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Michigan Today

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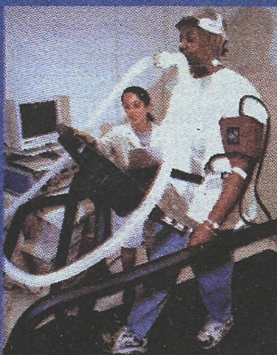


Inspire a Life of Arts and Culture



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Advance Health and Society's Well-Being



Prepare Leaders for the Local and Global Community



Hundreds of thousands are reading
Prof. Juan Cole's Internet log on Iraq, and
learning why he find 'no good news and no exit'

An Informed Commentator

By Robert Haug

Juan Cole didn't set out to be a public intellectual. After joining the history department in 1984 as a specialist in Middle Eastern and South Asian history, he focused on what seemed to be obscure topics, the Shiite Islamic denomination, the rise of the Baha'i faith: Egypt's response to colonialism and various other matters that the world at large does not follow on its TV screens. But it's a fact of academic life that if your region of scholarly interest becomes embroiled in a war of strategic interest to the US government, your role may change to one on center stage.

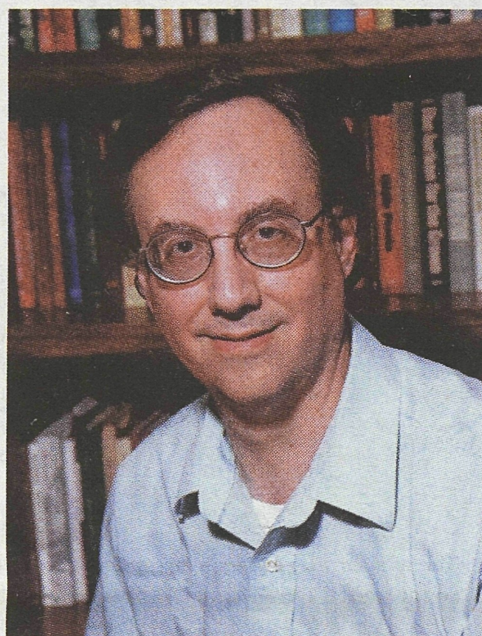
And that's what has happened to Professor Cole. His current research interests focus on Shiite Islam in Iraq and Iran and "jihadi" or "sacred-war" themes within contemporary radical Islamic movements such as al-Qaeda and the Taliban. Once the US government sent troops to Afghanistan and Iraq, numerous news media began to interview Cole, and his op ed pieces find ready acceptance by prestigious publications.

After the US invaded Iraq in March 2002, Cole began offering his perspective on the "war on terrorism," the Iraq War, Middle East history, Islam and religion in his own Web log, an innovative Internet form of personal journalism known as a "blog." Cole's blog, "Informed Comment" (see www.juancole.com) began in 2002 as a way to communicate with several hundred other academics. But by this April it had soared "into the *blogosphere*," he reports, "and the average hits to my Web log rose to 20,000 a day."

Now accorded public-intellectual status throughout the world, Cole accepted an invitation to appear before the US Senate Committee on Foreign Relations this April 20 to present his views on the war. As readers will see in the following interview for *Michigan Today* between Cole and Robert Haug, a doctoral student in Near Eastern studies, Cole is unlikely to have reduced the level of anxiety in Washington—or elsewhere, for that matter.

Michigan Today: How did the Senate Foreign Relations committee happen to invite you to speak to it?

Juan Cole: Presumably it grew out of my increasing role as a public intellectual and commentator on Iraq affairs, and my Web log. In early April, when the Shiite uprising took place in Iraq, the attempt by the US and the Coalition Provisional Authority to arrest Muqtada al-Sadr, a



Paul Jaramski U-M Photo Services

Juan Cole is the Richard Hudson Research Professor of History and a professor in the Center for Middle Eastern and North African Studies. His most recent book is *Sacred Space and Holy War* (I.B. Tauris, London, 2002), a collection of some of his work on Shiite Islam in Iraq, Iran and the Arabian Gulf Region.

radical Shiite leader in Najaf, became an object of great interest. The US government had clearly underestimated his movement. It so happens that as a result of my Web log, the *Middle East Journal* had invited me to contribute for the fall 2003 issue. When the Senate staff of the Foreign Relations Committee did a literature search on Muqtada al-Sadr and his movement, mine was the only article that came up. Senate staff and some of the senators, themselves, read it and were eager to have my views on the situation.

What did you say to the senators about the current situation in Iraq?

Well, my argument was that the post-war handling of Iraq has been a huge catastrophe. I have to say that I can think of few attempts by one country to administer another in modern history that have been so plagued by incompetence and a lack of understanding of the local society. Administering another country is always a very tricky proposition. The annals of colonialism are filled with anti-colonial revolts. Although Washington at least has represented this as not a colonial venture, it's in danger of turning into one. For some people, it has always been an imperial endeavor.

I argued that the Bush administration, and the Coalition officials more recently, didn't understand Iraqi society. They thought it was a blank slate, that they could use Iraqis as guinea pigs. Did you know that they introduced the 15 percent flat tax on individual and corporate income in Iraq? Something that some politicians very much wanted to push in the United States—without success—but in Iraq they do it. I'm not sure that the security situation allows them to actually think about collecting taxes, so it may be all a pipe dream. They also wanted to impose a Polish style "shock therapy" switch to a market economy from the Iraqi socialistic economy.

These kinds of measures should not be taken by an occupying power. In the tradition of the law of occupation, which goes back to the Hague Regulations of 1907 and includes the Fourth Geneva Convention, such measures are not only frowned upon, but also explicitly forbidden by international law. An occupying power has no right to make significant alterations in the character of the occupied society, to change the laws all around, without a strong security reason and so forth. I think a lot of the mistakes that have been made have grown out of this desire to experiment with Iraq and shape it.

Furthermore, the Coalition Provisional Authority didn't understand Shiite Islam. When the Grand Ayatollah Ali Sistani, who is a very major figure and has enormous power in Iraq, issued a ruling, or *fatwa*, on June 28, 2003, that any delegates to a constituent assembly that wrote the new constitution would have to be popularly elected, Paul Bremer the US civil administrator of Iraq, refused to take Sistani's ruling seriously and is said to have asked someone to get another cleric to issue another *fatwa* that would rebuke Sistani. Well, Shiite Islam is hierarchical. Sistani is a grand ayatollah. There aren't other persons who can overrule him in that system. And in the end, Sistani won because even the members of the interim governing council whom Mr. Bremer himself appointed, sided with Sistani. So this anecdote is just one example of how we didn't understand things.

Take the decision in early March to arrest Muqtada al-Sadr. It was made apparently without knowledge or understanding of the nature of his movement or how widespread it is. Muqtada's father, back in the 1990s, had opposed Saddam and had established a sectarian kind of organization, especially in the slums and the poor areas of the Shiite cities in the south, and these young men from the Shiite ghettos are armed and militant and angry. Going after their leader like that provoked an uprising throughout the south in many important cities. I believe that the American administration of Iraq has been arrogant, has pursued policies that are illegal in international law and has been ignorant and incompetent. I said this very forthrightly to the senators.

You remember in *Star Wars* when the characters are in a trash compactor, and one says, 'I have a bad feeling about this.'

That's how I feel about this enterprise.—Juan Cole on the Iraq War

As someone who has been intensely following and publicly commenting on the war in Iraq since its earliest stages, have any developments surprised you?

That's a loaded question, because I don't want to sound cocky, but I wrote a piece for the International Institute here at the University that appeared in January 2003, before the war. It's instructive to go back and look at that because I was asked to write about the pros and cons of going to war in Iraq. One of the cons that I mentioned was the danger that destroying the secular Baath party would cause Sunni Arabs in Iraq to become radicalized and to increasingly support radical religious movements like al-Qaeda.

I also warned that it was entirely possible that Shiite Iraqis would become mobilized and approach fellow Shiite Ayatollahs in Iran. I also argued before the war that the administration was underestimating Arab nationalism and Iraqi nationalism, that it was not going to be as easy to rule Iraq as they thought. So I have to say that I haven't been terribly surprised by what has happened in the aftermath.

Things that I was surprised by were on the margins. For instance, I was a little surprised that the Shiites didn't rise up against Saddam and the Baath party across most of the country when the Americans moved in March and April of 2003. It also surprised me a bit when Grand Ayatollah Sistani staged major urban demonstrations in January 2004 to insist on early, popular, one-person one-vote elections. Sistani is from a quietist tradition of clerics who don't get involved in day-to-day politics, and I think he has a deep fear of social unrest. I was a little surprised, too, that in less than eight months, the opposition could manifest itself on a fairly large scale. I remember sending a message to "H-Diplomatic-History," an e-mail discussion list, in the spring of 2003 in which I said: You remember in *Star Wars*, when the characters are in a trash compactor, and one says, "I have a bad feeling about this." That's how I feel about this enterprise.

Do you think we will see a relatively quick pull out of US troops from Iraq? An increased presence by the UN? Do you see stability coming in the near future to Iraq?

I believe that there were people in the current administration who would very much have liked to take care of Iraq quickly, stabilize it, reduce forces there to about a division—that's 20,000 people—and then go on to Syria and Iran and pursue an objective of American conquest, reshaping the region by force. I think those voices have been marginalized. It's inconceivable to me that Congress would authorize such a thing. And the military, particularly the officer corps, would not go along with the idea of trying to conquer and occupy Syria or Iran at this point. The United States simply doesn't have an army large enough to make that possible to begin with. But it is also very clear what would happen if we tried. Iran is three times bigger than Iraq. I think that the super-hawks in the administration have lost. Iraq has

turned into a nightmare for them. I don't see a good exit strategy, and I am worried about that because, whereas when things got extremely bad, the United States could simply leave Vietnam, get on helicopters and fly away, Iraq is a major petroleum producer at the head of the Persian Gulf and could not be allowed to fall into chaos. I think it's very unlikely that the US administration would allow that to happen or remain in power for very long if it did. So even if there is a change in November, I don't see what way the US can get out of Iraq now. Until a new Iraqi military force can be established that can provide security, the US is going to have to do it. I don't think there are many allies in NATO who are going to be eager to send lots of troops to Iraq after seeing what happened to American troops.

Senator [John] Kerry and Senator [Joseph] Biden and others have called for an internationalization of the Iraq enterprise. I just don't understand under what circumstances other nations will be willing to be drawn into what looks increasingly like a major quagmire. My main expertise is in the past, but if I have to extrapolate into the future, I would say: no good news any time soon and an obvious exit strategy is not apparent to me.

Do you see your involvement in public affairs as a continuation of your academic research or is this a totally different sphere for you?

Throughout my career, I've been extremely interested in contemporary Middle Eastern politics, events and movements. I lived in the Muslim world for 10 years. Unlike a lot of American specialists in the Middle East, who did one Fulbright year and now find their language is rusty, I kept up my Arabic. I speak Urdu quite a lot, too, and I read a lot of Persian. Also, I lived in lots of different places in the region—Egypt, Lebanon, Jordan and Pakistan, and I traveled widely elsewhere. In between finishing my master's degree at the American University in Cairo and going for my PhD at UCLA, I spent a year working for a newspaper in Beirut, mainly translating Arabic newswire stories into English. I would put them into inverted-pyramid form, which is the American way of doing things, with the most important subject and information first. Although I've focused on the early modern and modern periods, I hadn't, before September 11, written anything major on contemporary history. This was not for a lack of interest in contemporary affairs or a neglect to follow them, but because I felt that the roots of modernity in the Muslim world were still poorly understood, therefore that was the contribution I could make. Public interest in most of the Middle East was slight at that time; the Arab-Israeli conflict was all that people were interested in and that was not my specialty. I find that subject so thoroughly depressing that it's hard for me to work on it. But September 11 marked a big change in the sense that the public was suddenly interested, and as a professor at a public university I felt a responsibility to respond to all of the inquiries about the Islamic world.

Interviewer Robert Haug's dissertation will focus on early Islamic history. He's also interested in the use of new technologies in humanities research. He holds a BA from DePaul University (1999) and an MA from Michigan (2002).

In general, what role do you think should be played by academics in the public and political discourse?

I think it's really unfortunate that academics have been sidelined in most important policy debates. If you watch the cable news channels, you very seldom see academics. Most of the talking heads are self-appointed experts who lack the credentials we would insist on in academia. The vast majority of the people you see talking about the Middle East on television haven't lived there and don't know Arabic or another Middle Eastern language, and yet they are representing themselves as founts of wisdom. I laugh often because they can't pronounce the names and places and yet they have been brought in front of the camera as an expert. I think that there's been an unfortunate tendency for right wing think tanks to dominate these discussions. They often produce very shoddy studies and policy recommendations, which are nevertheless taken very seriously.

We're also seeing inroads into academia of groups like Campus Watch, which has singled out you and a few other academics for being "too political" in the classroom. What is your view on the place of politics in academic research and the university classroom?

Partisan politics has no place in the classroom. It's not proper for a professor to go before a class and promote one party or another. That's not academic scholarship. We're trying to understand the world. I think it's inevitable that as you teach something like modern Middle Eastern history, your point of view as a private individual—as human beings we're political animals—will certainly affect your research agendas, your judgments and so forth.

I think that academic modes of thinking and evidence are anti-partisan in their nature, and so I think things balance out in that way. I reject the argument that balance is achieved by making sure that you have both sides of the story. This is very common in journalism, especially television journalism, and it appeals to politicians and the public. There are not "sides to a story" when doing research. There is evidence, and there are explanations that the evidence reveals. One would not want a cancer institute at a major university to be forced by the government to make sure that they had a balanced view of the causes of cancer and to be forced to hire some researchers who insisted that smoking does not cause cancer. I don't accept the argument of people like David Horowitz that the government should impose some sort of predetermined political balance on academic research. We would end up with a lot of academics in that kind of situation who would maintain that Saddam Hussein had nuclear weapons, which was what was being maintained by think tanks and talking heads on television and government officials, precisely because they did have this flawed idea of "balance" that they were trying to pursue. If actual research had been done, then this error could have easily been exposed. **MT**

Michael Weinman:
'I'm trying to make something interesting out of the commonplace'

The Doctor(er) of Images



By Lanie Lippincott Peterson

At his marsh-front home in Savannah, Georgia, gastroenterologist Michael D. Weinman is drinking strong coffee and covering emergency calls for six doctors.

He wears a green polo shirt, shorts and flip-flops. His black hair is tousled. His dog, Ida, lies near the pager by his side. But between calls about ailing patients, Weinman isn't discussing medicine. Instead, he leafs through a thick portfolio showing 30 years of a different kind of work—extraordinary photographs he's taken from around the world.



Weinman

Most of the pictures are from Weinman's vacations in India or Portugal or Nepal. But they aren't typical tourist snapshots but starkly beautiful portraits in black and white: a wizened Sherpa beside his burlap sack of corn or a man peddling flowers from the steps of an ancient temple; also photos in dazzling reds and greens of fishermen at sunrise or a turban-clad rifleman with his family. An accomplished photographer, the physician's credits include several one-man shows of the work he calls "cultural photography" as well as numerous articles about his work.

