

MLSA

COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Spring 2010

super**collider**

Smashing protons
to smithereens
deep underground
in Switzerland. p. 18

super**LOSERS**

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hoarding in
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64 pages chock full of **SUPER** content

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mean, anyway? p. 10

SUPERQUIZ

Of the two definitions given for each **SUPER** word, which is correct?

Answers on p. 3

Super**CILIOUS**

- A.** Haughty and disdainful
- B.** Ornamental and decorative

Super**FECTA**

- A.** The molding or border above the base of a structure
- B.** A method of betting that predicts the first four finishers of a race in sequence

Super**BAND**

- A.** A Mandarin pop music band
- B.** The radio frequency from 216 to 600 MHz

Super**LUNARY**

- A.** Located beyond the moon
- B.** Occurring more than once during a lunar cycle

Super**SEDEAS**

- A.** Formal documentation related to military discharge
- B.** Documentation issued to stay legal proceedings

Super**FETATE**

- A.** Accelerated fetal development
- B.** To conceive when a fetus is already in the uterus

Check out what **SUPER** really means, p. 10

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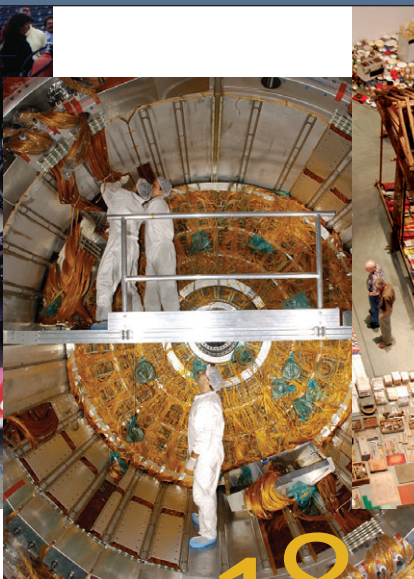
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dean's notes



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

Inspiring Service

THE STORY, BY NOW, IS WELL KNOWN. On October 14, 1960, Senator John F. Kennedy arrived in Ann Arbor in the early morning hours. The presidential election was three weeks away.

Outside the Union, a crowd of students had assembled, waiting for the charismatic politician. He didn't disappoint. He hadn't prepared any remarks, but he nevertheless ascended the steps and took the microphone.

During his short, three-minute speech, he called students to public service. Some suggest he officially proposed the idea of the Peace Corps that fall morning. In truth, that proposal would come a few weeks later in San Francisco.

What did occur was that Kennedy planted the seed for the Peace Corps at Michigan, and it took root. Kennedy inspired Michigan's young people to think about contributing to the betterment of not just the United States, but the world. Moved by the challenge, U-M students signed petitions saying they would volunteer, and those petitions—later delivered to Kennedy in Ohio—became the genesis for Kennedy's official announcement of the Corps on November 2, 1960.

Over the program's history, more than 2,230 U-M alumni have served as Peace Corps volunteers. And today, Kennedy's call still resonates on campus. Year after year, Michigan is ranked as a top school for student volunteerism. In the College of LSA specifically, initiatives such as the Michigan Community Scholars Program pair education with service, inspiring students to have a direct impact on their communities.

From 2008 to 2009, more than 9,340 students engaged in this kind of academic service learning. Many chose to get involved through the University's Ginsberg Center, the mission of which is to "promote citizenship and enhance learning through community service." According to the Ginsberg

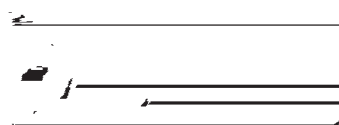
Center, the number of students engaging in community work more than doubles when you take into account service both through and separate from the classroom: Last year, 22,000 undergraduate and graduate students were involved in the community through service-learning courses, internships, student organizations, work-study jobs, service-learning activities, and more. That resulted in more than 853,830 service hours by U-M students.

Fittingly, the University of Michigan was recently asked to help launch a kick-off event to celebrate the 50th anniversary of the Peace Corps in 2010. The website <http://peacecorps.umich.edu> has a list of the events planned to date to mark this stirring occasion.

The anniversary also provides an opportunity for us to reflect on something else Kennedy said that day on the Union steps: that the University hadn't been built "merely to help its graduates have an economic advantage in the life struggle," but rather that it had a "greater purpose."

A recent survey of graduating seniors reveals that 93 percent of them participated in community service during their time in the College, indicating clearly that students can and do understand this "greater purpose" of which Kennedy spoke.

We can and do develop brilliant minds in the College, but we also must develop thoughtful compassion among our scholars. As evidenced in the 50 years since Kennedy spoke on that fall night, we are well up to the task.



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Editor
College of Literature, Science,
and the Arts
University of Michigan
Suite 5000
500 South State Street
Ann Arbor, MI 48109-1382
734.615.6333
lsamagazine@umich.edu

Terrence J. McDonald
ARTHUR F. THURNAU PROFESSOR,
PROFESSOR OF HISTORY, AND DEAN,
COLLEGE OF LSA

Peggy Burns
ASSISTANT DEAN FOR LSA
ADVANCEMENT

Lara Zielin
EDITOR

Rebekah Murray
ASSISTANT EDITOR

Patricia Claydon
ART DIRECTOR/DESIGNER

Regents of the University

Julia Donovan Darlow, ANN ARBOR
Laurence B. Deitch, BINGHAM FARMS
Denise Ilitch, BINGHAM FARMS
Olivia P. Maynard, GOODRICH
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Andrew C. Richner, GROSSE
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S. Martin Taylor, GROSSE
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The Super Issue, and the Issue With Super

THE OTHER DAY I PULLED INTO A GAS STATION and glanced up at the marquee to check prices. The sign listed three kinds of gas: regular, special, and super.

Later in the day I saw the word super used again to describe a \$1 menu item as a super value. Then again to describe retail discounts as a super sale.

Water guns are now Super Soakers, and primary elections are held on not just any Tuesday, but on Super Tuesday.

The word super is everywhere. And, quite frankly, it's a bit overused. When everything is super, then nothing is. Right?

Well, not quite. This issue of *LSAmagazine* doesn't lightly employ the word super. In fact, we take a hard look at super on p. 10 to define not only its origins, but how it has evolved to be the ubiquitous descriptor it is today. And throughout this issue, we cover not just faculty, students, and alumni doing extraordinarily super things, but we address topics that warrant coverage for their super qualities—like hoarding (super clutter), the Large Hadron Collider (a super particle smasher), and vampires (the super popular undead).

In this issue you can also read whether super- and super-super obese individuals (those with a body mass index of 50 to 60 and greater than 60, respectively) are getting the right kind of weight-loss help on the reality TV show *The Biggest Loser*.

Separately, in the table of contents, we started a quiz on the definition of super words, which I'm continuing here. I can't say I'd discourage playing Rick James' "Super Freak" or ABBA's "Super Trouper" in the background while you choose your answers. In fact, it might be worthwhile to keep them on repeat while you flip through the entire issue. Not to, you know, advocate supererogation or anything.

LARA ZIELIN, EDITOR

SuperNAL

- A.** Celestial or heavenly
B. Sheer or transparent

Super- ANNUATED

- A.** Vivid and glossy
B. Ineffective and obsolete

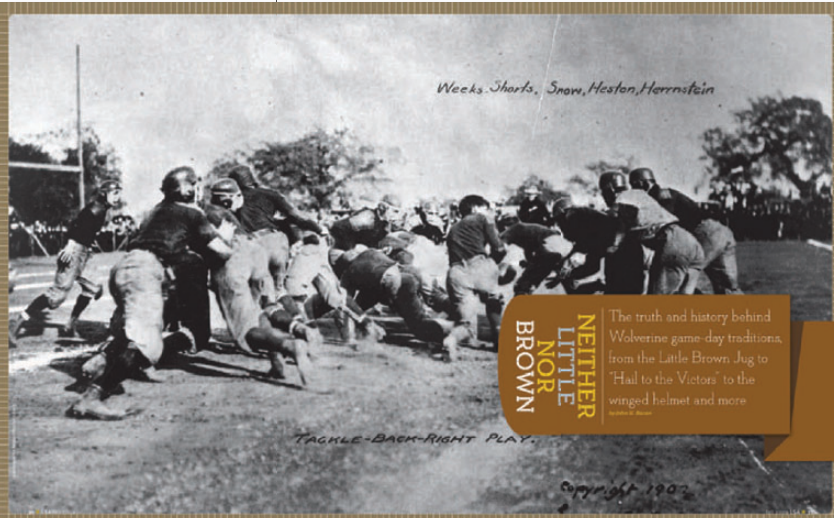
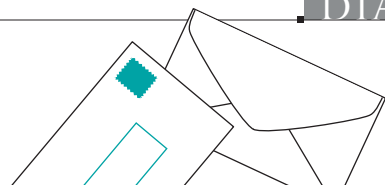
Super- NATANT

- A.** Floating on the surface
B. Highly saturated

Answers for all words

Supercilious: **A**; Superfecta: **B**; Superband: both **A and B**; Superlunary: **A**;
Supersedes: **B**; Superfetate: **B**; Supernal: **A**; Superannuated: **B**; Supernatant: **A**

(letters)



I found your “Students on Strike” article by Sheryl

James puzzling. The crux of the matter was stated as “... the problem of low achievement among African American students and its remedies.” I read the article several times and could not find any commentary concerning this core issue. Either the class taught by Dr. Ward didn’t include it, or Ms. James’ article failed to cover it.

You raised a red flag, but never said “why?” Dealing with the student protest only, without the facts behind it, seemed superficial.

ARNOLD CLARK (’48)

I was pleased to see the recent write-up of John

Rubadeau and his impact on so many students at Michigan.

I was troubled, however, to see John referred to as a “professor” throughout the profile. In fact, John is a lecturer, as I was when I taught at Michigan. This difference in titles

communicates a profound difference that, while not always visible to our students, has a pervasive effect on the lives of instructors and students. Professors and lecturers have similar academic backgrounds (Ph.D. or the equivalent) and both teach courses. But professors are either tenured or on the tenure track, while lecturers will never come up for tenure no matter how long they teach at Michigan or what they achieve as teachers, scholars, or writers.

I bring up this issue not to downplay John’s achievements as detailed in the profile. Nor do I wish to target Michigan as being especially unfair to this group of instructors. Rather, I hope to encourage students, alumnae, faculty, and administration to recognize the achievements and contributions of lecturers and to consider whether their

favorite instructors at Michigan may, in fact, have been lecturers. I also hope that recognizing the achievements of lecturers will encourage the Michigan community to question whether it continues to make sense to classify teachers like John as “contingent,” or whether we could find more honest and productive ways to define different types of instructors.

MARGARET LAZARUS DEAN (M.F.A. ’01)

As a former editor, I’m afflicted with “red pencil” disease, a malady that compels me to correct errors, no matter how tiny. There was one in the blurb about the Paul Bunyan trophy (“Neither Little Nor Brown”). The governor who donated the statue was G. Mennen Williams, not F. Mennen Williams. The G stood for Gerhard. But he was known as “Soapy,” a nickname that referred to his family’s shaving cream and toiletries business.

JOAN RASMUSSEN (’70)

I do enjoy getting your magazine in hard copy. I know that it is more cost efficient to publish online. But after working a full day in front of a computer screen, my tired old eyes are not up to much online reading. Keep up the good work.

GARY ALLARD (’73)

I have read with interest the small column on page nine of the Fall 2009 issue regarding the new international studies major. The idea sounds most interesting and well needed. However, I see no mention of any foreign language requirements included in the list of topics to be studied.

MARILYN HOLZER (’50)

Editor’s Note: All U-M students, no matter what their major, must fulfill a foreign language requirement. Students must obtain fourth-semester proficiency in a single language, and there are more than 35 languages that students may choose from to study.

After receiving this last copy of the magazine, I had to write to tell you how exceptional it was. I learned so much about my wonderful alma mater and what is going on there. Thank you for the outstanding job you did in putting it together.

BEVERLY PETERMAN (’51)

Let us know what you think!

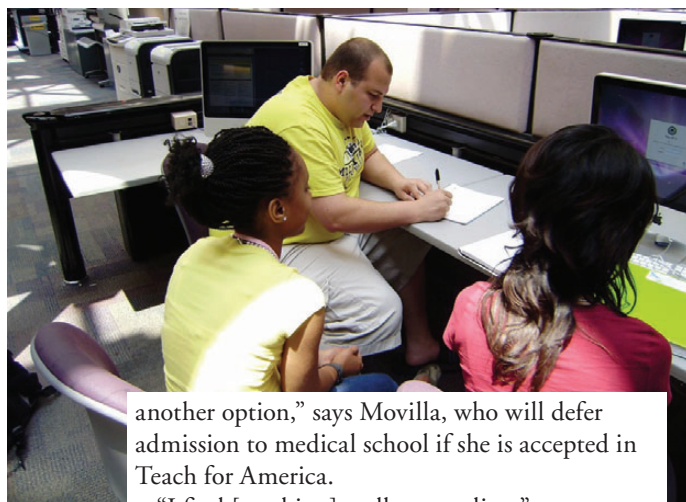
We welcome your thoughts, opinions, and ideas regarding *LSAmagazine*. Letters may be published in the magazine and/or on our website, but we cannot print or personally respond to all letters received.

Letters may be edited for length or clarity. Opinions expressed in “LSA Letters” do not necessarily reflect those of *LSAmagazine*, the College, or the University of Michigan. All correspondence should be sent to: Editor, *LSAmagazine*, Suite 5000, 500 South State Street, Ann Arbor, MI 48109-1382. You can also email us at lsamagazine@umich.edu.

Please include your name, address, and graduation year.

Most popular letter-generating article:
“Neither Little Nor Brown” by John U. Bacon

COLLEGE



another option," says Movilla, who will defer admission to medical school if she is accepted in Teach for America.

"I find [teaching] really rewarding," says Glotzhoher, a sophomore and biochemistry major who also is considering medical school.

That's music to the ears of IDEA Institute co-founder and co-director Brian P. Coppola, Arthur F. Thurnau Professor and Associate Chair of the Department of Chemistry. He and co-director Joe Krajcik, a professor in the School of Education, came up with the idea of IDEA (Instructional Development and Educational Assessment) several years ago. In 2007, the support of a \$2.5 million gift from Robert Horwitz ('74) and Catherine Redlich ('73) officially launched IDEA with the goals of improving and advancing undergraduate teaching and learning, as well as pre-college teaching and learning; preparing future faculty; and finding new ways of identifying and recruiting pre-college teachers.

There is little question their product is in demand. According to a 2006 report by the National Academy of Sciences, nearly 60 percent of eighth graders in American schools—double the international average—are taught math by

The Big Idea Behind IDEA

A NEW COLLEGE INSTITUTE IS SHAPING THE NEXT GENERATION OF SCIENCE AND MATH TEACHERS

by Katie Vloet

Summer camps and hands-on classroom activities are two of the ways that the IDEA Institute helps the College's future science and math educators impact grade school and high school students directly.

LISA MOVILLA AND STEPHEN GLOTZHOBER are exactly the kind of students the founders of the IDEA Institute had in mind. Both excel academically, and, after their experience with IDEA, both are considering becoming teachers.

Movilla, a senior neuroscience major, is applying for Teach for America, something she wouldn't have conceived of when she started at U-M. "I was always planning to be pre-med, but this gives me

According to a 2006 report by the National Academy of Sciences, nearly 60 percent of eighth graders in American schools — double the international average — are taught math by teachers who neither majored in math nor studied it to pass a certification exam.

teachers who neither majored in math nor studied it to pass a certification exam. In August 2009, a study by the National Center for Education Statistics found U.S. students placed below average in math and science, trailing countries including Finland, China, and Estonia.

Coppola's and Krajcik's plans to change all that are perhaps easiest to understand when broken

down into the multiple segments that comprise IDEA's pre-college programs.

FUTURE (Foundations for Undergraduate Teaching: Uniting Research and Education), the program in which Glotzhofer and Movilla are involved, began in the fall of 2008. That year, the program sent U-M science students into classrooms at Cass Tech High School in Detroit and Ypsilanti High School, where they worked with teachers on projects that the classroom instructors often don't have time or resources to complete on their own.

"We always tried to do hands-on projects," says third-year psychology major Sam Boas about his participation in FUTURE.

"In an organic chemistry class, we tried to focus on green chemistry, and showing the students an old way of doing something and a new way that doesn't produce dangerous byproducts." One of the things Boas liked best was working with groups of U-M students to create classroom activities, answer the younger students' questions, and refine the assignments so that future students can benefit even more.

In that way, FUTURE promotes a central tenet of IDEA: "A group of people can accomplish so much more than a single person," says Coppola, a 2009 recipient of a U.S. Professor of the Year award from the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education.

Two of the facets of IDEA that he is proudest of, Coppola says, are the new master's degree in post-secondary science education for science students in the College's Ph.D. programs, and a five-year dual degree program that, if approved, would encompass an undergraduate degree in science or mathematics and a master's in education. IDEA was recently awarded a \$900,000 award from the National Science Foundation for fellowships to be used in support of this idea. Other elements of IDEA include summer camps for high school students, in addition to an array of team-based collaborative projects that involve faculty and students in the introductory LSA science and mathematics courses.

None of these programs would be possible at a university that wasn't already so supportive of interdisciplinary education, Coppola notes. "U-M turns out to be a truly wonderful place because of the long history we have of supporting collaborative work. . . . The IDEA pre-college programs are off to a great start. The only thing stopping the broad expansion of FUTURE and the summer camps is resources, so we are now on the lookout for new sponsors."

The model for such collaborative work, especially in the FUTURE program, is the research lab environment that is so familiar to scientists but less so to colleagues in other disciplines. "Sixty to 70 years ago, scientists figured out you don't have to do all the research yourself," Coppola notes. They began working in laboratories in which one person was the principal investigator, and others worked on various aspects of the research. "We thought, can you take the research group model and develop teaching group models?"

The answer, it turns out, is yes. The teaching groups in FUTURE, for instance, have added a great deal to the educational experience of students at two area high schools—not to mention their own educational growth.

"Hopefully some of these students will think this is something they want to do with their careers," says Tom Bobovski, a chemistry teacher at Cass Tech who has worked with the FUTURE students for three semesters. "Even if they don't, the experience can still help them to communicate better when they go into other fields, like medicine. It's a great skill for them to learn." ■

{ building the *liberal arts* }

Learn to Work, Work to Learn

THE COLLEGE'S **NEW INTERNSHIP PROGRAM**
AFFORDS REAL-WORLD OPPORTUNITIES TO STUDENTS

by *Peggy Burns*

WHAT CAN YOU DO with a liberal arts degree? Everything! One of the great pleasures of working at Michigan is meeting so many engaging young leaders who will find their places in businesses, schools, government, or nonprofits—and as the stewards of

our future. As everyone who has walked the Diag knows, when students leave LSA, they are confident in their intelligence and fundamental skills.

But these students still must find their way in the world—they must decide how they will utilize their talents to build the lives they seek. This self-discovery begins on campus, but sometimes

{ notes from assistant dean for advancement *Peggy Burns* }

{ building the *liberal arts* }

it requires the ability to test oneself in “the real world.” To gain a new perspective. To have hands-on experience.

Not surprisingly, the LSA Dean’s Alumni Advisors told us as much, as did the LSA Student Government.

So this past summer, colleagues and I worked to create a program to facilitate internships among LSA undergraduates. While some College departments had long granted students academic credit for internships, those undergrads who had not yet declared a major or who wanted internships unrelated to their majors were put in difficult positions. Now, any LSA student can work with LSA Advising and the U-M Career Center to receive credit for a meaningful work experience.

One of the students making the most of this new internship program is Erica Hernandez, a sophomore who will declare majors in Screen Arts and Cultures and Communication Studies this fall. As a scholarship student, she has also been greatly involved in raising money for others, embodying the spirit of generosity that characterizes our scholarship program. She is among LSA’s finest.

