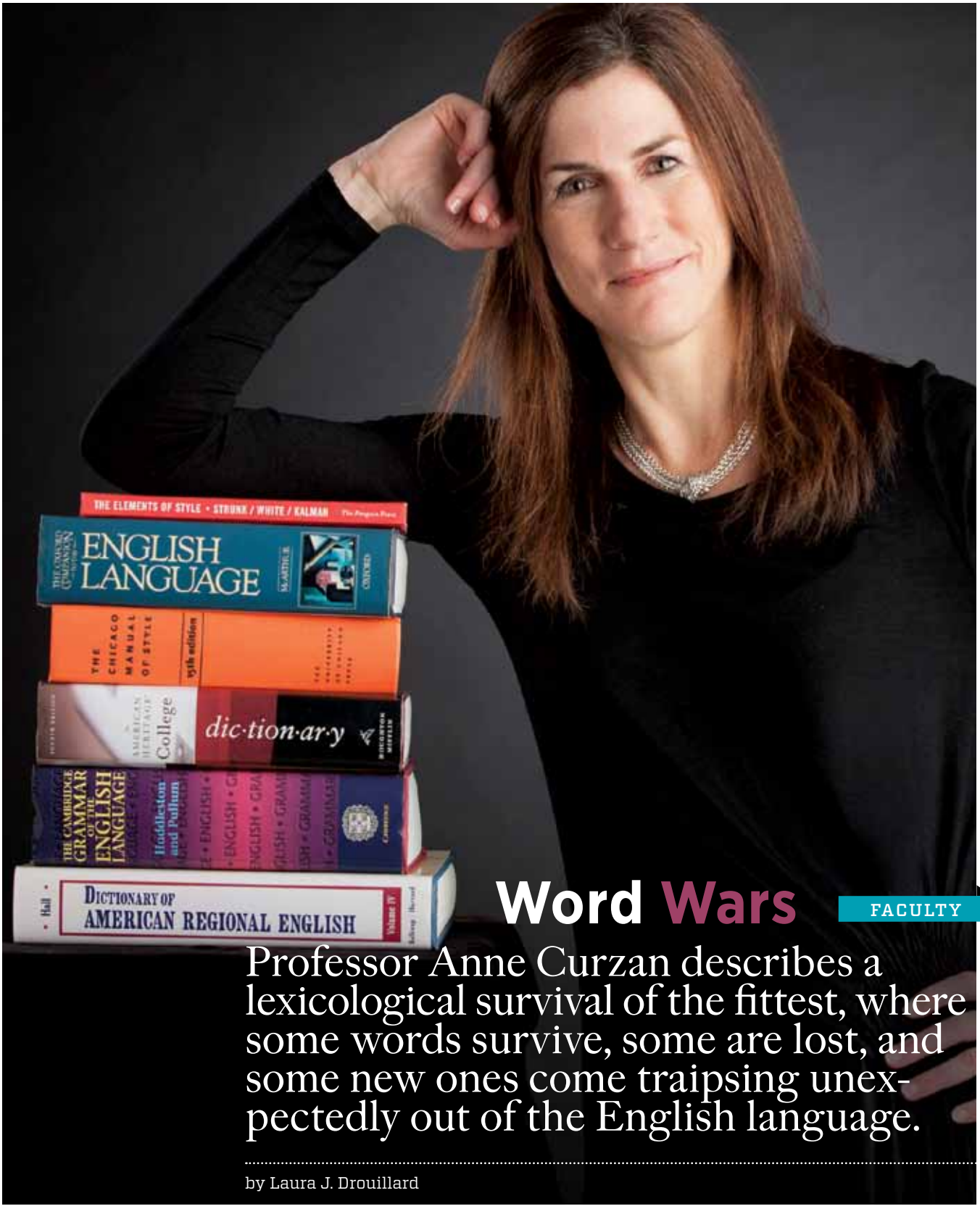






COVERS *1984* and *Dune* courtesy of The Penguin Group; *The Hitchhiker's Guide to the Galaxy* courtesy of Simon & Schuster

From the **evolution of words** to **the physics of the cube,** our interactive ride accelerates this second.



