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### WEAVING HISTORY

A collection of Navajo weavings opens a window to a sacred history — and an opportunity to learn more about Native American culture.



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### SPYING ON AN ENZYME

Studies of an enzyme that changes when cells become cancerous could offer clues to the disease itself.

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# PERSPECTIVES

RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITY AT OHIO UNIVERSITY



## Hard Ball for Hard Times

A look at baseball's toughest era...  
Will the game ever be that good again?

SPRING ▲ SUMMER 2002  
VOLUME VI ▲ NUMBER I

# FINDING A RESEARCH FOCUS

LETTER FROM THE PRESIDENT AND VICE PRESIDENT



**ON THE COVER** Before Spud Chandler's opening pitch in the 1943 World Series, a B-17 bomber roars over Yankee Stadium. Note the wartime admonition printed on the second-deck railing: "See Score Card for Alert Instructions." (AP)

PHOTO: Courtesy of Charles Alexander

**A**LTHOUGH OHIO UNIVERSITY will be 200 years old in 2004, as a research institution, we are still young. While faculty here have long been engaged in research and creative activity, it is only in the last 10 to 15 years that research has joined our missions of education and service with equal emphasis. That institutional attention is evident in our external funding for research, which has increased by more than 50 percent since 1990. ▲ But as our research mission expands, we must be thoughtful about its growth. Most large institutions can easily outspend Ohio University in building academic programs of research and graduate study. So, our best approach is to develop a specific focus for our research and creative efforts — a task that will require a rare blend of cooperation between faculty and administration. We are working together to identify those programs that have attained national prominence through an excellent core of faculty, students, and staff. And we must support those disciplines in which we occupy a unique niche nationally and globally. New resources must be identified to support faculty and students engaged in these studies, recruit new faces to our campuses, and provide the facilities and equipment they need to do their work. ▲ Identifying this focus will not be an easy task, and it will not happen quickly. The conversation will involve voices from throughout the university, a process we hope to begin in the coming academic year. While this venture will be a challenging one, it is crucial to our success as a national university. Focusing our efforts will give us the upper hand in the competition for funding and the best faculty and students. And success in those areas will benefit all of our research and creative endeavors.



**ROBERT GLIDDEN**  
President,  
Ohio University



**JOHN A. BANTLE**  
Vice President  
for Research,  
Ohio University

*Perspectives: Research, Scholarship, and Creative Activity at Ohio University* is published twice a year by the Office of Research Communications, part of the Vice President for Research division. Its goal is to provide our colleagues and friends with a sampling of the contributions made by the university's faculty, students, and staff to our understanding and appreciation of the world around us.

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## LEARNING FROM HISTORY

Can a city suffer the effects of toxin-producing industries — even 100 years after the companies close? Ohio University undergraduate Keith Jackson thinks so.

With the aid of a grant from the Voinovich Center Undergraduate Research Scholars Program, the senior geology major is studying the connection between environmental conditions and poor public health by researching infant mortality in Baltimore from 1880 to 1920. How will this data help scientists today?

Read more about it at [www.ohiou.edu/researchnews/extracredit/keith\\_jackson.html](http://www.ohiou.edu/researchnews/extracredit/keith_jackson.html).



**MAP IT** A new study is examining historical infant mortality rates in Baltimore.

PHOTO: Rick Fatica

## HIV IN RURAL AMERICA

Findings from a new study of people with HIV who live in rural communities suggest they may be more likely to continue having unprotected sex than people living with HIV in urban areas, a problem study authors blame on a lack of HIV-prevention programs and other health and social services in rural America.



The findings are the latest from a \$1.3 million study of HIV and AIDS in rural America, which is funded by the National Institutes of Mental Health.

Read more about the work at [www.ohiou.edu/researchnews/medical/HIV\\_risk.html](http://www.ohiou.edu/researchnews/medical/HIV_risk.html).

## SURVEYING SURVEILLANCE

A new book by privacy expert John Gilliom takes a deeper look at how computer surveillance measures are affecting Americans by examining a group that knows what it's like to have almost every aspect of their lives monitored: welfare recipients.

The federal government tracks household income and expenses; the ages, names, and Social Security numbers of children; savings and checking accounts; marital status; criminal history; health records; retirement plans; and much more information about those who receive benefits. But what's the effect on individual rights?

Read more about it at [www.ohiou.edu/researchnews/research/surveillance.html](http://www.ohiou.edu/researchnews/research/surveillance.html).

## SCIENCE SPOTLIGHT GOING TO THE DOGS

Puppies and dogs love to run and play. With the aid of a grant from the National Science Foundation, scientist Audrone Biknevicus is studying how canines of different ages and breeds move, as well as how running and walking might impact bones and joints as dogs grow older.

Her work was highlighted in a recent episode of Science Spotlight, a video feature on Ohio University research developed by the Office of Research Communications and University Communications and Marketing that airs on WOUB, Ohio University Public Television.

Watch the episode on the Web at [www.ohio.edu/sciencespotlight/](http://www.ohio.edu/sciencespotlight/).