With her eyes set on a career in film production, Erica will be in San Antonio this summer, working in an unpaid internship at the KSAT-12 television station. She’s excited about this opportunity and what it may mean for her prospects in a similar environment, the film industry: “This internship, coupled with my University of Michigan degree, can give me an edge in a competitive job market.”

She’s right: According to the National Association of Colleges and Employers, 23 percent of last year’s college graduates with internship experiences secured jobs before graduation despite the down economy, compared to only 14 percent of those without internships.

As an undeclared sophomore, Erica previously might have had trouble securing the academic credit to make an internship possible. But today, Erica says, “The process was quick and easy [and] even less complicated than going through a specific department.”

Our alumni have also taken a role in supporting this project, spreading the word to LSA students

about internships at their companies. Jeremy Steinberg (’00), Vice President of Digital Media Ad Sales and Business Development for FOX News Channel, says, “I want to give back to the institution that profoundly impacted my life. The best way I can think of doing this is to provide opportunities to LSA students that I did not have when I was in school.”

Steinberg’s company launched FOX News Channel University in 2008 to locate motivated and ambitious student interns. “We have found that a great way to find this sort of talent is to develop it on our own,” he says.

But even with help from alumni like Steinberg, internships can be expensive. Many of them are unpaid, and the travel and living costs for even a six-week internship can be overwhelming for students.

In response, we created the LSA Internship Fund in 2009 so alumni and friends can help students with the costs of these increasingly necessary professional and educational experiences. An internship can carry similar costs to summer tuition or studying abroad, and defraying those expenses is a meaningful way to help ensure that excellent LSA students remain ahead of students from other schools.

Growing the number of internships from alumni and securing additional funds for internship support will be chief among my ongoing priorities. Those of you who have met our current students — young men and women with remarkable talent and motivation — certainly understand why. We will work to encourage students like Erica — and indeed students of all ages and all majors — to utilize the Career Center and Advising to integrate professional experiences into their educations.

Should you be interested in discussing an internship opportunity or financial support for students with internships, contact me personally at 734.615.6333. ■

Peggy Burns is the Assistant Dean for Advancement in the College of LSA.

(LSAnews)



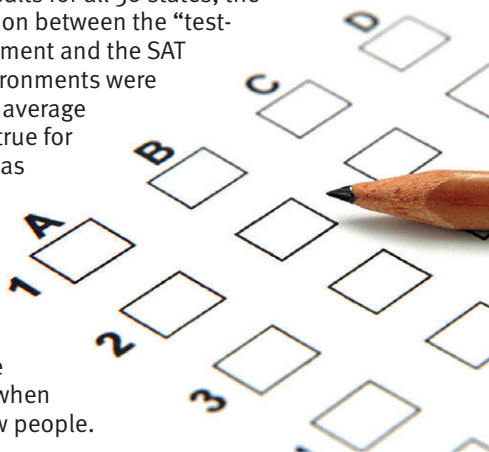
◀ Killer Catfish?

A new study by LSA graduate student Jeremy Wright finds that at least 1,250 and possibly more than 1,600 species of catfish may be venomous—far more than previously believed. In North America, these finned fatales use their venom mainly to defend themselves against predatory fish, though they can inflict a painful sting that many fishermen have suffered. In his study, Wright cataloged the presence of venom glands and investigated their biological effects.

MORE TEST TAKERS, LOWER SCORES

A new study shows that the more students who take the SAT in the same place at the same time, the lower the average scores. Stephen Garcia, LSA assistant professor of psychology and organizational studies, and colleague Avishalom Tor, of the University of Haifa, have dubbed this the “N-effect.” That is, when the number (N) of participants in a competition increases, the competitiveness of individual competitors decreases, even when the probability of winning remains constant.

By studying the 2005 SAT results for all 50 states, the researchers found a correlation between the “test-taker density” of the environment and the SAT score. When test-taking environments were more heavily populated, the average scores were lower. This was true for the Cognitive Reflective Test as well, which is a test taken by a relatively homogenous sample of U-M students. Through these studies and more, Garcia and Tor are finding, again and again, that people work harder, and do better, when they are up against just a few people.



Sundance Success

Sultan Sharief ('06) is gaining national attention for a film he wrote in an LSA screenwriting class. The film, *Bilal's Stand*, recently screened at festivals such as the renowned Sundance Film Festival in Utah, the Pan African Film and Arts Festival in Los Angeles, and the New Directors/New Films festival at the Museum of Modern Art in New York City, among others.

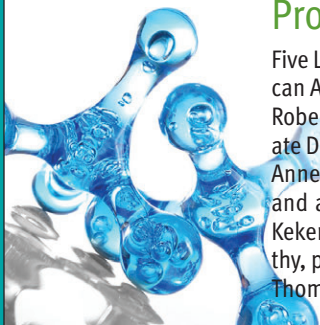
Bilal's Stand tells the semiautobiographical story of a young Detroit man torn between his aspirations to attend U-M and the expectations of friends and family that he work at his family's taxi stand.

“The movie is about giving a voice to people who often go unheard,” Sharief told the *Detroit Free Press*.

Sharief began working on the film in 2005. The movie was made in metro Detroit with the help of Detroit-area high school students and U-M as part of a project called EFEX (Encouraging the Film-making Experience), which Sharief cofounded with Terri Sarris, a senior lecturer in LSA's Department of Screen Arts and Cultures.

Professors Advancing Science

Five LSA Professors have been elected fellows of the American Association for the Advancement of Science. They are: Robert Megginson, professor of mathematics and Associate Dean for Undergraduate and Graduate Education; Mary Anne Carroll, professor of chemistry, geological sciences, and atmospheric, oceanic and space sciences; Peter van Keken, professor of geophysics; Ayyalusamy Ramamoorthy, professor of chemistry and biophysics; and Sarah Grey Thomason, professor of linguistics.



On SUPER

The source and significance
of one superb word

by Evan Hansen

BEFORE POP CULTURE ADOPTED ITS FAVORITE primary color-loving humanitarian, Superman, as a universal icon of strength and virtue, the notion of a super man was far less than utopian. Jerry Siegel and Joe Shuster, creators of the comic, started with a much different vision: Published in their fanzine *Science Fiction: The Advance Guard of Future Civilization* #3 in 1933, “The Reign of the Super-Man” featured a mortal villain imbued with special mental powers.

Perhaps Siegel and Shuster were influenced by philosopher Friedrich Nietzsche, whose concept of the *ubermensch* (literally “over man” or “super man”) from *Thus Spake Zarathustra* was of a human breaking free from conventional morality so that, as Nietzsche put it, “. . . man shall be just that for the overman: a laughingstock or a painful embarrassment. . . .”

It’s interesting, even puzzling, that it took so long for someone to put to paper the notion of a superman expressed precisely in that way, especially since “super” is such a widespread and ancient concept. Indeed, the word itself is practically timeless, an archetype of sorts that repeats through cultures throughout history.

The second edition of the *Oxford English Dictionary* (OED) lists the root super- as being derived from the Latin word *super*, itself a relative of the Sanskrit “upari,” the Greek “hyper,” and the Old English “ofer.” Each carries the same meaning, the primary definition of which the OED lists as: “Over, above, at the top (of); on, upon.”

These common words across such uncommon cultures, geographies, and historical eras suggest not just catholic meaning but a shared point of origin, and we find one in Proto-Indo-European (PIE). As explained in *The Oxford Introduction to Proto-Indo-European and the Proto-Indo-European World*, PIE is the hypothetical and reconstructed language from more than 5,000 years ago





that gave way to the entire Indo European family of languages. The PIE word “uper” would appear, even to the untrained eye, to bear more than a passing resemblance to antiquity’s “upari,” Nietzsche’s “uber,” and Siegel’s “super.”

Super, as we know it in the English language, seems to have gotten its start in the 15th century as a prefix—e.g., supermarine, superlineal—with the *OED* citing several published quotations as early as 1660. It grew in use through Elizabethan times, and eventually it came to stand on its own—first (and perhaps somewhat unsuccessfully) as a verb and later as an adjective. As the 20th century began, the word was part of widespread slang usage with a meaning tantamount to excellent, first rate, or top notch.

Perhaps it’s due to the growing popularity of Superman, the iconic do-gooder, but the past 100 years or so seem to have done a lot for super, both as an adjective synonymous with excellence and as a prefix. A bit ahead of his time, Charles Dickens employed it in his first novel, *The Pickwick Papers*: “I’ll be upon the wery best extra-super behavior,” says the character Sam.

George Bernard Shaw followed Nietzsche’s lead with his play *Man and Superman*. Since the 1920s, it has been routinely in use as an adjective in newspapers and books of all sorts. Our fast food has been supersized, as have the documentaries about their health effects, namely Morgan Spurlock’s *Super Size Me*. And when we pack our grocery carts with the week’s provisions, we do so at the supermarket.

The word has become so commonplace, one can easily drop super in front of just about anything to explain its over-the-top or (to use a particularly appropriate word) superlative qualities.

*This issue of LSAmagazine is constructed in that spirit, showcasing various Michigan alumni, faculty, and students who are truly **super**. Long before female racecar drivers adorned the pages of Sports Illustrated, Janet Guthrie was **superfast**, the first woman to qualify for the Indy 500 and to drive in a Winston Cup event. Through a popular television program, physician Robert Huizenga is helping dozens of **superobese** people lose hundreds of **superfluous** pounds. LSA scientists have joined other researchers from around the globe at the CERN **supercollider**, smashing protons together at **super speeds** to answer some of the universe’s most fundamental questions.*

Super is universal. Its ancient roots remain intact, for five millennia every bit as recognizable in human civilization as the ideas of family, numbers, and age—concepts that were reflected in the same protolanguage that gave us the word super. The lab coats, chef’s whites, racing gear, and other job-appropriate attire donned by Wolverines may at times seem as foreign as blue tights and red boots, but that some of their accomplishments are extraordinary is paradoxically not terribly atypical at all. It’s universal. It’s super.

Evan Hansen ('01) is the Director of Marketing and Communications in the College of LSA and has a Block M tattooed on his forearm.





shifting **GEARS**

Physics major **Janet GUTHRIE** was just settling in an aerospace engineering career when racecar driving intervened. Here, Guthrie drops the hammer and guides us through the hairpin curves of her racing life, revealing how she emerged as a racing pioneer and created a legacy for women that endures today.



by Cindy **HIRSCHFELD**

Janet Guthrie ('60) didn't necessarily set out to be a pioneer.

Adventure loving from childhood, she just wanted to study engineering, be financially independent, and, oh yeah, fly planes and race TK-horsepower cars around tight ovals at speeds nearing 200 miles per hour. But as the premier woman driver in IndyCar and NASCAR racing during the late 1970s—which included being the first woman to start at the Indianapolis 500 and Daytona 500—she first had to wade through a thicket of public hostility and gain the grudging acceptance of other competitors.

Somewhat lulled into complacency by her 13 years competing on the amateur Sports Car Club of America circuit, where women drivers were a small minority but participated nonetheless, Guthrie was under the impression that, “If you could drive the race car and beat your competition, so what if you didn’t have those little thingies between your legs.”

So what, indeed. She would quickly learn otherwise—after she declared her intention to make a qualifying attempt at the Indy 500 in 1976, male drivers “spent two months telling the press that I was going to kill them,” recalls Guthrie, now 71, on a recent snowy afternoon at her house in Aspen, Colorado.

Warm and unpretentious, Guthrie speaks in quiet, measured tones punctuated by the occasional wicked flash of humor—overall, just the sort of calm demeanor you’d hope to find in someone who spent significant amounts of time behind the wheel of a roaring, high-strung thoroughbred of a vehicle.

The oldest of five siblings raised in Florida by parents who saw no reason to discourage their daughter’s ambitions, Guthrie’s first love was flying, and by the time she graduated from high school in 1955, she had a private pilot’s license. But her opportunities were limited.

“Women weren’t allowed to fly in the military, they weren’t allowed to fly for any airlines,” Guthrie says. “If I went into private aviation, all I could hope for was a position as a flight instructor for

dishwashers’ wages, and I really wanted financial independence.”

Instead, Guthrie researched colleges with strong aeronautical engineering programs, and chose the University of Michigan. She arrived in Ann Arbor as one of eight women out of about two thousand first-year students in the College of Engineering.

“The teachers that I had there were really outstanding, ones I’ll never forget,” Guthrie recalls. “Andrew De Rocco, who was at that time, I think, a teaching fellow, taught physical chemistry, and he was just so inspiring. Dr. Halperin taught mathematics—he had a thick Brooklyn accent—and he was so beautifully skilled at making mathematical concepts clear.”

Guthrie does remember one notable exception, a professor known as “Cactus” Jack Briar, who unwittingly presaged the type of discrimination she would later face in her racing career: “Cactus Jack didn’t like the idea of a woman in his engineering materials class, and he had no problem at all making that quite clear. He would use cuss words, and in 1955 you did not use cuss words in front of women. He would stare at me while he was using these cuss words. I just looked back at him, like, ‘Who the hell do you think you are?’ But most of the teachers I had at the University of Michigan were really, really good and made learning such a great pleasure.”

Less than enamored of aeronautical engineering after her first year, Guthrie changed her major to physics. She also kept up flying, occasionally



renting a two-seater plane and skipping over to Detroit for a day. After sophomore year, she took off a year, getting her commercial pilot's license and hitchhiking through Europe for a couple of months.

After graduating, Guthrie moved to Long Island, New York, to take a job as a research and development engineer with Republic Aviation, which was just breaking into the aerospace industry. Given her intellectual bent, graduate school might have seemed a logical next step. In fact, says Guthrie, she seriously considered applying to the American University of Beirut, which offered a master's degree in physics. "I'm not sure whether or not I ever applied, because I was really tired of poverty," she admits. "I thought, well, I'll just go to work for a couple of years and earn a little money and perhaps get a car that's worth more than \$8, and then I'll go to graduate school. But by the time two years were up, sports cars already had me on the hook."

And she was able to buy cars worth more than \$8. Guthrie's first four-wheeled love was a Jaguar XK120, and she was eager to

“I thought, well, I’ll just go to work for a couple of years and earn a little money and perhaps get a car that’s worth more than \$8 . . . but by the time two years were up, sports cars already had me on the hook.”

put it through its paces. After competing in local gymkhanas—timed races through complex obstacle courses—and hill climbs in New York State, she earned membership in the Sports Car Club of America (SCCA), which ran races for amateurs. Most of those amateurs were men, but some women did compete, so Guthrie's arrival didn't make waves.

In her autobiography, *Janet Guthrie: A Life at Full Throttle*, she writes: "I had nothing resembling a feminist consciousness at the time I started racing. . . . I simply de-

clined to identify with the women about whose driving men made jokes: *they weren't talking about me*, I thought."

She competed at events like the Watkins Glen 500 in 1964 (with an engine she'd built herself), the Sebring 12-hour race, and the 24-hour race at Daytona.

Surprisingly, entering the Indianapolis 500 wasn't even one of Guthrie's goals. Women journalists had finally gained access to the pits and garages at Indianapolis in 1971, and there was nothing in writing that prevented a woman from trying to qualify for the race, but "there was an unwritten rule," Guthrie says. Instead, her sights were set on European road races like the 24 Hours of Le Mans.

But a persistent and forward-thinking IndyCar team owner named Rolla Vollstedt had something to offer first. Remembers Guthrie, "I got home from my garage one day and found a message on my answering machine: 'This is Rolla Vollstedt from Portland, Oregon, and would you be interested in taking a shot at the Indianapolis 500,' and I thought, oh yeah, right, another joker."

Mindful of what she describes as scams in which other women racers had been set up to announce they were going

(Left) In 1976, with 13 years of racing experience behind her, Guthrie readied for her debut as the first female entrant in the Indy 500.

(Middle) Guthrie in February 1977, just before she raced in the Daytona 500, where she finished 12th and earned Top Rookie honors.

(Right) The all-women racing team comprising, left to right, Sharlene Seavey, Judy Kondratieff (standing), Rosemary Smith, and Janet Guthrie, readied for the 12 Hours of Sebring race in 1970.



to drive in the Indy 500, only to find out they'd been conned, Guthrie first researched Vollstedt and then made him an offer: She'd go to California and test drive an IndyCar for him as long as it took place in private, with no press and no publicity. "If I can make the car go fast enough, and the car is capable of going fast enough," she says she told him, "then you can make whatever noise about it you feel like you need to."

After Guthrie aced the test, in spring 1976, Vollstedt announced she would make a qualifying attempt in that year's Indy 500. Reaction was swift, vehement, and hostile. And Guthrie was wholly unprepared. "I really never would have believed the uproar that ensued," she says. "It was just so startling."

For example, a story in the *Boston Globe* that Guthrie recounts in her autobiography posed the image of Guthrie fishing in her purse at the start of the Indy 500 for "bobby pins and Max Factor beauty aids" and "working on her eyelashes in the rear-view mirror as the other 32 drivers angrily blow their horns." A reporter for the *New York Times* related to Guthrie a phone conversation with top racer Bobby Unser: "He said he 'could take a hitch-hiker, give him a Corvette off a showroom floor, and turn him into a faster driver than her.'"

Guthrie made her IndyCar debut at a race in Trenton, New Jersey, the month before the 1976 Indianapolis 500. She didn't finish the race—her car's transaxle case fractured—but she drove well enough to temporarily quell some of the naysayers. Nonetheless, race officials provided an armed guard to escort Guthrie to her trailer after the race.

At Indy 500, Guthrie was still plagued by mechanical issues and didn't earn a starting position, which go to the fastest 33 racers in qualifying laps. Three-time Indy 500 winner A.J. Foyt lent Guthrie his back-up car one day for practice, and her speed leapt into qualifying range, proving she had the skill and guts to go fast enough; unfortunately, Foyt wouldn't let her use the car for an official qualifying attempt.

Others might have been daunted, going back to their garages and lower-profile races rather than return to the hoopla of Indianapolis the next year. Not Guthrie. "Are you kidding?" she says when asked whether she considered calling it quits. "Racing was my life. That's what I was about."

In 1977, Guthrie made the

starting field at Indianapolis. About two hours into the race, a crack that had developed deep within her engine forced her to pull out. The next year, Guthrie returned with her own team and finished ninth (driving with a fractured wrist she'd sustained in a pre-race charity tennis tournament), the best finish by a woman until Danica Patrick's fourth place in 2005. In 1979, Guthrie again made the field, but four burned pistons at the end of lap one ended her race.

In addition to driving IndyCars, Guthrie competed in NASCAR races. In 1976, she was the first woman to drive in, and also finish, a NASCAR Winston Cup event (the top level of stock-car racing at the time), invited by the promoter of a 600-mile race in Charlotte, North Carolina.

"There had been women in the early years of NASCAR, but no woman had ever driven a race longer than 200 miles, no woman had ever driven on a high-banked paved track, and none of those early women ever drove more than a handful of races," Guthrie says. "I had a lot of fun driving NASCAR, even though it took longer to gain the respect of the NASCAR insiders. They were more resistant to the notion of a woman driving NASCAR [than the IndyCar drivers]."

The next year, ignoring such taunts from NASCAR fans as "no tits in the pits," she was named top rookie in five out of 19 races she entered, including the prestigious Daytona 500. Her sixth-place finish at Bristol Speedway in Tennessee remains the best by a woman in NASCAR's superspeedway era.

Though others would point to skill, drive, and confidence, Guthrie attributes her breakthrough status as a female racer to something simple and green: sponsorship money. "The women's movement helped immensely, and the sponsorship was available, at least for a short period of time. That's what made the difference," she says.

Yet despite her success and her name recognition, finding backers to cover the steep cost of car racing proved increasingly difficult. "My only close to full year of racing was 1977 [when she was sponsored by Kelly Girl], but I kept on seeking sponsorship until 1983," she notes. At that point, she says, "I realized if I kept it up, I was going to jump out a window." She hung up her racing suit and helmet (which are now in the Smithsonian) and went to work on her autobiography, which turned out to be a 20-year project. But if a sponsorship opportunity had come up during those

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first several years of racing retirement, “I would have gone back in a heartbeat,” Guthrie says.