No posing, little action

"I like to capture people in some environment, in a social situation that tells something about the culture," he explains, "but I don't pose people. I'm interested in homes and textures, but the centerpiece is portraiture. There's not a lot of action."

Weinman became excited about photography as a 15-year-old in West Hempstead, Long Island. He built a basement darkroom, took yearbook photos and experimented with double exposure and other technical effects.

After high school, he enrolled in U-M's Residential College in 1970 and majored in the history of ideas. He also found a job printing pictures for an Ann Arbor portrait studio, where he learned the basics of silver halide printing.

He learned even more when the College let him leave campus to explore culture and photography in India and Japan. Of his four years at Michigan,



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Weinman figures he was gone about a year and a half, traveling, taking pictures of indigenous people and honing his skills as a cultural photographer.

His first long trip was in 1972. Sponsored by the Department of Anthropology, he spent six months in India, accompanying a student who was researching the role of Indian women. His job: to take photographs illustrating her text.

But Weinman also struck out on his own. Speaking "conversational tourist Hindi," he visited small towns. At the foot of Mount Everest, he found a village market where Sherpas sold corn and spices. In Varinasi, India, he captured the brooding image of a Hindu priest near the Ganges River. And in Bombay,

he photographed street children.

Photographs from that trip earned him 24 credits and his first show, at the University's Michigan Gallery. That year in India also marked something else: "It was the beginning of my style," he says.

Another important influence at Michigan was meeting Maria Eisner, the mother of a college friend and founder of Magnum, the renowned photo agency in Paris. Eisner's views and those of the photojournalists she worked with shaped his work, Weinman says.

Through Eisner, he learned about Magnum photojournalists Henri Cartier-Bresson, Robert Capa and Andre

1. Lake Mayer: Georgia 2004
2. Silverback Gorilla: Florida 2004
3. Morning Sun Prayer: India 1997
4. Sherpa Family: Nepal 1972
5. Mother and Daughter: Nepal 1972
6. Priest: India 1998
7. Holy Man Along the Ganges: India 1972
8. Woman Waiting for Bus: Istanbul 1989
9. Boy with Camel: India 1997
10. Brother and Sister: Bombay 1972
11. Corn Seller: Nepal 1972
12. Fisherman from Faro: Portugal 1990



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Kertesz as well as others such as alumna Margaret Bourke-White (who began her career as a U-M yearbook photographer in 1922). Weinman especially took to heart Kertesz's concept of "the decisive moment" in photography—the desire "to move intimately into a scene, to catch a scene at an unusual vantage point or defining moment."

Weinman graduated from Michigan in 1975 with highest honors and headed for New York City to take a stab at a photography career. Eisner encouraged him, he says, but the only job he found was at a Park Avenue portrait studio "taking pictures of little old rich ladies and their poodles and portraits for high school yearbooks."

He didn't like styling poodles. He also didn't want to work as someone's "hired hand." After two years, he abandoned his photography plans, earned his MD at New York University and completed a Columbia University residency in internal medicine and gastroenterology fellowship at Harvard University. He joined a Savannah practice in 1988.

During his medical studies, Weinman's photography took a back seat. But when he finally found time for a vacation, his camera was again by his side. On his itinerary from 1991 to 1998: trips to Portugal, Egypt, Turkey, Hong Kong, Mexico and, several times, his favorite place in the world, India.

Weinman doesn't tour big cities or popular travel spots. Mostly he travels alone, going where he wants when the mood strikes. These are "working vacations," he says. After locating a reliable driver in advance—not just another taxi driver but "someone to serve as a companion, bodyguard and camera lighting assistant"—he's away on a month-long trip.

'Take me to the littlest village'

When he meets his drivers, he says, "Take me to the littlest village" and the drivers take him "to the little villages that no other tourists see." And then Weinman starts shooting, often from sunrise to sunset, going through 50 to 150 rolls of film.

Weinman can recount a few adventures from his trips. On his 1972 visit to India, he paid a guard to let him sneak down to the Ganges River where funeral pyres were burning. He had hoped for a wonderful picture. Instead, a large Brahma cow chased him and "buted me down side streets and threw me down in the road." Discouraged but somehow unhurt, he gave up his quest for a picture. "I don't think the gods were happy with me," he says.

Several times Weinman became "deathly ill" on his trips abroad. Once, severely dehydrated in Egypt, he "passed out in the desert." Luckily his driver carried him out of the sun, found some bottled water and revived him.

When Weinman returns home to his busy medical practice, he doesn't get around to printing his photos for months or even years. But when he prepares for a new photography show, he hauls out his negatives. Single and with no children to take up his time, he spends weekends on his home computer or in the darkroom, making prints. Concerned about details, he also cuts the mats and frames for his photographs.

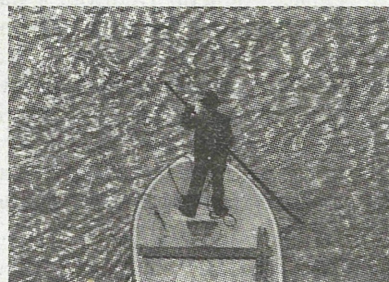
"I know how to make a good print," Weinman says, "but I want more mood." The desire for mood got him interested in a painterly style, *chiaroscuro*, the Italian Renaissance technique of shaping form with darkness and light. You can see the influence of painting in his photo of a Portuguese woman praying in her doorway. Also in the scene are the dark stains



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and peeling paint of the old building. Weinman wanted the picture to express the grimy face of an old city, he says. "It has a texture. It's not sharp and crisp. I want you to feel the grit."

There have been other shifts in Weinman's style. In 1997 and 1998, he worked with color, creating images so brilliant they almost shimmer. Then in 2000, playing with the digital tools of Adobe Photoshop, he created composite images and tinted his photos sepia brown.

One composite photo shows a somber Hindu priest set against a background that Weinman added, of fishermen pulling a net. "I wanted to give him a broader landscape. After all, da Vinci did it. Fra Angelico did it," Weinman explains. Besides, he adds, the fishermen "are the people the priest prays over, the people he watches over."

A beheading is unappealing

Since the Sept. 11 terrorist attacks, Weinman hasn't traveled far from home. For one thing, his medical practice consumes 60 or more hours a week. Also, one of the places he loved to visit was the Middle East, but now, "as an American Jew," he says, "I could end up with my head on a plate."

But even if he's staying at home now, he's still taking photographs and devising ever more innovative ways to create digital images. After he takes a photograph, he'll work at his computer, changing the color or tone or inserting an image. "I'm trying to make something interesting out of the commonplace," Weinman says. "I care about the artistry of the thing—form not content. The content is not as interesting to me now as it had been with my cultural work."

One year recently, for a body of work he calls "Performance," Weinman photographed circus performers, boxers, weight lifters, swimmers, rodeo cowboys and dancers. He's played with these images: a sepia-toned trapeze artist looks like something from a 1920s circus. Or a magical photograph of two boys juggling shows the faint image of juggling pins floating between them in the air. "Yeah, I added some pins," Weinman admits. "For this show, not much do I care about what's real or what's not."

Weinman also has another set of images—warm, family photos of gorillas at the Jacksonville Zoo. He'd like to do a coffee-table book of zoo pictures. He's also hoping to exhibit his landscapes at Savannah's Telfair Museum, perhaps next spring. And next February his images of India, Egypt, Turkey and Nepal will be on display at the Pacific Center of Photography in Maui, Hawaii.

As Weinman talks, still drinking coffee, his seemingly boundless energy contrasts with his dog, collapsed on the floor beside him. He brings out photograph after photograph. "I don't want you to think I've been lazy," he says. "For the first time in several decades, I'm so excited. My photography is about to go in a different direction." **MT**

Lanie Lippincott Peterson '70 wrote for the Michigan Daily while at U-M and is a former Los Angeles Times staff writer. She adapted this piece from an earlier article for Savannah Magazine and now reports for the Savannah Morning News.

The College continues to set the benchmarks in its field

Engineering's

Original Engineering Building



The timeline of the U-M College of Engineering begins 150 years ago.

Gifted but flat broke, Wood walks from Detroit to Ann Arbor.

1854: The founding. Alexander Winchell, newly appointed as professor of physics and civil engineering, offered Michigan's first course for engineers in the building called "South College."



Winchell

In fact, Winchell was ill-prepared—that first class actually taught English composition to prospective engineers—and he was soon replaced by Prof. DeVolson Wood, a graduate of Rensselaer Polytechnic Institute. (Winchell stayed on in natural history, living in a lovely home on the future site of Hill Auditorium.) Wood had been Chicago-bound in search of a job when he ran out of money in Detroit. Penniless, he walked



Wood

to Ann Arbor, where President Henry asked him to substitute for an absent professor. Gifted and ambitious, Wood was soon given a permanent position. He became a celebrated teacher who designed a four-year engineering curriculum and oversaw the establishment of the first Department of Engineering within LSA.

Cooley puts Engineering on the map.



Cooley

1881: The visionary. Mortimer Cooley, a naval officer, arrived in 1881 to teach steam engineering and shipbuilding, but he was chiefly a mechanical engineer—the only one in Michigan—and immediately founded the ME curriculum. With a state appropriation of \$2,500, Cooley oversaw construction of the University's first Engineering Building (two stories measuring 24' x 36') and equipped it with a foundry, lathes, pattern shop, machine shop and 4-horsepower steam engine. Cooley rose to become the pre-eminent dean of the College of Engineering's first century, serving from 1903 to 1927. During his tenure enrollment rose from fewer than 30 to more than 1,800; faculty members increased from two to more than 160, and a complex of buildings was constructed to house the program. Cooley was mayor of Ann Arbor and an unsuccessful Democratic candidate for the US Senate in 1924.

Historical photos courtesy Bentley Historical Library



West Engineering Arch

Dapper Prof. Denison sends his shirts to Chicago for laundering.

1895: Independence. When the central administration proposed in the early 1890s to split engineering away from LSA to form an independent department, Cooley and key colleagues were at first opposed, arguing that beginning students in engineering should take a broad liberal arts curriculum. But the move for independence prevailed, with courses offered in civil, mechanical, electrical, mining and sanitary engineering. In the years around 1900, programs were added in chemical engineering and naval architecture. With enrollment topping 600, more space was needed, leading to the construction of the New Engineering Building, completed in 1902, to be renamed West Engineering upon construction of East Engineering in 1923. New Engineering's cost was \$275,000 plus \$25,000 for equipment. (The building also was graced by the Denison Archway, designed by and named for the popular Prof. Charles Simeon Denison, a dapper bachelor who insisted on sending his shirts to Chicago for proper laundering.) The massive facilities of New Engineering signified engineering's arrival as a major presence at the University. It acquired college status in the University-wide reorganization of 1915.

First female grad pioneers in skyscraper design.



Parker

1895: Marian Sarah Parker In the early 1890s, when LSA's graduating classes were one-third women, Engineering remained 100 percent male. But in 1895 the department of civil engineering saw the graduation of Marian Sarah Parker, the first woman to acquire a Michigan degree in engineering. As a member of Purdy & Henderson, Parker helped to design such revolutionary steel skyscrapers as New York's Flat Iron Building and the Waldorf Astoria Hotel. But it would not be until the 1980s and '90s that the College's doors would open wide to women. A major expansion in female enrollment through recruitment and effective support programs saw women totaling more than 30 percent of incoming first-year students in 1995, twice the national average.

A Motor City needs an academic engine.



World War I auto engineering lecture.

1913: The giant next door. Finding themselves next door to what would soon become the nation's most important manufacturing industry, College leaders launched an auto-engineering curriculum with a course titled Gasoline Engines. In

1916, Walter Lay joined the faculty with a mandate to create a laboratory and an entire slate of automotive courses. Lay was a favorite of students, sharing coffee with them in early morning bull sessions in the Auto Lab. And his first lab course featured a full day's road test of a motor vehicle—a novel treat in 1916. When the US entered World War I, Michigan faculty members trained more than a thousand soldiers in automotive engine repair. In the years after the war, Professor Lay launched the department's tradition of research in cooperation with the nearby auto manufacturers. Michigan engineers were



Lowering engine block in 1916.

among the first to demonstrate the advantages of streamlining in auto design, and they developed new areas of automotive research, including safety, noise and riding comfort.

150 Years

By James Tobin

American aeronautics took wing at the College of Engineering.

1916: Heralds of the Aerospace Age. Michigan's interest in flight began in the era of the Wright brothers, when Prof. Herbert Sadler, a naval architect and nephew of one of Britain's early balloonists, attracted students to the Michigan Aero Club. Their experiments with balloons and "aeroplanes"—including a Wright hydroplane that crashed into Barton Pond—led to the appointment of Prof. Felix Pawlowski, a Polish mechanical engineer and pilot who had urged several US universities to give a course in aeronautical engineering. MIT said maybe later; Mortimer Cooley said yes. Pawlowski's informal talks led to the nation's first Department of Aeronautical Engineering in 1916. It would eventually train eight US astronauts, two of whom walked on the Moon.



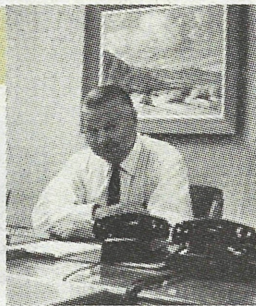
Pawlowski

The pressure of social turmoil overseas sends a master of structural stress to Michigan.

1927: Stephen Timoshenko. Born in the Ukraine in 1878, Stephen Timoshenko was the son of a land surveyor who trained as a railroad engineer. The puzzling collapse in 1907 of the great cantilever bridge at Quebec, killing 75 workers, attracted Timoshenko's curiosity, and he began to develop new theories about material strength. In the chaos of the Russian Revolution and civil war, Timoshenko moved from one academic post to another—St. Petersburg, Kiev, Zagreb—before emigrating in 1922 to the US, where, after a stint at Westinghouse, he landed at Michigan in 1927. Timoshenko became the world's leading authority in applied mechanics. He created the key tools for understanding how structures deform under stress. At Michigan, he launched the first bachelor's and doctoral programs in engineering mechanics in the US, while around the world his 18 textbooks were published in 36 languages. Such structural terms as "Timoshenko plate" and "Timoshenko element" remain in wide use decades later.

Ex-dockworker Johnson designs nation's first jet fighter.

1943: Skunk Works. Amid fears of a jet-powered Nazi super-plane, Lockheed Martin picked a Michigan man, Clarence "Kelly" Johnson '32 BSE, '33 MSE, '64 PhD (Hon), to counter the threat. Johnson, a tough ex-dockworker who was privately called "W.C. Fields without the sense of humor," had already designed the P-38 Lightning. Now he and his staff of 53 engineers and mechanics created the prototype for the nation's first jet fighter, the Shooting Star, in just 143 days. Johnson's Advanced Development Projects Unit—far better known as the Lockheed Martin Skunk Works—became the world's premier aerospace R&D operation, developing such pioneering aircraft as the Mach 2 F-104 Starfighter, the U-2 spy plane, the SR-71 Blackbird and the F-117 Stealth Fighter.