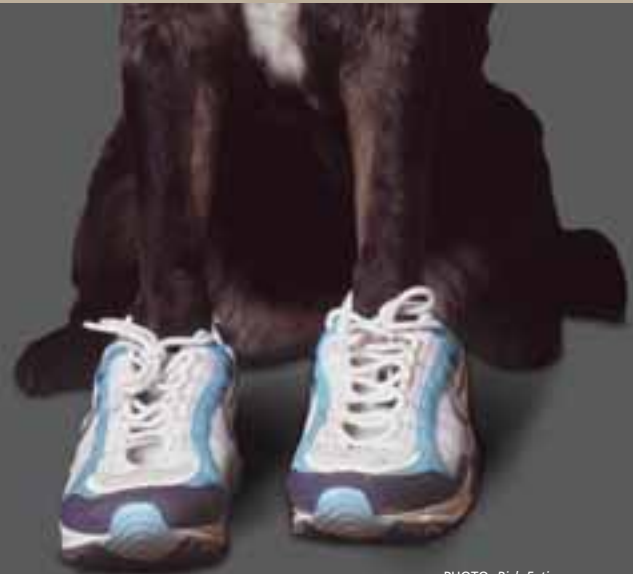


PHOTO: Rick Fatica

## A CAREER CHALLENGE

About half of the women in successful information technology careers don't have traditional degrees in computers or engineering, and entered the field because they love to solve problems — not for the high paychecks, a new survey suggests. The study also found that 60 percent of the 275 women polled cited men — including fathers, high school teachers, husbands, and bosses — as highly influential in their decisions to follow this career path.

Read more about it at [www.ohiou.edu/researchnews/research/tech\\_careers.html](http://www.ohiou.edu/researchnews/research/tech_careers.html).



DIGITAL ILLUSTRATION: Christina Ullman

## ON POLITICS AND HEARING AIDS

Ever wonder what politics is really like in the West Wing? Studies by political scientist Michael Burton could paint a clearer picture of the dynamics of White House political work. Burton, who was a political aide to former Vice President Al Gore, is conducting interviews with current and former White House staff for a book tentatively titled *The White House Experience*.

The project is one of 10 that recently received a grant from the Ohio University Research Committee, which awards grants to faculty and staff for early-stage research and creative projects. Grants went to a variety of projects, including a study of digital hearing aids and research on the cultural repercussions of ethnic cleansing in Poland.

Read more about it at [www.ohiou.edu/researchnews/news/our\\_sp02.html](http://www.ohiou.edu/researchnews/news/our_sp02.html).

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SPRING ▲ SUMMER 2002

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The road-weary baseball players who took to America's dirt-covered diamonds in the Great Depression were tough men drawn to a rough game in one of the nation's bleakest periods. Baseball historian Charles Alexander's latest book examines baseball during the Depression; will the game ever be that good again?

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BY ANDREA GIBSON

Tourists flock to Hawaii for its lush landscape of breathtaking flora, but beauty can be deceptive. Many of the plants that decorate the rain forests and mountain sides are invaders in this island paradise, stealing away the environment from native plants. Can this remote island ecosystem survive?

### 28 A LITERARY FAREWELL

BY DALE KEIGER

In the early 1970s, an Ohio University student stumbled upon a copy of *The Ohio Review*. The literary journal inspired him to write, and nearly 30 years later, that inspiration burns just as brightly.

### 30 A RECIPE FOR GOOD POLICY

BY RANDALL EDWARDS

The ingredients for most modern environmental and public health policies include a dash of environmental lobbying, a teaspoon of political maneuvering, and a sprinkle of public outcry. Oh, and don't forget the science. Unfortunately, according to a new book on the topic, that's the one thing often left out.

### 36 SACRED TREASURES

BY ANDREA GIBSON

The Kennedy Museum of Art boasts a trove of more than 100 Navajo sandpainting textiles, possibly the largest such collection in the world. The treasure has caught the interest of the museum's new curator — and of the Navajo Nation.



DINGER Jimmie Foxx hits a homer at Fenway Park, Boston, 1941.

PHOTO: Courtesy of Charles Alexander

## *departments*

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# FIRST PERSON

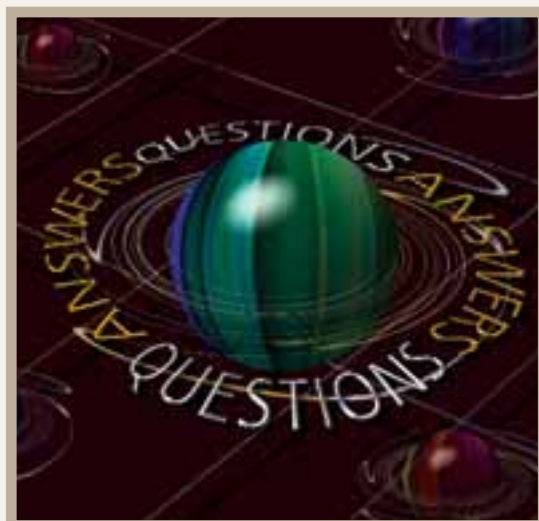
THE EVOLUTION OF PERSPECTIVE

**I HAVE MADE A CAREER OUT** of questions. I ask them, scientists and scholars answer as best they can, and I write their answers on pages for others to read. I have a *lot* of questions. Fortunately, they usually are directed at someone with enough patience to match my curiosity. And what better place to be curious than a university? People come here to find new knowledge, to create knowledge, to prompt the need for more knowledge. So much to learn.

Last summer, we came to some of you with our questions about this magazine. After five years of publication, we felt

it was time for change. And so did you. We asked if you wanted shorter articles instead of long features. Your answer was no. We asked if you thought we published pieces that cast a critical eye upon the university when such a look was needed. Your answer was yes, but not often enough. We asked about story diversity, photography, design. You answered that

you wanted more coverage of the humanities and the arts, enjoyed our photography, and wanted a new organization of the sections inside the magazine. The changes you'll find in this issue are a reflection of our questions — and your answers.



DIGITAL ILLUSTRATION: Christina Ullman

*Some queries* have no answers. Some *demand* uncompromising *resolutions*.