Word Wars

FACULTY

Professor Anne Curzan describes a lexicological survival of the fittest, where some words survive, some are lost, and some new ones come traipsing unexpectedly out of the English language.

by Laura J. Drouillard

PHOTO Scott C. Soderberg/Michigan Photography

VERSUS. The word that encompasses the theme for this issue of *LSA Magazine* is also an example of how language constantly evolves. Some words are lost in the repertoire, some are gained, some are pronounced differently, and some take on a new meaning.

Arthur F. Thurnau Professor of English Anne Curzan says that use of the word "verse" as a verb has become more popular recently. Someone might now say, "The Tigers will verse the Yankees today."

"This is very new; it's something we're hearing among younger speakers," says Curzan.

How did this happen? Imagine younger speakers hearing, "Tonight, the Thunder versus the Heat!" If they assume that "versus" is spelled "verses" and works just like "plays" in this sentence, they will backform the verb "verse."

Should these types of changes be accepted? Are older words better than newer ones? What's more important when it comes to language: change or stability?

Curzan explains linguistic evolution and the battles that can ensue when words take on new meaning.

LANGUAGE GATEKEEPERS (YES, THEY EXIST)

Curzan currently serves as a member of the American Heritage Dictionary's Usage Panel, which comprises approximately 200 writers and scholars — such as Supreme Court Justice Antonin Scalia and author Sherman Alexie — who provide recommendations on usage, from word meaning to pronunciation. They routinely receive ballots asking questions about the acceptability of, for example, the word "quote" used to mean "quotation," the pronoun "they" used as a singular generic pronoun, and the word "dour" pronounced to rhyme with "sour" (contrary to its original pronunciation, in which it rhymes with "tour").

As language "gatekeepers," the panelists are often faced with decision dilemmas: Do they vote liberally, allowing a word to take on a new meaning or pronunciation? Or do they vote conservatively, preserving traditional meanings and pronunciations?

Imagine younger speakers hearing, **"Tonight, the Thunder versus the Heat!"** If they assume that "versus" is spelled "verses" and works just like "plays" in this sentence, they will backform the verb "verse."

"I come to a conclusion empirically," says Curzan. "I'll look at modern uses of a word in newspapers, magazines, and books, as well as in the spoken language. I'll also poll students and others. If it looks like a change is happening widely, I vote to accept it. Sometimes I'll hear critics argue that a change creates too much ambiguity. But it must be an ambiguity that speakers can tolerate, or even find useful. Otherwise, the change wouldn't happen."

THE QUEEN'S ENGLISH?

Change isn't easy for language sticklers.

Many people may have pet peeves when it comes to language: Some cringe when they see the sign "10 items or less" at the store while others claim that "ain't" isn't a "real" word (although the contraction has been included in dictionaries for decades). But Curzan prefers to talk about standard and nonstandard varieties of English, as well as formal and informal use.

"Speakers of a nonstandard variety of English should not be told they speak incorrectly. All dialects of English follow their own systems of grammatical rules," says Curzan. For example, many nonstandard dialects still systematically use double negation ("We won't go nowhere without you"), as all varieties of English did in Chaucer's era.

What's more, critics' opinions about what is acceptable in more formal prose often change over time. In April 2012, the AP Style Guide made headlines when it began to permit writers to use "hopefully" to mean 'I/we hope' or 'it is hoped' (in addition to its original definition, which is to do something in a hopeful manner). Yet the American Heritage Dictionary Usage Panel has taken a more conservative approach; in 1969, 44 percent of the panel considered this use acceptable, as opposed to 34 percent in 1999.

"Prescriptions governing formal written language often lag behind spoken usage. I would love to see all speakers feel empowered to make informed decisions about how they want to use a word in a given context," Curzan says.

AS THE WORD TURNS

But are such changes good, or are we experiencing a language "dumbing down," as it were?

"Language change is a powerful force," says Curzan. "But there is a desire and need for stability too. A shared standard language, especially for written language, is very helpful. The question becomes: when do you allow the standard to change?"

She points to the fact that many word meanings that speakers now consider fully standard weren't always that way. Benjamin Franklin didn't approve of the verb "colonize." The word "leg" was considered indelicate if not downright indecent in the Victorian era. And the standard pronunciation of the word "balcony" used to have the stress on the second syllable.