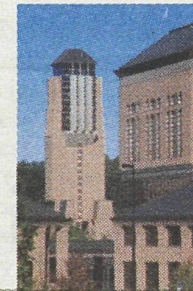


Johnson



The P-38 Lightning.

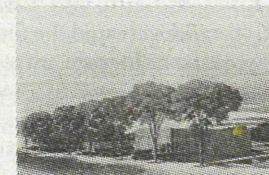
The Engineering Campus and Lurie Bell Tower.



North Campus photos by Michael J. Schimpf

Phoenix Project lifts hopes for peaceful uses of atomic energy.

1948: Rising from war's ashes. The loss of 579 members of the University community in World War II led to calls for a memorial more meaningful than a "mound of stone." The result, initiated by students, was the Michigan Memorial Phoenix Project, inaugurated in 1948 as a major effort to develop peaceful uses of atomic energy. President Alexander Ruthven called it "the most important undertaking in the University's history." Using the project's Phoenix Laboratory and Ford Nuclear Reactor, researchers and students (including members of the nation's first graduate program in nuclear engineering) have contributed significantly to peacetime atomic research, including the development of non-weapons-grade uranium, a key factor in fighting the proliferation of nuclear weapons.



The Phoenix Laboratory.

Muddy fields and trails give rise to vast North Campus complex under Duderstadt.

1953: "An outlying wasteland." Cramped and underequipped in the aging facilities of East and West Engineering, the College launched a "Five Year Plan" that would require some 40 years to complete—the shift of the entire engineering community from Central Campus to an "outlying wasteland" of farm fields and muddy trails between Fuller and Plymouth Roads. Eventually, North Campus would see the greatest construction boom since the University's founding, but the move was beset by endless delays. Beginning in the 1980s under Dean James J. Duderstadt (later became U-M president), a vast expansion of laboratories, classrooms, administrative offices and a state-of-the-art library, the Media Union, would bring the long transition to completion.



Duderstadt

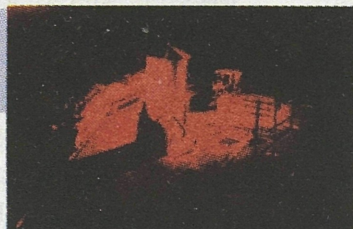
Continued on page 8

Engineering's 150 Years

continued from page 7



**It IS a bird! It IS a train!
And it's super to see
3-D images in motion.**



First working hologram.

1963: Breakthrough in holography.

Profs. Emmett Leith and Juris Upatnieks created the first working hologram, an image of a bird and of a toy train. Their experiment, attempted out of sheer curiosity, led to the development of standardized apparatuses for conducting holography.



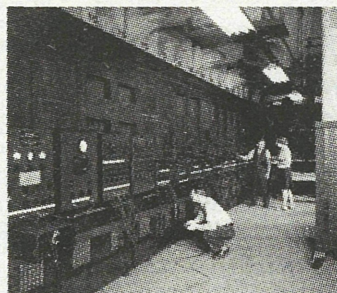
Leith



Upatnieks

An ancestor of the Internet was born right here.

1966: Computing frontier. Armed with a new IBM 370 mainframe but no operating system, College programmers began to develop the Michigan Terminal System (MTS), one of the world's first computer networks and one of the longest lasting. MTS was a pioneering system that was in several ways a direct ancestor of the Internet, offering early forms of email, file-sharing and conferencing. Housed at first in the North University Building (NUBS), then at the Computing Center on North Campus, MTS spawned the MERIT network (a collaboration of U-M, MSU and Wayne State), which led in turn to the creation of NSFNET and the Internet. MTS itself remained central to U-M computing for more than 30 years—a remarkably long life for a computer system—finally shutting down for the last time on May 30, 1997.



The 1946 ENIAC, giant forerunner of the mainframe computers of the '60s.

Samuel Ting confirms a quark-y theory.

1976: A Nobel Prize. Alumnus Samuel Ting '59 BS (engineering physics and engineering mechanics), '63 PhD physics, '78 ScD (Hon.) won the Nobel Prize in physics for



Ting

his role in the discovery of the J/psi particle, a heretofore unknown subatomic particle and the first known member of a class of long-lived mesons. His finding confirmed the existence of the so-called charmed quark and

contributed to our understanding of the basic composition of all matter.

Hitting top speeds in fiber optics.

1991: Ultrafast science. A major National Science Foundation grant launched the Center for Ultrafast Optical Science, which would develop pioneering applications of

high-speed optics in the fields of high-speed computers, fiber optics communications, biotechnology and medicine. Research at the center soon facilitated breakthrough studies in fields ranging from cellular biology to deep-space exploration.

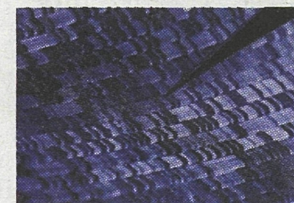


Graduate student Erik Power with a short-pulse laser in the Ultrafast Optical Science lab.

A mighty diagnostic device, though small as a child's finger.

1990s: Lab on a chip. When researchers at the U-M Medical School said they needed better devices for analyzing DNA,

Profs. Mark Burns (chemical engineering), Carlos Mastrangelo (electrical engineering and computer science)



DNA analysis chip.

and David Burke (human genetics) collaborated to invent a DNA analysis "lab on a microchip." The device was no larger than a child's little finger. Yet it could analyze the genetic composition of DNA just as rapidly and efficiently, yet far more cheaply, than full, human-staffed laboratories. This revolution in technology promised to make DNA analysis practical and affordable across a broad array of fields, from medicine to forensics to agriculture.



A micro-electro-mechanical device in Prof. Kendall Wise's laboratory.

The incredible shrinking technology.

2000: The smallest frontier. The National Science Foundation awarded the College a major grant to establish (in partnership with Michigan State and Michigan Tech) the nation's first research center for micro-electro-mechanical systems (MEMS)—a major step into the burgeoning field of nanotechnology. Early plans included the development of sensors, pumps and transmitters on an unimaginably tiny scale. Eventually, such nanomachines may allow doctors to monitor the infinitesimal communications between nerve cells, restore hearing to the deaf and reawaken paralyzed muscles. **MT**

James Tobin '78, '86 PhD, of Ann Arbor is a prize-winning author and historian. His To Conquer the Air: The Wright Brothers and the Great Race for Flight was published last year. We featured his 1997 biography Ernie Pyle's War: America's Eyewitness to World War II in our Summer 1998 issue.

Coleman sets the course for the University's future

By Laurel Thomas Gnagey
University Record

President Mary Sue Coleman presented a preliminary framework for the strategic direction of the University at the April Board of Regents meeting and asked faculty, staff and students to use it as the campus constructs a long-range plan for the future.

Coleman introduced four strategic themes for shaping "The Michigan Difference" (see related article on the new Campaign on p. 12—Ed.) and described four presidential initiatives that would help set the course to realizing the themes.

Saying the University has faced some monumental events and issues in her 20-month tenure—the admissions lawsuits, sanctions against the basketball program, restoration of Hill Auditorium and the Horace H. Rackham Building, and the launching of the life sciences endeavors—Coleman declared it a time to move forward.

"In my two presidencies, I have learned that sometimes the issues choose you, but at other times, you get to choose the issues you want to advance," said Coleman, who presided at the University of Iowa before coming to Michigan. "It is now my opportunity to turn our energy to the agenda that we choose as leaders of this great institution."

With regard to long-range planning, Coleman said her primary goal was to define four themes that would embody the University's aspirations and build upon its academic strengths to reach greater excellence, while "recognizing new areas of opportunity and societal need."

The four themes and some of the initiatives that will begin their realization are:

Sustain academic excellence. "In previous years, our commitment might have been an unspoken compact, but today, we are dealing with external pressures that require us to assert, with determined insistence, our pledge to maintain the highest level of academic quality," Coleman said. Despite budget challenges, she said, U-M must continue to recruit and retain top-notch faculty, staff and students if it is to preserve academic excellence.

Establish support for sustained interdisciplinary team-teaching initiatives across departments and colleges with funding that already has been committed

to the initiative by the provost's office. Coleman said that despite budget challenges, U-M must continue to recruit and retain top-notch faculty, staff and students if it is to preserve academic excellence.

To create better living environments for students, U-M will renovate and expand residence halls, reconnect residential life to academic experiences, and accommodate current and future technology to residence halls.

Foster active engagement. The University will create a "prototype for new approaches to rational and affordable health care," Coleman said, one that would test "the assumption that it is feasible to promote healthy living, contain health care expenditures, and define optimal insurance coverage for individuals and families." U-M will also explore the formation of a center for the study of ethical issues in the public domain, to address matters facing business, public policymakers, cultural institutions, the sciences and media. The first step will be an assessment of faculty interest and scholarly expertise that supports development of such a center.

Coleman said the University must translate its ideas into communication and action, "challenging ourselves to address the vexing issues that our global and local communities confront." Examples include building nationally prominent resources, such as the Depression Center, and being a partner in the state's life sciences efforts. Engagement also means continuing to increase the University's role in economic development, said Coleman, who added that she has talked with business leaders who are eager to have more interaction with academic units.

Build collaborative learning communities. "We must bring interdisciplinary and collaborative approaches into the classroom in much the same way they have been adopted in research areas," Coleman said. Plans include renewing residence halls and building collaborative living and learning environments that are suitable for the digital age and expanding the life sciences to include more seamless collaboration between the

disciplines of natural science, engineering, social science, humanities and the arts, and exploring the option of including neuroscience in the mix.

Create greater access to Michigan's academic quality. Coleman said the University must ensure greater access to its "vast intellectual opportunity and knowledge" because a public university

"has little value for our society if its resources are not accessible." She added that U-M must address some tough questions about accessibility, such as: Are there financial barriers that place a U-M education out of reach for academically qualified students? If so, how can they be lowered? What efforts are needed to recruit and retain faculty, staff and students who reflect the diversity of the nation, and what must be done to create a campus that is supportive of diversity?

Coleman announced the launch of four specific presidential initiatives that reflect these aspirations:

1) Establish support for sustained interdisciplinary team-teaching initiatives across departments and colleges with funding that already has been committed to the initiative by the Provost's Office.



Coleman

2) Explore the formation of a center for the study of ethical issues in the public domain, to address matters facing business, public policymakers, cultural institutions, the sciences and media. The first step will be an assessment of faculty interest and scholarly expertise that supports development of such a center.

3) Create a prototype for new approaches to rational and

affordable health care that will test "the assumption that it is feasible to promote healthy living, contain health care expenditures, and define optimal insurance coverage for individuals and families."

4) Renovate and expand residence halls, reconnect residential life to academic experiences, and accommodate current and future technology to residence halls.

Coleman said she would appoint teams of faculty, staff and students to address the ideas she advanced and others that may evolve during the next academic year. In addition, she will seek support for the long-range plan from alumni, friends and donors, particularly for funding needs identified by schools and colleges for the "The Michigan Difference" campaign.

To read Coleman's entire presentation to regents, visit .

MICHIGAN TODAY

News

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An interview with artist Marianetta Porter

The Lion's Perspective

'Sankofa,' cast bronze, was commissioned as a gift to U-M President Mary Sue Coleman upon her inauguration. The sankofa bird symbolizes the Ghanaian proverb, 'Return to your roots to reclaim your future.'



John Woodford/ Michigan Today

'I love carving,' Porter says in her School of Art & Design studio on N. Main St., 'because I find repetitious activity in the process of making very enjoyable. It becomes almost a Zen kind of activity. I can lose myself, much like rocking in a rocking chair.'

Marianetta Porter '86 MFA, associate professor of art and design at the U-M School of Art & Design, has twice been recognized by the Smithsonian Institution: as a recipient of the Smithsonian Laureate Award in 1999 and as a Smithsonian Senior Research Fellow in 2001, the first visual artist ever selected for that honor. After earning her BA from Hampton University in 1975, Porter worked for several years as a designer at Armstrong World Industries and Ford Motor Company before pursuing graduate study in art. She earned an MFA in fibers from the U-M in 1986 and joined the faculty in 1995 after teaching at North Carolina State University's School of Design. Porter spoke with Anne Percy Knott about the sources of and motifs in her work.

Anne Percy Knott: In an artist's statement for a recent exhibition, you talk about employing "common objects to speak simply and thoughtfully about the past." Can you describe how you inspire objects to "speak"?



'Slaver' with wood-burned figures representing the patterns of bodies crowded into the holds of slave ships.

Much of your work is characterized by repetitious mark-making and rhythmical patterning. Isn't that tedious?

I've always loved surface qualities, multiple and repeated patterns, both in the forms I make and in the marks on the forms. I also find repetitious activity in the process of making very enjoyable. I love carving because of that same motion over and over again. It becomes almost a Zen kind of activity. I can lose myself, much like rocking in a rocking chair. I don't think of it as tedious. The process is very soothing. And I find that wood, more than any other material for me, seems to have a soul. It's got its own character, its own smell, and it ages so beautifully. I think the things I love about wood are the things I love about old objects and distressed surfaces: both appeal to our sense of touch, our sense of smell, our sense of the visual qualities of the surface. Both have that same quality of soulfulness, if that makes sense.

Many of your pieces seem domestic or even feminine in nature.

Many of the objects are associated with labor and, of

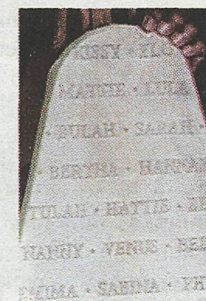
course, labor still is very much associated with women's work. Zora Neale Hurston once referred to Black women as "the mules of the world." The objects are "feminine" in that the forms I am drawn to are often the tools of women's labor. I am interested in the ways that women over time—not just in Black culture but in many cultures—have had to make something out of nothing. Look at the early settlers: the ways their ingenuity is expressed in the crafting of quilts or making clothes, in baking bread or making pottery for cooking. All these things are a tribute to the creativity that women express in taking a little bit of something, stretching it in some way and making it useful and beautiful. And so my work may be feminine in the sense of trying to honor that female creative spirit.

Collectively, your work seems not so much a celebration of daily labor as a recognition, a remembrance, of lives lived hard. It seems both homage and lament.

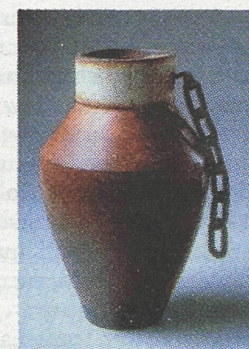
It is a remembrance and a reminder of how we stand on the shoulders of those who have gone before us. That I was able to go to college, and that today I teach at a university, despite the fact that my great-great grandmother was a slave, is because of the hard work and perseverance of my grandparents and parents. I think of my work as a tribute more than a celebration, a paying homage to those generations before us whose sacrifices have made so much possible.

Your ironing boards and memory jar speak directly to African-American slavery, a painful period in our national history. Too disconcerting, perhaps, for most collectors' living rooms?

Part of what's disconcerting about American history is that we have not found a way to talk



'Aunt Hagar's Child' bears names Porter collected from slave records, wood-burned into the cloth ironing board. 'When my mother saw a raggedy woman, she would say, "There's Hagar's child"'—an allusion to the biblical Hagar, a servant whom Abraham cast out of his tribe along with her child they had conceived out of wedlock.