The sponsorship issue still plagues women drivers today. Guthrie brings up Sarah Fisher, the first woman to earn a pole position in the start of a major IndyCar race and the youngest woman to compete in the Indy 500, in 2000 when she was 19: “She’s still trying, but she can’t get the money. She’s the insider’s favorite.”

These days, Guthrie maintains a relatively low profile in high-profile Aspen, where she lives on a tucked-away street in a comfortable but modest split-level house that she and her late husband, Warren Guthrie, bought in 1987. She drives a ’91 Jeep Cherokee. “My car should start, go, stop in ice and snow, and carry a lot of stuff. That’s all I want,” she says.

Her need for speed has subsided. Though she originally moved to Aspen so she could ski—“among the accessible sports, skiing is the closest to car racing,”—her time on the slopes these days is limited.

Though displaying trophies has never been her thing, Guthrie does have a wall of photos and framed newspaper clippings from her racing days in a lower-level room, and looking at them is like getting an annotated primer on her career. One place in her living room has been reserved for her favorite photo, a close-up of Guthrie behind the wheel of her car in 1979 before a season-opening race in California, intended, but never published, for the cover of *Life*. Her eyes, thoughtful and serious, are the only things visible other than her helmet.

There’s story behind those eyes, though. That morning, Guthrie had just met the chief mechanic who would oversee her car and realized “the guy had no more business chieftaining an IndyCar than the man on the moon. So I was sitting there, doing my best to look glamorous for this photographer, and what he caught was me thinking, ‘How in the hell am I going to get out of this?’” She did find a way out, managing to hire another mechanic in time for the race.

Guthrie believes strongly in remembering and recording the impact of women racers, especially those who preceded her. “There were a lot of women in [early] racing history,” she notes, “but that history has been largely forgotten.” In that vein, she avidly supports the creation of the National Women’s History Museum in Washington, D.C.

When she talks about her own impact, a bit of Guthrie’s old competitive fire comes through. “There’s nothing like cognitive dissonance,” she says in describing the original mindset of the male drivers she raced against. “There’s nothing like them saying, ‘Oh, this driver can’t possibly be any good and is going to kill me because she’s female,’ and then that driver blows your doors off and you sort of have to reorganize your thinking a little bit.” She gives a satisfied chuckle. “In both venues, IndyCar and NASCAR, one of my greatest pleasures was in seeing those attitudes change. That was very gratifying, indeed.”

Cindy Hirschfeld is a freelance writer/editor based in Basalt, Colorado. Her work appears in the New York Times and in travel and ski magazines.



A Fast Look at Women Drivers

Despite multiple obstacles in a male-dominated sport, numerous women have competed successfully in race-car driving. Here are a handful who have taken the sport for a spin:

SARA CHRISTIAN was the first woman driver in NASCAR history. Her first race was June 19, 1949, at the Charlotte Motor Speedway in North Carolina. Her last race was just a year later in 1950. She was inducted into the Georgia Automobile Racing Hall of Fame in 2004.

LOUISE SMITH raced from 1949 to 1956. She won 38 races in her career and became the first woman inducted into the International Motorsports Hall of Fame in 1999.

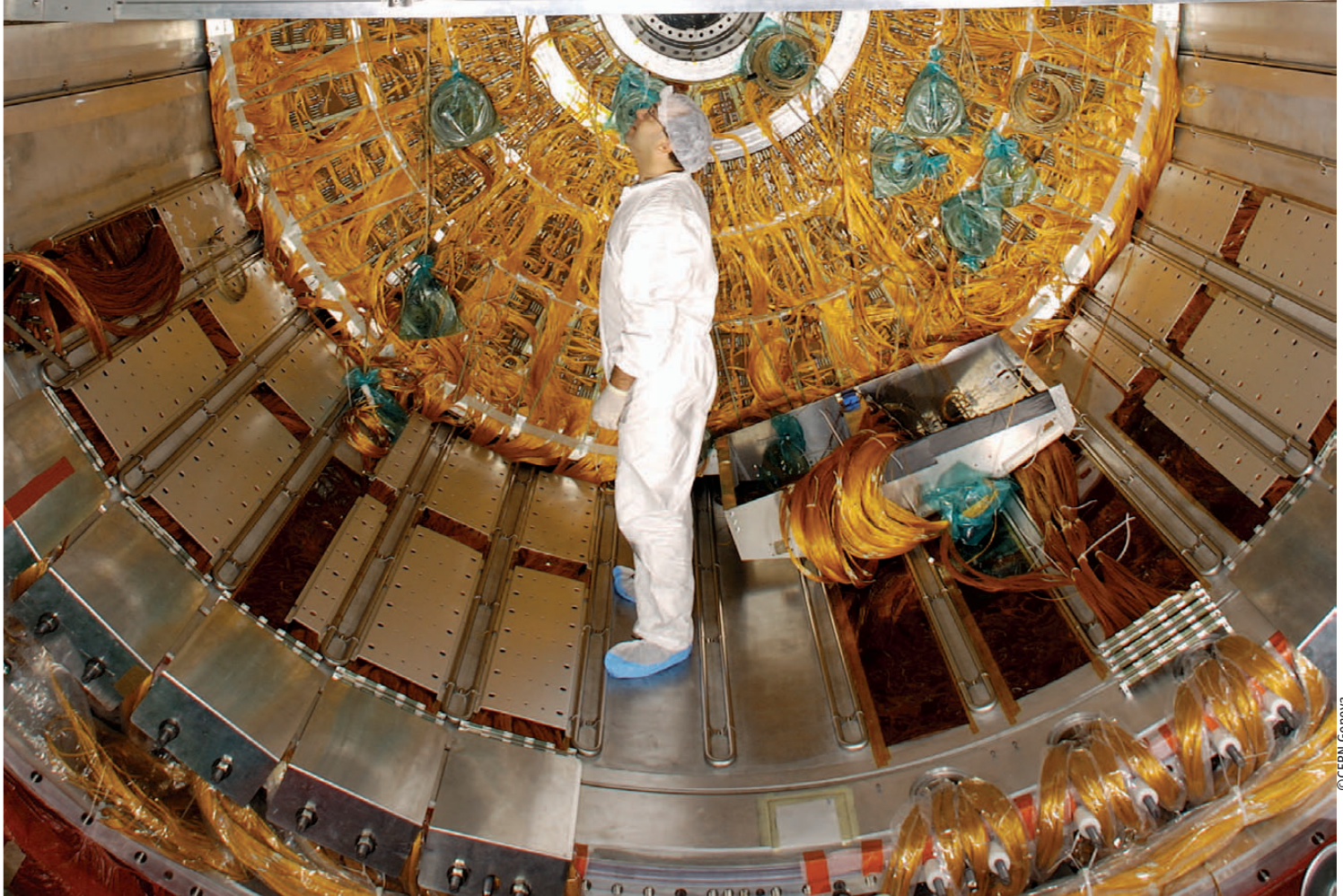
PATTY MOISE raced from 1986 to 1998. She set numerous track records including one in 1990, when she broke the one-lap, closed-course speed record at Talladega with a speed of 217.498 mph.

DEBORAH RENSHAW started her racing career in 1999 at the Highland Rim Speedway in Tennessee. She had numerous top-ten racing starts and finishes until her career ended in 2006, largely due to a lack of sponsorship.

DANICA PATRICK (pictured above) became the fourth woman to compete in the Indianapolis 500, following Janet Guthrie, Lyn St. James, and Sarah Fisher. In 2005 she was named Rookie of the Year and, in 2008, became the first woman ever to win an IndyCar race.



superHUGE



© CERN Geneva



The **Biggest Hammer** *Humankind Can Muster*

SMASHING PROTONS TO **SMITHEREENS** AT THE LARGE
HADRON COLLIDER DEEP UNDERGROUND IN SWITZERLAND.



by Karl Leif BATES



THERE'S A PARADOX IN SCIENCE:

it seems that the smaller the thing being looked for, the bigger the equipment needed to find it.

And nothing is bigger than the superbig, superexpensive, superconducting supercollider in Switzerland, where dozens of LSA physics professors and students are trying to find ever smaller constituents of the mass and energy that define our universe.

The Large Hadron Collider (LHC) near Geneva is quite simply the largest machine ever built—designed and constructed to find The Theory of Everything. But when all is said and done, the global physics community may have to settle for just A Pretty Good Idea. Nobody really knows whether LHC will produce the answers they seek, and there's even a chance it will reveal all prevailing theories are rubbish.

"Something dramatic is going to give," says professor James Wells (Ph.D. '95), a theoretical physicist who is taking a six-year leave of absence from U-M to be a staff scientist at CERN, the European agency that runs the LHC. "We either find new stuff or everything we thought was true is out. So this is extremely exciting, and it's guaranteed."

After 15 years and \$9 billion dollars of design and construction, not finding what they're after would actually be fantastic, says Homer Neal (M.S. '63, Ph.D. '66), LSA's Samuel A. Goudsmit Professor of Physics. "As a matter of fact, that may be one of the most exciting outcomes."

LHC had to be as huge as it is to find the last missing piece of the physicists' Standard Model, which is the prevailing theory to account for the things that protons are made of, like quarks and leptons, and the forces that hold them together. The last piece they need to prove it is a particle called the Higgs boson. But like finishing a jigsaw puzzle of the Mona Lisa with the piece that holds her enigmatic smile, dropping the Higgs into place may only add new layers of mystery.

"Nobody believes that the Higgs boson can stand on its own," Wells says. "We think it requires something else, an entourage of new states and new interactions to make it viable."

Lots of curious people grow up taking things apart to see how they work, with varying degrees of success. The grown men and women of CERN are doing pretty much the same thing, but the

Dozens of **LSA physicists** are clustered around a superbig effort to find out if the pieces that make up matter just keep getting smaller and smaller. It's the experiment of a lifetime, with results that could **blow the lid off the origins of the universe**, or leave scientists scratching their heads realizing that everything they thought they knew was wrong.



things they're trying to understand—matter and energy—are a little too small to get at with a Phillips screwdriver.

That's not to say the process is delicate. Seeing the energy and mass that make up the tiny stuff that makes up the stuff we see in our bodies and the world around us requires smashing protons to smithereens with the biggest hammer humankind can muster.

For what it's worth, human efforts to create proton collisions pale in comparison to what's out there in the universe, where an estimated 10 billion LHC-sized collisions happen every second. But out

there, they don't have supersensitive detectors the size of office buildings surrounding each collision.

Supersensitive, in this case, means superhuge.

Buried an average of 300 feet below ground on the border of Switzerland and France, there is a 17-mile-long circular tunnel containing a ring of supercold superconducting magnets. They exist to accelerate two continuous streams of protons in opposite directions at more than 99 percent the speed of light.

The protons in question are bitty, so most of the time they go right on past each other, but at several carefully calibrated spots, surrounded by these giant, otherworldly looking detectors, the magnetic field that contains the streams is twitched ever so slightly to make the little bullets smash into each other. "Many, many protons have to give their lives for this science," Wells says.

The collisions, happening at an astounding rate of 600 million crashes per second, create a shower of pure energy that morphs into fleeting sub-particles that the detectors capture and turn into data. The collider runs days and weeks at a time, nonstop.

"The particles are made for an extraordinarily small amount of time and then they themselves decay into normal particles but in a very special pattern, sort of like a fingerprint pattern," Wells says.

As dramatic and violent as all that high-speed colliding sounds, what it really amounts to is a release of energy "comparable to that of a mosquito in flight," according to CERN's background materials. The detectors that capture these little mosquito-blips are humongous—the size of a five-story building, and as heavy as the Eiffel Tower—yet calibrated to microns of tolerance. Parts of one of the detectors, the aptly named ATLAS, were made in the Randall Lab, headquarters to LSA's Department of Physics.

The particle detector ATLAS will be used to search for new discoveries in physics, including the origins of mass and extra dimensions. For more information on ATLAS, see sidebar, p.23.

The detectors capture the splash of disaggregated bits flying off the smashed protons, some of which are so fleeting and so diminutive and so just-plain-weird, that nobody's entirely sure they're even real. The big kahuna of these, and the last piece that will show whether the Standard Model is right or wrong, is the aforementioned Higgs boson.

Nobody has seen one, but they think they know what it does — it gives mass to all the other particles. This is the only way their theoretical equations make any sense right now. But if the Higgs can't be found, or doesn't exist the way the theoreticians say it should, the Standard Model will have to be junked.

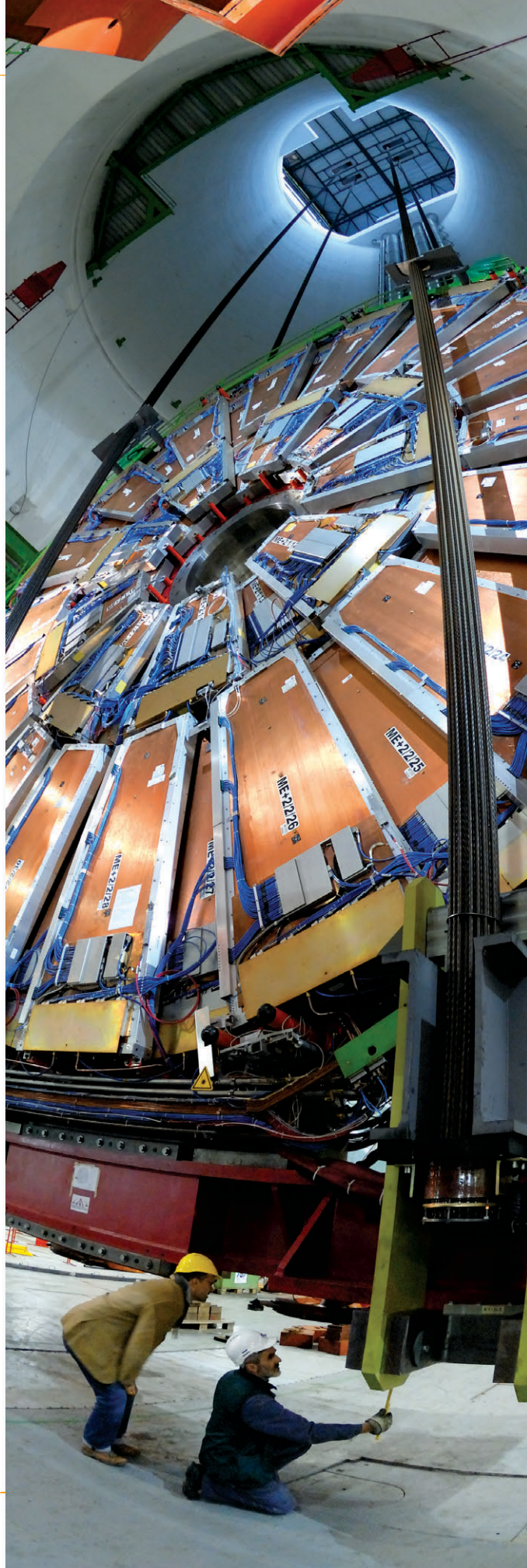
"The Standard Model has been very useful in predicting things," Neal says. For example, it helped him and others to discover particles called quarks that come together to make up the familiar protons and neutrons you learned about in high school. Ideas that once seemed a little kooky are now proven facts.

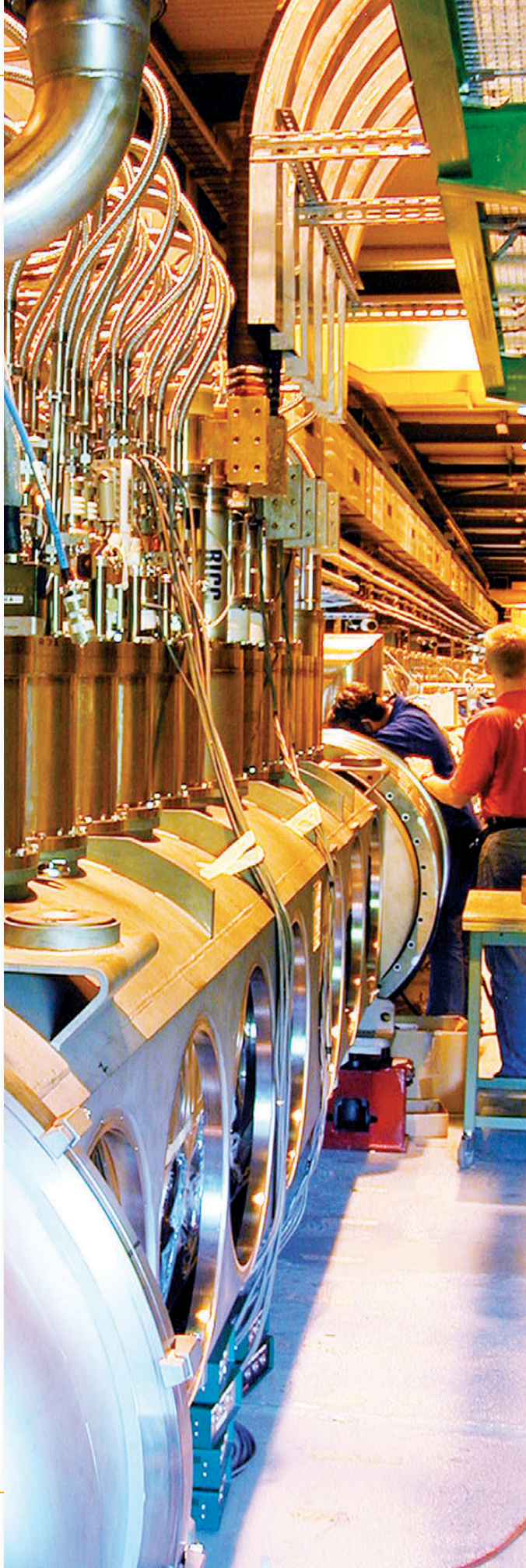
"It's natural to ask the question 'is there something inside of a quark?'" Neal says. "If you were the creator of the world, is this how you would do it? Is there anything inside of these particles? Why should it stop here?"

Big M Requires Some REALLY BIG E

Theory has gotten a bit ahead of experiments in recent years, and the LHC aims to close that gap. What the theoreticians have put together is an intensely mathematical and interrelated best-guess

The detectors that capture these little mosquito-blips are humongous — the size of a five-story building, and as heavy as the Eiffel Tower — yet calibrated to microns of tolerance. Parts of one of the detectors, the aptly named ATLAS, were made in the Randall Lab, headquarters to LSA's Department of Physics.





Dipole magnets at CERN are tested before they're installed in the Large Hadron Collider.

about Higgs and its “entourage,” including some pieces referred to as the superpartners.

Theory before experiment is normal operating procedure in particle physics. It's a way for physicists to know what they're supposed to be looking for. Quarks, leptons, and the like were theories before they tumbled out of collider experiments one by one in the 1980s and 1990s. “There's nothing terribly bizarre about it in the history of physics,” Wells says.

What is a little bizarre is the whimsical naming scheme for the things they haven't found yet. For each of the known parts of the Standard model, there is now a theoretical superpartner with a matching name. The gluon — a force that holds things together (get it?) — is supposedly partnered with a gluino. The quark particle of mass should have a squark. And the $W^{+/-}$ force has a wino. Alas, it's pronounced weeno.

Catching a picture of one of these elusive critters is where the superbig equipment comes in. The more energy you put into the collision, the more things you should be able to see, hence LHC's stupendous power.

“ $E=mc^2$ is very helpful in this,” Wells explains. Einstein's classic equation says there's a point where accelerating the protons to high enough energy (the E) crosses a threshold for producing particles of ever-higher mass (the M). “ E is what the LHC is running on. And you need big E to make big M .”

“Take two protons, collide them at extraordinarily high energy and they just disappear,” Wells says. “They just annihilate into energy and that energy then can decay into heavier particles like superpartners. And so it's sort of creating something out of nothing with a lot of energy.” In other words, to see them in our familiar four dimensions, you have to make them. (Incidentally, the theorists say there are perhaps as many as 11 dimensions, but we'll save that discussion for another time.)