We welcomed your responses, even those that shone a light on our weaknesses. Some answers are hard to hear. Some questions are even harder to answer.

Such is the case with an issue currently before the Ohio Board of Education: Should the state's science standards — the curriculum guidelines on which state assessment tests are based — be expanded to include the teachings of alternative theories to evolution? In particular, should they include “intelligent design,” which argues that life is too complex to have been created spontaneously, and must have been designed by an intelligent being, which proponents say may have been God, or perhaps a supernatural or extraterrestrial being.

In March, the Inter-University Council — which includes the presidents of Ohio's 13 public universities, among them Ohio University's Robert Glidden, who chairs the IUC this year — issued a letter asking the Board of Education not to consider “intelligent design creationism” on equal footing with evolution, the widely accepted theory that life on Earth evolved through a process of natural selection. It was an unusual move for the council, but one the group's executive director says was necessary given the potential backlash that could follow such a weakening of the state's science standards.

If we are to indulge our inquisitive natures, we must accept that some queries have no answers. Some demand uncompromising resolutions. Still others, such as evolution, require the strength of conviction. A decision on the teaching of evolution is due in November. How will the board decide? It shouldn't be a difficult questions. Religion — however cloaked — has no place in the science curriculum. But in the reality of partisan pressures, questions become painfully subjective, and the answers become muddled in the perception of politics. Let's hope the board has the conviction to do the right thing for Ohio's students.

KELLI WHITLOCK  
Editor, *Perspectives*

## contributors this issue

### NEIL CAUDLE

Neil Caudle (page 18) last saw hardball action during a Roy Hobbs League game three years ago. His 1964 Sears Ted Williams glove was older than most of the players. Caudle is editor of *Endeavors*, the research magazine at UNC-Chapel Hill, and author of the novel, *Voices from Home*, and coauthor with Brad Woodall of *A Parent's Guide to Pitching*.

### DALE KEIGER

Dale Keiger (page 28) took enough time off from working at *The Post* to earn a journalism degree from Ohio University in 1976. He currently is a senior writer for *Johns Hopkins Magazine* in Baltimore and a visiting associate professor in the Hopkins Writing Seminars.

### RANDALL EDWARDS

Randy Edwards (page 30) spent 20 years as a newspaper reporter, including five as the environment writer for the *Columbus Dispatch*. He was a 1998 Science Writing Fellow at the Marine Biological Laboratory in Woods Hole, Massachusetts, and is an active member of the Society of Environmental Journalists. He now works as the assistant director of communications for the Ohio Board of Regents.

# ANTHOLOGY

REPORTS IN BRIEF

SOCIAL SCIENCE

## A LASTING COMMUNITY: *Study offers insight on rare African-American culture*

When social scientists Dave Lucas and Charles Jarrett traveled to South Carolina last summer, they planned to study a rare African-American culture thought to be fading away. The pair quickly discovered their assumptions were wrong. The traditions of the Gullah/Geechee people — African-American descendants of slaves brought to America 300 years ago — were surviving despite the intrusions of modern society.

There are an estimated 750,000 Gullah/Geechee people scattered around the coasts of South Carolina, Georgia, and northern Florida today, relatives of people enslaved on plantations on Hilton Head Island in South Carolina. It was these survivors who sparked the interest of Lucas and Jarrett, researchers at Ohio University-Southern in Ironton, who began their studies of the Gullah/Geechee culture in the fall of 2000.

Although separated by geography, the Gullahs (those in South Carolina) and the Geechees (those in Georgia and Northern Florida) see themselves as one community, even favoring a “unifying” backlash to a “divisive” dash between their names. Historically, the Gullah/Geechee people were isolated from whites during slavery and after its abolition. They created their own language — a Creole dialect blending African languages, rhythms, and grammar with English; the language is still spoken today.

Holding on to these traditions is proving more challenging today, the researchers say, because of commercial and tourist developments in areas Gullah/Geechee populations once dominated. Since the construction of bridges for tourism in the 1950s, many mainland Americans have entered the communities, while many Gullah/Geechee people have left them.

For cultural scholars, “The question became, ‘Will this culture survive?’” says Jarrett, an assistant professor of sociology. To answer this question, the researchers



PORTRAITS OF A CULTURE At left, two gullah sisters play on Pawleys Island Beach, South Carolina. Right, Bubba Jessie sits guard on his front porch in Awendaw, South Carolina.

PHOTOS: David Herman

spent last June in the Sea Islands of South Carolina, immersing themselves in the culture for almost 12 hours every day. They attended town meetings and worship services, and interviewed and observed its residents, all part of a short-term intensive research technique they call “Folkography.” Lucas and Jarrett kept daily journals, posted narratives to a Web site they created for the project, and interviewed community leaders.

To their surprise, the duo found the Gullah/Geechee people weren’t losing their way of life, but instead were consciously maintaining and adapting it for a quickly changing society. While the people use technology — cars, computers, and telephones — they largely shun commercialism. Many have service jobs in the tourism industry; others still farm and fish. Valuing kinship, members of extended families live next door to one another. Preferring simplicity, the families cook meals at home rather than eat out; they

frequent “mom and pop” stores rather than strip malls.

And the Gullah/Geechee people still practice many of their ancestors’ spiritual traditions. They wear their finest shoes in church but walk barefoot to the service. After church, they walk barefoot home. They also elaborately decorate graves, believing that the spirits of the dead guide and visit the living. “It’s a spiritual way of life, that’s why you’re not going to be able to kill the culture easily,” says Lucas, an assistant professor of interpersonal communication.