'Memory Vessel #2,' mahogany, soapstone and steel.

about it comfortably. Race is kind of the big thing in the room that everyone recognizes but no one wants to talk about. Anytime you bring up anything that deals with slavery, there's this protective veneer on it, a sense of discomfort, of guilt, of shame, on both sides of the fence. We haven't had an atmosphere where dialogue is encouraged. It's easy for us to talk about "diversity," this amorphous, abstract concept, without really talking about root issues. So much has been lost, and so much has been buried. We're a country that hasn't really talked about our past.

Your work puts those issues out there for public consideration. Do you think your pieces will help generate that important dialogue?

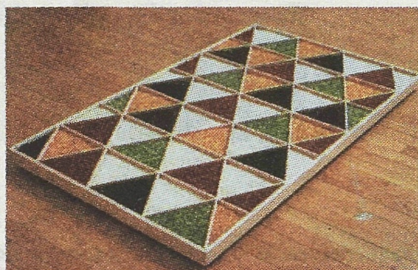
I hope my work gives voice to some of that complexity. We think of our American experience as a very homogenized one without really considering the distinct contributions that many cultures have made to the American landscape: the Native American culture's influence on American thinking and ways of life, the Irish and Hispanic influences. There have been strong contributions—not yet fully and formally recognized—made by Africans and African Americans. I hope my work in some way brings to light those contributions of African origin that we've neglected or forgotten.

I began with the question, "Who were the Africans brought to this country and what were their lives like?" Because my own family history is grounded in South Carolina—both of my parents are from there—I used that as a starting point. South Carolina's coastal islands were a major entry port for the slave ships. In that sense, South Carolina can be considered the Ellis Island for African Americans.

You have spoken about traveling to Ghana and of things you experienced there that have had an impact on your work. What are some highlights of those trips?

I first went to Ghana, West Africa, in the mid-1990s. I remember stepping off the plane and being immediately bombarded by an amazing sea of color: the fabrics, the patterns, and the costumes people were wearing. It was the first time I had been in a country where almost everyone was the same color as me. It was very empowering to realize that people of authority were black. My most lasting impression was my discovery of the 'slave castles,' an ironic term for prison fortresses, scattered along the coast. I was totally taken aback. I had gone through years of formal education but was totally ignorant of their existence. When I returned home, the images of those castles haunted me and set the course for subsequent research.

On my second visit I became fascinated with the ways ideas were communicated throughout the community. There's an entire system of symbols, called *adinkra*, attached to specific proverbs. *Adinkra* are everywhere—they're printed on cloth, they're on the sides of buses, they're embedded in the architectural details of buildings. Everyone in the culture knows what the symbols mean



'Bare Essentials' references quilt geometry, and is composed of peas, beans and rice. The piece pays homage 'to the skill and genius of women, their ability to fashion something out of nothing in cooking and in craft.'

and what proverbs are attached to them. So I became interested in looking at the use of proverbs—or mother wit—in terms of transmitting a particular kind of knowledge from one generation to the next.

Young children in Ghana and elsewhere in Africa are taught proverbs by physically and visually connecting each proverb to an object. A rope is tied with various objects—it could be a feather, a bone, or some other object. These objects serve as mnemonic devices. When you see an object tied to the cord, you recall the proverb.

We think the same way about a quilt, for instance, where a particular piece of cloth is connected with a life that has been lived, with all the stories attached to it. This idea, that objects can function in connecting our thoughts, is really fascinating to me.

There is a Ghanaian proverb: Until the lions tell their own story, the tale of the hunt will always glorify the hunter. That proverb was particularly moving for me when I started to realize that my own history—African-American history—had pretty much been written by others. There is another side to be told, another perspective to be shown. In many ways my work has tried to tell that story in terms of what is important and valued from an African-American point of view. So those Ghanaian proverbs have become a strong subset of my work, and I have incorporated the *adinkra* symbols into some of my pieces.

Some of those proverbs must have crossed the Atlantic with the slave ships. Do they survive here in some form?

As a research fellow at the Smithsonian a few years ago, I met an expert on Jewish history and proverbs. He prompted my interest in African-American proverbs or sayings. I began to write down from memory things I recall my mother or grandmother saying. By now some of them are probably part of the larger American vernacular, but some retain a distinctly African-American flavor. I remember growing up hearing, "The blacker the berry, the sweeter the juice." That saying really affirmed blackness in a culture and a time when affirmation was seldom given to Black people. I'm interested in documenting this wisdom, translating it in some way, in my own work. I am beginning work on a proverb series that will be called "Mother Wit."

You already have an emerging body of work based on African-American church fans. Are these projects related?

Related in the sense that the fan project—while it's grounded in history—comes out of my own personal experience as well. The church fan is a rich and won-

derful icon that tells, in a visual way, the story of the African-American experience. In this country, the use of the fan as an advertising tool came into prominence around the late 1800s or early 1900s, when the commercial printing press came into wide use. All kinds of businesses, particularly in the South, used fans as an advertising tool, a kind of traveling billboard that was widely used by African-American businesses and community leaders. Hand-held fans are still being used in Black churches today despite the prevalence of air conditioning. I suspect there are strong cultural meanings and connections that go beyond simply cooling the body.

Can you share a bit about your childhood and family?

As I mentioned, my parents are from South Carolina. I spent most of my childhood summers there with my grandmother. My father was an Army officer. We traveled all around the globe and lived in many different places. I began my education in a German day care center. I attended high school in Japan. At the time, I didn't value the experience. Looking back, however, I realize what a rich life experience I have had. I've had the opportunity to interact with people from many different cultures and backgrounds and have come to understand, in a very fundamental way, that there are many perspectives from which to view something. One way is not necessarily better than another. It's simply different.

When you exhibit your work, how do you hope the viewer will respond?

I'm interested in how the past influences our thinking, our actions, our approaches to craft and creativity today. It is important, even when I am working with old objects, that the connection not strictly be about the past. For one of my ironing boards—"Aunt Hagar's Child"—I drew the names inscribed on the surface from old runaway slave advertisements. I happened to be in a gallery standing beside a spectator who was looking at my work. She turned to me—she didn't know I was the artist—and she said, "Oh! There's my aunt's name right there. I haven't seen her in years. I'm going tomorrow to visit my aunt." That really

made me feel like some connection was happening in the present. That piece influenced her experience that day, prompted her to remember and to honor the past. My work is about creating this bridge between the present and the past, with the present being the starting point to journey to the past. **MT**

Anne Knott retired from the U-M President's Office to pursue a lifelong interest in fiber arts. She is now a graduate student in textiles at Eastern Michigan University.



'Stories Told in Sunday School' is among Porter's pieces based on African-American church fans.

Campaign goal is \$2.5 billion

U-M launches The Michigan Difference



A rousing rendition of 'The Victors,' led by President Mary Sue Coleman at right, concludes the kickoff celebration of The Michigan Difference campaign on May 14 in Rackham Auditorium.

President Mary Sue Coleman launched the University's major fundraising campaign May 14 and announced the goal as \$2.5 billion, among the most ambitious ever in public higher education.

The campaign, titled *The Michigan Difference*, "will support scholarships, endowed professorships, academic programs, facilities and other projects," Coleman said.

Since launching the nonpublic "quiet phase" of the campaign in 2000, U-M has raised \$1.094 billion in cash and pledges and \$187 million in bequests, a total of \$1.281 billion or 51 percent of the goal. The campaign will wrap up Dec. 31, 2008.

"The Michigan Difference will focus on maintaining and building the depth of excellence that

is the foundation of the University of Michigan's pre-eminence as a public research university," Coleman said. "Fourteen of U-M's colleges and programs rank among the top 10 in the nation, a claim no other university can make. Our breadth of accomplishment and activity—in Ann Arbor, Dearborn and Flint—gives U-M students and faculty an unparalleled array of opportunities."

The campaign title, *The Michigan Difference*, "captures the remarkable capability of the University of Michigan to make a difference for our students, for our state and for society," Coleman added.

The breakdown for fund-raising goals across the University reflects the campaign's focus on the core academic mission: \$400 million for student scholarships and fellowships; \$425 million for

faculty support; \$625 million for programs and research; \$500 million for facilities; and \$150 million for labs, infrastructure and discretionary support.

The campaign goal was announced during a three-day kick-off attended by more than 1,200 donors and friends who had the opportunity to learn about the projects that fund raising will support and to attend 90 events showcasing academic programs.

Coleman also announced that President Gerald R. Ford and Betty Ford would serve as the honorary chairs of the campaign. Ford, the 38th president of the United States, is a 1935 U-M graduate and is the namesake of U-M's Gerald R. Ford School of Public Policy. He served in

leadership roles in two previous U-M campaigns.

"Betty and I are delighted to serve as honorary chairs of The Michigan Difference campaign," Ford said in a teleconferenced appearance. "The University of Michigan has had such a profound influence on my life that I believe strongly in giving back to this institution. We are proud to lend our support and commitment to this effort. ... As a leader in previous campaigns for the University, I have seen over and over that our donors have always provided a substantial margin of excellence, making the difference between a good university and a great public institution. We look to our supporters once again to join us in making The Michigan Difference campaign a success."

Defining the Difference By Kim Clark Office of Development

A walk across the Michigan campus is an absorbing experience. The atmosphere is distinct, rich with the spirit of potential, the heritage of past achievements and the vitality of inquiry and discovery.

So Much Happens Here

The University of Michigan holds the promise of a different life. A sophomore discovers Thoreau and Woolf. A research scientist identifies a critical gene. A heart patient lives longer and better. An artist creates unforeseen beauty. A professor hones a revolutionary theory. An athlete achieves a championship dream.

The University is a global leader known for advancing all aspects of life: health, law and public policy, the arts and humanities, science and engineering.

Our scientists explore how nanotechnologies might repel biological weapons, populate cells to treat diseases and revolutionize the power of computing.

Our museums and theaters nurture and attract the finest and rarest of talent and open a window to science and art.

Our libraries connect scholars across time and place.

Faculty in our schools and colleges motivate and challenge our students, who respond by exploring worlds they never before imagined.

Our alumni are equally outstanding, shaping society with their leadership, creativity and innovation.

It is this breadth of accomplishment and activity in Ann Arbor, Dearborn and Flint – and beyond – is why our campaign is *The Michigan Difference*.

Our contributions are endless, but a sampling shows the lasting influence of the University of Michigan:

- Steadied by the calm leadership of President Gerald R. Ford '35, '74 LLD Hon., the nation survived a major constitutional crisis with the resignation of Richard M. Nixon. President Ford's integrity restored respect for the world's most powerful position.
- The Peace Corps and the environmental movement are grounded in Michigan. After John F. Kennedy unveiled his volunteerism plan on the steps of the Michigan Union, hundreds of U-M students rallied their peers nationwide to support an idea that would grow into 170,000 Peace Corps workers in 136 countries. National support for recycling, energy conservation and environmental protection grew substantially in 1970 after Michigan students carried out a four-day teach-in, dedicated to the "environmental crisis." The resulting Earth Day is now in its fourth decade of international recognition, and the recycling and reuse of materials such as plastic, paper, metal and glass is commonplace.
- Hundreds of thousands of people with HIV live better, longer lives because of azidothymidine, or AZT, an antiviral drug pioneered by Dr. Samuel Broder '66, '70 MD. He took a new approach with a drug that initially failed as a way to kill tumors; it was created 20 years earlier by biochemist Dr. Jerome Horwitz '50 PhD.
- Indiana Jones, Willy Loman and Roseanne Roseannadanna are part of the cultural lexicon because of Michigan's Lawrence Kasdan '70, '72



AM, '00 Hon LHD, Arthur Miller '38, '56 Hon LHD, and Gilda Radner '64-'70).

Our Vision

The essence of the University is its multiplicity of disciplines and the academic diversity of our schools and colleges, many of which are among the best in the country. We bear this mark because of Henry Philip Tappan, who when he took the helm as U-M's first president, noted that when scholars of different disciplines come together "they form a center of light." The Michigan Difference will intensify that light by generating the requisite resources for our students and faculty to thrive. Scholarships, professorships, programmatic support, endowments and new and renovated buildings are the essence of our campaign. These gifts of support will make possible the five objectives we believe hold the greatest promise for our campus and society, which the University has articulated as five themes.

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The Five Themes

Fulfill the Promise of Science and Technology

Not since the Industrial Revolution has new technology so transformed our way of life. This evolving world of nanotechnologies, artificial intelligence, wireless applications, robotic systems and the Internet drives us to explore the effective development and use of technology, its impact on economies and societies, and its myriad ethical ramifications. The past century focused on the large-com-

puters, electrification and transportation achievements such as automobiles and aerospace. We now look to the small—the most microscopic of discoveries and devices to improve and save human life and the environment. This will be the currency of the 21st century.

Enrich the Student Experience

The beauty of Michigan is its complexity. Students live and study amidst a panoply of political views, languages, ideas and cultures. Their peers are among the brightest in the world and bring richness to the University that cannot be found elsewhere. Our schools and colleges are ranked among the top 10 in the country. No other university can make such a claim.

We provide students with connections—human and technological—that encourage them to communicate, examine and take risks. Whether preparing them for employment upon graduation or for further exploration into the life of the mind, we will strengthen an academic community that infuses students with the critical skills for solving tomorrow's problems. And wherever our students go from here, the spirit of Michigan will endure.

Inspire a Life of Arts and Culture

Providing for arts and culture on campus ensures creativity, intellectual engagement, risk-taking and aesthetic satisfaction. We provide experiences, both in the classroom and throughout our museums and theaters, to stimulate creativity, engage tomorrow's performers and artisans, and



showcase the world from diverse points of view.

We offer our aspiring musicians, artists, architects and designers intimate learning opportunities, with

the complementary benefits of a renowned research university. In turn, they give the campus unique displays of song, dance, drama, architecture and art, and many go on to professional careers that draw praise from Broadway, Hollywood and artistic circles. Our students, and the greater community, also benefit from outstanding works from artists, writers, performers and architects attracted to the University because of its love of culture.

Advance Health and Society's Well-Being

We strive to improve human health and the quality of life in other realms as well: medical, socioeconomic and environmental. Our doctors and researchers develop treatments and preventions for disease, our social scientists provide groundbreaking findings on the human condition, and our public policy experts help shape government, business and industry.

Our past achievements proved the efficacy of the polio vaccine and water fluoridation, and identified genes for incapacitating diseases such as cystic fibrosis, neurofibromatosis and forms of *retinitis pigmentosa*. Poverty and inequality are the genesis of many social, environmental and medical ills, and we conduct research to understand their causes and evaluate the policies designed to alleviate them.

Michigan's strength in the social sciences is second to

none. Our programs in anthropology, political science, psychology, sociology, African-American history and women's history are among the finest in academe. Our research and initiatives into bioterrorism, preparedness, international law and disaster response help to counter the threats to safety and national security.

At the same time, we address threats to our natural world. We reside in a state renowned for its lakes, streams and forests, and some of our brightest minds are focused on preserving and sustaining wildlife and natural resources, regionally and worldwide.