Like the elusive Higgs, the superpartners are supposedly more massive than the things they've already found, like quarks and neutrinos. So a bigger accelerator was needed to go to the next level.

“Superpartners are not just lying about, you can't just stumble across them and pick them up and weigh them and say ‘this is a superpartner,’” Wells says. “You have to create them *ex nihilo*,” he says, using the biblical notion of something out of nothing.

“This is the first collider in history that we feel confident can find the Higgs boson if it exists,” Wells says. And maybe it'll turn up the superpartners if we're lucky—and correct. “It's not like we are changing our story every time a new collider comes. It's really the first time in physics history that we know that we should find it... if it exists.”

In the continuous destruction of protons inside LHC, “hundreds of different particles are hitting the detectors in different places,” Wells says. These showers of particles generate data at a rate of 70 trillion bytes per second, but the detectors are

programmed to sort out most of the noise, catching just 19 gigabytes per second of the most promising stuff for later analysis.

“What you do is look at the pattern of all those particles and piece them back into a sort of a crossword puzzle and find that ‘Oh these four particles, they did something special,” Wells says. “And then these reconstruct a special pattern that could not have existed were it not for the fact that superpartners were there, ever so fleetingly. You can tell that the superpartners came into being only by the fingerprint of normal partners that they leave behind.”

Somewhere amid weeks, months, and years of continuous collision data, they hope to find a trace pattern lasting just a trillionth of a second. There are some 8,000 physicists on the ground in Switzerland, and many times that number around the world tapped in via some very fat Internet connections, all looking for the fleeting trace.

In fact, this massive collaboration is itself a bit of an experiment. With Daniel Atkins, the Kellogg Professor of Community Information in U-M’s School of Information, Homer Neal is a co-leader of a study to understand and perhaps improve upon how an international superteam of scientists collaborates across time and space like this, a so-called collaboratory.

James Wells’ role at CERN is to help interpret the data, and to predict what might happen next. His particular specialty is Higgs boson theory, and there are others who focus on different puzzle pieces, like photinos or smuons. “I make predictions of what they should see when these collisions happen.”

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The Inner Workings of the LHC

HOW IS THE LHC SUPPOSED TO FIND THE VAUNTED HIGGS BOSON? WHY MUST SUCH LARGE MACHINERY AND SO MUCH POWER BE EMPLOYED?

by Jimmy Rogers

Particles as small as the Higgs cannot be observed directly, primarily because they only exist for an unbelievably small amount of time before decaying into energy or other particles. To really “see” what one of these particles looks like, physicists use two streams of heavier particles and accelerate them as close to c , the speed of light, as possible. This is done with the help of enormous magnets (the size of cars) that force the stream down a very narrow corridor. Once up to speed, the paths of the two streams are allowed to cross and the particles collide with great force.

The explosion leaves a wake of smaller particles and radiation behind. Two independent teams have created massive detectors (ATLAS and ALICE) to capture and analyze the radiation patterns left by these collisions. From this data, they can calculate exactly which particles existed during the time of the collision.

This method, which seems circuitous at first, actually mirrors the methodology used to discover the structure of DNA. Researchers at the time could not simply “view” the double helix, so they used X-ray crystallography to observe how X-rays are scattered as they pass through the structure of DNA. The specific voids and exposures left behind gave them all the clues they needed to assemble the famous helix. The ATLAS and ALICE detectors work much like magnetic film, capturing the clues left behind by the radiation and turning that data into a model for the physics of the collision.

CERN’s big project utilizes a lot of physics, but it is equally a marvel of engineering, a machine considered by some to be the most complex ever built by man.

LSA Professor James Wells is a staff scientist at CERN working to interpret the data from the Large Hadron Collider experiments. Two U-M graduate students currently accompany him in the lab.

The experimentalists and the theoreticians have a sort of partner-superpartner relationship themselves. “There’s a back and forth between the two communities of theorists and experimentalists that betters both communities,” Wells says. “We look at each other with very critical eyes and there’s a lot riding on these experiments working well. People’s careers are wrapped up in understanding how nature works, and they want the experiments to work well and they want the theoretical insights to be correct and valid.”

CERN and U-M

While it might be tempting to do his theorizing on a warm beach somewhere, Wells prefers to be in the cafeteria at CERN. “It’s very helpful to be close to the action,” he says. “These are really complex theories and really complex experiments, and simple email exchanges don’t work.” Rather, he and his colleagues scribble on napkins through lunch and have four-hour bull sessions with whiteboards.

What Michigan gets out of Wells’ leave of absence at CERN is the opportunity to send its graduate students to the absolute center of the current physics universe. “U-M is dedicated to its students, and this provides an opportunity like no other for our students to experience world-class research,” Wells says. He has two graduate students with him at CERN at the moment, and has also supervised a U-M undergrad who came to work at CERN, did his senior thesis there, and is now a graduate student at Harvard. “It’s just doing wonderful things for these students.”

It’s difficult to predict what finding a superpartner like gravitino might mean at this point. The physicists are more motivated by simple curiosity than any dream about the intellectual property rights to zero gravity boots. But other benefits are sure to accrue from LHC. Röntgen wasn’t trying to revolutionize medicine when he figured out that X-rays can take pictures of the living skeleton in 1895, Neal points out. He was just doing basic physics to try to figure out how the world works.

“The people who contribute to these fundamental discoveries in science, we’re not in the position to anticipate or know what other, differently clever people will do with it,” Wells says. “I’m sure that the founders of quantum mechanics had no idea that a microwave oven was going to heat people’s dinners.”

Neal says some physicists are already talking about the next super machine: a linear accelerator that would shoot particles in a straight line rather than a loop. Nobody is quite sure how long it needs to be, but miles, for sure.

Karl Leif Bates is a science writer and former University of Michigan Knight-Wallace Journalism Fellow.



(this page) Darrin Vanselow; (opposite page) Ron Tom/ Disney ABC Television Group/Getty Images

Does the LHC mean the end of life as we know it?

DON'T BRACE FOR A BLACK-HOLE BARRAGE JUST YET

Walter Wagner, a high-school science teacher and one of the most vocal opponents of the LHC, argued that “if you slam two atoms together... they might collapse into a micro black hole, and eventually it would convert the Earth into a black hole.”

In 2008, Wagner filed a lawsuit with the Honolulu Court System to keep the LHC from conducting experiments and, in September of that year, the lawsuit was dismissed.

While Wagner's vocal objections to the LHC raised valid points about how to estimate the risk of groundbreaking experiments, it also dumped misconceptions and erroneous information into the public conversation about the LHC. Here, we use facts from the CERN website to separate truth from fiction.

Can the Collider create mini-black holes that last long enough and get big enough to suck the planet into nothingness?

Mini black holes are unlikely to form because the concentration of energy is not large enough. If formed they are likely to spontaneously decay. CERN asserts that “astronomical black holes are much heavier than anything that could be produced at the LHC.”

But what about cosmic rays? Aren't those part of the black hole equation and dangerous to boot?

Cosmic rays hit Earth all the time, and the LHC recreates this naturally occurring phenomenon “under controlled laboratory conditions,” according to CERN. The energy and rate of the cosmic rays at the LHC won't exceed anything the Earth doesn't experience day in and day out. “Nature has already generated on Earth as many collisions as about a million LHC experiments—and the planet still exists,” says CERN.

Could particles known as magnetic monopoles throw atomic nuclei out of whack?

CERN explains that magnetic monopoles are “hypothetical particles with a single magnetic charge, either a north pole or a south pole.” Some speculate that magnetic monopoles could cause protons to decay. In essence, a monopole would have to be really, really heavy to do that, and any monopole at the LHC would be much lighter than what's required for proton destruction.



HOLLYWOOD and the Large Hadron Collider

The science behind the LHC might be both safe and reliable, but that hasn't stopped TV shows and movies from crafting fanciful fiction about what happens when scientists smash protons deep underground. Here's a snippet from some of the LHC's recent on-screen appearances.

- **FlashForward.** In this ABC television series, everyone in the world experiences a 30-second blackout. Some suspect the cause is an LHC-like machine, though in the show it's called the National Linear Accelerator Project.
- **Torchwood.** This BBC series posits that the LHC has possibly opened up a gateway to a parallel dimension or even created a black hole. Three scientists work to find out “the truth” as researchers begin to disappear and the mysteries deepen.
- **Angels and Demons.** This blockbuster starring Tom Hanks, based off the book by Dan Brown, has members of a secret society stealing LHC-produced antimatter in order to blow up Vatican City. CERN developed an online FAQ section to explain the egregious scientific errors in the novel, which you can read at <http://tinyurl.com/2fgvv8>.
- **Annihilation Earth.** This Syfy-produced television movie centers around the destruction of a cutting-edge supercollider facility, which has created an energy field that, if not contained, will destroy Earth in a giant black hole. A team of tough scientists must save the day.





While Americans tend to have greater access to cheap goods than people in other cultures, hoarding is far from a Western phenomenon. In 2009, New York's Museum of Modern Art featured an exhibit by artist Song Dong, who organized and displayed the items from his mother's tiny, crammed home in Beijing, China. The exhibit not only showcases a specific era of Chinese culture but also the contents of a life fraught with peril and want during the Cultural Revolution. LSA Psychology Professor Stephanie Preston says many of the items are common to hoarders across cultures, including clothing, storage containers, household items, and papers. Dong was able to convince his mom to part with the items only when he explained they would be showcased as part of a traveling art exhibit.



Clutter, hoarding, and consumption in the modern world.

by Lara ZIELIN

VICKI SYLVESTRE ('89) TAKES

a deep breath before describing her mom's home. "When you walk in the door, there's a path of maybe 12 to 16 inches wide. It's the only place you can walk; everywhere else there are piles of papers, newspapers, magazines, mail, and bags. You can use that path to get to the bedroom and through to the kitchen, where the counter is covered from one end to the other with expired food. The only food she eats is new food that she buys. The last time I was there, I picked up a jar of

peanut butter that had been scraped clean but not thrown away."

The clutter and mess is baffling to Sylvestre. "My mom is an outgoing, social person. She's involved in politics, she goes country line dancing, she travels, and she tries to eat as healthy as possible. In every other aspect of her life, she's a very intelligent, well-rounded person."

But when it comes to her mom's stuff, Sylvestre is concerned with a problem that seems to be getting worse over time, not better. "My sister and I think about whether [our mom] is going to die and leave us with this mess. You hate to put it in those terms, but we're going to be the ones who have to deal with it if it happens."

Sylvestre's situation isn't unusual. There are an increasing number of people whose issues with clutter are compounding. More than two million people suffer from compulsive hoarding, according to a recent WebMD article¹, and the numbers are on the rise.

It's hardly surprising. Stuff is increasingly easy to come by. Cheap overseas labor and materials mean that consumer goods are inexpensive, and people are spending more on things. Personal consumption expenditures have increased

The new A&E television show *Hoarders* spotlights individuals who don't own their stuff, their stuff owns them, often to the point of near ruin. The show is one example of how "cluttering behavior" is getting more and more national attention.

But at what point, exactly, does stuff become an issue? What triggers it? And what can be done about it?

We talked to LSA alumni and experts and sorted through piles of information to bring you organized insights about things, stuff, and junk.

proceed normally. One could argue that Sylvestre's mom is functional, so what's the big deal if she chooses to hold on to piles of magazines from 1970? LSA faculty and alumni are among those trying to discern, amid other issues, at what point owning many items becomes a problem.

"Hoarding can be considered a problem if it causes significant impairment in your life and your relationships," says Stephanie Preston, an assistant professor of psychology in the College of LSA. "But this can be tricky because oftentimes hoarders do not see the true extent of the situation. It seems like a problem to everyone but them."

Preston began robust hoarding research with her Ph.D. dissertation, which examined

how a specific species of rodents altered their decisions about hoarding food based on their physiological state of stress. "We looked at whether stress hormones, like cortisol, could change their hoarding behaviors." The answer was a resounding yes.

Eventually, Preston expanded her research to include people. "To me, this behavior in food-storing animals is completely continuous with humans' decisions to stock

“At the point where the person is collecting bizarre items, or spending their entire day walking the streets to acquire items, then there is likely some psychosis also involved and simple organizational strategies will not suffice.”

¹ Doheny, Kathleen. February 2008. "Harmless Pack Rat or Compulsive Hoarder?" WebMD. <http://tinyurl.com/y97nvsvf>.

resources for future need,” she says.

That isn’t a bad thing under normal circumstances. For example, “people who live in California might keep a few days of food and water on hand in case of an earthquake,” Preston says. Some people might put 20 cans of food in their basement; some, 200. And yet both sets would still fall into the range of “normal,” which is enormous, but scalable (see Figure 1).

When the range of normal behavior stops, the scale tips to compulsive hoarding.

This is the point at which someone no longer qualifies for The Style Network’s *Clean House* and instead is more likely to appear on A&E’s *Hoarders*.

“In families where there’s compulsive hoarding, it’s a major stressor,” says Preston. “People are arguing, there can be divorce.”

In Sylvestre’s case, there is friction because her mom’s hoarding keeps her and her family from being able to stay in the house when they visit from out of town. “If we travel to my mom’s house for the holidays, we have to stay at a hotel or with a cousin because she can’t host us,” Sylvestre says. “We can’t bring her grandkids over to visit, and that reduces the amount of time they can spend with her. She’s not getting any younger, and the grandkids are growing up fast.”

Sylvestre says her mom has good intentions and wants her home to be clean, but that her goals never come to fruition. This is due in part to her mom’s paranoia about discarding anything with her name on it, and an embarrassment that prevents her from letting anyone into the house to help.

Even so, Sylvestre says her mom is still able to live a full life — “she is rarely home and is always active” — whereas some hoarders’ lives succumb entirely to the hoarding behavior.

“At the point where the person is collecting bizarre items, or spending their entire day walking the streets to acquire items, then there is likely some psychosis also involved and simple organizational strategies will not suffice,” Preston says.

But why does hoarding start in the first place? How does someone go from being an acquirer on the behavioral scale to a full-scale hoarder?

The Accumulations of a Lifetime

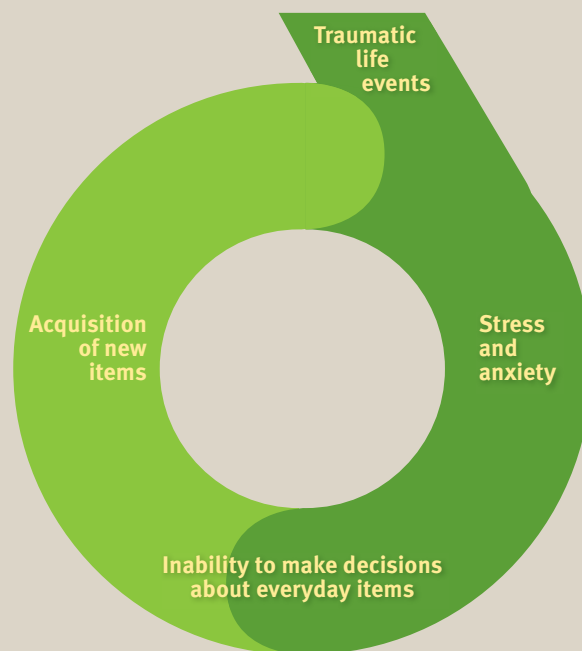
“Researchers have found that there are a higher number of traumatic life events (TLE) in hoarders,” says Preston, who lists a death in the family, divorce, and unemployment among possible TLEs.

Age also plays a factor.

FIGURE 1.

The Hoarding Cycle

In the hoarding cycle, traumatic life events (TLE) lead to anxiety and fear, which lead to an inability to properly make decisions about everyday objects. Because of this, items can’t be classified or categorized. Hoarders then might feel that they need to keep these items in sight, not put away, or they might not find them again. The engine driving hoarding is frequent acquisition of items, which at once provides relief to the anxious hoarder and also leads to increased anxiety about the sheer volume of items in his or her space.



“There can be a cognitive decline that makes it difficult to make decisions about these items,” Preston explains. “As people get older, they also tend to be more likely to live alone, often after a spouse dies. Depression and loneliness can set in, and there’s no one there to observe the condition of the house or complain when you leave something out. Your mobility is reduced, so you don’t have the ability to run to the dump or the Salvation Army like you used to. On top of all that, you have the accumulations of a lifetime. All of this put together creates the perfect storm for clutter.”

With any hoarder, young or old, Preston says it’s important for family or friends to remove items only with the hoarder’s

² Standard, Alexa. 2009. “Coming Clean.” *Hour Detroit*, 15:6;34.

The **STUFF** Scale

"If you take a sample of normal individuals from the population and screen out anyone with mental illness," Preston says, "there will still be people who, if I offer them 100 items [in a study], will take only five to 10, and there will be people who take 90."

Spartans emphasize “the material worth, the monetary worth of items,” says Preston. Of the 100 or so items offered in Preston’s studies, Spartans take a mean of about 20 and then pare down to approximately 10.

Intermediates “are unconflicted consumers,” says Preston. “They can acquire things and still pay the bills. No one is upset with them.” Of the 100 or so items offered in Preston’s studies, the Intermediates take a mean of between 35 to 45 and pare down to approximately 20.

Acquirers “don’t have any psychopathology, like obsessive-compulsive disorder (OCD), and there’s probably nothing wrong in their homes, but they do take a lot of items and they have higher rates of anxiety,” Preston says. Of the 100 or so items offered in Preston’s studies, the Acquirers take a mean of between 60 to 70, and pare down to approximately 30.

The best way to determine if the emotional and behavioral tendencies in any of the categories have become a problem — i.e. tipping to pack-rat or hoarding behaviors — is to assess the individual person's living conditions and its effect on their quality of life and relationships.



consent. "Sometimes, families will think, 'Let's send them on vacation and get rid of all the stuff while they're gone.' In those cases, they are cleaning the home for themselves and not for the hoarder."

Preston emphasizes that the hoarder looks at each item as valuable, and oftentimes can't decipher the useful items from the junk. "Hoarders find it difficult to make decisions or categorize items, which stems from anxiety and fear. (See Figure 2.)

“Some people can go into a deep depression or even become suicidal when they discover that their stuff has been removed from the home.”

Instead, Preston encourages family and friends to sit down with the hoarder for an intervention. “The best hope is some kind of family counseling where the hoarder can be led to realize that their behavior is hurting people that they love. If you are trying to deal with this problem on your own, then I think seeking therapy is really important; you’re going to need support.”

More than medicating the problem, Preston says the best solutions come from monitoring the hoarding behavior the same way you would a weight problem. “If you go to Weight Watchers, they give you guidelines for things to avoid, they show you alternative behaviors, and they explain consequences for the behavior. In the case of hoarding, a behavioral therapist might say things like, stop bringing things into

the home. That's the number one thing. They establish rules for developing habits to change your behavior."

Most importantly, however, is looking at the root causes. "Regular therapy can help people figure out what's motivating them to keep the stuff," Preston says. "It's most likely not about the stuff, per se. It's about fear, anxiety, the consequences of the traumatic life events."

Even people who might not have a hoarding problem but still just have too much stuff need to take personal responsibility for their items and come up with an organizational system that makes sense for them.

"Each person has to determine how to deal with all their belongings on an individual basis," says Karen (Alexander) Kaplan ('93, M.U.P. '94), founder of At Your Fingertips Organizing. "I can go in and organize someone's house, but it'll be organized for me, not for them. Eventually, it will just go back to the way it was. Once they make the commitment to get organized, I can help them develop a system that works for their situation."

Kaplan says that there's no "right way" to organize anything, and that the goal isn't to have a perfect house. "Your house is not a museum. You live in it. Things come in, and things go out, and expecting it to be pristine is unreasonable. In that sense, having a plan for your stuff is more important than organizing it once. If you organize it once, it'll get messy again. So you have to have a system in place for storing your belongings." (For more of Kaplan's tips on keeping an organized house, see sidebar.)