The team presented their findings last summer at the Rural Sociological Society annual meeting and earlier this year at the National Association for African American Studies. They plan another trip to the Sea Islands this summer to continue their studies.

NICK KOWALCZYK

For more information, visit the Web at [www.southern.ohio.edu/lial/Ethno/The%20Project.htm](http://www.southern.ohio.edu/lial/Ethno/The%20Project.htm).

EDUCATION

## CULTURAL CAPITAL

### *Revisiting the legacy of black educators in America*

If it weren't for the pioneering efforts of some black teachers and principals, black children in some parts of Ohio wouldn't have received an education in the 19th century — even after the passage of the public school desegregation law in 1887. The law existed only on paper until the mid-1950s in some areas of the state, including in the city of Gallipolis in rural southeastern Ohio.

So black educators opened their own private and public schools to ensure that young blacks could study and prepare for professional careers. Not only was this a

remarkable feat during an era when the odds were stacked against them, but these teachers and principals also serve as role models today, says researcher Adah Ward Randolph, whose work is part of a larger study on the work and impact of black principals in America.

The Albany Enterprise Academy, a private school run by Thomas Jefferson Ferguson, and The Lincoln School in Gallipolis, initially led by Yale University graduate Edward Bouchet, taught hundreds of black students from the 1860s until 1951,

according to Randolph, an assistant professor of educational studies whose research on this topic will be published this summer in the *Journal of African American History* and as a chapter in the 2002 book *Blacks, Education and Cultural Capital*. Both cities were stops on the Underground Railroad, and a number of blacks educated at the private academy in Albany later taught students at the public school in Gallipolis.

Despite some battles, including a struggle with the Board of Education in Gallipolis to provide equal resources to black students, the schools offered a thorough curriculum of courses ranging from philosophy and anatomy to Greek and civil law, says Randolph, who based her research on

MUSIC

## NOTES FROM HOME: REVIVING THE FORGOTTEN COMPOSERS OF ARGENTINA

A few years after Alejandro Cremaschi left his native Argentina to study and teach piano in the United States, he began to introduce the music of his homeland to new ears — both within Argentina and around the world. Cremaschi is a member of Fundación Ostinato, a group of Argentinian musicians dedicated to reviving and celebrating key 20th century composers from their country.

"We thought a lot of music by 20th century Argentinian composers was overlooked in Argentina," says Cremaschi, an assistant professor of piano at Ohio University. "At the time, there was no recording of this music, so we set out to record the complete works."

The pianist is part of an effort to record and perform the music of composers Carlos Guastavino, Alberto Ginastera, Juan José Castro, and others whose works are either out of print or haven't been published. Ostinato, founded in 1994 by Cremaschi's former piano teacher Dora De Marinis, has produced 13 CDs of the music of these composers. That includes the complete works of Luis Gianneo on three CDs, which were released in January and March and feature performances by Cremaschi.

In late 2001 Cremaschi toured the United States, Canada, Spain, and Germany with his fellow musicians, bringing their interpretation of the classic pieces directly to audiences. The work of these composers, all of whom combine elements of Argentinian folk music with classical



MUSICAL REVIVAL Alejandro Cremaschi combines Argentinian folk music with classical pieces in his performances.

PHOTO: Rick Fatica

influences, hits close to home for the pianist, who draws on his cultural heritage for his performances.

"A lot of the music sounds familiar to me," he says, "because it's based on popu-

lar music, tango, and older folk traditions from other regions of the country."

Though those musical traditions may be unfamiliar to listeners outside of Argentina, the compositions performed by Cremaschi and other musicians affiliated with Ostinato have been well received by audiences in America and Europe. A critic for the *Washington Post* described Cremaschi's performance in Washington, D.C., last November as "pristine" and "passionate."

In its native country, the nonprofit organization has received several awards for its work, including a declaration from the House of Representatives that Ostinato is a project of national interest. While recent economic and political unrest in Argentina may hamper Ostinato's efforts to gain further government support for its work, the organization already has helped put its native composers on the musical map. And the project has allowed Cremaschi to contribute something unique to the world of classical performance.

"With classical music, you're likely to go to a concert and hear a piece you've heard before — like the *Moonlight Sonata* by Beethoven," he says. "Just the fact that you're playing something that's good and not played often is a big thrill. It makes you feel that you're contributing something."

AG

For more information, visit the Web at [www.ostinato.org](http://www.ostinato.org).



“Teachers, *regardless of race*, must have a *vested interest* in seeing these children *do well*.”

— ADAH WARD RANDOLPH

interviews and archival materials. A number of principals, including Ferguson of the Albany Enterprise Academy, also believed that hiring black teachers to teach young blacks was key to the success of these schools. Black teachers were good role models for the students, these educators argued, they were leaders in the black community and understood their pupils’ culture and customs.

That concept is still relevant today, Randolph says. Despite desegregation, black students are in the majority at a

number of schools in America, and in some places, they account for 90 percent of the student body. And while many teachers today place the blame on students for poor scholastic outcomes, Randolph says her research suggests that proactive work by teachers and principals can make a difference in black schools.

“Teachers, regardless of race, must have a vested interest in seeing these children do well,” she says.

The efforts of black educators extended

beyond the schoolhouse, she adds. Randolph, who also is involved in a larger study of black principals in America from 1919 to 1969, has found that these men and women not only built schools, but participated in regional and national think tanks, developed community libraries, and rallied other blacks to vote. The educators were not only leaders in the school system, but in the community at large, says Randolph, whose findings on the first black female principal in Richmond, Virginia, Ethel Thompson Overby, will be published as part of the upcoming book *Black Principals* by the University of North Carolina Press.