Prepare Leaders for the Local and Global Communities

"The leaders and best" is more than a famous refrain at Michigan. It is the core of our work and an obligation we take most seriously. Our students, faculty and alumni lead by actions that stir others. This leadership comes in the form of Raoul Wallenberg '35, who saved 100,000 people from Nazi death camps, or Jim Abbott ('86-'88), who earned Olympic gold in baseball despite having one hand, or Roger Wilkins '53, '56 JD, '96 Hon LHD, whose incisive editorials about Watergate brought him and other *Washington Post* staff a Pulitzer Prize.

Our future as a society depends on preparing students equipped to understand different peoples in a world that can be alternately fascinating and volatile, but we also hold particular affection for our state and its major cities.

Whether our students are exploring their neighborhood or a community on the other side of the globe, they learn about the world through diverse classmates,



Defining the Difference continued from page 13

public service projects, international visitors, overseas studies and internships, and a rich and varied curriculum.

Our Goals

From our beginning, philanthropy has propelled and transformed the University. It is no overstatement to say the University of Michigan would have existed in word only without the critical early gifts of land from Native Americans and the citizens of Ann Arbor.

The University of the 20th century was equally fortunate. Imagine our campus without such generosity. Gone would be the glory of Hill Auditorium and the pealing of the Baird and Lurie carillons, the sanctuary of the Law Quad and the refuge of Nichols Arboretum, the splendor of the Clements Library and the magnificence of the Horace H. Rackham Building.

The University of the new millennium looks to this power of philanthropy for The Michigan Difference. We are grateful to our family of supporters and to the citizens of Michigan who have long provided opportunities for our students and faculty. Our supporters have always provided the substantial margin of excellence between a good university and a great public institution known worldwide for its leadership and creativity, and we look to them to join us in making The Michigan Difference a success.

Faculty Support

The caliber of an academic institution rests upon the quality of its faculty, who are the lifeblood of the University. Like students, faculty are attracted to those institutions best equipped to help them reach their professional goals. Endowed professorships honor our best minds and make the U-M faculty stronger. Some of our schools seek to increase their endowed professorships, while others look to create their first such chair. The University has 200 named professorships. We seek to achieve at least a 50 percent increase in endowed professorships, with all of our schools and colleges benefiting.

Student Support

Great students inspire faculty and challenge fellow students. To ensure Michigan's distinction as a leader in graduate education and research, we seek fellowships to attract the finest stu-

dents. Too often we lose talented students to well-endowed peer institutions able to offer full support. We want all of those exceptional students who can benefit from a Michigan education to have the opportunity.

Facilities Support

While outstanding people make an institution, the places in which they work have a profound effect on their ability to be exceptional. There is a special joy that comes with exploring, researching and performing in fresh surroundings equipped with the latest technologies. We want our students, faculty, patients and patrons to have memorable experiences at Michigan, and facilities designed and renovated for the 21st century make that possible. The pace of our discoveries and the demands of society drive the need for facility renovation and expansion. Attractive, up-to-date buildings and campuses are essential teaching, research and recruitment tools.

Program and Research Support

We seek to maintain and expand our strongest programs while developing new initiatives. In particular, our interdisciplinary programs stand out among an already exemplary number of courses and initiatives. Arts of Citizenship, the Program in the Environment, the Honors Program, the Women in Science and Engineering Program and the New England Literature Program are but a sampling of only-at-Michigan opportunities with the potential to be the pinnacle of a student's experience.

Support will benefit programs at both the undergraduate and graduate levels: multidisciplinary courses, museum and gallery exhibits, conferences, lectures, international study, film series and theme semesters.

Discretionary Support

Discretionary support provides tremendous flexibility for our deans and directors as they adapt to ever-changing needs and demands. This support will go toward students, faculty, emergency renovations, new academic initiatives, research assistance and the purchase of books, collections, supplies and equipment. The University is a dynamic place and annual giving provides support for challenges that must be met and chances that must be seized immediately. **MT**

Letters

I, LIKE MARY A BAGLEY of Winter Park Florida, am a paid lifetime member of the U-M Alumni Association. I, too, do not have a computer and don't really want one. I don't want to be cheated out of a print issue of *Michigan Today*. I'm sure that there are many others, who have not taken the time to write you, but also feel the way I do.

Mark R. Childs '81
Plymouth, Michigan

AS A RESIDENT of Surry, Virginia, I enjoyed the article "The Assembly Man" by David Holzel in the Fall '03 issue (about alumnus Donald Anderson '53, '60 LLB, and his attempts to set up rural representative assemblies in the Southern "Black Belt." Anderson died shortly after the article appeared.—Ed.). However, it has a couple of factual errors. First, test scores in Surry County Public Schools are not among the highest in Virginia. Second, 95 percent of graduates do not go to college, and third the Surry Assembly is not still going strong. The Surry Assembly has been dormant for years.

Pernell Watson Jr.
Surry, Virginia

CONGRATULATIONS on another superb issue of *Michigan Today* (Fall 2003). I appreciated Jami Blaauw-Hara's candor ("How the U-M Admission System Affected Me"), Dick Maskell's blending of art and engineering ("The Wrap Artist"), Hunein "John" Maassab's perseverance ("Inhalable flu vaccine available this fall"), Jillian Shanebrook's versatility ("Cover Girl") and Adam Carter's inspiration ("Backpacking Ambassador").

But the article, and the gentleman, who made me stop in my tracks and think was Donald Anderson ("The Assembly Man") when he wrote, "White immigrants brought with them community structures from their old countries.... In the case of Blacks, who were segregated completely, there was no government. Government was enemy terrorism. Blacks operate individually, but they sense a common goal."

I do not think I ever realized that fully, but it has given me a new depth of understanding. I think the theme of this issue was to celebrate the multi-facetedness of the human experience, and I did just that! Thanks again for a great issue.

Beth Miller '77, '79 MSW
Monroe, New York

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Tissue Engineering at Michigan Go TEAM!

By Yma Johnson

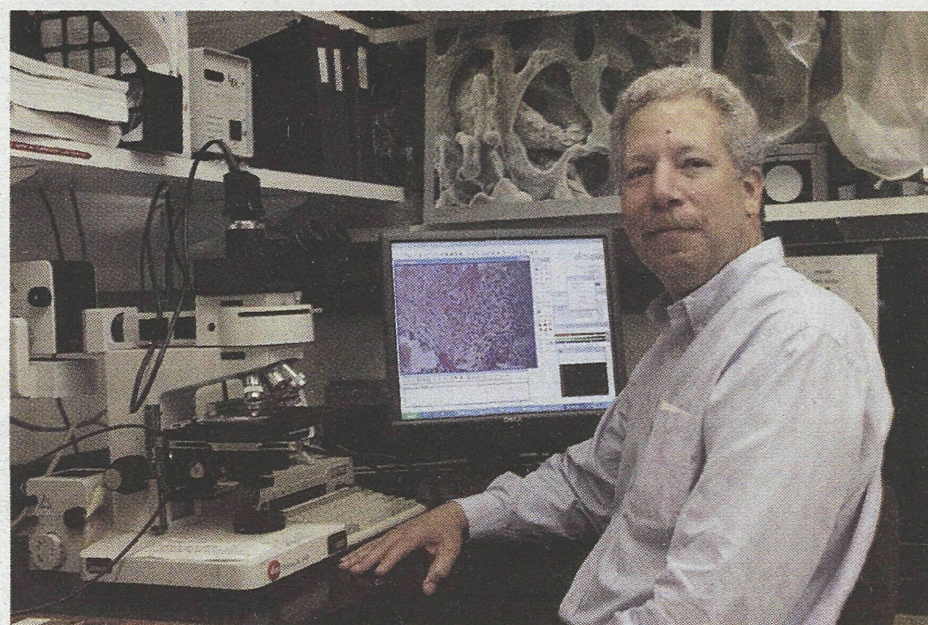
In the future, human bodies that need new parts may get replacement organs or tissues with lifetime guarantees if Michigan's big team of tissue engineers reaches its goal on the road to medicine's future.

"The idea is to provide patients with new tissues that won't wear out because they will consist of cells with the ability to renew themselves and to multiply just like tissues in our bodies do normally," explains Steven A. Goldstein '81 PhD, the Henry Ruppenthal Family Professor of Orthopaedic Surgery and Bioengineering at the U-M Medical School.

The goal in tissue engineering, a relatively new scientific specialty only 15 or so years old, is to develop "smart biologically based biomaterials that incorporate cells, scaffolding or matrices and regulatory factors to control repair and regeneration," Goldstein says.

Many disciplines collaborate

The complexity of that challenge is reflected not only by the many hats Goldstein wears (he was the Med School's associate dean for research and graduate studies for the past five years and director of its Orthopaedic Research Laboratories; a professor of both mechanical and biomedical engineering in the College of Engineering, and a senior research scientist in the Institute of Gerontology), also but in the many disciplines, schools, programs and institutes that other campus researchers in tissue regeneration represent.



Goldstein

Paul Jaronski U-M Photo Services

The three current common techniques for treating damaged tissues and organs are transplantation, the use of synthetic materials and administering drugs. These techniques have made a huge impact in medicine and dentistry, but they don't typically cure the person. Even when transplantation could likely mean a cure, there aren't nearly enough organs available for all the people who require them. Yet the single biggest category of medical problems is the need to replace the structure or function of organs and tissues in ailing bodies.

Let's focus on bone tissue, as an example, since that's the focus of Goldstein's research and the principle issues in regenerating bone tissue are broadly similar to those involving other tissues. "Bone is a fabulously dynamic material," says Goldstein, whose laboratory is developing techniques for engineering bone tissue. "Bone has three primary functions, to provide mechanical stability, protect internal organs and maintain mineral balance in the body." It is this third function that opens the gateway into understanding how to grow bone.

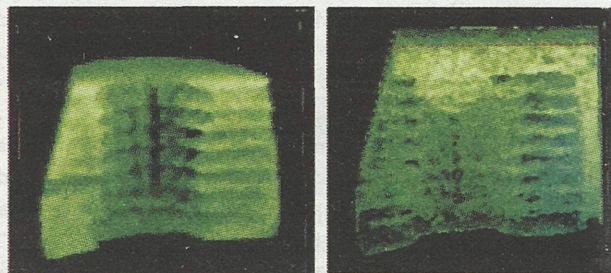
Studying how bone remodels itself

"Our bodies have specialized cells that can come and remove a little part of damaged bone, and then they're quickly followed up by other cells that now repair the little hole and put fresh bone in there," Goldstein says. When bone is removed during this fix-up process, known as "remodeling," chemicals like calcium and phosphorus are released into the body.

Bone also responds to functional demands. For example, the bones in the dominant hand of a professional tennis player will be thicker and stronger than in the non-dominant. Conversely, a person bedridden for a long time will have weaker bone tissue and less of it.

"If you don't take into account bone's ability to respond to mechanical cues or biologic cues, then you probably won't be able to design a tissue engineering strategy that would be very effective," Goldstein says. Figuring out how bone regenerates itself and adjusts to varying loads, and then inducing or mimicking the process, is what Goldstein and his colleagues and counterparts are working on in their labs.

Continued on next page



The scaffold of oral tissues on the left, formed in Dr. Stephen Feinberg's dental school lab, was implanted in live tissue. On the right, the 3D micro-CT image shows live bone tissue growing into the scaffold in the pores the researchers designed. Refining the process is among the key goals of regenerative medicine, since it would permit reconstruction of dental injuries resulting from birth defects, trauma or cancer surgery. Similar research is under way on the means to regenerate other bodily tissues. (Image by Dr. Ralph Mueller.)

Tissue Engineering

continued from page 15

Stem cells: the key to regeneration

Bone, like all tissues, is generated by specific cells called stem cells or progenitor cells. Stem cells are the critical resource in regeneration. Stem cells can multiply and replace themselves. An individual life begins as a single embryonic cell, the mother of all cells, as it were, which divides and multiplies over and over. It is coded with the ability to create daughter cells that differentiate to form every other type of cellular tissue in the body, and ultimately into a whole person.

Goldstein and others on campus work with mesenchymal stem cells (the type that differentiate into connective tissue such as bone, muscle, fat fibrous tissue and cartilage) and other stem cells, rather than embryonic stem cells. Embryonic stem cell research is currently limited by US governmental regulations, controversy and sticky ethical considerations.

Bone is arranged in three-dimensional scaffolds or matrices. Seeding scaffolds with stem cells is an elegant technique of cell-based tissue engineering. Researchers take from the patient the undifferentiated cells with the power to become bone. They grow the sample in a flask or bioreactor and then reinsert the new cells into the defect. Goldstein explains that "because the cells are at the damage site, and the scaffold is holding them there in the right place, they will receive cues from the individual's physiology that will help them make bone—or in other cases, make whatever tissue that you want them to do."

Seeding bone scaffolds with DNA

Goldstein and a colleague Dr. Jeff Bonadio, who was on the pathology faculty several years ago, have gone further than seeding damaged bone with stem cells. They are now seeding the scaffolds with DNA coded to pro-

duce proteins important in bone formation. The idea, he says, is "to entice the body's cells into coming into the matrix, taking up the DNA and producing a protein to stimulate bone formation. This system makes you be your own bone production factory by overstimulating your cells to produce just the right ingredients to make bone—and it's worked in our laboratory setting in animal models."

This process, called *in situ* tissue engineering, looks promising for people suffering with fractures that won't heal and also people who have a need for regenerating large segments of bone that might have been removed as part of a cancer therapy. The therapy is actually already in clinical trials to help skin ulcers heal, and the bone therapy may be in clinical trials in the near future.

An exciting aspect of *in situ* tissue engineering is that cells inserted into the wound will only produce proteins for a number of weeks. "It's not permanent and it doesn't get passed down to any daughter cells." "It's transient localized gene therapy to promote wound repair and in that case, bone repair or skin, and even repair of ischemic heart tissue. Our concept is that it may be very broad technology that may actually help in a number of tissue repairs," Goldstein adds.

Developing instruments to monitor the progress of cell and gene therapies inside the body is a rapidly expanding facet of regenerative medicine, Goldstein says. "In some of our research at Michigan we're using nuclear imaging techniques to literally label the cells that we're manipulating, and then, noninvasively, we can watch where they are in the body."

David Kohn, associate professor of dentistry and of biomedical engineering, is investigating how bone tissue responds to alterations such as exercise or bed rest, implantation of biomaterials, disease and aging. "By learn-

ing how to mimic nature," Kohn says, scientists have begun "to design novel materials that are able to control stem cell function and lead to increased amounts of bone regeneration *in vivo*." His research exploits three strategies used by nature—self-assembly of mineral (that is, how bones, teeth and seashells are formed); functional gradients (how material gets placed where it is most needed); and environmental responsiveness (how tissues sense and respond to changes in their environment).

Other tissue engineering projects



Kohn

Dental bone tissue. Kohn and Dr. Laurie McCauley, the William K. and Mary Ann Nijjar Professor of Periodontics in the School of Dentistry and professor of pathology in the Medical School, and William Giannobile, associate professor of dentistry, have already reported significant gains in treating dental bone loss.