Kaplan also emphasizes that there is a segment of organizing professionals who deal specifically with hoarding, and that the National Study Group on Chronic Disorganization can provide contacts and information for people who need help in this area.

Such organizations are part of the reason that clutter, and hoarding, are getting increased national attention, which Preston says is a good thing. "Hoarding has always been there, but I think it was hidden away and not talked about," she says. "The public exposure is helping demystify the topic and helping people realize they're not alone in their struggle."

Sylvestre agrees that the TV show *Hoarders* has helped her better understand her mom's behavior. "I used to take her hoarding very personally, and I'd get mad. Now I see it's a mental issue."

Sylvestre isn't optimistic that she'll ever see her mom's space clean. "How do you argue with someone in their 70s? She's been doing it so long now, I'm not sure she'll ever change." But is there hope?

A little.

"We want her to live a full life, to have her friends over, to not be a prisoner to her possessions. She may yet realize she needs help."

Lara Zielin is Editor of LSA Magazine.



Letting Your Neat-Freak Flag Fly

ALUMNA AND PROFESSIONAL ORGANIZER **KAREN KAPLAN** OFFERS THE FOLLOWING TIPS FOR KEEPING YOUR HOUSE ORGANIZED AND CLUTTER FREE.

- Start small. You don't have to do everything at once. Begin organizing manageable, everyday areas that will bring quick results and motivate you to do more.
- Save the personal stuff for last. It's best not to begin the organizing process with items such as photo albums or memorabilia. Instead, start with things that have no sentimental value.
- Focus on what you want to keep. Look at what is truly valuable to you, and be prepared to let the rest go.
- Realize that you'll probably need to make a mess in order to get organized. To really cut through clutter, you need to assess exactly what you have and that means getting it all out in the open.
- Use "out of sight, out of mind" to help reduce clutter. Pack up rarely used items, and put them where you can't see them. If, after a few months, you haven't missed them, you know you can get rid of them (this is especially helpful with kids' toys).
- Store things where you use them.
- Think about where you are going to store things before you bring them into your home.
- Run your home like a library. Make sure everything has a designated place, that those places are well marked and understandable, that things always get put back in their designated spaces, and that anything old/damaged/unused is regularly discarded to make room for new items.

superFAT





Doctoring *the* *Biggest* *Loser*

Contestants on NBC's hit TV show *The Biggest Loser* battle to see who can lose the most weight while the cameras roll. But is this real, lasting weight loss or a gimmick for reality TV? We go behind the scenes with the show's physician, LSA alumnus **Dr. Robert HUIZENGA**, to find out.

by Rebekah K. MURRAY

It's twilight on a ranch in Calabasas, California. Sixteen contestants file into the fitness building, facing the cameras. Back in the control room, the director and producers sit in front of seven television monitors. Other staff members wait in front of their computers, making adjustments to sound and lighting or feeding lines into a teleprompter. Soon, one of the cameras turns on actress Alison Sweeney and her voice fills the small control room.

"It is time to start the weigh in," she says.

"And—ready to roll," the director says into his microphone.

It's November 2009 and NBC is filming season nine of the hit TV show *The Biggest Loser*. On this day of filming, Robert Huizenga, M.D. ('74), is seated in the control room, just a few feet behind the director. He leans over to watch as the scale's digital numbers fluctuate rapidly before settling on just how much weight the yellow team lost this week.

Huizenga is an internist who alternates between *The Biggest Loser* ranch and his own private medical practice in Beverly Hills. As one of the nation's leading experts in obesity-related research, he has overseen the care of the contestants since the show began in 2004. Now, *The Biggest Loser* is one of NBC's most-watched prime-time programs, with an estimated 10 million viewers tuning in each week.

Here's what people are watching: Obese, morbidly obese, and what doctors classify as "super" obese individuals are sequestered away from everyday life and have the opportunity to live on a ranch where exercise, healthy eating, and weight loss are their only goals—oh, and the chance to win \$250,000 if they can avoid getting kicked off the show.

While the concept is simple, the show's results "have exceeded my wildest expectations," says Huizenga, or "Dr. H" as he's more commonly known at the ranch. Viewers regularly watch contestants lose between five and 15 pounds each week, and season nine's Michael Ventrella broke a record by shedding more than 100 pounds in only seven weeks.

How is this possible?

"It's a common-sense approach," says Huizenga. "Everybody knows exercise and diet help you lose weight, but

everyone else, heretofore, has approached obesity from a dietary standpoint with a little bit of exercise. We approach obesity from an exercise standpoint with a little bit of diet.

"This has never ever been done before," Huizenga says. The contestants learn how to eat healthy and count calories—Huizenga helps them determine an ideal caloric intake—but the main emphasis is on intense exercise.

We're talking *intense* exercise on the ranch, as in four to six hours a day. By eating fewer calories and participating in calorie-burning workouts, the contestants experience extreme weight loss, while retaining lean tissue and building muscle.

"This was something I had seen in professional athletes," says Huizenga, who was the team physician for the NFL's Los Angeles Raiders from 1983–1990. "Despite eating three all-you-can-eat buffets along with shakes and pizza at night, the athletes kept losing weight when they were working out twice a day. The whole inspiration for *The Biggest Loser* show was based on my observations as doctor for the Raiders."

Huizenga shared his experiences with television producers when they asked for his help with a potential weight-loss reality show. He says the producers wanted to know if contestants would be able to experience notable weight loss, dramatic enough to compete with television shows such as *Extreme Makeover*.

Huizenga said yes, it was definitely possible, even though most doctors disagreed. Physicians generally recommend only losing

about two pounds per week as rapid weight loss can cause medical problems, such as a weakening of the heart muscle, irregular heartbeat, and dangerous reductions in potassium and electrolytes, according to a November 2009 report in the *New York Times*.

Huizenga's goal was to safely replicate the results he witnessed firsthand while doctoring the Raiders. But his



(Left) *The Biggest Loser* trainer Jillian Michaels pushes a season nine contestant to his fitness limits.

(Right) Dr. Robert Huizenga ('74) in the deliberation room at *The Biggest Loser* ranch. Each contestant has a refrigerator showing the unhealthy foods that contributed to his or her obesity.





“It’s fun when a TV show can literally back into a new scientific finding, a new algorithm for handling an epidemic problem.”

question was: “Could a fat, non-athletic, sedentary adult do what pro athletes do?”

He didn’t know for sure, but his research and life experiences led him to believe that this exercise-centric method would work. “In retrospect, I realize that I’ve been in training for this discovery my entire life,” he wrote in his book *Where Did All The Fat Go?* (Tallfellow Press, 2008).

Huizenga certainly knew what it was like to want to lose weight as quickly as possible. His own struggle with fluctuating weight began as a high school freshman when he decided he needed to lose 12 pounds—fast. At that time he was too skinny for football and too short for basketball, but he could make a spot on the wrestling team if he lost those 12 pounds and competed in the 103-pound weight class. He made the team and by the time he graduated from New York’s Penfield High, he was at the top of his class in academics and was an all-county athlete in football, wrestling, and track. But he was also, as he says, “a world-class yo-yo dieter.”

“A few years into my high school sports career, I’d already lost (and gained) more pounds than any contestant on *The Biggest Loser*,” he wrote in his book.

His yo-yo dieting continued at U-M, where Huizenga was a top student and an NCAA All-American wrestler. The son of a nuclear physicist, Huizenga selected Michigan for the University’s top math and science programs. It was at U-M where he took his one and only acting course (“I squeaked out a B,” he says), and he can’t forget a cold night in December when he, along with approximately 10,000 other students, streaked across campus.

As a senior, Huizenga competed in the national wrestling tournament in 1974, but watching the wrestlers prepare for that event, “was like a fellowship at an unlicensed weight-loss clinic,” he wrote in his book. “I witnessed every ugly corner-cutting trick” for weight loss, and says he eventually realized the futility of those methods and the dangers of developing eating disorders.

After medical school at Harvard, where Huizenga was

an all-star Rugby player, and after serving as Chief Medical Resident at Cedars-Sinai Medical Center in L.A., in 1983 Huizenga landed the position of team physician for the L.A. Raiders, precisely because he

was an athlete.

Taking care of the Raiders and other professional players led to testimonies in front of Congress on steroid use and brain injuries in the NFL. Huizenga served as President of the National Football League Physicians Society from 1987 to 1991. His controversial book chronicling his experiences, *You’re OK, It’s Just a Bruise*, was the inspiration for the Oliver Stone film *Any Given Sunday*. Huizenga was also O.J. Simpson’s physician, and is known for being called to testify at the televised trial.

“So life is pretty interesting how everything twists around,” he says. “Because I was an athlete at Michigan, that gave me the job being the doctor for the Raiders, and that job gave me *The Biggest Loser*, not only the job on the show but the whole inspiration.”

The Biggest Loser’s extreme method is not without its critics. A November 2009 front page article in the *New York Times* showed what trainer Jillian Michaels is quoted as calling “the dark side of the show”—reports of contestants fasting and purposely attempting to dehydrate themselves to get an edge on the competition at the weekly weigh in. Michaels is reported as saying that the contestants are medically checked and disqualified if they are dehydrated or are found to be taking drugs or diuretics.

In his book, Huizenga wrote that, “In truth, many contestants registered huge weight loss numbers on the scale some weeks, little during others, often as a direct result of fluid shifts.”

Huizenga also wrote that he’s had to “temporarily pull some of the contestants off the program because, in an attempt to lose even more weight than I recommended, they were eating too little, avoiding carbs, exercising



Former LSA student and season two contestant Pete Thomas lost 83 pounds during his 62 days on *The Biggest Loser*. At the show’s finale nine months later, Thomas weighed in at 216—down from 401 pounds—and won the \$100,000 at-home prize.

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excessively, and lifting weights improperly.”

There are currently seven medical research studies underway, many of them conducted by universities, to analyze the contestants’ health. As viewers of the show know, Huizenga tells the contestants that what they’ve done to their bodies—the hypertension, type two diabetes, high cholesterol, asthma, sleep apnea, joint stress, and heart disease—is reversible. Huizenga says the show is advancing science and essentially saving lives.

“We have literally millions of dollars of science and equipment,” he says, while walking around the health clinic set up at the ranch. “We’d make a football team envious.”

Huizenga points out some of the equipment at their disposal: machines for measuring body composition—a contestant’s fat, bone, water, and muscle; the large equine spa machine (the human spa machines were too small for the obese contestants) for post-workout ice treatments; and tiny thermometers that can be swallowed before a challenge to remotely measure a contestant’s internal body temperature. The internal thermometers will help prevent heat stroke, like the one Tracey Yukich, a contestant on season eight, experienced during a one-mile run.

What home viewers must remember is that the contestants on *The Biggest Loser* are burning fat and losing weight “in a controlled environment with full-time athletic trainers, not just TV trainers, and it’s with full-time doctors monitoring lab tests,” Huizenga says. In that sense, he wouldn’t expect, or want, people watching at home to exert themselves in the same way without professional guidance, but he does emphasize that dramatic results are possible outside of the ranch.

“Anybody could say, well, the people on the ranch have TV monitoring for diet accountability, 24-hour access to state-of-the-art gyms, or that they’re touched by magical people,” he says, “but when you see people knocking off the pounds at home, you know that it’s definitely possible. We’ve shown that over and over again.”

To promote extreme weight loss at home, Huizenga has written a method called “The Wow! Prescription” in *Where Did All The Fat Go?* His recommended exercise for obese individuals is still intense—two hours a day—but Huizenga says, “Amazingly, obese, sedentary people actually like it once you push

them through the first six weeks.”

Pete Thomas claims that it’s true. When Thomas, who attended U-M from 1986–87, weighed in for the first time on *The Biggest Loser* season two in 2005, the scale registered 401 pounds.

Thomas was pre-diabetic, had pre-sleep apnea, and found out through a battery of tests with Huizenga that he had reduced his life expectancy by 16 years. “At that point in my life, dying was an option but giving up wasn’t,” Thomas says.

After 10 days on the ranch, he was down 24 pounds. Nine months later, he had lost 185 pounds. What may be even more amazing is that he’s kept the weight off for more than five years now. To do that, he exercises an average of an hour a day. He says Huizenga warned him that for someone who was previously obese, less exercise will allow the pounds to creep right back on.

Contestants like Thomas are why Huizenga believes so strongly in the show.

“It’s fun when a TV show can literally back into a new scientific finding, a new algorithm for handling an epidemic problem,” Huizenga says, while driving from the ranch back to his Beverly Hills office. “It may not be the only way or the best way, or it may be the best way.”


Whether physicians or contestants or at-home viewers disagree with Huizenga’s method, he says something must be done. An estimated 300,000 people may die this year from obesity-related illnesses, according to a report from the U.S. Surgeon General’s office.

“This is one of the major killers in the modern world,” says

Huizenga. “I don’t think doctors have figured out a good way to communicate the dangers of obesity to patients.

“Of course a much better thing would be not letting people get to this stage,” he says. “We’ve got to now start working on prevention. Since it’s harder to get weight off than it is to prevent it from coming on, we need a massive prevention program that has to start in grade school. But that’s another show.”





Rebekah K. Murray is the Assistant Editor of LSA magazine.

 **LSA WIRE** > To read more about season two contestant Pete Thomas, visit the LSA Wire at www.lsa.umich.edu/alumni/wire.

The **WOW!** Rx

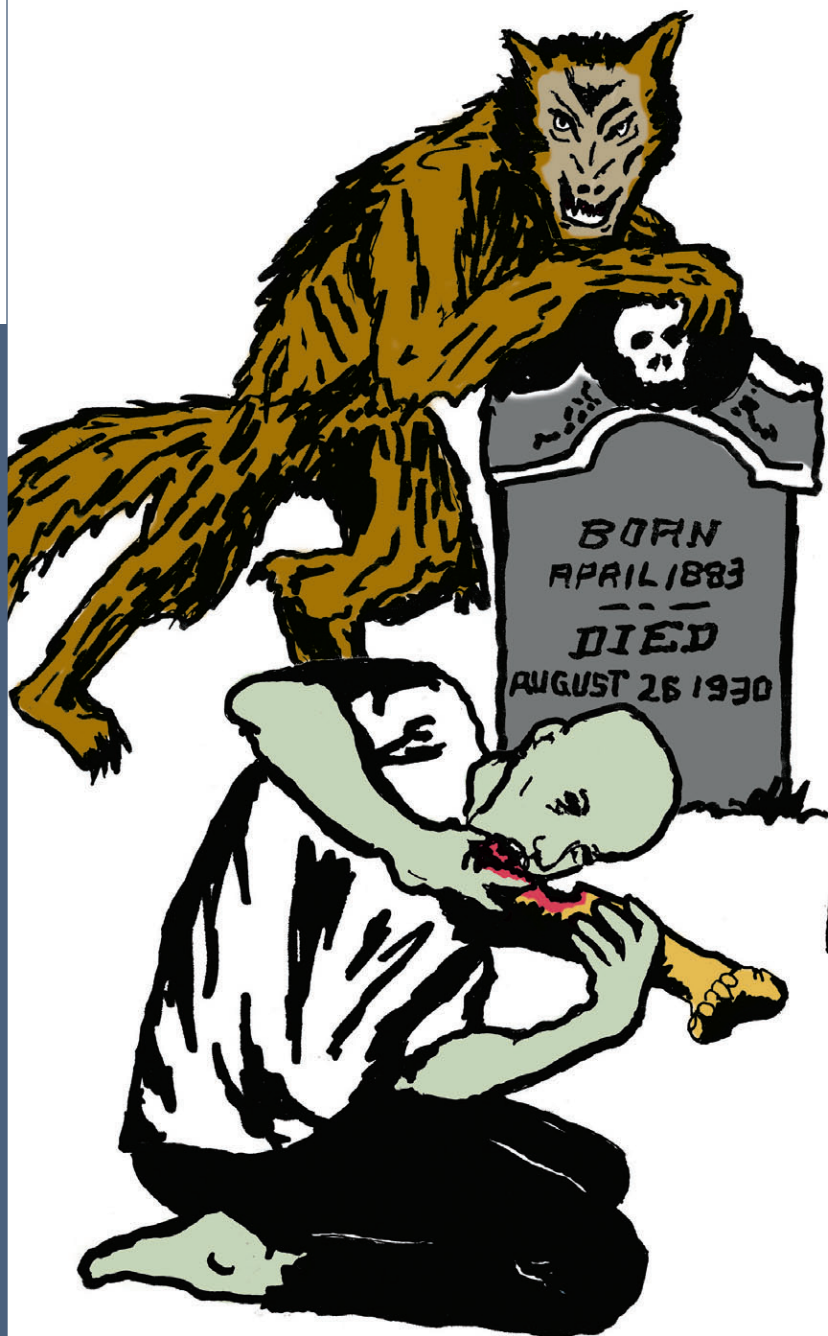
DR. HUIZENGA’S PRESCRIPTION TO REACH YOUR IDEAL WEIGHT—AND STAY THERE

Dr. Huizenga says you don’t need to be sequestered on a ranch to lose weight—although it makes for an inspiring TV show. His weight-loss prescription is laid out in his book *Where Did All The Fat Go?* Here are a few of his basic tips:

-  Adopt a regular schedule of sleep, meals, and exercise.
-  Journal your daily food and exercise calories.
-  Stay with fresh and flash-frozen fruit, vegetables, skim milk, soy, and other lean protein from fish, chicken, and turkey. Consume good fats and whole grains. Eat red meat sparingly.
-  Exercise intensely at the same time each day—an hour each morning and each afternoon, six days a week for weight loss. For weight maintenance, exercise 60 to 90 minutes five days a week.



FACULTY



> Monster Mash

ZOMBIES, VAMPIRES, AND THE RESURGENCE OF THE UNDEAD EVERYWHERE. IS SOCIETY REALLY HUNGRY FOR BLOOD AND BRAINS, OR IS SOMETHING ELSE AFOOT?

by Laura Bailey

Andrew Claydon

THE UNDEAD are larger than life in popular culture.

Bloomberg reported *The Twilight Saga: New Moon* recorded the third-biggest opening weekend in box-office history with \$140.7 million in ticket sales, doubling the opening weekend sales of *Twilight* a year ago. The book *Pride and Prejudice and Zombies*, described as “the classic story retold with ‘ultraviolet zombie mayhem’” has spent more than 34 weeks on the *New York Times* bestseller list.

There are as many theories regarding this trend as there are smoldering looks between Edward and Bella. However, LSA experts say vampires and zombies are pop culture mainstays that sometimes enjoy a rabid resurgence in response to the times.

They’re certainly front and center at the moment, but they’ve stolen the pop culture stage many times before, says Sheila Murphy, an assistant professor in the Department of Screen Arts and Cultures.

For instance, in 1976, Anne Rice’s erotic, gothic *Interview with a Vampire* spawned a \$100 million best-selling book series and a movie. The ’90s saw *Buffy the Vampire Slayer* and the later spinoff, *Angel*. And zombies, Murphy notes, are consistently a favorite, guilt-free slaughter for gamers.

“The monsters with staying power can be understood if we look at their prototypes,” says Eric Rabkin, the Arthur F. Thurnau Professor of English Language and Literature.

“The fascination with these particular monsters isn’t new,” says Rabkin, it’s just different from other monsters like mummies or even Bigfoot. Why? Zombies and vampires are “concerned with class structure,” which is timeless, says Rabkin.

Vampires represent the powerful, individual self-made aristocrats who *choose* immortality, he says. Alternately, zombies act out in mindless mobs—the “great unwashed poor” of the monster realm. Both are an obvious reflection of class structure, especially in our tough economy.

“Zombies and vampires, they are functional answers to questions and problems that we can’t solve so easily with the resources that we have,” Murphy says. For instance, a vampire’s coffin won’t be foreclosed upon, and zombies certainly don’t need universal healthcare.

“It’s attractive now because the road to vampirism is the easiest one possible” to aristocracy, Rabkin says. Vampires are champagne and caviar creatures but work a heck of a lot less than Bill

Gates. Vampires are the otherworldly aristocrats: sophisticated, beautiful, wise, and capable. They can handle just about anything but the sun—admittedly a huge tradeoff for immortality—but perhaps more romantic now, given the sunless world in which some suggest we live.