ANDREA GIBSON

## ART

### STILL LIFE

*An artist finds the line between man and nature*

The term “landscape painting” conjures images of orange sunsets, docile brooks, and leafy trees. But that’s not what artist Ron Kroutel sees when he drives around Ohio. His canvases reflect ghostly track houses framed by telephone wires, highway overpasses, and gnarled tree branches, all set against a foreboding sky.

“Just to make a pretty picture doesn’t really express the way I feel about things,” says Kroutel, a professor emeritus of art at Ohio University.

The painter’s workshop on the outskirts of Athens, Ohio, is enveloped in woods, close to a state park and lake. But the bare winter trees reveal that modern life and technology — utility poles, a busy highway — are not far away. Kroutel’s paintings pose questions about that intersection of nature and human progress.

“The house seems to represent the safe haven where we live, but it’s surrounded by a threatening situation,” says the artist about his oil paintings, which often are about 4 feet wide and 4 feet high in scale. He points to the recurring images of power lines and the strange and portent skyscapes of yellow and green in his work.

These paintings, which Kroutel has been creating for more than 15 years, are part of the collections of the Lanning Gallery in Columbus and the Bonfoey and Company



SETTING A MOOD Ron Kroutel's paintings, like this one titled *Outskirts*, express the struggle between man and nature.

PHOTO: Courtesy of Ron Kroutel

Gallery in Cleveland. Most recently, they were featured in the Ohio Arts Council exhibit *Coming of Age* at the Riffe Gallery in Columbus. The curators selected his work based on his unique painting style and longevity in the art world, and because he is a past recipient of three council grants.

Though these moody paintings speak to the uneasy struggle between man and nature, Kroutel only recently began to include people in his landscapes — sometimes a crouching man, other times a face looming on the horizon. He isn’t sure why the human figures, which seem to be responding to the environment in the paintings with fear, anger, or other basic emotions, are now appearing on the

canvas. But art is an intuitive process, and Kroutel has learned to trust his instincts.

That holds true for his choice of artistic expression as well. The artist, who once considered becoming a musician, previously dabbled in video, performance art, installations, and abstract works, but ultimately was attracted to the rich tradition of oil painting.

“I thought painting had the deepest roots — it goes back to the caves,” he says. “Making an image on a flat surface — there’s something basic and fundamental about it.”

AG

For more information, visit the Web at [www.ohiou.edu/art/faculty/kroutel/index.html](http://www.ohiou.edu/art/faculty/kroutel/index.html).

TECHNOLOGY

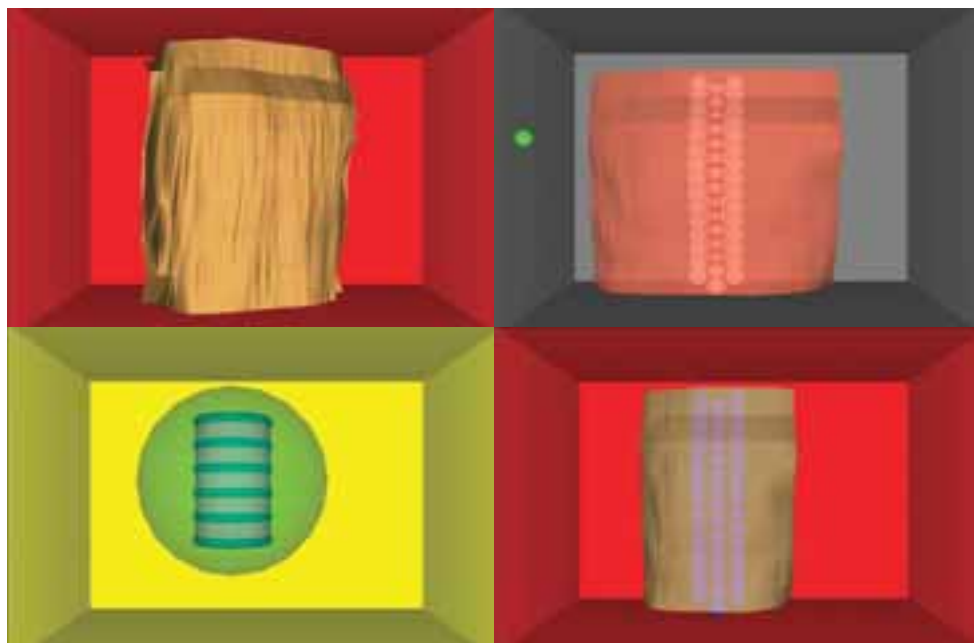
## A TOUCH ON THE BACK *Using virtual reality for medical training*

Medical and physical therapy professors used to have their pupils feel strands of hair under pages in a phone book, tracing the hairs' subtle contours. The exercise was designed to heighten students' sense of touch — a skill that would make for a faster diagnosis of muscle injuries or other problems.

Today, students practice diagnosis-by-touch on dummies — which provide realistic dimensions but little flexibility — or on other students, whose relative health fails to offer the injuries students need to feel.

Fine tuning the sense of touch may soon become an easier lesson to teach with the aid of a “Virtual Haptic Back,” a computer program that lets students “feel” the bumps, tightness, and disorders in an unhealthy back — all from a seat in front of a monitor.

An interdisciplinary team of four Ohio University researchers developed the software, which mimics everything from spinal curvatures to muscle spasms. To ensure humans could feel the back on the computer screen, the researchers applied haptics, the science of touch that uses an interface to transmit real-life sensations from virtual-reality models on a computer, says team member Bob Williams, an associate professor of mechanical engineering.