Treatments include replacing bone lost to gum or bone disease and to restoring portions of the jaw removed in cancer surgery. They are also developing ways to repair dental birth defects that now require reconstructive surgery.

Blood vessel tissue. Another critical area of research involves therapeutic angiogenesis, that is, growing blood vessels by sequentially releasing enzymes to cells at specific sites at selected times. Dentistry Assoc. Prof. Jacques Nor says growing blood vessels cell by cell could help treat disease by serving as an alternative to heart bypass surgery, by promoting more rapid wound healing, by delivering medications and by treating cardiovascular disease in diabetic patients. Nor is adapting the technique to



Leading players of the tissue engineering team Wang, Mooney and Krebsbach (l-r), examine bone marrow stem cell cultures.

Paul Jaronski U-M Photo Services

TEAM addresses major research challenges

As the many affiliations and job titles of the U-M tissue engineering researchers attest, growing tissues and organs cell by cell is an amazingly complex process that involves many disciplines and medical specialties.

Until recently there was no cohesive structure for these efforts on campus. Prof. David J. Mooney of the dental and engineering schools spearheaded an effort to transform a longstanding grant that funded biomaterial studies into an umbrella program for multidisciplinary training in tissue engineering.

The National Institutes of Health's Dental and Craniofacial Research Institute then granted Paul Krebsbach, the Donald A. Kerr Collegiate Professor of Oral Pathology and associate professor of dentistry and biomedical engineering, Mooney and their colleagues \$5 million to fund a joint program between the dental, engineering and medical schools.

Under the banner of Tissue Engineering at Michigan (TEAM),

professors have systematized training opportunities for graduate and postdoctoral students from different degree programs and brought together researchers from across campus. In addition to their basic requirements and lab experience, students receive specialized training and financial support with the grant.

TEAM addresses one of the major research challenges of tissue engineering: how to synthesize the information, methodology and techniques from many different fields. "On the engineering side biomaterials, biomechanics and imaging are especially important," says Krebsbach, who heads the project now that Mooney has left U-M for Harvard. "On the life science side, cell and molecular biology, developmental biology, immunology—all are important in understanding the regeneration of complex tissues and organs. The TEAM training program brings mentors and students together for an interdisciplinary approach to solve problems in tissue engineering and regeneration."

cancer research in a converse application: understanding how vessels grow and flourish also provides information about how they die. Nor is using the angiogenesis model to find ways to “disrupt blood vessels and starve cancer cells to death.”

Muscle tissue. Research on the regeneration of muscle through control of mesenchymal stem cells holds exciting promise for people with genetic diseases or who have had serious accidents that damaged or destroyed muscle function. When people think of muscle tissue, they usually think of the skeletal muscles that move the limbs and similar mobile parts. But smooth muscles, like those that are components of blood vessels or that form our whole digestive and cardiovascular systems, are of special interest to tissue engineers. Robert Dennis '96 PhD, assistant professor of mechanical and of biomedical engineering, has pioneered an approach to engineer functional skeletal muscle tissue that could be used either as tissue replacements or as components of microfabricated devices.

Working in U-M's Functional Tissue Engineering Laboratory, Dennis is tackling problems related to the building and sustenance of cell cultures needed in research on cardiovascular and neuromotor tissues, as well as musculoskeletal tissues. “We want to understand what it takes to make muscles and tendons bigger, stronger and more adult in nature,” Dennis says. “The long-term goal of musculoskeletal tissue engineering is to develop functional muscles, tendons and blood vessels that can be used in regenerative medicine or as self-repairing motors for driving prosthetic devices. However, the realization of this goal is still decades away.”



Dennis

Reaching the goal of controlling the engineered tissue systems would “drastically decrease the requirement for experimental animals,” Dennis says. For further information about the Functional Tissue Engineering Lab, see the Web site: www.personal.umich.edu/~bobden/index.htm

Mucosal tissue. Dr. Stephen E. Feinberg '73 MS, associate professor of dentistry and of surgery, is working on ways to tissue-engineer oral mucous tissue “as a vehicle for gene delivery through the oral cavity, taking advantage of the enormously rich blood supply the mouth has to offer.”

Feinberg's laboratory has NIH funding to pursue making these “naïve” grafts “smart,” by placing genes in the cells that can, he says, “produce therapeutic proteins, such as growth factors, to assist in local tissue healing, to prevent cancer recurrence or treat a systemic disease, such as diabetes or hemophilia. We hope to do this by isolating stem cells from the mouth, then placing appropriate genetic material in those cells to serve as the repositories or factories for producing these gene products.”

MURI hopes to make artificial ‘bony organs’

The Department of Defense's Army Research Office recently awarded a five-year, \$5 million Multidisciplinary University Research Initiative grant (MURI) to David Mooney, who was then professor of Dentistry and Chemical engineering. Mooney brought together a multidisciplinary research team that includes:



Linderman

chemical engineering Prof. Jennifer Linderman; Dr. Cun-Yu Wang, associate professor in the biologic and materials science department of the Dental School; Asst. Prof. Sean Morrison, a cell biologist in the Medical School; Shuichi Takayama, assistant professor of biomedical and of macromolecular science engineering in the College of Engineering, and Dr. Paul Krebsbach, associate professor dentistry and biomedical engineering.

Less than a year old, MURI draws on the expertise of six labs in the Dental, Medical and Engineering schools. “The goal of our project is to develop hybrid tissues—tissues that comprise multiple different cell types—and grow them up outside the body, and basically to try to understand how one can control the fate of stem cells and what kind of tissue they turn into,” Krebsbach says.

The group is hoping to make artificial “bony organs” that would replicate in essence the bones in our body. In addition to the structural parts of bone—the mineralized tissue and the soft tissue—the new organs would also have hematopoietic stem cells, powerfully resourceful and self-renewing cells that produce blood cells. Morrison's laboratory has pioneered methods to isolate hematopoietic stem cells and transplant them back into the body to recreate the blood cell forming function of bone marrow.

Once they design the systems, researchers will better under-

stand how to control the fate of stem cells. Ideally, the small organs could be used as biosensors on computer chips to model systems for experiments. They could also serve as sensors to detect various agents in the environment that can cause cell or organ damage, Krebsbach says. “That's part of the reason the Army's interested in it because we could use these as biosensors for different agents that might be used against soldiers or civilians.”

The MURI team also hopes to devise a method for restoring the body's ability to create blood cells, one of the first systems wiped out when humans are exposed to radiation. A critical feature of such dreams is achieving greater understanding of fluids at the micro level.

Takayama has extensive experience in the development of microfluidic devices for sorting, culturing and studying living cells, and Dr. Linderman is an expert on mathematical modeling, particularly models of the interactions of basic cellular binding molecules called receptors and ligands. Linderman also models the relationships between the receptor-ligand binding and the rest of the cell's responses to those tie-ups.



Takayama

Dr. Wang has established a world-leading laboratory in the field of signal transduction, the signaling process by which cells receive genetic material from one another. More specifically, his expertise is in signal transduction related to cellular apoptosis, or cellular death, a normal part of the cellular aging process.

Krebsbach's laboratory focuses on isolating and using bone stem cells for tissue regeneration and has multiple years of experience in the animal studies required for such a complex project.—YJ

The Showcase

To gain exposure for tissue engineering research on campus, the Dental School's Tissue Engineering and Regeneration at Michigan group (TEAM) hosted in May the first biennial Showcase on Tissue Engineering and Regenerative Medicine.

The symposium brought together dozens of U-M researchers and clinicians from the School of Dentistry, Medical School and College of Engineering, all of whom are participants and mentors in TEAM.

“We have a huge number of faculty with tremendous successes that are working in this area, somewhere between 30 and 45,” says Steven A. Goldstein '81 PhD, the Henry Ruppenthal Family Professor of Orthopaedic Surgery and Bioengineering at the U-M Medical School. “That is likely as large, but most likely larger than just about any of our peer institutions, and in all areas from bone to muscle to organ replacement, such as kidney and pancreas to vessels to skin.”

The showcase brought together faculty who have been “particularly entrepreneurial” in scientific and engineering endeavors in regenerative medicine, Goldstein says. The audience was predominantly people interested in corporate ventures in addition to attendees from the University. Industry experts held a panel discussion highlighting successes and challenges in trying to market these new technologies. Start-up companies that have spun out of the University's regenerative medicine successes also held presentations.

“Without question this meeting was a showcase of the significant activity going on at this institution, and introduced it to the community out there who may not have recognized how much is happening at Michigan.”—YJ. MT

Mathematicians are proving that not all the most important medical research occurs in laboratories.

Getting cancer's number, and solving for unknowns in the AIDS Epidemic

By Davi Napoleon

Trachette (Trace) Jackson thought she would be an engineer. Patrick Nelson headed toward business administration. But while attending Arizona State University, both discovered mathematics—and each other. They switched majors to mathematics and met while taking a math class that focused on deeply theoretical matters, not directly applicable to life problems.

Then one day, Jackson recalls, James Murray of the University of Washington visited the school and “promised he could explain how leopards got their spots—and he did, using mathematical pattern formation.” The way Murray had used mathematics to explain a complex real-world phenomenon amazed them, and Jackson and Nelson went to Washington for graduate school to study mathematical biology under him. In their doctoral studies, they began to conceptualize research on medical matters that they have worked on at Michigan since joining the faculty in 2000.

Their results have been remarkable. Jackson, an associate professor, is using mathematical models to help find treatments for cancer. Nelson, a tenure-track assistant professor, is making inroads in the fight against AIDS.

Improving cancer treatment

Some anticancer drugs kill normal cells along with tumors, causing a huge problem in the treatment of cancer. Enter the mathematician. Trachette Jackson is currently investigating a chemotherapeutic strategy that would allow anticancer agents to bind to malignancies, thereby targeting only the cancer cell.

In one of Jackson's projects, she models



Mathematicians Jackson (left) and Nelson in her Angell Hall office.

mathematically a two-step experimental anticancer drug therapy. First, an antibody attached to an enzyme called a “conjugate” is administered; its role is to find and mark tumor cells. Second, a “pro-drug”—a nontoxic precursor to an active cell-killing drug—is administered. It converts into a powerful anticancer drug only after coming in contact with the antibody conjugate. Since the locater-conjugate has no side effects, Jackson has predicted that it will not significantly affect healthy cells in the region of the tumor.

But this complicated two-step process takes place only in Jackson's computers. To find out how tumors *actually* respond to the drug, Jackson collaborates with experimenters in academia and industry who provide data so that the ordinary and partial differential equations she creates can be connected to real experimental treatment models.

In the project just described, Jackson's mathematical model predicted that three different methods of administering the same total amount of the drug—a single injection, multiple injections or a continuous infu-

sion—would lead to virtually identical concentrations in a tumor.

Although the drugs are still in trials, experiments have already confirmed Jackson's predictions. “Together with James Murray, Trace developed a mathematical model that predicted how anticancer pro-drugs are activated within tumors,” says chemist Peter Senter, vice president of Seattle Genetics, Inc., who has collaborated with Jackson. “We then experimentally tested the hypothesis that the total amount of generated drug was not dependent on the frequency of pro-drug administration and found that Trace was exactly correct. Her work convinced me that mathematical modeling studies can assist in experimental design and can provide significant insight into why therapeutic regimens succeed or fail.”

In a related project, Jackson is comparing two conflicting theories of why tumors grow. Some benign tumors create layers of connective tissue around themselves, limiting growth. Jackson set out to understand the mechanism by which these capsules form or don't form.

Biologists entertain two theories: the *expansive growth hypothesis* posits that as a malignancy grows, it stresses normal tissue; the *foreign body hypothesis* views encapsulation as the host's response to the growing tumor in which it produces tissue components to form a barricade against invading cells.

Each theory has supportive data, and both sounded reasonable to Jackson when she began developing mathematical models of the phases of tumor-tissue growth in the encapsulation process. Her results, however, predict that the expansive growth hypothesis is accurate. These findings are so important that they are part of the reason she received the highly competitive Alfred P. Sloan Research Fellowship and the 2003 Career Enhancement Fellowship from the Woodrow Wilson National Foundation to support her research.

Thwarting HIV

Patrick Nelson is one of several people at Michigan who are using mathematical modeling to study HIV. “I write models that represent how the immune system interacts with the virus and what role drug therapies play in the treatment of an infected person,” he explains.

Experimenters give patients infected with the HIV virus powerful drugs to help block the infection process; some of the results have provided data for mathematical models that predicted the loss of white blood cells and the rate at which the virus is being killed in the body.

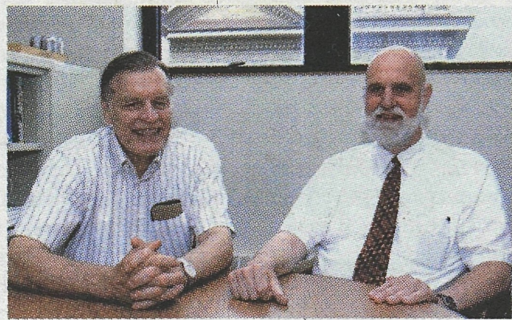
Nelson says many early analytical models assumed that drug treatments killed all the infected cells and virus, and that upon being infected, a cell instantly began producing virus. "My work has shown that when drug efficacy is not 100 percent, the relative effectiveness can be thought of in two ways: how fast the virus levels decline in the plasma after the start of therapy, and how long the virus stays below detectable levels. The length of delay that I consider relates to the time between when a virus enters a target cell and the time that cell begins to produce new virus. There is a delay inside each cell due to the synthesis required for the cell to incorporate the virus's DNA."

Once Nelson has devised equations to model the drug process, scientists like Dr. Kathleen Collins, an assistant professor in the U-M Medical School, test them in the lab. Collins has been trying to understand the factors that allow HIV to thwart the immune system and thus produce full-blown AIDS. "We can test only a relatively small number of parameters in the lab," Collins says, "and Patrick's models allow our research team to look at many more variables without having to do extensive testing on primates. He can extrapolate the research we do in a tissue culture dish."

Eliminating tests means reducing errors in the trial-and-error phase. Eventually, Collins and her associates will have to test the therapies in animals, but the process will be much less expensive and less complicated thanks to Nelson's contributions. A \$500,000 grant from the Burroughs Wellcome Fund supports Nelson's work. He was also among the original group of "young scientists" to receive a special Burroughs Wellcome Career Award.

Carl P. Simon, a professor of mathematics, economics and public policy, and director of the U-M Program for the Study of Complex Systems, says Nelson's modeling has advanced the work of Dr. David Ho, a renowned AIDS researcher, and Alan Perelson, a mathematical biologist with the Los Alamos Lab who served as a post-doctorate mentor to Nelson and Jackson.

Using data from HIV-infected patients who take potent



Koopman and Simon in the Center for the Study of Complex Systems in the Randall Laboratory.

Paul Jaronski U-M Photo Services

drugs, Simon explains, Ho and Perelson have been modeling the progression of HIV. Because AIDS cells are always dying and being replaced by new ones, some mutant cells can elude any one medicine. While cells play catch-me-if-you-can, scientists have struggled to find a drug that would attack the moving target. In that struggle, it is essential to know just how long each set of cells live. "Patrick is using more sophisticated math than Ho and Perelson to get better estimates

on how long HIV cells live," Simon notes.