And vampires are the ultimate eternal eye candy—an appealing concept for any age group, says Murphy. Even Bela Lugosi, the actor who played Dracula in the 1931 eponymous film, got the girl without being preternaturally beautiful. And Bram Stoker’s Dracula is the original blood-sucking babe magnet. However, says Rabkin, one big difference now is that historically, only the virgin got the vampire. Today’s vampires don’t mind if the bride has been around the chamber a time or two. This reflects changes in feminist perspective, Rabkin believes.

Another gender component that helps explain the current popularity of vampires is more direct. “I think teenage girls love this because it’s made for them,” Murphy says, referring to *Twilight*. “Historically there hasn’t been much media specifically directed at the teen-girl audience, and girls made these books and movies popular. Most young-adult books target girls, whereas movies, television, and games target boys, who bring along the girls,” she says.

In part, the popularity of *Twilight* and vampires in general is that the stories romanticize ordinary people and technology, but in girl-speak. Bella is constantly described as beautiful and Edward represents power, wealth, and status “in a cute boy package,” Murphy says. Add shape-shifting and vegetarianism to the mix and he’s the perfect prom date.

Danielle LaVaque-Manty, a lecturer in LSA’s Sweetland Writing Center, thinks examining these small cultural quirks uncovers larger concerns. Her introductory writing course “Zombies: Why?” challenges students to find an answer, and they’ll finish the term with an online zombie archive of their findings.

“The scenes in zombie movies are similar to war, to Hurricane Katrina, so they might stand for human conflict on a large scale, or natural disasters,” says LaVaque-Manty, who doesn’t study monsters but thought her students would enjoy the theme.

But it’s not just students—Murphy believes that

zombies and vampires are fill-ins, while pop culture transitions. To what she can't say, but she does observe that "there is a space for the tried and true formulas to exist right now. Ten years ago everyone was lining up to see the latest Russell Crowe movie.

Today, because of how the industry and audiences have changed, that isn't always the case. Now, if Russell Crowe and the other A-list stars were killing zombies or dating vampires in their films, perhaps even more people would go see their movies today." ■

A History of Great Monsters

The word "monster," derived from the Latin *monstrum*, means "something wonderful; a divine portent or warning." Great monsters are made great by the power and truth of their warning, according to Fritz Swanson, a lecturer in the Department of English Language and Literature. Here, he reviews a history of the modern world through the lens of five awesome monsters.

—19th Century—

FRANKENSTEIN'S MONSTER

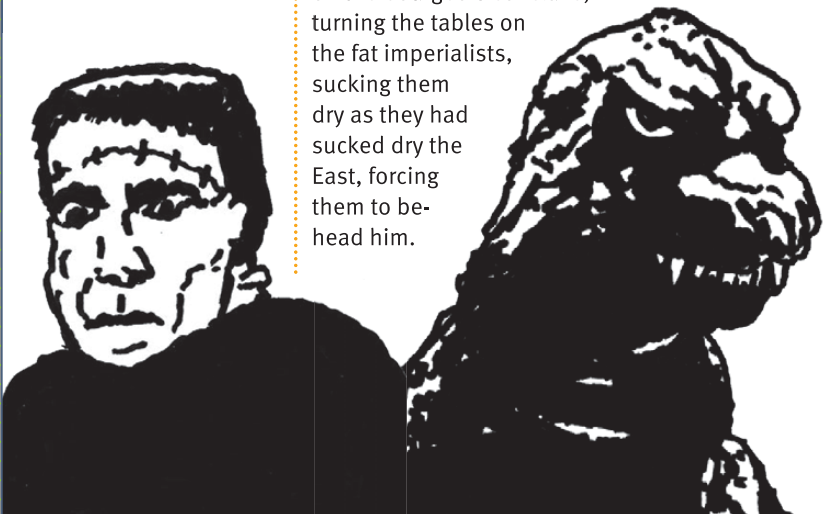
The warning: *Science will kill God.*

The Romantic era of the 1820s saw a reaction against the huge gains made in the scientific Enlightenment of the 18th century. Mary Shelley's monster, fashioned by a scientist from the limbs of the dead, captured the Romantic era's anxiety of too much change too quickly. As the monster lurched and moaned, the doctor felt God's anxiety of witnessing a corrupted and incomplete creation. When the monster kills his maker, the text captures the concern that we would all, through science, kill God.

DRACULA

The warning: *God is dead and nobility, unbound by a moral code, must be destroyed.*

The Victorian 1890s were a rational age, a capitalist age, and an imperial age. London had become the center of the economic world, and the English middle class had grown rich by draining the empire's periphery. But the nobility still clung to the social order. Imagine then, a desiccated nobleman from a crumbling castle at what had become the edge of Europe. He leverages the last of his estate to enter the London real estate market and descends on the bourgeois conclave, turning the tables on the fat imperialists, sucking them dry as they had sucked dry the East, forcing them to behead him.



—20th Century—

WOLFMAN

The warning: *An endless middle class lacks any social order; our children will rise up to destroy us.*

After World War II, the American small town had fallen away to be replaced by suburbs with no center. This was a middle class, a rational class, with no center and no periphery. The Wolfman, with his unsightly hair, uncontrollable physical change, and insatiable hunger for virgins, represented a shift from fearing God or nobility to fearing youth. The Wolfman's adolescent hormones ran amok. Post-war male adolescence howled and society trembled.

GODZILLA

The warning: *God has been eclipsed by science.*

Godzilla was birthed after World War II as Japan wrestled with enormous global forces. Unlike previous monsters, Godzilla had the capacity to affect not just towns and communities, but entire countries. It's no coincidence that a lumbering lizard breathing red lightning rose up after the atomic bomb. Dinosaurs and nuclear fusion are the great popular images of science, and Godzilla offered up a world in which humans feared and served abominations in place of any benevolent creator.

ZOMBIES

The warning: *The rising rationality that killed God and created the middle class has finally destroyed itself.*

Zombies are the monsters of the 1960s to the present. House by house, neighborhood by neighborhood, the people die and rise. They shamble. Arms outstretched, mouths agape, they encircle all. As neighbors close in, shared objects are visible: ties, lawn mowers, and clippers. But no native force could create "community" in these savage suburbs, and now, in this post-apocalyptic world, zombies have finally come back to take it all away: wives, children, hearts, eyes, and, of course, brains.

Boost Your Child's IQ

by Rebekah K. Murray

LSA PSYCHOLOGY PROFESSOR Richard Nisbett remembers having trouble with fractions in fifth grade after he missed a week of school. His parents' response: people in our family have never been good at math. While that type of thinking has often prevailed, Nisbett says we give our genes more credit than they deserve.

"It is now clear that intelligence is highly modifiable by the environment," he wrote in *Intelligence and How to Get It* (W.W. Norton & Company, 2009). "And whether a particular person's IQ—and academic achievement and occupational success—is going to be high or low depends on environmental factors that have nothing to do with genes."

There are ways you can help boost a child's IQ, and thereby improve his or her chances for academic and occupational success later in life. *LSA* magazine asked Nisbett to give us 10 tips for increasing intelligence:

1 Exercise during pregnancy.

While mothers-to-be need to be under a doctor's care, "babies born to exercising mothers have larger heads," Nisbett wrote in *Intelligence*. "We know that people with larger brains are more intelligent on average. Exercise is good for the baby, for mothers-to-be, and for everybody else."

2 Breast-feed your baby.

The data is somewhat controversial here, but breast-feeding your baby could increase your child's IQ by up to six points.

3 Talk to your child using high-level vocabulary.

"We have reason to believe that how much you talk to a child affects their intelligence," Nisbett says, adding that a firstborn child may score up to three points higher on an IQ test just because he or she was talked to more often.

4 Read to your children. Expose them to words at an early age.

Children's exposure to words varies by their parents' socio-economic status, Nisbett says. By the age of three, children of professionals will have

heard 30 million words, compared to 20 million for children of working-class parents, and 10 million for children of unemployed parents.

5 Minimize reprimands and maximize comments that will encourage your child to explore the environment.

Studies show professional parents give their three-year-old children six encouragements to every one reprimand. That's compared to two encouragements per reprimand from working-class parents, and one encouragement per every two reprimands from unemployed parents on welfare.

6 Avoid undue stress in a child's life.

"Stress can damage pathways between the limbic lobe and the prefrontal cortex," which can result in poor learning ability, Nisbett wrote in *Intelligence*. "At extremes, stress can interfere with memory capacity as well."

7 Teach your child how to categorize objects and events and to make comparisons among them.

One way to do that is by asking children questions like "What color are elephants?" Nisbett says, "Many lower-class kids have never heard such known-answer questions. When they get to school they think, 'If the teacher doesn't know the answer, then I sure don't know.'"

8 Give your child intellectually stimulating after-school and summertime activities.

"In general, kids lose some IQ and academic skills over the summer," Nisbett says, noting that the loss is greater for children with lower socio-economic status.

9 Teach self-control.

Model delayed gratification for your children. "Children with above average self-control have higher intelligence and higher academic achievement than would be expected at any given level of intelligence," Nisbett says.

10 Praise children for hard work instead of praising them for intelligence.

Instead of praising a child for being smart, praise the child for hard work, "which is under their direct control," Nisbett says. Studies show that when children are praised for hard work, they'll choose to tackle more difficult tasks. ■





Emergence

> A new idea, inspired by physics, may forever **change the lens** through which we view the world. It just has to catch on first.

by Sheryl James

IN THE WORLD OF PHYSICS, there is a new way of looking at things that is called “emergence,” and it is not easy to explain. So perhaps the best place to start is with the man at U-M most responsible, and most passionate, at least right now, for explaining it: Jim Allen, the Joachim M. Luttinger Collegiate

Professor of Physics.

Allen is one particle. Acting alone as one particle, he offers lots of examples in nature of emergence—an idea that, if accepted by the scientific community, would change the way we look at everything, from Alzheimer’s disease to group behavior to fly eyes. Example Number One: magnets.

“Picture a bunch of little tiny magnets that make up a hunk of material,” says Allen. “A magnet wants its neighbor magnets to point in the same direction. So every little magnet is saying to its neighbors, ‘You should line up with me,’ and in the end, they all make each other want to align the same way. But if you raise the temperature and make things jiggle around with thermal energy, then a couple of magnets don’t align, and if you raise the temperature even more, the whole thing suddenly comes unglued and it’s not a big magnet anymore.”

The same scenario applies to water and ice—

both H₂O, but very different from one another.

Far further up the complexity chain is the example of a lynch mob. “As individuals, people would not do such a thing, but put them together, get them upset and feeding on each other’s emotions, and you have something new,” Allen says.

Stretching the whole idea into pop culture, Allen brings up the sudden popularity of vampires—the result of millions of people reading *Twilight*, the initial, blockbusting book in a series that features a vampire as a suffering, sympathetic main character.

All of these things point to what happens when particles come together, when they aggregate, assemble, or multiply. The scientific study of these phenomena is the opposite of the practice by physicists of studying nature by taking things apart, which is called reductionism. Where reductionism does and always has ruled the day, emergence is quite new, and is in no way uniformly accepted.

But people like Allen are working on it. One-by-one, two-by-two, and if you put enough physicists together working on the same thing at the same time...exactly. You suddenly have something new—the acceptance and application of the notion of emergence.

Allen is quick to avoid the word “theory,” as in the theory of relativity. “This is a way of looking at things,” he says. “The fancy words are to say that emergence appears to be an organizing principle of nature: You build things up from simple stuff, and every time you do that, you get something new, and keep doing that through levels of complexity.”

Call it a tipping point in physics. And though it’s not yet embraced, it is gaining traction; you might say emergence has, well, emerged.

Allen is among an energetic group of people actively advancing emergence. He and other U-M faculty are members of the University of Michigan Institute for Complex Adaptive Matter (ICAM). It’s a chapter of a national organization that has sponsored various workshops on campus. Allen also has compared notes with faculty in other disciplines such as sociology and biology.

Howard Kimeldorf, Chair of LSA’s Department of Sociology, has talked with Allen about applications within his field. “Emergence,” Kimeldorf explained in one email, “has a good deal to do with sociology indeed, insofar as the discipline is premised on the view that social interaction, via

intimate networks, cohesive groups, large-scale institutions, and whole societies, adds something over and above the contributions of their constituent members. It is in that sense that we focus on ‘the social’ as being causally significant in understanding human behavior.”

In other words, applying emergence theory to human behavior could open up doors of understanding. In teams, for example, why does one group perform so much better with one coach or another? In corporate boardrooms, Allen says, “big executives intuitively understand what sparks a collection of human beings,” so why shouldn’t scientists? In government, he says, “if politicians had a picture of what, for example, racism really did, we could make better policy.” The applications seem endless.

But emergence needs more translation to the general public. That was clear when Allen joined an effort to obtain a National Science Foundation grant proposed by the San Francisco Exploratorium and ICAM at the University of California, Davis. Called the “Emergent Universe Project,” the idea was to “develop a traveling exhibition of artworks, exhibits, models, 3D virtual experiences, events, and programs to identify, explore, and instigate a dialogue around concepts of emergence in the natural world and everyday life.”

The project was not funded, Allen says, because “we haven’t put in place a clear way to communicate this to the public.” However, the group pooled their own resources to launch a “virtual museum” website at www.emergentuniverse.org, which presents examples of emergence that users can explore interactively.

Allen is patient, and he sees progress every day. He acknowledges, “It’s a threshold idea. I think once you get it, then it seems trivial.” As more people see these examples—with a little push from friendly physicists like Allen—emergence may one day be used to apply to public policy, economics, and suffering vampires. ■

In corporate boardrooms, Allen says, “Big executives intuitively understand what sparks a collection of human beings,” so why shouldn’t scientists? In government, he says, “if politicians had a picture of what, for example, racism really did, we could make better policy.”

A student with blonde hair, wearing a grey hoodie and blue jeans, is performing fire poi. They are holding a chain with both hands, and the chain is lit, creating large, glowing orange and yellow circular trails around them. The background is dark, making the fire trails stand out. The word "STUDENTS" is written in white capital letters on an orange rectangular background at the top left.

STUDENTS

Goodness, Gracious, Great Balls of Fire



ONE STUDENT WORKS TO MASTER
THE ANCIENT ART OF FIRE POI

by Katie Vloet

Martin Vloet, U-M Photo Services



CAROLYN KLARECKI HOLDS TWO CHAINS in her hands, and she dips their Kevlar-wicked ends into kerosene. It's a dark, misty night near Elbel Field, and as soon as she ignites the wicks, the LSA sophomore stands aglow, possibly the brightest object on campus in an otherwise dreary winter darkness.

And then—stand back. Klarecki starts swinging the chains, not with abandon but rather in controlled loops that create fiery windmills and corkscrews. The fire swings dangerously close to her body, but she isn't concerned. She's become very skilled at her relatively new hobby called fire poi, and she's smart enough to have worn all cotton clothing. "The worst thing you can do," she says, "is wear Polyester."

Klarecki is taking part in an art form with age-old roots, one that she describes as a "unique adrenaline rush." Poi stems from a craft created by the indigenous Maori people of New Zealand, who are said to have developed it to increase strength and flexibility, as well as to communicate through storytelling. Today and in its early days, poi could take many forms: balls attached to strings, flags, kite-like comet tails, and fire poi.

The latter is a skill that Klarecki learned last summer when she was working with the Mackinac State Historic Parks. She watched a coworker perform a routine—a friend who had learned fire poi in California, where the blazing dance is popular in the rave scene—and she was hooked.

Wisely, she didn't start with flames, but rather with much more benign tennis balls and socks.

"The first time with fire, I was really nervous. I was convinced it would set me on fire."

It didn't. Her biggest fear remains that she will start her hair on fire, though she has stopped wearing a hat when she practices because each time, she grows more confident in her skills.

On this night, her audience is just a writer and photographer. She has only performed for a large crowd one time, and that was unintentional. An editor at the *Michigan Daily*, she wrote about fire poi, and dozens of people followed her to the parking lot behind the *Daily* to watch her photo shoot.

She swings the chains in wide circles, then brings them closer and closer to her until she is spinning them within a whisper of her face. The motions are smooth and hypnotic, with two Ferris wheels of fire bracketing her one moment, then stars of fire seeming to cut through her body the next.

She's very good, but she does not consider herself an artist, and won't until "poi becomes an extension of my body." She admires the artists who "never lose track of exactly where the flames are and how the fire can be manipulated."

"Still," she wrote in her *Daily* article, "poi is there when I need to forget about class or blow off some steam. Diverting myself from the complexities of the world with an exercise involving just me and the flame—or maybe even life and death, if you're dramatic—greatly lessens the significance of my day-to-day tribulations." ■

LSA sophomore Carolyn Klarecki performs fire poi near Elbel Field.

 **LSA WIRE** > To see more photos of Klarecki performing fire poi, visit the LSA Wire at www.lsa.umich.edu/alumni/wire



Fact-finding Beyond Google

➤ **A NEW GAME** TEACHES UNDERGRADS HOW TO CONDUCT BETTER, MORE THOROUGH RESEARCH

by Fritz Swanson

GOOGLE HAS TRANSFORMED the way people search for information, making a wealth of facts and data available at the click of a button. But for professors trying to teach their students robust research techniques, Google can be as much a hindrance as a help.

“For many [students], doing research means [using] Google and nothing else,” says Karen Markey, a professor in U-M’s School of Information. “But, to be successful, students need to learn how to move beyond Google into the same resources their instructors are using.”

That means helping them access the massive private databases that collect and sort scholarly papers. The University of Michigan spends millions of dollars each year subscribing to such databases, but undergraduate students rarely use them. And professors have very few direct tools for encouraging students to research in specific ways or to use specific resources.

It’s to this end that Markey and a team of researchers have developed a web-based game called BiblioBouts. The game guides students through a series of levels where they can gain points and experience, all through conducting research.

For the first step in the game, students are posed a broad research topic and asked to find related articles on the web and collect them using an open-source bibliography tool called Zotero. With a single click, Zotero can collect the full text of an article

and accurate bibliographic information. Students then collect points, Pac-Man style, for each source they gobble up. Instead of just using Wikipedia or the *New York Times* online, they are now motivated to dive deeper into library databases that are like secret levels full of undiscovered points. All of the sources are stored together in an online database.

After the students have collected their sources, the game has them evaluate the quality of sources submitted by other students. Each source is rated by five different students; each student earns points by most closely matching the average rating of the other four students. That average rating becomes the point value of each source.

In the final round, the game plays like poker. The students are posed a specific research question, and they have to select the ten best sources to answer that question. Each source has a point value from the rating level. The “best bibliography” is scored by adding up the value of all of the sources used and, like a hand of poker, the best hand wins.

BiblioBouts represents a big change for undergrads like LSA first-year Erika George. “Usually I just use Google,” she says. “Sometimes I just hunt for quotes.” Now, she has a step-by-step model for approaching the research process.

The key feature of the game is that all of the student’s research activity is catalogued and evaluated. The game can show all of the sources the student considered, where he or she got them, how he or she evaluated them, and which ones finally ended up in his or her bibliography. As a consequence, both the professor and the student can look at the actual process of research in detail, rather than just judging a finished, perhaps flawed, product.

“Game play makes the key steps of the research process real, explicit, and deliberate to students and to teachers,” Markey says.

“It reinforced for me a methodical research process,” says Matthew Greenbaum, an LSA first-year who played the game this past fall.

Currently, Markey’s team is working with a \$1 million research grant from the Institute of Museum and Library Services with the goal of making the game widely available as a teaching tool. “Our next grant proposal will be to deploy this in high schools and prepare students before they come to college,” Markey says.

In the meantime, students like LSA sophomore Evan Ankney will continue using the game. “After doing BiblioBouts, I had a psych paper, and I used the system and it was perfect.” ■

Maize and blue and read all over.