VIRTUALLY THERE Images of the virtual back (top left), vertebrae (top right), ribs (bottom left), and spine (bottom right).

IMAGES: Courtesy of Bob Williams

“We’re trying to sensitize students’ fingers, but in a controlled manner,” says Bob Conatser, a biomedical sciences lab research associate and the research team’s computer programmer. The group is striving to reproduce the hair-under-the-paper technique, but as Conatser says, “putting a hair on paper isn’t as exciting as seeing a spine on screen.”

Making a technological leap from

plucked hairs under the Yellow Pages, the researchers recruited a volunteer to serve as a model and created a digital, 3-D map of his back. Their program works like this: When a student sits in front of the monitor, he sees a simulated back with skin and a vertebral column. Virtual reality software in a thimble-shaped tube attached to an 8-inch-tall metal crane (the haptic interface) allows the student to “touch” the virtual

BIOPHYSICS

## MIXED SIGNALS A CLOSE LOOK AT THE EPILEPTIC BRAIN

Imagine the brain as a busy highway: Nerve signals and the messages they carry travel in a two-way traffic pattern that leads them to the brain’s cells. The signals and messages must move in a steady flow and pass easily from cell to cell.

Now, imagine the brain of a person with epilepsy: A road-raging cell group takes over the brain’s communication highway, reducing the two-lane to one, and forces all the other signals to move in one direction. The result is an intense, fast, synchronized movement of nerve signals that creates a power surge and, ultimately, an epileptic seizure.

The Epilepsy Foundation estimates 2.3 million Americans are affected by

epilepsy. Scientists don’t know what causes the disease and many of the drugs used to stop epileptic seizures have side effects. Testing new drugs is difficult, as the only way to know if the treatments are working is if the seizures stop.

But a computer program developed by Ohio University physicist Peter Jung that models the activity of an epileptic brain cell could be the first step toward virtual testing of new drugs for people with the disease.

“A good, faithful, reliable computer program lets you do experiments you can never do” in a laboratory, says Jung, coeditor of a new book, *Epilepsy as a Dynamic Disease*, to be published this year

by Springer-Verlag New York, Incorporated. “Computers can play a really important role in showing what sort of drugs and compounds might be effective.”

Jung’s computer model is based on digital videos of epileptic calcium waves, a type of nerve signal that moves slowly enough to monitor. The videos, provided by the Connecticut-based biotechnology company ViaTech Imaging/Cognetix Incorporated, depict the calcium waves’ activity in brain tissue samples from epileptic patients at Children’s Medical Hospital in Cincinnati.

Jung found that calcium waves shoot across the brain tissue in a synchronized movement, just like other nerve signals that can travel up to 150 meters per second — far too fast to be tracked by a

back. As the student moves his finger, a cursor (shaped like a green circle) moves across the back and vertebral column on the screen.

Each vertebra has a different level of tightness, which can be felt through the thimble. Sliding his finger down the spinal column, the student senses the bumps and divots of the spinal column — just as if he were touching a human back. The student also can diagnose and practice rotating a misaligned vertebra using his sense of touch — all on a computer.

Although the program is near completion, the team plans to add more bones and muscles to the model using a grant from Ohio University's 1804 Fund. In addition to Conatser and Williams, the team includes John Howell, an associate professor of physiology, and Dennis Cade, an assistant professor of physical therapy.

Physicians from the university's College of Osteopathic Medicine and graduate and undergraduate students in physical therapy and mechanical engineering are testing the program, which Williams says could be available for medical schools and training centers within the next two years.

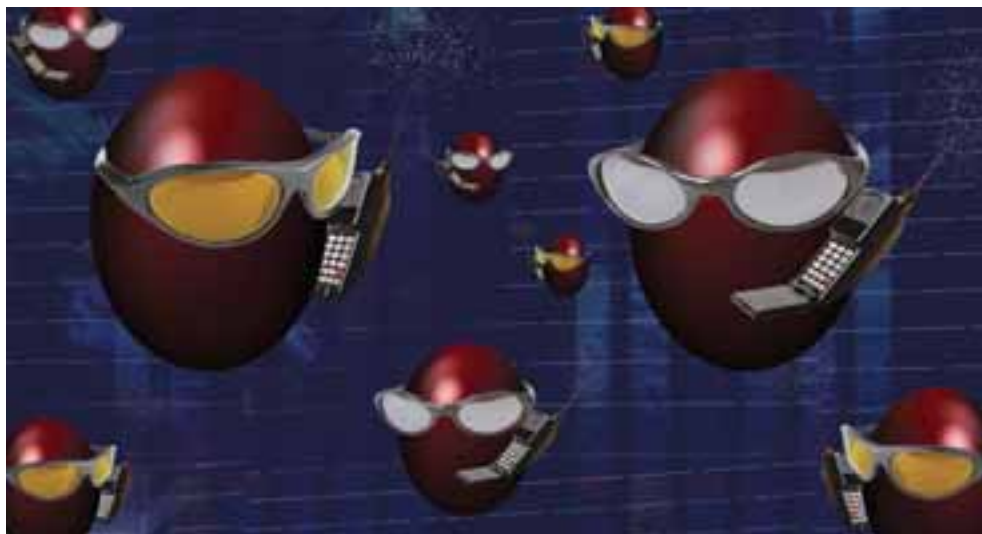
NK

For more information, visit the Web at [www.ent.ohiou.edu/~bobw/html/VHB.html](http://www.ent.ohiou.edu/~bobw/html/VHB.html).

computer program. By studying his computer model, Jung found that the calcium waves travel faster and farther than those in a healthy brain. This suggests that if scientists create drugs to slow the speed of calcium waves, those drugs also might slow down other nerve signals and, perhaps, prevent a seizure.