While speakers may worry about changes they witness, Curzan reassures us that the language is vibrant and healthy, in no danger of sliding downhill into linguistic chaos.

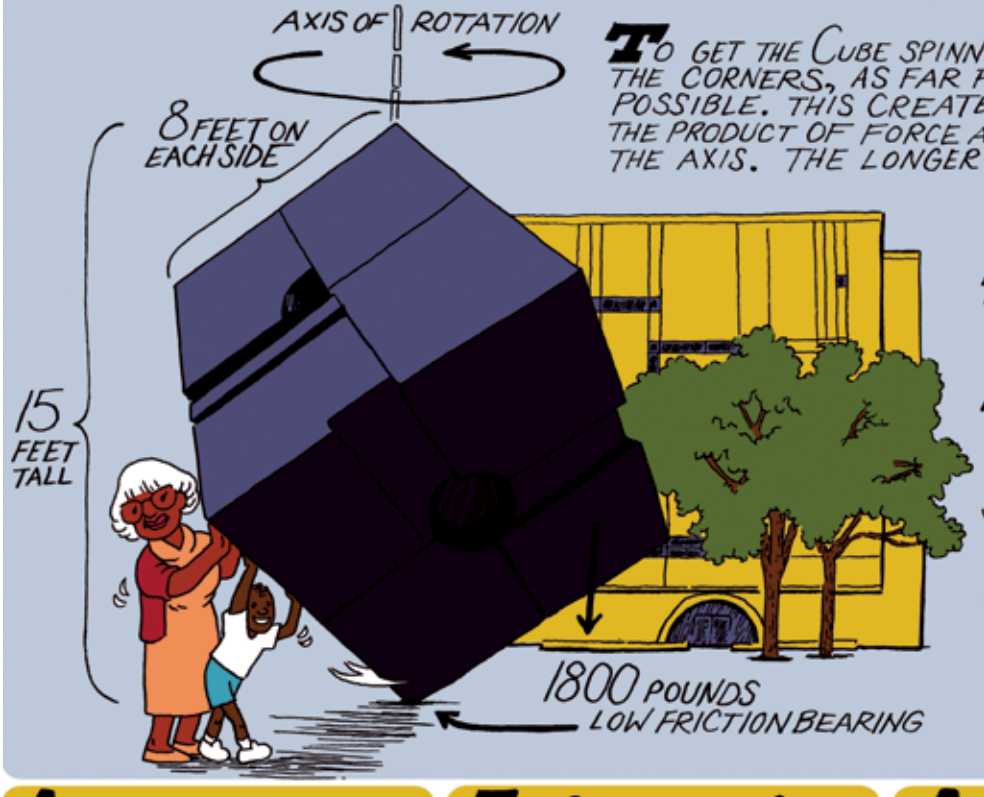
"Just like the world keeps spinning, language keeps changing," says Curzan. "Human beings are creative; a language will only stop changing when all its speakers die or they all start speaking another language instead." ■

WATCH ANNE CURZAN'S LANGUAGE LESSONS
www.lsa.umich.edu

science by Physics Professor **Tim McKay**

MAN-VS-(SIMPLE)MACHINE

MICHIGAN'S FAMOUS CUBE, DESIGNED BY TONY ROSENTHAL ('35) HOLDS COURT IN REGENTS PLAZA, A GIFT FROM THE CLASS OF 1965. YOU'VE PROBABLY GIVEN THE SCULPTURE A PUSH, BUT PHYSICS PROFESSOR TIM McKAY GIVES IT A WHOLE NEW... WELL, SPIN, FOR **LSA MAGAZINE.**



TO GET THE CUBE SPINNING, PUSH HARD ON THE CORNERS, AS FAR FROM THE AXIS AS POSSIBLE. THIS CREATES MAXIMUM **TORQUE**, THE PRODUCT OF FORCE AND DISTANCE FROM THE AXIS. THE LONGER TORQUE IS APPLIED, THE FASTER THE ROTATION.