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ALUMNI

Inextricable Indonesian

Despite being caught in two terrorist bombings in Jakarta, alumnus **James Castle** says he'll stay put in the country he loves—especially as Indonesia readies for a debut on the world stage.

by Julie Halpert

Handout/Getty Images

JAMES CASTLE ('68) was sitting at a table at the J.W. Marriott hotel in Jakarta, Indonesia, last summer, peacefully sipping his coffee and chatting with colleagues at breakfast when he felt a strong force push him backward. Suddenly, the air was a sulfuric yellow, full of grime and dirt.

"I couldn't breathe and thought I might suffocate," he says. As he desperately searched for the nearest window to escape, a spray of water from a sprinkler system brought momentary relief. "The water was the sweetest thing," he says. After five minutes that stretched for an eternity, he found the window and escaped to safety.

Castle survived the July 17, 2009, suicide bombing that killed a total of nine people. Four of them were at Castle's meeting that day. His business manager and close friend, Max Boon, who was 33 at the time, nearly died and lost both his legs.

As Chairman of Castle-Asia, a company that advises foreign investors on how to do business in Indonesia, Castle has long been a big champion of the country. So it wasn't surprising that he became the target of an attack he says was motivated by Islamic extremists who seek to drive all non-Muslims from the country and ultimately force Islamic law on all Indonesians.

Yet the July 2009 bombing followed a five-year hiatus of calm and growing prosperity in a region once dominated by extreme poverty and violent political flare-ups. Indonesia's President Suharto, who died in 2008 at the age of 86, ran the country for 32 years (from 1967 to 1998) under authoritarian rule, clamping down on anti-government Islamic activities and turning chaos and poverty into "stability and growth," luring foreign investors, Castle says. Though Suharto "exploited crony

capitalism," Castle says, "there can be no doubt that he left Indonesia healthier and wealthier," when he was forced from office in 1998 in the wake of the Asian financial crisis that devastated the country's economy.

Indonesia's current President, Susilo Bambang Yudhoyono, presides over what is now the world's fourth most populous country, the third largest

democracy, and the nation with the largest Muslim population. That certainly wasn't the case when Castle moved here three decades ago, so he's been able to witness these dramatic changes firsthand. And even with the recent terrorist attack, Castle remains bullish on Indonesia's future. He thinks the country has great potential to emerge as a world leader.

Castle would know, since he's lived in Indonesia since 1977 and has studied the region extensively as a scholar and businessman.

After graduating from the College of LSA with a double major in East Asian history and education in 1968, Castle joined the Peace Corps, among the first groups to head to Mindanao in the Philippines

in 1970. "I really grew up in the Peace Corps and loved every minute of it," he says.

Following that experience, he decided to get his master's and became a visiting researcher at Gadjah Mada University in Yogyakarta, 275 miles east of Jakarta. "The moment I got to Indonesia, I knew I was someplace different."

In the predominantly Catholic Philippines, many spoke English and drank American products like Coca-Cola. But Islamic Indonesia was shielded from American influences. Fascinated with learning more about this country, Castle returned to the United States and entered a Ph.D. program in Southeast Asian history at Cornell

Castle was part of a July 17, 2009, suicide bombing that killed a total of nine people. Four of them were at Castle's meeting that day. His business manager and close friend, Max Boon, who was 33 at the time, nearly died and lost both his legs.

A bomb blast on July 17, 2009, at the J.W. Marriott in Jakarta, Indonesia, killed nine people, including two suicide bombers. Alumnus James Castle was in the hotel breakfasting with colleagues at the time of the explosion.



Indonesia at a Glance

- Indonesia comprises an archipelago—in this case a series of more than 17,000 islands, more than 6,000 of which are inhabited—in Southeast Asia.
- With 240,271,522 people, Indonesia is the fourth most populous country in the world behind China, India, and the United States.
- More than 86 percent of Indonesia's population is Muslim, representing the largest number of Muslims anywhere in the world.
- The Dutch began colonizing Indonesia in the early 17th century. Japan occupied it briefly from 1942 to 1945. Indonesia's first free parliamentary election took place in 1999.
- Slightly more than 17 percent of Indonesia's population lives below the poverty line. In the United States, it's 12 percent; in China it's just over two percent.
- Indonesia has more than 50,000 miles of coastline and is surrounded by tropical seas that contribute to the country's high level of biodiversity.

Source: The C.I.A. World Factbook

University, specializing in Indonesian studies. He eventually returned to Indonesia as a Fulbright doctoral dissertation research scholar, ultimately dropping out of the Ph.D. program and never leaving the country. As his knowledge of Indonesia's business practices grew, he decided to start his own company, which eventually led to the formation of CastleAsia in 1993.

As he delivered a lecture to U-M students during a visit to Ann Arbor this past October, his passion for his adopted homeland was apparent. Indonesia, he said, has made great strides, but it is experiencing many of the growing pains associated with developing countries. "It is on the frontlines of all the great global issues, including terror, global warming, health care, and education," he said to the students.

Outside the classroom, Castle acknowledges that Indonesia still has more hurdles to overcome before it can emerge as a world leader, one of which concerns perception. With the exception of a few leaders, Castle says much of the "domestic body politic" still sees the country as a victim of colonial imperialism and as a poor, entitled recipient of global aid, rather than a nation that can and should contribute to international

policy and financial terms—essential elements of leadership. The current government, he says, is trying to change these attitudes, but it needs to strike a delicate balance so it won't lose support from the general population.

He points out what few people understand about Indonesia, especially in the West: that the population is increasingly well-educated, and the democratic regime is allowing increased opportunities for the average Indonesian to participate both politically and economically. Castle calls it "durable political stability that is essential to growth." He also says that one of Suharto's legacies is prudent management of the national budget by highly trained professionals who continue to play a role in the current administration and lend a key financial stability often missing in developing countries. And Indonesia's recent inclusion in the G-20 group of countries also has given it much more confidence and standing on the global stage. All of these factors have allowed the economy to grow steadily, he says.

These promising influences serve to keep Castle loyal to Indonesia, despite the recent bombing, which he doesn't view as a return to terror. Even a separate near miss with a bomb in 2003, when he and his wife were breakfasting at the same Marriott, can't sway him. He says that the current regime has successfully suppressed many violent extremists, and that the attacks don't indicate a trend. "More people get killed in traffic accidents," he says.

Just as New York residents didn't flee the city after September 11, 2001, he says he has no plans to leave Indonesia. Though the man suspected in both bombings at the Marriott, Noordin Top, was killed in a shootout on September 17, 2009, Castle doesn't think that will automatically stop all the attacks, as plenty of sympathizers remain. But he smiles and says that in daily life he's more tense driving on the highway I-94 in Michigan than he is walking down the streets of Jakarta.

Though the prospect of terror "is a real situation, Indonesia is my whole life," he says. His plan has always been, and will continue to be, to stick around and to help the country work to realize its full potential. ■

Fashion Statement

MODEL ALEXANDRA BOOS WORKS TO HELP CANCER VICTIMS HEAL INSIDE AND OUT

by Kristy Demas

AFTER GRADUATING IN 1989 with a psychology degree, Alexandra Boos left Ann Arbor for the Big Apple to pursue a career in full-figured modeling. She says she was “lucky to be signed to the Ford Agency,” but that she quickly learned “plus-sized models were treated as second-class citizens” in the industry.

“Ours were the first shots of the day and we did our own hair and make-up,” says Boos. “After our photos were done, we’d see the regular-size models being treated like queens having their make-up and hair done. They’d be paid double what we made.”

The disparity was hurtful to Boos, who says she realized that in the midst of talking about hair, makeup, and dressing to flatter your figure, she was “espousing half-truths.”

Boos explains on her website, “There is value in those beauty secrets but there is so much more that the beauty and fashion industries aren’t addressing, such as the notion that beauty is, in large part, about self acceptance.”

Boos began speaking out about the unrealistic body expectations in the media, volunteering as a motivational speaker in schools, and developing her own program, A Model’s Recipe for Happiness, to encourage people to develop their “authentic selves.”

Boos’ mission to help people feel beautiful—no matter what size, what shape, or what they’ve been through—was crystallized when her mother was diagnosed with stage-four breast cancer six years ago.

After losing much of her hair through chemo, Boos’ mother needed a wig—a cost the insurance company wouldn’t cover. “It was a wake-up call when we saw how much the wig cost. We’re talking \$1,200.”

When Boos discovered that most insurance policies don’t cover women’s post-cancer cosmetic items including wigs and skin care products for those undergoing radiation, she decided to help raise the money herself by founding the Luminous Breast Cancer Foundation. In its mission statement, Luminous says its goal is to “provide products, services, and educational programs for

the un-insured and under-insured breast cancer patient in order [for her] to look and feel like her pre-cancer self—[or] even better.”

“These ‘extras’ might seem frivolous but they can make a real difference to someone dealing with a life-threatening disease or disfigurement,” Boos says. “One woman I know couldn’t afford inserts for her mastectomy bra so she filled the cups with birdseed. Her dog smelled the seed and ran off with the bra in his mouth. We had to laugh, but we laughed until we cried.”

Today, Boos uses her connections in the fashion industry to help Luminous achieve its goals. “Through my contacts as a model and with help from my friends . . . I have been able to help get women wigs, makeup, extra bras, whatever they can’t afford without insurance.”

The stories of the women who need her help continue to motivate her, and Boos’ goal is to see Luminous expand. “I hope one day we’re an organization big enough so that I’ll never have to turn a woman in need away.” ■

Boos says most insurance policies don’t cover women’s post-cancer cosmetic items.



Into the Madding Crowd

➤ **ROBERT WOLFE FINDS BUSINESS SUCCESS THROUGH CROWD-SOURCING: CONVERSING AND INTERACTING WITH CUSTOMERS ON A MASSIVE SCALE**

by Evan Hansen

The Moosejaw catalog, filled with quirky captions and photos, is one of the tools Moosejaw founder Robert Wolfe has used to build a massive following. Today, Wolfe is expanding his community-based, participation-driven business model to launch the nonprofit CrowdRise with the goal of helping service or charity projects raise money.

FLIP TO THE CENTER OF A MOOSEJAW CATALOG, and you're as likely to find a joke about not wearing pants as you are the specifications of a North Face backpack. And you'll probably be able to earn more reward points at the outdoor outfitter by sending in a picture of yourself and your significant other sharing a kiss in Moosejaw gear than by buying an aluminum water bottle.

Why?

Because Robert Wolfe ('92), who co-founded Moosejaw after leaving U-M with a degree in political science, wanted his customers to participate and have fun doing it.

That participation now carries a name: crowd-sourcing. It's the term given by the Internet

cognoscente to the notion of using the masses to create content, ideas, and fervor. And it's been the backbone of Wolfe's work since he left Michigan—putting him at the forefront of a movement that existed before Facebook, Twitter, and the blogosphere.

The Internet created new opportunities for Wolfe to build on the welcoming, interactive, occasionally wild environment in his Moosejaw stores, as well as customer appetite for the irreverent brand of humor he brought to the Moosejaw product catalogs. Wolfe asked, "How do we create loyalty in a place where the best price is only a click away?"

The answer, Wolfe found, was getting people to participate in the frenzy he'd created. To own a piece of the fun. As Wolfe says, "If a competitor sold a jacket for twenty bucks less than us, I wouldn't want even a friend to buy it from us. But if it's the same price . . . we want people to buy because they have an affinity."

And the best way to build that affinity was through online interaction. Moosejaw's catalog covers, for example, became subject to emailed customer polls. Reward points were given to people who were the first to answer a question about *The 40 Year Old Virgin*. In other words, every product email came bundled with something fun.

In 2007, Wolfe sold Moosejaw and stepped down

as the company's head in order to begin a new endeavor called CrowdRise. The new company was to help just about anyone build and manage "super compelling online fundraising campaigns" through — this will sound familiar to Moosejaw customers — a community-based, participation-driven website.

Here's how it works: CrowdRise users create web pages for their service or charity projects. They use those pages to solicit donations, recruit "teammates," and increase visibility through a vote of the best causes. As a user gets votes and raises money, they earn points. Points translate to prizes. It's easy; it's interactive; and it's fun. It's crowdsourcing.

While Wolfe's crowdsourcing and community concepts had already proven successful at Moosejaw, he further honed the principles behind CrowdRise on an unexpected charity project.

In the spring of 2009, during the planning stages for CrowdRise, Wolfe's efforts to find a celebrity to help publicize his new enterprise led him to Hollywood producer Shauna Robertson. She happened to be the girlfriend and charity partner of actor Edward Norton, who was in the midst of trying to fundraise for the Maasai Wilderness Conservation Trust by running the New York City marathon. While CrowdRise itself was still coming together, Wolfe's fundraising model seemed like a good fit for Robertson and Norton's efforts, and before he knew it, Wolfe and his brother were generating internet fundraising buzz for the star of *American History X* and *Fight Club*.

They created a community, giving away Apple products for donations and constantly thanking contributors by name over Twitter. In the end, using the ideas that would serve as the backbone of CrowdRise, the group raised more than \$1,000,000 for Norton's cause, much of it through small online donations.

"You have to create a relationship and a conversation," Wolfe notes, "They're buzzwords, but they're buzzwords because they're true."

Despite the success of both Moosejaw and his fundraising work with Edward Norton, Wolfe is characteristically self-deprecating about the launch of CrowdRise, which went online in February 2010, "we'll probably be out of business in a year." But the site has all the interactive elements one would expect of his approach, and it's easy to see how the site will help people fundraise for their own charity or volunteer efforts, whether it's building a local skate park or raising funds for cancer research.

His hope for the new venture is to utilize the power of crowdsourcing and the ease of making small donations online to create a way for anyone to fundraise successfully. But Wolfe's ultimate dream for CrowdRise is a bit bigger, "If we're super impactful, it will be that people don't look at volunteerism or fundraising as something you do once or twice a year. It's part of your life.

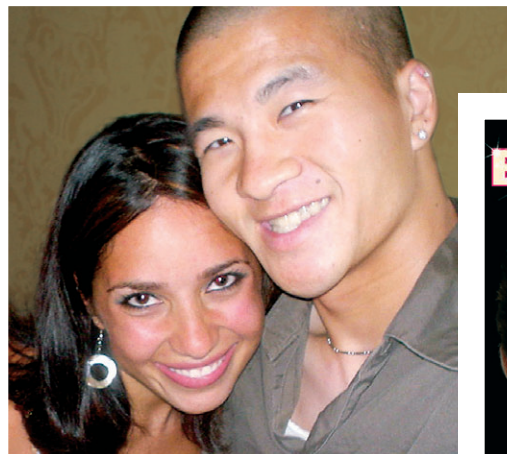
And it's fun." ■

Supporters of the Ann Arbor Skate Park recently used CrowdRise to help raise money during their Grinds of March event, which included a skateboarding contest (middle). And actor Edward Norton (far right, middle) put CrowdRise principles to work when he ran the New York City Marathon to help raise more than \$1 million for the Maasai Wilderness Conservation Trust. With Norton are Maasai marathon runners Parashi Mtanin (left) and Martin Sunte (right).



(Middle) © Wes Fabian Photography 2010;
(right) The Maasai Wilderness Conservation Trust





An Author, an Agent, an Alliance

TWO WOLVERINES JOIN FORCES IN THE LITERARY WORLD

by Lara Zielin

BY ALL ACCOUNTS, their paths should have crossed sooner. Lilly Ghahremani ('99, J.D. '02, M.B.A. '09) studied at Rendez-Vous Café on South University every day. Jon Yang ('00) worked behind the counter slinging espresso, shift after shift. But they never met.

It wasn't until 2003 that the two were introduced by a mutual friend while living in San Diego. The friendship burgeoned when they discovered a mutual love of literature. "Lilly devours books like me," Yang says. "We started a book club together."

The friendship soon became a relationship—but not a romantic one. Rather, Ghahremani became Yang's literary agent.

"Jon told me about this blog he was writing," Ghahremani says, "so I went online and started reading it. And the whole time I thought, 'this guy is gifted, he's hilarious.'"

Ghahremani had just started her own agency in downtown San Diego, Full Circle Literary. She was acquiring titles and thought Yang had a jump-off-the-page voice and was a natural author. The only problem was, he didn't have a book she could sell.

Not that it stopped her.

At a publishing conference, she struck up a conversation with a contact at Rough Guides, a travel guidebook and reference publisher, and pitched him a book about blogging that "a client" was writing. Rough Guides was immediately interested.

"Then I had to call Jon and tell him I'd just pitched a book he wasn't writing," Ghahremani

says, laughing. "But he was all for it."

The Rough Guide to Blogging was published in 2006.

But what Ghahremani did next was about to challenge Yang even more.

"I have a twin sister and I'd grown up doing everything my twin had done," Yang says. "I shopped, I read *Sweet Valley High* books, I flipped through her copies of *Us Weekly*." Knowing that Yang understood how to get into the mind of a girl, Ghahremani asked him to get inside the mind of a sixteen-year-old girl by writing a young-adult novel.

The result was *Exclusively Chloe*, published by Penguin/Speak in 2009. In the novel, the protagonist Chloe-Grace is the adopted daughter of A-list celebrities, and she gets a "make under" to see what life is like in the so-called real world. The light-sounding novel has plenty of meat in its treatment of adoption and parent/child relationships.

And on the dedication page are six simple words: "To Lilly, my agent, my life."

Ghahremani says she was shocked when she saw the words. "It was the greatest moment of my career."

"I trust her one hundred percent," Yang says of Ghahremani. "She's believed in me from the beginning."

Exclusively Chloe was part of a two-book deal that Ghahremani negotiated with Penguin/Speak. Yang's second book, a companion piece to the Chloe story, will hit bookshelves in 2011.

After that, she's not sure what will come next. But she knows one thing. "I will definitely be involved in Jon's career for a long time."

Yang agrees. "She's just awesome. I don't know what I'd do without her." ■

While students in Ann Arbor, Lilly Ghahremani and Jon Yang crossed paths numerous times at Rendez-Vous Café but they never met. It wasn't until they'd both moved to San Diego that a mutual friend introduced them. Within months of their first meeting, Ghahremani had become Yang's literary agent.



We are listening.

LSA's College Connection
Coordinator Elizabeth Williams just
heard from alumnus Neel Hajra.

Neel Hajra ('95)

C.E.O. of the NEW Center, a nonprofit organization that helps other nonprofits with governance and infrastructure

DEGREES: Physics and Law

LSA EXPERIENCES: Took a wealth of English courses even as a physics major; was part of the marching, symphony, and concert bands; was elected president of his service fraternity



TO REACH YOU WE HAVE: traveled 120 stops on the D.C. Metro, the New York Subway, the Chicago El, and the London Underground; driven 9,500 miles on Michigan freeways; consumed 485 cups of coffee; stepped foot inside offices, conference rooms, laboratories, classrooms, hospitals, coffee shops, and cafes; visited the CNN Tower, the Renaissance Center, the New York Times Building, the John Hancock Tower, Rockefeller Center, the U.S. Capitol Building, National Geographic, and the Detroit Institute of Art

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The Reluctant Historian

A NOVELIST FINDS HERSELF FALLING IN LOVE WITH
THE PAST AS SHE DIGS INTO THE LIFE OF *LITTLE*
WOMEN AUTHOR **LOUISA MAY ALCOTT**

by Lara Zielin

IT WAS NOVEMBER of 2007 and Kelly O'Connor McNeas '02 had just moved to Canada. It was cold. And dark most of the time. Having recently quit her job as a seventh-grade English teacher to follow her husband's job prospects to Ontario, McNeas found herself largely alone, watching the snow fall.

This is the perfect time to write a book, she thought.

McNeas put pen to paper, envisioning a novel about long-lost letters that would reveal a romantic relationship between *Little Women* author Louisa May Alcott and a fictional character named Joseph Singer. "Originally it was going to be a contemporary novel about an ancestor of Joseph who finds the letters, with only short flashbacks [in the text] to 1855," McNeas says.