Funded by the National Science Foundation and the Ohio University Council for Research, Scholarship, and Creative Activity, Jung plans to expand his model and apply his analysis to other medical problems that involve calcium signals, such as eye disease among diabetics.

NK



DIGITAL ILLUSTRATION: Christina Ullman

## BIOLOGY

# CELL TALK

## *Study examines cell communication and growth*

Ohio University cardiovascular physiologist David Kurjiaka has been eavesdropping on conversations between healthy cells. The chatter is loud, as cells pass along messages about growth, replication, and other normal activities. But studies by Kurjiaka and other scientists suggest that cells that are growing rapidly — as they do with cancer and cardiovascular disease — don't enjoy this boisterous communication. These cells barely talk at all, passing along the important regulatory messages in a whisper too quiet for other cells to hear.

Kurjiaka is studying the link between cell communication and cell growth, a project he hopes will help explain how cells talk — and what happens when they don't.

"Cell communication is essential to just about every function in the body," says Kurjiaka, an assistant professor in biological sciences whose research is funded by the American Heart Association. While completing a postdoctoral fellowship at the University of Arizona in the mid-1990s, Kurjiaka developed a technique to study the details of cell communication and growth in cell culture, and found a connection between the two.

Cells share information via the movement of ions, molecules that come in many sizes and electrical charges. When a cell isn't growing, it easily passes large ions, loaded with cellular instructions, to neighboring cells. The messages carried

by these large ions are delivered strong and loud, which Kurjiaka equates to shouting. But cells that are dividing and growing allow only small ions to pass through. The messages they carry are just as important, but are delivered in a weak whisper, says the scientist, who presented part of his studies on cell communication in April at the Experimental Biology annual meeting.

"Cells that are shouting make better neighbors because they seem to inhibit the division of their neighbors," says Kurjiaka, who now is investigating whether what he learned in his cell culture studies holds true in an animal model. "If we could find a way to allow larger ions to pass through these cells, that may somehow stabilize their growth."

Rapid division of cells within blood vessels can cause the build up of artery-clogging plaque along blood vessel walls, which can lead to heart attack or stroke. Problems with cell-to-cell communication may also be involved with diabetes, another theory Kurjiaka plans to investigate. Add to that list the scientist's desire to learn more about how and why cells communicate — and what they say — and it would seem Kurjiaka's research agenda will be full for years to come. And, he says, it is.

"This is enough work for an entire career."

KELLI WHITLOCK

For more information, visit the Web at [www.biosci.ohiou.edu/faculty/kurjiaka/](http://www.biosci.ohiou.edu/faculty/kurjiaka/).

HISTORY

## THE ROOTS OF FLOWER POWER

*A new look at Ken Kesey and the Merry Pranksters*



THE MAN HIMSELF Historian Rick Dodgson met Ken Kesey (above) in July 2001, four months before the author's death.

PHOTO: Courtesy of Rick Dodgson

When Ken Kesey died in November 2001, the nation mourned the loss of the man who not only penned the classic novel *One Flew Over the Cuckoo's Nest*, but who, for many, was iconic of the same 1960s hippie counterculture that spawned the rock band Grateful Dead and was immortalized in Tom Wolfe's *The Electric Kool-Aid Acid Test*.

But did Kesey deserve credit for launching the flower generation? That's something historians have never taken a hard look at, says Rick Dodgson, an Ohio University graduate student. And what impact did he and his cronies — artists and friends collectively known as the

Merry Pranksters — have on the people who experienced his free-spirited lifestyle of rock music, existentialism, and LSD?

Dodgson looked for answers in conversations with the original Pranksters, including Kesey, whom he interviewed just four months before the author's death.

"Even though Kesey was fairly low-key, compared to others at the time, he had a substantial role to play in introducing that counterculture lifestyle into the 1960s," says Dodgson, a doctoral student in history who plans to write a book on the subject.

In the mid-1960s, Kesey and the Pranksters, a group that included musicians from the Grateful Dead and Neal Cassady of *On the Road* fame, began staging a series of "acid tests" — freewheeling parties that explored LSD (which was legal at the time), music, and creative expression. While these activities inspired the hippie movement of the late 1960s and 1970s, Kesey felt alienated from that later scene. The author — who wrote *Cuckoo's Nest* in 1962 and *Sometimes a Great Notion* in 1964 — was an individualist, and resisted joining the pack or taking credit for it, says Dodgson, who is supported by Ohio University's Contemporary History Institute and a Student Enhancement Award.

"His whole thing was being genuine to yourself, to be who you are," says Dodgson, who presented the work on Kesey at the American Historical Association meeting in January.

While interviewing Kesey and some of the more famous Pranksters has been important to Dodgson's project, one key aspect has been his effort to document this history from a variety of perspectives. He created a Web site, [www.pranksterweb.org](http://www.pranksterweb.org), (voted one of the top five best literary Web sites by the London *Daily Telegraph*) to scour the country for people who had attended the acid tests or other Prankster events. Many of those he's found maintain that Kesey deserves his reputation as a respected, influential, important figure in the 1960s — a sentiment they shared at the time, as well as in hindsight.

TECHNOLOGY

## CONTINENTAL DIVIDE STUDY EXAMINES INTERNET USE IN AFRICA

While much of the world is hopping on the Internet at coffee houses, schools, and at home, the world's second largest continent remains almost virtually in the dark.