THE CUBE IS HARD TO GET GOING AND IT'S EQUALLY HARD TO STOP. THIS IS DUE TO **ROTATIONAL INERTIA**, THE RESISTANCE TO ANY CHANGE IN ROTATION. LEFT SPINNING, THE CUBE WILL EXPERIENCE RESISTIVE TORQUE FROM FRICTION IN THE BEARING AND IN THE AIR, GRADUALLY COMING TO A REST.

A DARING BICYCLIST ONCE RODE AT THE CUBE, REPEATEDLY SHOVING IT. SHE COULD MOVE FASTER THAN A PERSON ON FOOT, CONTINUING TO PUSH, EVEN ONCE IT WAS SPINNING LIKE CRAZY.

FOR SUPERMAN, THE CUBE WOULD SPIN FASTER THAN IT EVER HAS, UNTIL THE ACCELERATING TORQUE WAS PERFECTLY BALANCED BY FRICTION IN THE AIR AND IN THE BEARING.

ALMOST ALL THE EFFORT IN SPINNING THE CUBE IS TO OVERCOME INERTIA, WHICH DEPENDS ON MASS RATHER THAN ENVIRONMENT. PUT THE CUBE ON THE MOON AND IT WOULD BE JUST AS DIFFICULT TO SPIN.

ILLUSTRATION Alexis Ford

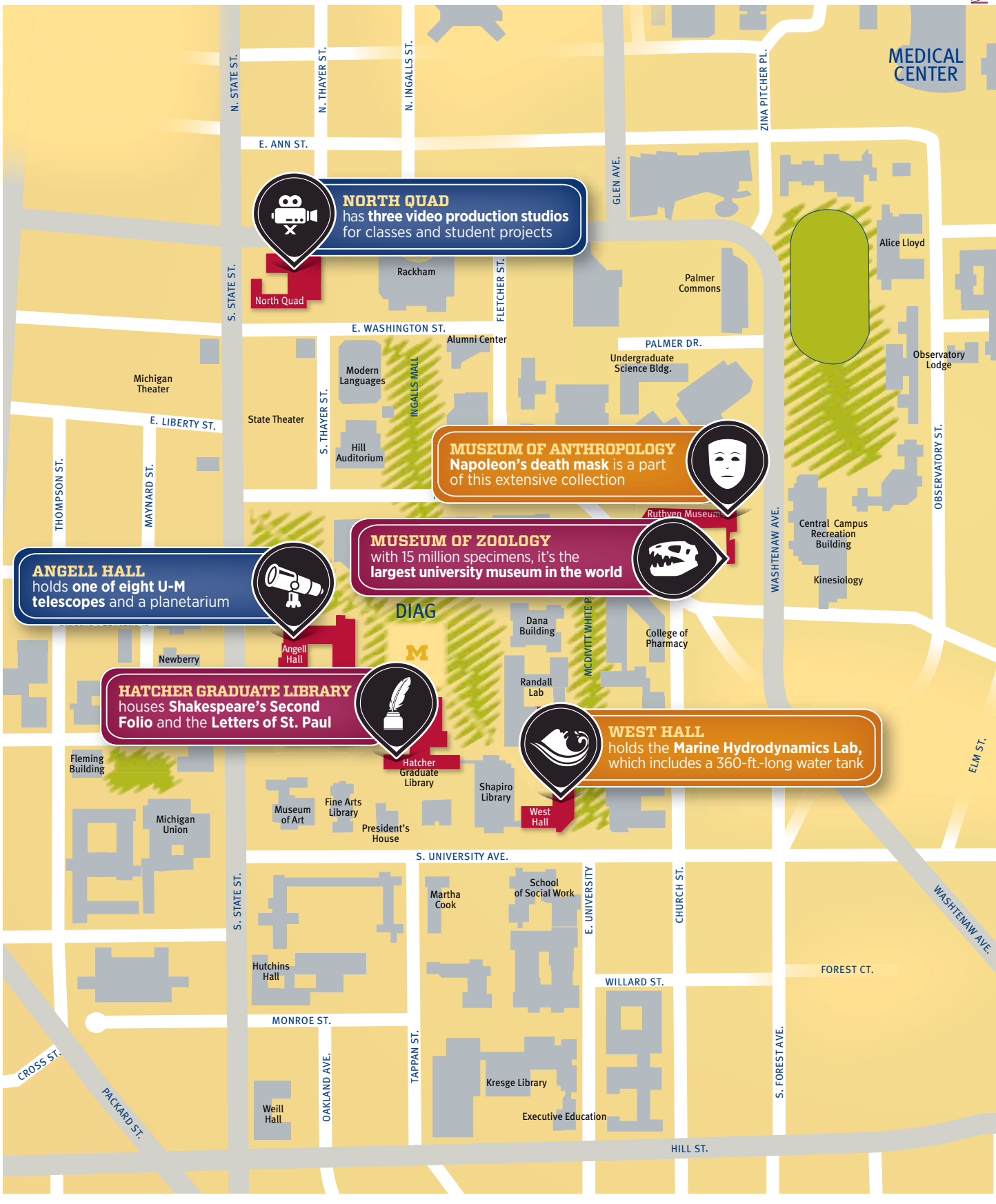
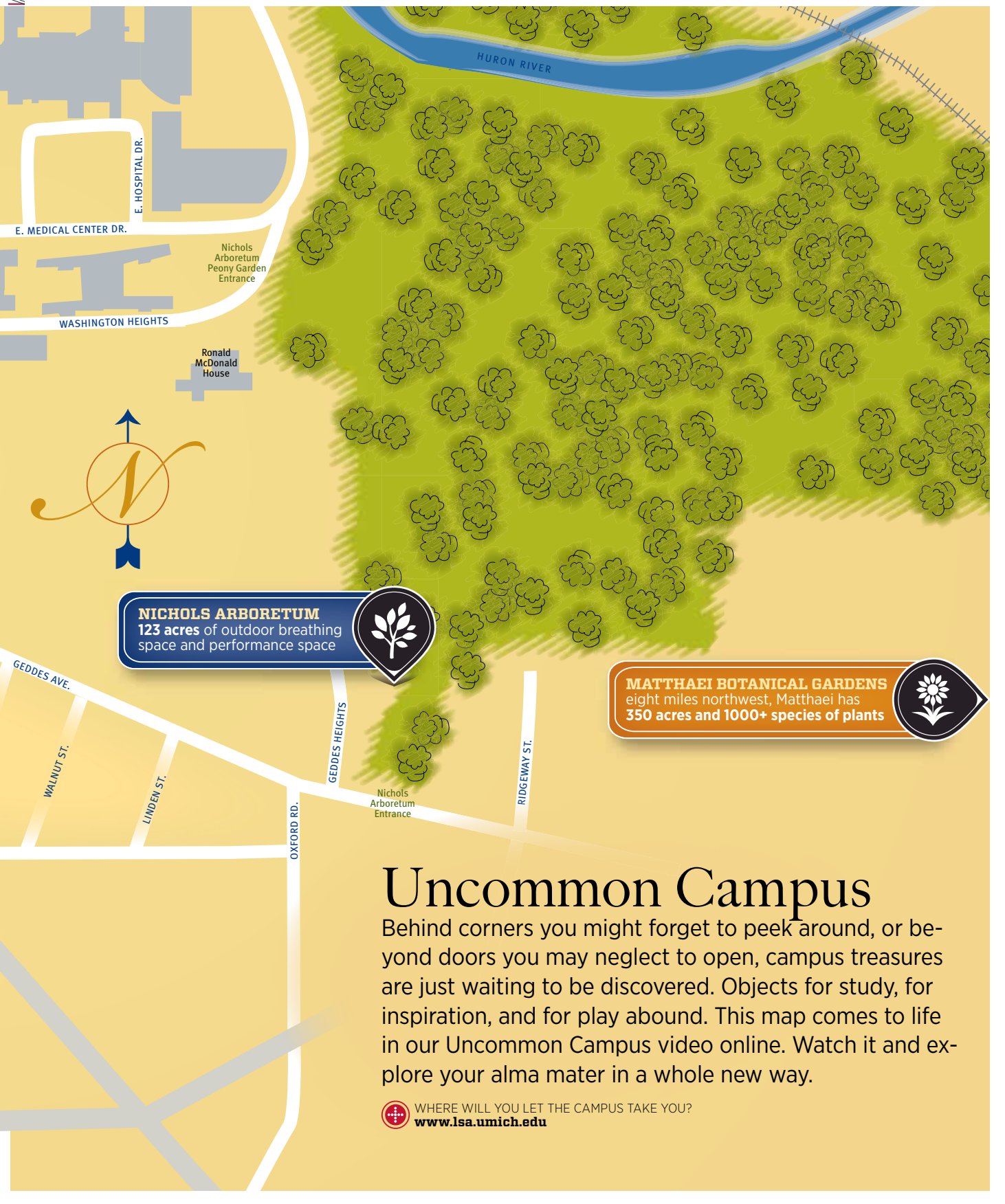