But the more McNeas dug into the past, the more she found she enjoyed it. "As I researched this book, I fell in love with history. I loved the research about the way the characters would have lived, how they would have cooked, what they would have worn."

McNeas scrapped the contemporary narrative to pen historical fiction focusing on the summer of 1855 when a young, plucky Alcott moves to Walpole, New Hampshire, with her parents and sisters. Fans of *Little Women* know that Alcott drew heavily from her personal life to write her breakout novel—many aspects of Alcott herself are reflected in the character of Jo—but the character of Laurie remains a mystery. Was he, too, sketched from a real-life person and, if so, whom?

McNeas refocused her book on exactly that question. "I based it in the summer of 1855 because not much is known about that time in Alcott's life," McNeas says.

McNeas's novel, *The Lost Summer of Louisa May Alcott* (Amy Einhorn Books/Putnam, 2010), imagines romance between Alcott and the character Joseph Singer, on whom Alcott bases Laurie in *Little Women*.

But going back in time and piecing together a romance—even an imagined one—was no small task. McNeas had to sift through overwhelming amounts of information on Alcott's life and historical New England to understand both day-to-day activities in the Alcott household and Alcott herself.

"There is so much information out there," McNeas says, "but I found I enjoyed the hunt. I'd be writing along and would find myself wondering, 'if [Alcott] is staying up late reading, was she reading

by oil lamp or candlelight?'"

McNeas read biographies of Alcott, which draw on her journals and letters, to piece together her facts. In the case of the reading light, McNeas learned that the family couldn't afford whale oil for their lamps, which means they would have made their own candles. McNeas then headed off to the library to learn exactly how, and the result makes its way seamlessly into her novel:

Anna heated a kettle of sheep tallow on the stove until the acrid smell of burning fat engulfed the kitchen.

"Did you know," Anna began, stirring the burping sludge with a flat piece of wood reserved for the task, "that the brick house at the corner of River Road and Westminster Street belongs to the Sutton family? The one with two chimneys?"

Louisa worked a dull knife through the cotton cord, cutting equal lengths for the wicks. "Oh, that house is lovely."

McNeas, who wrote for the *Michigan Daily*, graduated from U-M in 2002. She went on to DePaul University for a master's in education and says being challenged academically at U-M helped her gain the confidence to write her novel. "My professors at U-M pushed me to do what I was capable of doing. I was intimidated, but in a good way."

McNeas worked in and around books for years, first as an editorial assistant in a New York publishing house and then as an English teacher. She knew she wanted to write a novel someday, but it wasn't until the perfect storm of being jobless in Canada and reading a fascinating Alcott biography "created a space where I could try it."

McNeas says that while her history might not be pitch-perfect all the way through the book—"there are points where you can't pin down the details, you have to use your common sense"—she loves the voice she's given to Louisa May Alcott.

"There were so many things about her that were surprising," McNeas says. "She was my inspiration." ■

LSA WIRE ▶ To read an excerpt of *The Lost Summer* and to watch the book trailer, visit the LSA Wire at www.lsa.umich.edu/alumni/wire



EARLY REVIEWS

LSA alumna and author of *The Wednesday Sisters*, Meg Waite Clayton ('81, J.D. '84), was one of the first to read and review *The Lost Summer of Louisa May Alcott*. Her full review text appears on Amazon.com, and includes the following: "Mixing fact drawn from *Little Women* author Louisa May Alcott's letters and journals with a longing to understand how Alcott—who is thought never to have been in love—could have written so movingly about it, Kelly O'Connor McNeas delivers a wonderfully imagined, lively novel of first love."



> King of the Dogs

by Lara Zielin

ZOG'S DOGS, a San Francisco-based hotdog enterprise, lists menu items you won't find anywhere else. Like the "Moral Conundrum"—a veggie hotdog wrapped in bacon. Or the "Prop 8"—two hotdogs on one bun, with the tagline, "the more love the better, the more hot dogs the better."

Founded by LSA graduate Jesse Herzog ('03), Zog's Dogs began with the goal of giving customers amazing hotdogs at reasonable prices, along with great customer service. "It's about simple pleasures," says Herzog, who is a real estate developer by day and started Zog's Dogs as a side project. "Also I really wanted to create interesting, compelling hotdogs."

The dogs are high-end but far from haute cuisine. "Our hotdogs cost the same as the cheapest lunches in town, but we're locally owned and our food is local," Herzog says. Zog's Dogs uses meat provided by three different Bay Area-based sausage distributors, all of which are family-owned.

"Food in San Francisco can take itself too seriously," Herzog says. "This is something more lighthearted."

This past October, for example, when the Bay Bridge was in disrepair, Herzog and his team offered a free "Bay Bridge" hotdog to anyone who showed them a public transportation pass. Inside the bun, all the hotdogs were broken in half (see photo, left).

The hotdog affection may be genetic. Herzog's father, Richard Herzog ('67, M.D. '71), worked the

1964 World's Fair in New York over a hotdog grill. "He had around 400 dogs going at once," Herzog says.

And it was his father who ultimately gave Herzog the advice that led to Zog's Dogs.

"One day you will take this love [of hotdogs] and you will share it with the world," Richard Herzog told his young son after a seagull stole his hotdog during a visit to the San Francisco Zoo. "And this will make you happy." At least that's what the Zog's Dogs website quotes him as saying.

"It's all true," insists Herzog. "Lots of parents have told me their kids have the same experience with gulls at the zoo."

Even if it's not, it makes for a good story—and a good hotdog. ■



SPECIALTY ZOG'S DOGS

The Bobo

Tasty organic sausage with roasted garlic and herbs on a wheat bun. For the bourgeois bohemians.

The Moral Conundrum

Veggie dog wrapped in bacon. Because sometimes life is complicated.

The Mexico

Zog Dog wrapped in bacon with grilled onions, jalapeños, and mayo.

The Prop 8 Dog

Two Zog Dogs on one bun. The more love the better—the more hot dogs the better.



(Top) D. Sharon Pruitt/Pink Sherbet Photography/Flickr/Getty Images; (left and bottom) Courtesy of Jesse Herzog



Require

It takes more than credits to graduate.

In these challenging economic times, growing numbers of students require financial assistance. Scholarships have made the difference for sophomore Collette Rothe, who is studying [global environmental issues](#). She hopes in the future to help establish long-term sustainability initiatives in developing nations. "Not only did the scholarships I received give me the ability to attend Michigan, they have opened the door to countless opportuni-

ties inside and outside the classroom," Rothe says. "Michigan has impacted the person I am today and the person I will become."

Please support Collette and other students who are struggling to meet the financial requirements for a college education. Use the enclosed envelope to make a gift to the LSA Fund today.

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A person with dark hair, seen from behind, is looking at a large, detailed map spread out on a table. The map shows a complex network of streets and urban planning. The person is wearing a white t-shirt. The background is a warm, golden-brown color.

CAMPUS

A Simple Plan



NEIL GREENBERG'S TRANSPORTATION
INSPIRATION MAKES A DIFFERENCE TO
AN INDUSTRY AND TO A CAMPUS

by Fritz Swanson

AT STATE AND MADISON, students holding blue tickets form an ad-hoc line starting at a signpost that has a laminated bus schedule zip-tied to it. They clutch at blankets and pillows.

Neil Greenberg ('05) is at the front of the line, pointing at the schedule. "You see this," he says, "3252. That's the bus. This bus is coming here, 12:15."

The impending bus is part of a system Greenberg founded called airBus, a low-cost bus service that runs from the University of Michigan's Ann Arbor campus to Detroit Metro Airport before and after major University breaks. By the end of 2007, airBus had carried 34,000 passengers. For the 2007 academic year, airBus spent \$85,966.20 on its service, and took in \$89,668 in revenue from rides.

Greenberg started this service from his dorm room in 2000.

"At the time there was a company called Commuter Express," he explains, "and they just didn't do a very good job. Here's this huge university, 39,000 students, a lot of them out of state, a lot international, with a major airport, you know, 25 miles away, and there's no way to get between them?"

And so, with his friend Greg Graves ('04), Greenberg says they set out to "start this little business venture to take people to the airport cheap. We called it DTW Bus."

The endeavor was something of a flop, at least at first. "We provided a few hundred rides, got a lot of interest, but did not succeed financially," Greenberg says. "I spent the rest of that year working off my debt."

But by then the Michigan Student Assembly (MSA), had become interested in providing airport service and approached Greenberg for help. AirBus started in 2002; this is its eighth season.

Today, Greenberg, who has been out of college for five years, works to help manage airBus as well

as schedule routes for the city's bus system, the Ann Arbor Transportation Authority.

He's a travel aficionado of sorts. He collects maps, he draws out maps of imaginary cities, he studies travel (see sidebar, p. 62). He loves imagining travel, picturing people landing in different cities, driving different roads, snaking their way from here to there. Whenever Greenberg hears the name of a destination, he imagines the map of the city. "And just like that: the street names—they're just..." he pauses, trying to capture the feeling. "They just give such a distinct flavor to that place and I could just—I mean, cheesy though this may sound, I can really, like, take myself there, just by looking at a map of it. It's very, very vivid."

If it sounds a little philosophical, so is Greenberg. In fact, the genesis for airBus wasn't practical so much as it was inspired. The meaning of airBus became clear to him in a History of the University of Michigan class his junior year.

"We took a week where we just focused on campus architecture. Marion LeRoy Burton

was a president of the University in the 1920s, and he was responsible for the buildings that we take classes in today. I just remember one specific sentence that the professor said. 'This, today, is largely Burton's campus.'

"I was like, wow. Now, here is a guy who was making these decisions 80 years ago and this today is largely his campus. Now who was he? He wasn't a god, he was just a guy. He was just someone who said 'Here is what I want to do, here is how I want to do it.'"

"That got me to see this whole place, this whole campus. Whether we're talking buildings or student groups or transit to the airport. This campus is whatever we make of it."

Greenberg says he was challenged to think about "just how easy it was to contribute to the community."

It seems simple,
but when 17 per-
cent of Detroit
Metro flights
are delayed
and 16.5 mil-
lion passengers
pass through
DTW every year,
Greenberg's
commitment to
making things
easier makes
a difference.

Neil Greenberg used his love of travel routes and maps to found airBus, a service that takes U-M students to and from the airport before and after major University breaks.



Map Man

NEIL GREENBERG AND THE ART OF DRAWING CITIES

A U-M lecturer and author of our airBus story, Fritz Swanson first met Neil Greenberg in 2002. Swanson was teaching an English class; Greenberg was a student.

Swanson noticed that Greenberg doodled in class. A lot. Swanson recounted how he found out what was behind the pencil lines in a 2007 *Esopus* magazine article.

One day I saw him writing little names along the lines. Street names. After some of us pressed him, he finally admitted that there was only one subject for his doodles: Every scrap of paper Neil got a hold of eventually became a map—he was compelled to trace them out at all times.

The *Esopus* article detailed the lengths to which Greenberg would go to draw maps and document transportation schedules. Not of real cities, but rather cities that he made up, that he fashioned from his imagination.

The maps are finely nuanced, and every detail is recorded. It's like looking at a Google Maps zoom-in, only everything is hand-drawn, not digital.

Greenberg's first city, Mcity, was sketched during the bulk of his high school years on a 300-foot-long roll of paper. Then there was Turner County, which started out as a transit map but evolved—first into a small town, then into a city. After that came Redd's County, Stone Shore, and a place called Fake Omaha.

In the article, Greenberg explains how maps are more to him than just lines and grids:

Maps are a form of literature, almost. I mean, I don't do a lot of reading for pleasure, and my dad, who is an avid reader, always asks, "Why don't you read? It's a great way to use your imagination. You read about what these people are doing in this place, whether it's fake or real, and it takes you there." And my answer to him is, "I draw a map." Or I look at one.

Granted, airBus might not be saving lives on a day-to-day basis, but it is the result of one person saying, "I want things to be better." And in this day and age, when travel is inconvenient and largely a headache, Greenberg is working to make it logical and pleasurable.

For example, when Greenberg checks in on airBus operations, watching passengers board a bus, he asks each of them where they are going and what airline they are flying on. He does it in part to satisfy his own curiosity about people's destinations, but it's also a customer-centric way to make things function better.

"I was helping a driver a few years ago load up the bus and he was asking people what airlines they were flying, and I asked him about it. He told me that he liked to load the baggage up according to what terminal the rider was going to so that it would be easier to unload." Greenberg grins and slaps his forehead. "Isn't that a great idea? We require it now. All of the drivers have to ask, and have to load this way."

It seems simple, but when 17 percent of Detroit Metro flights are delayed and 16.5 million passengers pass through DTW every year, Greenberg's commitment to making things easier makes a difference.

It happens again while Greenberg is overseeing the students boarding the bus at State and Madison.

A student timidly approaches. "Are you in charge?"

Greenberg smiles. "Yes. What can I do for you?"

She shows him her yellow ticket. Everyone else's is blue. "I'm on the next bus, but can I just get on this one? I got here early."

He checks to see how many people are on the bus, and once things have been sorted out, the girl happily ascends the steps with the rest of the boarding passengers.

"We learned a few years ago to always schedule extra seats on the bus to accommodate early riders," Greenberg says.

His satisfaction with airBus and in helping customers is abundantly clear. "What I worked on is directly touching someone's life. Not in a way that they will remember 20 years from now, or even see right now, but it's real." ■

🔗 **LSA WIRE** ➤ To learn more about Greenberg's maps and read the full text of the *Esopus* article, visit the LSA Wire at www.lsa.umich.edu/alumni/wire

(campusnews)

New U-M Athletic Director



David Brandon (U-M '74) is the new Director of U-M's Department of Intercollegiate Athletics. Brandon, 57, was most recently the Chairman and Chief Executive Officer of Ann Arbor-based Domino's Pizza Inc. He also played football under Coach Bo Schembechler and has served as a U-M regent. Former Athletic Director Bill Martin is serving as a special adviser to President Coleman until his retirement in September.



FEWER TEEN SMOKERS

Teen smoking reached its recent peak levels in 1996 and 1997, was followed by a sharp decline for about six years, and has been on a more gradual decline ever since, according to U-M's latest Monitoring the Future study of the nation's young people. Among eighth-grade students, the proportion saying that they smoked any cigarettes in the month prior to the survey has dropped by two-thirds (from 21 percent in 1996 to seven percent by 2009). Among tenth-grade students, the decline over the same 13-year interval was more than one-half (down from 30 to 13 percent). Among twelfth-grade students, there has been a decline of almost one-half (from 37 to 20 percent).

Monitoring the Future is an ongoing study of the behaviors, attitudes, and values of American secondary school students, college students, and young adults. Surveys have been carried out each year since 1975 by the University of Michigan Survey Research Center.

More International Students

U-M attracted 5,790 international students to the state in 2008–09, the sixth highest total of any U.S. university, according to a recent report by the Institute of International Education. This increase in international enrollments is the largest percentage increase since 1980–81, and marks the third consecutive year of significant growth.

Skilled immigrants are major job and wealth creators: More than 33 percent of Michigan high-tech startup companies were begun by foreign-born founders between 1995 and 2005 and most of those immigrants were lured to the state by its research universities, according to a Duke University study.



iPhones As Musical Instruments

iPhones are being used as musical instruments in the U-M course Building a Mobile Phone Ensemble, which is believed to be the first such course in the world.

The class demands tech-savvy creativity. "In order to come up with a creative piece you have to engage with the technology, but in order to make technology interesting, you also have to engage with the musicality. We're trying to teach both," says Georg Essl, U-M assistant professor of engineering, computer science, and music.



Disease-fighting Ultrasound Technology

U-M inventors have secured \$11 million in financing to launch Ann Arbor-based HistoSonics Inc., which will develop a novel medical device that uses tightly focused ultrasound pulses to treat prostate disease.

"It's probably going to revolutionize the way ultrasound therapy is

done," says U-M engineering professor Charles Cain. For many years, Cain's research has focused on therapeutic uses of high-intensity ultrasound, primarily thermal applications using heat to destroy diseased tissues.



Last year, 293 U.S. newspapers and 1,126 magazines folded, according to a report from Vocus Media Research. **David Weir ('69)**, journalist and co-founder of the Center for Investigative Reporting, weighs in with his take on the changing face of the media, and what will happen to the in-depth stories that help keep companies, politicians, and society accountable.

Keeping Investigative Journalism Alive

by David Weir

INVESTIGATIVE REPORTING has always been a high-risk activity for media companies, even in the best of times. It requires considerably more resources than does everyday news reporting, in the form of time,

money, and fact-checking. In addition, lawyers often have to get involved, as the risk of libel suits or other legal complications is quite high.

But into the muckraking void left by conventional media, a new push by nonprofit organizations (NPO) seems to be keeping the spirit and the practice of investigative reporting alive and well. The country's oldest and most successful investigative NPO is the Center for Investigative Reporting (CIR), headquartered in Berkeley, California, not far from the sprawling campus of the University of California.

Over the past year, CIR has expanded beyond its traditional focus on national and international issues to open a well-funded statewide initiative, California Watch, which has already published a series of hard-hitting reports.

In November 2009, for example, California Watch ran an in-depth report that found that class sizes in K-3 grades in California are reverting in some districts to levels not seen for more than a decade, despite more than \$20 billion spent on a pro-

gram to reduce class size. The story was distributed throughout California in five languages, via a range of media platforms on the web, in broadcast, and through print outlets.

This multimedia, multilingual model of distribution is a conscious part of CIR's plan to reach a much broader audience in a state like California, which, like most of the country, is becoming much more diverse and multicultural than in years past.

But CIR is hardly the only NPO producing quality investigative journalism in the new media landscape.

On the East Coast, ProPublica has emerged in recent years to produce big stories that major daily newspapers like the *New York Times* now publish on a regular basis.

This past December, ProPublica joined forces with the *New Orleans Times-Picayune* and PBS's *Frontline* to expose a series of questionable shootings, including four killings, of civilians by police in the days after Hurricane Katrina struck in 2005.

Other NPOs have emerged in local markets around the country in an attempt to keep in-depth journalism alive in the wake of local media bankruptcies or cutbacks. One of the best examples of this is the Voice of San Diego, an online media outlet that has produced a series of impressive local exposés.

There also is a strong, established tradition of nonprofit journalism, including investigative work, at such institutions as National Public Radio, *The Nation*, and *Mother Jones*. These organizations have produced many award-winning reports over the years, and, with the support of foundations and

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individuals, continue doing so today.

Last August, for example, *Mother Jones* published a piece by Shane Bauer, a journalist who was one of the three American hikers detained in Iran after accidentally crossing the border while hiking in Kurdistan. Bauer's article, "The Sheikh Down," exposed controversial aspects of the U.S. government's spending in Iraq, including millions in reconstruction funding, that have been used to award inflated contracts to Sunni sheikhs to keep them and their followers from taking up arms against the United States and its allies.

The Nation magazine has been the leading watchdog publication exposing scandals involving the U.S. military contractor Blackwater. In November 2009, reporter Jeremy Scahill reported that the Joint Special Operations Command was contracting out sensitive drone-strike spotting and terrorist-snatch operations to Blackwater.

Among many in-depth NPR stories last year was a continuing series with CIR under the rubric of "Money and Politics," which has documented how special interests influence policies behind the scenes inside the Beltway.

These types of classic investigations are still sometimes undertaken by mainstream media outlets, of course, but on balance the momentum seems to have swung to NPOs like those mentioned above. With news reports of more such groups about to

launch in 2010, including a local news effort in San Francisco financed by billionaire Warren Hellman, the field clearly is still expanding.

Could a new Golden Age of Muckraking be at hand?

If so, we have the Internal Revenue Service at least partly to thank for its practice of granting tax-exempt status to all of the organizations mentioned in this article.

David Weir cofounded the Center for Investigative Reporting in 1977 and remains an active member of its board of directors. He is also a long-standing member of the editorial board of The Nation, and a former editor at Mother Jones, as well as a former employee at KQED, which is a major NPR station. Weir currently covers the media industry for BNET in a daily blog at <http://industry.bnet.com/media>.

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