Nelson says an HIV-infected individual has cells that the virus likes to invade and turn into its host. "What happens is a competition between good cells and bad cells," he says, and an enormously complicated theoretical framework is necessary to understand how much of what drug will be effective in the fight against the bad cells. "If you didn't have toxicity, you could simply bombard the virus."

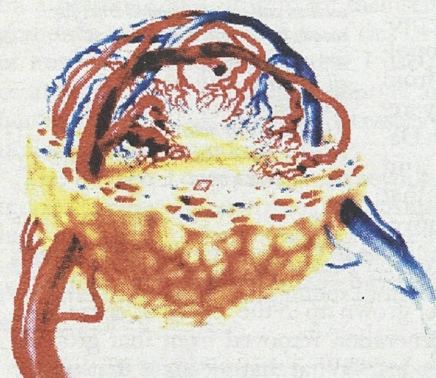
By simulating what is happening in the patient, Nelson's models help clarify what goes on in the struggle. "We can run equations on the computer to get all the possible scenarios and outcomes," he says, "then send the best outcomes to experimentalists and clinicians to see if they work. Our models have predicted what level of drug therapy should be administered, depending on how sick a patient is with HIV." That way, the best of competing drug therapies can be tailored to each individual, optimizing the effect and minimizing damage to healthy tissues.

Nelson says applied mathematicians are showing how useful mathematics is to science. "Biology is so complicated, it's going to need quantitative thinkers to help understand it," he says. "Our models are never going to fully answer a biology question, but they are very good at disproving hypotheses. This is a very exciting field, where Michigan is beginning to develop the resources to be one of the leaders."

Part of the reason Michigan is playing a prominent role in this area is that the Department of Mathematics is genuinely interdisciplinary. Pure and applied mathematicians support each other's work, and Michigan math majors don't have to choose between disciplines when their goal is to apply what they learn. Students in the interdisciplinary math concentration may take biology courses as part of a math major or double major in math and biology. Others in the program incorporate physics, economics and other areas into their major. Some integrate their academic studies with work in industry.

By necessity, a good deal of laboratory work is narrowly focused, but just as Michigan mathematics students need not choose between disciplines, biology students can elect to enlarge their focus using mathematics. With the strength of the life sciences campuswide, Michigan has an unprecedented opportunity to exploit the potential of a systems approach to biology. **MT**

Ann Arbor freelancer Davi Napoleon '66, '68 AM, writes about theater and the arts in addition to medical topics.



A vascular tumor. Jackson can test and compare innovative anticancer drug treatments of such tumors with her mathematical models under conditions that are not yet accessible experimentally.

Studying Complex Systems

Since 1999, Carl P. Simon has been the director of the U-M Center for the Study of Complex Systems (CSCS), an interdisciplinary program that looks at self-regulation, feedback, adaptation and other features of dynamic systems. Since such systems may share comparable underlying structures, faculty representing most U-M colleges find it inspiring to work together at CSCS and transfer methods of analysis from one field to another.

Simon's research includes the study of dynamic models of the spread of communicable diseases. His groundbreaking work in AIDS research, in collaboration with Dr. James S. Koopman, an MD and a professor in the School of Public Health, and the late John Jacquez of the Medical School, combined mathematical models and empirical data to show the importance of the primary infection period to the transmission of HIV. Their study earned the prestigious Teman prize in 1994.

"During the first few months of infection, the virus spreads through the body and reaches high levels before the immune system lowers those levels," Simon explains. "This period of primary infection is followed by a long asymptomatic period, which usually lasts many years—an average of nine years before the advent of effective drug treatments. During this period, the virus slowly destroys the immune system. The last phase is full-blown AIDS, when the body with a battered immune system is vulnerable to opportunistic infections."

Simon, Koopman and Jacquez used mathematical models to analyze population data and concluded that a disproportionate amount of infection occurred during the months of primary infection. Just as those who get colds are most contagious around the time of the onset of symptoms, "the same holds for the HIV virus," Simon notes. And that's why at-home tests for HIV trouble him. Useful as they are in showing the presence of HIV antibodies, the tests are likely to produce false negatives in newly infected people, since it takes a couple of months for the immune system to produce the antibodies that would show up in home tests.

"We realized very early on that contact patterns were extremely important in the spread of HIV," Koopman says. "As we began to investigate, we realized that the epidemic could not be explained by a model that assumes that infectiousness is constant." Koopman is currently developing mathematical models for the transmission of SARS that he thinks may be useful in future work on HIV.

The implications of their work go beyond underscoring the importance of safe sex. "We believe this says some things about what kind of vaccine might work against such infections," Simon says.

Normally, a vaccine provides a small amount of infection to prime the body's immune system and prepare it to fight a full infection at a later exposure. "But the Salk vaccine that helped beat polio didn't prevent infection; it made an infected person less sick and therefore less contagious," says Simon. "Our findings indicate that a vaccine that lowers contagiousness in infected persons might very well provide enough 'herd immunity' to halt the HIV epidemic."

An interdisciplinary approach rooted in mathematical modeling, the kind U-M has encouraged through CSCS, promotes progress of that kind.

Some who've seen Paree are heading back to the farm



The Rural Renaissance

Story and photos by John Ivanko

Exit the fast lane, pick up the pitchfork and plug in the laptop. Owning a few green acres is not just for farmers any more. After a few years with advertising powerhouse Leo Burnett in Chicago, both my wife, Lisa Kivirist, and I had overdosed on lattes and the big-city life, squeezed between long hours in the office and stressful yuppie careers. Realizing we had opted into the consumption-driven world which we received paychecks to promote, we jumped off the treadmill of success—at least as many Americans have come to de-



fine it—and instead of a starter home, seven years ago we planted roots on a starter-farm outside Monroe, Wisconsin.

Everything here was so new to us that our copy of Rodale's *Organic Gardening Encyclopedia* has soil-stained pages from our reading it in our gardens while we tried to figure out what direction the eyes of a potato needed to be planted. Perhaps that's why the locals call what we have a "hobby farm."

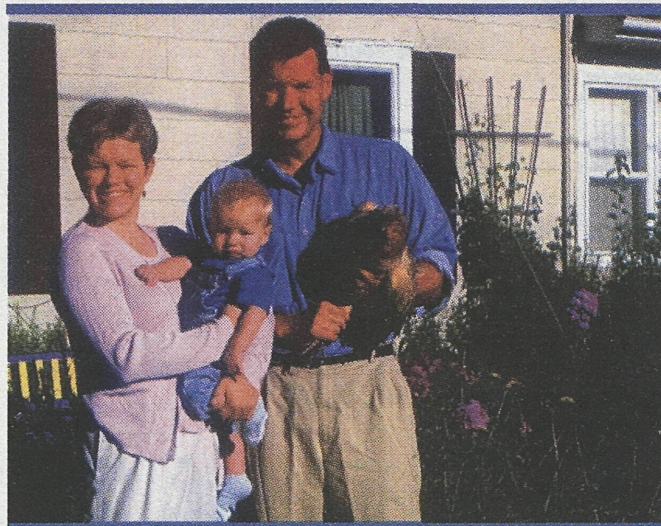
But we're far from hobbyists. Lisa and I also operate Inn Serendipity Bed & Breakfast and numerous other small enterprises and creative endeavors from the second floor of our 80-year-old farmhouse. We are stay-at-home parents for our 2-year-old son Liam. Our focus from the start has been to consider the intersection and interrelationships among food, energy and living systems as well as how these can support our livelihood and quality of life.

Strawberries, llamas and chickens

Over the years, not only have our gardens met about 70 percent of our food needs, but also the wind and the sun help power the farm and heat the showers for our B&B guests and us.



The free-range chickens lay about an egg a day, feeding the local barter economy and our numerous potluck guests.



Kivirist and Ivanko left advertising jobs in Chicago seven years ago to open Inn Serendipity, a bed and breakfast in rural Browntown, Wisconsin, where son Liam joined their family two years ago.

The absence of chemical fertilizers and pesticides and our return to organic farming methods have resulted in riotous frog concerts and mouth-watering strawberries in spring. A dilapidated corncrib received a new lease on life by being turned into a greenhouse made out of straw bales. The dairy barn houses llamas now. And a flock of chickens freely range the land.

Funding these changes is a diversified portfolio of business activities, from writing articles to selling eggs, from welcoming guests to consulting about community conservation. While our household income has plummeted, our quality of life has sprouted in many ways. Sometimes the wind turbine spins the electricity meter backwards; eggs are shared with neighbors; a pie might be delivered, still warm from the oven; a meadowlark has once again been spotted in our field; distant friends congregate regularly around our dining room table, enjoying cuisine almost entirely from our gardens or our county. In all of these activities, neighbors or organizations like the Midwest Renewable Energy Association guide and support us.

But stepping back and looking at the larger perspective, we are part of the Rural Renaissance, aka Rural Rebound, which many American demographers are studying. More people moving into—or returning to—rural counties than leaving them. About 56.1 million people now live in

Rural America

"Rural America is home to a fifth of the Nation's people, keeper of natural amenities and natural treasures, and safeguard of a unique part of American culture, tradition and history, [comprising] over 2,000 counties and containing 75 percent of the Nation's land." Source: the US Department of Agriculture's Economic Research Service.

a rural county according to 2000 US Census data, roughly 20 percent of the population.

The ethnography of everyday life

Tom Fricke, founding director of the U-M's Alfred P. Sloan Foundation Center for the Ethnography of Everyday Life and professor of anthropology, has found from his ethnography research in a North Dakota farming and ranching region that "most of the movement from urban areas to the rural Great Plains comes from people with already existing family connections."

"They've either grown up in the region or come from families just a generation removed from that growing up," Fricke continues. "What that means is that people



By locally generating electricity from the wind and sunlight, as well as collecting downed trees for wood, the couple have made their inn energy self-reliant. It's also fossil fuel free. A 10-kilowatt Bergey wind generator produces 7,000 to 9,000 kilowatt hours a year of electricity, more than meeting Inn Serendipity's needs.

re-establish a connection and use their existing links to foster a re-integration. This goes on near the bigger towns in Dakota, too. Bismarck and Fargo, for example, have people moving back who buy small acreage out of town and do things like establish truck gardens that sell their produce in the city during biweekly farmers markets."

Although the new rural residents may farm, farmers they're not. US Department of Agriculture data show only about 2 percent of rural residents are farming. (USDA's census defines a farm as "any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. Operations that received \$1,000 or more in government farm program payments were also counted as farms." The majority of agricultural operations [59 percent] had less than \$10,000 in sales of agricultural products in 2002, the census reported.)

If the new rural residents aren't farmers, what are they? First of all, despite the fact that retired persons have long been seen as rural resettlers, many are relatively young. Kenneth Johnson and Calvin Beale, demographers who wrote *The Rural Rebound*, say, "The increasing propensity for those in their 30s (and their children) to move to or remain in rural areas...may now be contributing much more to the rural migration than those over 65."

Many of the rural settlers or rebounders—from the young and the old, the farming and the professionals, the hobby farmers and the second-homers—are what Brian Hoey '02 PhD calls "lifestyle migrants." Hoey, a research fellow at U-M's Center for the Ethnography of Everyday Life, says, "The so-called rural renaissance has been driven by non-economic migration—relocation patterns that reflect decision making on the individual level motivated by something other than economic concerns."

'Lifestyle migrants' are going ex-urban

"Because lifestyle migrants are typically those who have been downsized, displaced or voluntarily downshifted from other, frequently corporate, jobs, this has meant that they generally begin in urban or suburban areas." But it's a mistake to overemphasize the impact of economic factors in this group's relocation to the country, he says. Lifestyle migrants "go ex-urban," Hoey says, "as a deliberate step on a personal quest to remake themselves. Lifestyle migration is a category or subset of this larger phenomenon of non-economic migration that I use to emphasize the central concerns that include lifestyle and a concern for quality of life. Relocation is a necessary part of the equation for lifestyle migration."

The nonprofit organization Renewing the Countryside is documenting stories across North America of those who have returned to the boondocks to remake a better life rather than merely earn a living. The pages of *Mother Earth News* and numerous other publications are peppered with similar stories.

Thanks to the Internet, plenty of rural migrants are remaining connected to the larger economy or plugging

into it in new ways. The Internet is akin to the rural postal delivery and electrification of the last century, offering the opportunity to be connected in ways never before imagined. Hog farmers swap stories with South African counterparts; information about building with straw bales or harvesting the wind is only a click away—including information about how to get the projects funded. As for the boomer population heading into retirement, Social Security and pension checks can be delivered to a mailbox at the end of a gravel road just as easily as one in a condo lobby. And the money tends to go a whole lot farther at a local diner in the country than in an urban restaurant.

Finally, an explosion of freelance and subcontractor opportunities in a rapidly changing workforce has created a "free agent nation." In his book of that name, Daniel Pink says, "One out of four American workers work for themselves." While the number of free agents with rural zip codes is difficult to ascertain, the capabilities of computers and the Internet make it possible for some highly skilled workers to do at home what they once did in a cubicle.

Homesteaders on the Plains

Not all lifestyle migrants are economically secure, however. In the Plains States, where examples of any renaissance are far and few between, some rural communities, in Kansas, for example, are struggling to survive by borrowing the 1800s idea of homesteading, giving away free land to "new pioneers" in exchange for their agreement to build a house and stay in it for a year.

Such opportunities might turn small towns into bedroom colonies, with residents commuting 30 miles or more to job prospects that offer livable wages—and health insurance. According to Jeffrey Jacob in his book *New Pioneers*, however, this type of rural homesteading falls short of the concept of sustainable development, given the hours spent commuting to nearby urban centers.

Another area in which the rural renaissance may fall short is diversity. William H. Frey, a demographer with U-M's Population Studies Center in the Institute of Social Research, has found a new form of "white flight" from both large cities and their surrounding suburbs spilling into the countryside. Urban centers have become more ethnically diverse from foreign immigration while losing white residents who departed for greener pastures, he says.



A rise in Hispanic residents

Whether this trend continues or is offset by the sharp rise in Hispanic immigrants (many of whom are quite familiar with farming and compose a large part of the nation's temporary migrant workers) remains to be seen. The Economic Research Service of the USDA, for example, found that the number of Hispanics in rural areas grew 70 percent between 1990 and 2000.

Will the rural renaissance foster a more sustainable, less destructive and consumptive American way of life? That will depend largely upon those who call their 10 acres—or 100—home. The growing "simplicity movement," swelling interest in local food, widespread commitment to historic preservation and a determination to put the conservation ethic into practice, is a sign of a changing worldview that places greater import on ecologically healthy, safe and secure communities.

Perhaps it's not too hard to imagine a time when our food, energy and viable livelihoods need not rely on sources 2,000 miles away. Only then might homeland security and the rural renaissance be viewed in the same light, illuminating a rural route toward greater sustainability—economic, social and ecological.