ILLUSTRATION Patricia Claydon, courtesy of Michigan Creative



Uncommon Campus

Behind corners you might forget to peek around, or beyond doors you may neglect to open, campus treasures are just waiting to be discovered. Objects for study, for inspiration, and for play abound. This map comes to life in our Uncommon Campus video online. Watch it and explore your alma mater in a whole new way.

WHERE WILL YOU LET THE CAMPUS TAKE YOU?
www.lsa.umich.edu

Adding It Up

by Greg Skrepenak ('92)

THERE ARE A LOT OF NUMBERS and formulas involved when you're convicted of a crime. For example, when I pled guilty to 18 U.S.C. 666(a)(1)(B), a corruption charge, I became a 17. The judge assigned that number to the crime I'd committed, then a chart told the judge what the sentencing parameters should be. I got two years in federal prison and had to pay $5,100 in fines.

When the doors clanged shut, I became an inmate with 067 as part of the long string of numbers on my uniform. Those three digits identified me as being from eastern Pennsylvania. It was certainly a change from being identified as 75, the number I wore proudly on the football field as a Wolverine and a Carolina Panther in the NFL.

I was imprisoned 500 miles away from my two kids. As a single father, that was the worst of it. I could have been incarcerated closer to my family, and there was probably a formula for where they placed me — I just never learned it.

I was released after 19 months, but I have three years of probation ahead of me. That's just shy of the number of years I played for the NFL Raiders — the Los Angeles and Oakland versions both — and almost as long as I played football at U-M.

I was a two-time All American at Michigan, won four Big Ten championships, and I played in three Rose Bowls. I played for the NFL for seven years total. When I went into politics in Pennsylvania, serving as county commissioner, I was elected twice. Not far into my second term, I was already thinking about running for congress or state office, even governor.

Things were good. Which begs the question: What's the formula, the equation, the number you can assign to a mistake so big that it changes your whole life? How do you add up the toll it takes?

I am at a loss as to how to tally the shame I feel about letting my family and former U-M coaches and teammates down by committing a corruption felony. I played under the great Bo Schembechler, who placed integrity above everything. To have tarnished what he stood for will haunt me forever.

There is no way to subtract the guilt I feel for having let down my community. Not that subtraction is the answer, necessarily, otherwise how would the lessons I've learned mean anything? I might not be able to assign a number to the things I've realized, the contrition I feel, but I can change. I can move forward and be better. I can help other people learn from the mistakes I've made.

There is no number left except perhaps zero. I am starting over. I am humbled and sorry and I did all this to myself. But zero is not a negative. Zero is where I start from here. Zero is, after all, what the scoreboard reads before the game begins. ■

Greg Skrepenak played football for the Wolverines and the NFL before becoming a convicted felon. He is working to rebuild his life.

Greg Skrepenak in 1995 at the prime of his NFL career, playing for the Oakland Raiders. As a Carolina Panther, he started every game of the 1996 and 1997 NFL seasons. In 1996 alone, he earned more than $1.5 million.

Greg Skrepenak in January 2010, after pleading guilty to a bribery charge while serving as a county commissioner in Pennsylvania. After spending 19 months in prison, he was released. He currently lives with his parents.

PHOTOS (Top) Kevin Terrell/Getty Images; (bottom) Mark Moran/*The Citizens' Voice*

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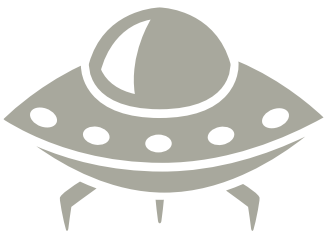

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