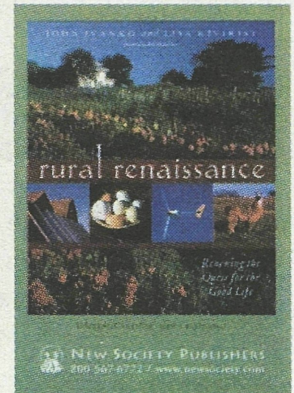
At Inn Serendipity, sustainability is not about subsistence. It's about the things money can't buy, like having time for friends and family, drinking clean water, dancing with Liam, savoring delicious and safe food, witnessing the return of healthy soil, breathing fresh air, engaging in meaningful work and witnessing nightly summertime firefly performances. After all, a healthy life comes from a healthy planet—regardless of where we live.

MT

John Ivanko '89 is a writer, photographer and sustainable agriculturalist. He and his wife Lisa Kivirist also operate Inn Serendipity, a bed and breakfast in Browntown, Wisconsin. Their book Rural Renaissance: Renewing the Quest for the Good Life was published in May by New Society Publishers. (For more information, see www.innserendipity.com/ruralren/book.html).



Kivirist bringing in part of her strawberry crop.



Renewing the Countryside, Inc.

Website: www.renewingthecountryside.org

Through innovative books, calendars, Web sites and other resources, Renewing the Countryside, Inc., provides facts and encouragement to people living in the countryside or contemplating moving there. The nonprofit organization raises the awareness of urban dwellers as to how rural people play vital roles in preserving the countryside, educates policymakers about types of initiatives they can support and showcases individuals, businesses and organizations that are "renewing the countryside" through innovative enterprises and initiatives that combine economic, environmental and community benefits.

Updated heroines invade a traditional, lucrative literary genre

CHICKLIT

By Valerie Laken

Anyone visiting a bookstore these days is likely to notice a popular new category of novels filling the shelves and flying off them. The pink and red covers feature martinis, beds and shapely legs in high-heeled shoes, while the stories inside chart the humorous and amorous adventures of young single women in the city.

That the genre's name—"chick lit"—conjures a brand of bubble gum is probably no accident: for the most part these books are packaged as a bright, breezy form of literary escapism. Combining the features of romance novels, comedies of manners and classic coming-of-age stories, chick-lit novels represent one of the hottest new trends in the book world. *Publishers Weekly* reported that sales of just the best sellers in this

genre hit \$71 million in 2002, the same year, not coincidentally, that "chick lit" made it into the Oxford English Dictionary: "(chiefly derog.) literature which is perceived or marketed as appealing to young women."

And beyond the book sales, chick-lit successes earn millions more in films and TV sitcoms for those who concoct just the right blend of naughtiness and niceness.

Sex and the City and Bridget Jones's Diary launched the hip, hit marketing segment in 1996.

Publishers, eager to build on the success of books like the genre's trailblazers of 1996, Helen Fielding's *Bridget Jones's Diary* and Candace Bushnell's *Sex and the City*, have moved quickly to expand the chick-lit market. Several publishing houses have spawned imprints geared solely toward chick lit, like

Simon and Schuster's Downtown Press or Harlequin's new division, Red Dress Ink.

Not everyone is thrilled

Yet not everyone is thrilled with the chick-lit phenomenon. Some critics, authors and readers have begun to ask: is the marketing label just a harmless tool to help readers find the light reading they seek, or is the label a way of dismissing and pigeonholing the voices and concerns of young women writers and readers?

Three Michigan graduates and first-time novelists discussed their opinions of the chick-lit phenomenon and how it affected the publication of their recent books.



Coburn

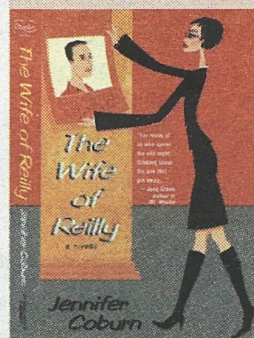
Jennifer Coburn '88 explained, "I'm proud to be a chick-lit writer. I think it accurately describes who's reading my books— young (ish), hip women looking for a light, funny read about life and love."

Coburn's novel, *The Wife of Reilly* (Strapless / Kensington Books, \$12.95), certainly delivers on this promise. Recently

optioned for a film, it follows the romantic and comic antics of a successful Manhattan accountant, Prudence Malone. During a homecoming weekend visit back to her alma mater in Ann Arbor, Prudence falls in love with and becomes engaged to her old college flame.

The fact that Prudence is already comfortably married and settled on the opposite coast from her new Hollywood fiancé shocks her friends but not Prudence, because Prudence has a plan: she will find a replacement wife for her husband, Reilly, and thus soften the blow of their imminent divorce. Prudence's trusty, eclectic group of urbanite friends agrees to help execute this madcap plan by writing personal ads and screening worthy applicants through a series of awkward interviews and dates.

Though not exactly the stuff of highbrow literary fiction, Coburn's novel is a carefully crafted page-turner with surprising emotional force. Her narrator is inviting and witty, drawing the reader into her silliest and most intimate moments. These are features Coburn views as essential to the genre. "Chick lit reads like a chat with your girlfriends," she says.



Indeed, like many chick-lit books, all three of the novels mentioned here are written in the first person by hapless, overwhelmed narrators handling the perilous matters of sex, love, career, art, fashion, finance and friendship that make up the daily life of many contemporary working women.

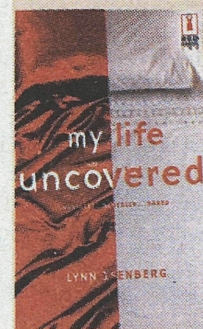
As author Lynn Isenberg '82 explains, readers want "a way to make sense out of their lives by reading about the chaos of someone else's." Another thing readers want, Isenberg believes, is "an experience." The experience she offers readers in her first novel, *My Life Uncovered* (Red Dress Ink, \$12.95), is an insider's view of Hollywood's less famous industry: adult entertainment.

The novel's heroine, Laura Taylor, is a struggling screenwriter from Michigan who, when her big deal falls through and her money runs out, finds herself writing scripts for pornographic films. The success she achieves in this new line of work is, of course, not without its drawbacks. But the cast of characters Laura encounters and the plot twists she endures keep readers engaged and smiling throughout the book.

Although Isenberg had never even heard of chick lit until Red Dress Ink bought her novel, she has warmed to the buzzword and now sees her novel as "a natural fit." Still, she admits, "It does bother me that some people dismiss the label without taking the work of the writers seriously. But I also believe that good talent rises to the top."



Isenberg



Francesca Delbanco '00 MFA is more ambivalent about chick lit. She thinks some authors who happen to be young and female may have good reason to weigh the pros and cons of being associated with the chick-lit label. "What you gain in terms of book sales you lose in terms of prestige," she says.



Delbanco

Delbanco's novel, *Ask Me Anything* (Norton, \$23.95), straddles the line between sophisticated literary fiction and material familiar in the world of chick lit. Her heroine is a young urbanite looking for love while working in the typically glamorous fields of acting and publishing, but Delbanco's nuanced characters and conflicts achieve an emotional and psychological complexity that is the stuff of literature.

Although her book was published by a prestige house, Norton, and endorsed in blurbs by Pulitzer Prize winner Richard Ford among other notables, Delbanco nonetheless had to get used to the idea that her book's cover would feature a scantily clad young woman lying on—what else?—a big red bed.

Although it's true that the novel's heroine, Rosalie Preston, does spend some time lounging in the hotel beds of her wealthy lover, Delbanco still found herself wondering, "Is this cover going to make it harder for me to be taken seriously?"

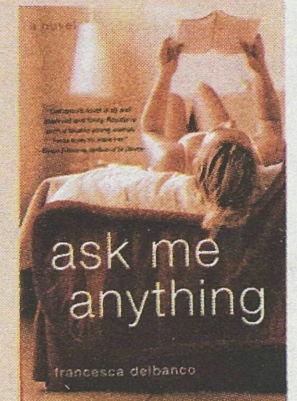
Most of the time, indeed, Delbanco's endearing heroine is not in bed but struggling to make her way as a cash-strapped aspiring actress in Manhattan. By day Rosalie demeans herself by writing an advice column for teen readers of *GirlTalk* magazine; by night she blunders through the theater world, rehearsing scenes with her acting troupe and becoming embroiled with a powerful theater financier and a brash young Irish playwright. Delbanco's artful prose style shifts seamlessly from youthful sarcasm to mature insight. Her narrator can argue the merits of Eugene O'Neill or Aeschylus with the same ease as she discusses the value of pedicures or casual sex with old friends. If this is chick lit, it's chick lit for the English major crowd.

In this sense, maybe Delbanco's novel presupposes an ideal view of contemporary American women, one in which they are sexy, smart and sophisticated in their romantic lives while also desiring intellectual challenges in their romantic literature.

Whether or not many readers meet Delbanco's hopes, at

least, as Isenberg noted, chick lit has "opened up the doors for many readers who might not otherwise be reading at all." Surely, writers everywhere can appreciate that.

Delbanco, too, welcomes whatever marketing strategies will put her books in the hands of readers. She explains, "If you like what you've written and you can find a way to get it to people, that's fine, that's good. There's no shame in that."



Walter Laken received an MA in Russian literature in 1997 and an MFA in creative writing in 2001 from U-M, where she currently teaches creative writing and composition. Her fiction has appeared in Ploughshares, The Missouri Review, and the 2004 Pushcart Prize anthology.

Dads vs. Cads: a study of female preferences for partners

**Love is like the wild rose-briar;
Friendship like the holly-tree.
The holly is dark when the rose-briar blooms,
But which will bloom most constantly?
Emily Brontë, Love and Friendship, 1846.**

Chick lit and other romantic fiction plots, in which women get into conflict with and face choices between responsible males and scoundrels, may reflect evolutionary mate-selection processes involving these male archetypes.

For long-term relationships, women seem to prefer dads—men who are kind, compassionate and monogamous, says Daniel Kruger, a social psychologist at U-M's Institute for Social Research. But for short-term relationships, women choose cads—the classic romantic dark heroes who are socially dominant, promiscuous and daring.

Kruger and co-authors Maryanne Fisher and Ian Jobling tested evolutionary mating theories by having the study's subjects, an ethnically diverse group of 257 female undergraduates at a large Middle Western university, read hypothetical scenarios involving classic cad-and-dad character types from 18th- and 19th-century British literature. The researchers published the results, "Proper and Dark Heroes as Dads and Cads: Alternative Mating Strategies in British Romantic Literature," last year in Volume 14, Issue No. 3, of the journal *Human Nature*.

"We asked female undergraduates to read passages from romantic novels describing two prototypical dads and two prototypical cads," Kruger says. "When questioned later, about 80 percent said they preferred dads for marriage, but 60 percent would prefer to have sex with a cad when considering a brief affair."

The women who were surveyed had an increased tendency to choose cads over dads as the length of the hypothetical relationship decreased, Kruger adds.

Kruger says the findings imply that the dad-versus-cad distinction is intuitive to women and remains a key element of contemporary mating strategies. Women's preference for cads for short-term relationships supports what evolutionary psychologists call the "sexy son hypothesis," Kruger says, according to which, even if cads aren't good bets to stick around and help raise children, the genes that make men successful cads will be passed along to their sons, who will increase their mothers' eventual reproductive success by providing numerous grandchildren.

Finally, Kruger notes, the distinction between dads and cads is intuitive enough that women showed a strong preference for dads as potential sons-in-law. Only 13 percent of the women said they would prefer to see an imagined 25-year-old daughter engaged to a cad.

"A cad would be less likely to provide paternal support for offspring," Kruger says, "which means that a daughter might turn to the maternal family for help. That could adversely impact the grandmother's overall reproductive success."

Though deemed one of the 'sexiest men alive' and a 'Scud stud' for his reporting from war zones, Sanjay Gupta's patients come first

The Case of the Nostalgic Neurosurgeon

By Colleen Newvine

CNN medical correspondent Dr. Sanjay Gupta returned to campus this spring to speak to two groups of students eager to hear from a celebrated Michigan graduate.

When he's at CNN headquarters in Atlanta, Gupta is the TV doctor whose million-watt smile landed him on *People* magazine's "Sexiest Men Alive" list.

Back in Ann Arbor, he's a nostalgic alumnus more interested in touring his old stomping grounds and visiting nearby family and friends than in waving to passersby who recognize him or generally reveling in his fame.

"It's a bit overwhelming for me," said Gupta '90, '93 MD, who majored in biomedical science before moving on to the U-M Medical School.

He'd just joined CNN in 2001 when almost immediately he became a part of the team covering the Sept. 11 terror attacks. In 2003, he was embedded with a Navy medical unit dubbed the Devil Docs, who were among US forces in the Middle East. Mixing reporting on the war with performing five surgical operations on Iraqi and American patients in difficult desert conditions sent Gupta's reputation soaring. The National Press Photographers Association, the National Health Care Communicators and the International Health and Medical Media have honored him for his work.

This spring, Gupta gave the keynote address at the Asian American Health and Cultural Fair at the U-M Medical School, where he shared observations from his time in and around Baghdad.

He said he'd originally planned to see how the war was affecting troops, specifically the Devil Docs. What he became more and more interested in, though, was Iraq's health care system and how health care changes during times of war.

Iraq was also among the topics when he spent time informally talking with students in the Lloyd Hall Scholars and LS&A's Health Science Scholars residential programs.

Gupta later said he's a soft touch for Michigan visits – and not just because he grew up in Novi, Michigan, but because "I love the University of Michigan; everything I have done today, everything I have



'You can become a lot more efficient than you think,' Gupta told students, as he recalled his many campus activities. He exemplifies that philosophy in his roles now as surgeon and TV news reporter.

become, in some way is directly attributable to my time at the University of Michigan."

Gupta calls Dr. Julian T. Hoff, the Richard C. Schneider Professor of Neurosurgery and department chair, the mentor who has always supported him. Hoff's ethics, determination and devotion "all filtered down" to his students, Gupta said.

Outside the classroom, Gupta juggled extracurricular activities such as the Michigan Men's Glee Club, the Indian-American Student Association and running, especially through campus.

"One of the things about Ann Arbor is it really gets in your blood," he said in reflecting on his visit. "I have eaten at every single restaurant and have probably set foot on every spot on campus," he said.

Gupta has not left medicine for the bright lights and fame of television. He continues to practice neurosurgery. In fact, he serves as a member of the staff and faculty of the department of neurosurgery at the Emory University School of Medicine in Atlanta and performs surgery weekly at Emory's

hospital and at Grady Memorial Hospital, where he is chief of neurosurgery.

He also cohosts Accent Health for Turner Private Networks, prepares medical segments for the syndicated version of *ER* on TNT, contributes health news stories to CNN.com and writes a column for *Time* magazine.

But regardless of the many demands on his time, "bottom line," he said, "my patients always come first. If I am called for an emergency at the hospital when I am at CNN, I drop everything and go to the hospital. It is a delicate and in many ways unprecedented balance but seems to work well. I am fortunate that both my medical life and my television life are supportive of the other. It works because I am realistic in terms of my goals and expectations from all my jobs."

Clearly one not to stand still, Gupta is looking to the future. He loves reporting medical news but doesn't see it being forever. Politics, he hints, might be in his plans.

"My goal is to influence how we handle health care," he said. "I always want to practice medicine. I want to get back to health care policy."

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