According to a 1999 report by the United Nations Economic Commission for Africa, the continent has just one Internet user for every 250 people. Worldwide, the ratio is one for every 35 users; in North America and Europe, it's one in every three.

"Unlike other developing regions, like Asia, African nations tend to be uniformly low on the development scale," says Trevor Roycroft, associate professor and director of the J. Warren McClure School of Communication Systems Management. Roycroft led a study of Internet access in Africa's 54 countries with the aim of identifying the causes for low Internet use in Africa.

Like many developing nations, the countries of Africa are struggling with limited Internet access. There's only one telephone for every 200 people, and the availability of international bandwidth — the capacity for a nation's network to transmit data to the rest of the world — is limited.

Without a sound telecommunications infrastructure, opening Africa to cyberspace would be difficult, to say the least. But the continent has another hurdle — what Roycroft calls a second digital divide — to overcome: In nations and regions where Internet access is available, few people are using it.

The majority of Internet service providers are located in urban areas while most Africans live in rural communities. Many Internet service providers fall victim to political maneuvering that limits ISP availability, controls the amount of available bandwidth, or dictates ISP content.

In the study, to be published this year in the journal *Telecommunications Policy*, Roycroft and graduate student Siriwan Anantho also found a dearth of locally generated Internet content — weather reports, health information, crop guides, etc. — written in a region's native language, which Roycroft says would make the Internet a more attractive resource.

Efforts to bring Africa online would need to address both digital divides if they are to succeed, Roycroft says. And that is no small task. Many national leaders must contend with poor health care, a lack of clean water, and starvation. And while it may seem that efforts to boost Internet access and use may not compare to such dire needs, Roycroft points out that those problems can be addressed, at least in part, through the development of the telecommunications infrastructure that must exist for the Internet to flourish.

"I do not advocate information technology as a panacea," Roycroft says, "but I do think a leader would be remiss in ignoring the economic development potential that can come from information technology."

KW

AG

## COSMIC BLUEPRINTS

*Magnetic bubbles could help explain design of galaxy clusters*

If astronomers created a blueprint of the universe, they'd pencil in such elements as stars, galaxies, and hot gases. But what holds all that together in space? The details are hazy, but astronomers are now beginning to sketch the framework.

Gravity plays the biggest role in shaping the structure of our universe. But in some parts of the cosmos, such as in galaxy clusters — the basic building blocks of the universe — magnetism also may be important, scientists have found. Astronomers have been stumped, however, about the origin of those magnetic forces.

The answer may be a series of enormous cosmic "bubbles" that Ohio University astronomer Brian McNamara and colleagues spotted in July 2000 using NASA's Chandra X-ray Observatory, an orbiting spacecraft that houses the most powerful X-ray telescope in existence. Chandra observed these bubbles rising out of a galaxy cluster about 1 billion light years away from Earth, like bubbles floating out of a glass of soda pop, McNamara says.

The bubbles, which McNamara and his colleagues believe are filled with magnetism,

could explain the strong magnetic forces that make up the design of galaxy clusters. Something so powerful isn't as small as soda fizz, of course. Each of the bubbles is almost as big as our own Milky Way galaxy, and they may be relics of an ancient explosion in the universe more than 100 million years ago.

"We've known for the past 15 to 20 years that magnetic fields exist, but we didn't understand how they got there," says McNamara, an associate professor of physics and astronomy whose research is funded by NASA. "This could be a viable mechanism."

These bubbles — which the astronomers have dubbed "ghost cavities" — also may play an indirect role in the creation of new stars in today's galaxies, and may have helped create the cosmic framework in the early stages of the universe.

"We think magnetism, in some locations of the universe, could have been as important as gravity in shaping the overall structure," says McNamara, who presented the findings earlier this year at the annual meeting of the American Astronomical Society.



**BIG BUBBLES** Each of the cosmic "bubbles" observed floating out of this galaxy cluster is almost as big as the Milky Way.

PHOTO: Courtesy of Brian McNamara

The scientists are continuing to add details to this celestial blueprint, conducting a further analysis of the properties of ghost cavities and their role in galaxy clusters.

"We have a sketch of what's going on," McNamara says. "But the details are foggy at this point."

AG

To learn more about this and other astronomy research, search the Research Communications Web site, [www.ohiou.edu/researchnews](http://www.ohiou.edu/researchnews), keyword "astronomy."

## a second look

AN UPDATE ON A PAST STORY

THEATER

### THE COLOR OF BROTHERHOOD PLAYWRIGHT TACKLES RACE IN TWAIN ADAPTATION

In Mark Twain's 1894 novel *Pudd'nhead Wilson*, the black baby of a slave and the white baby of a wealthy woman are switched in their cradles. As both are the children of a venerable Missouri judge, they look enough alike to be twins, and each easily assumes the other's life.

That scenario presented a problem for award-winning playwright Charles Smith, who knew it would be tricky to find two actors of different races who could pass as brothers for his stage adaptation of the classic novel. So Smith, whose play is touring the country through May as part of The Acting Company's 2001-02 season, scrapped the concept and cast two



ILLUSTRATION: Scott McKowen

actors who looked obviously black and white. And that move should even better illustrate the point that race is mainly a frame of mind, says Smith, a professor of theater at Ohio University.

"What I'm trying to do is challenge the idea of what it means to be black," says the playwright, who in November 2001 received the university's prestigious Presidential Research Scholar award. "If no other character in the play considers him to be black, and he doesn't believe himself to be black — then does it make him black?"

*Pudd'nhead Wilson* is one of a number of Smith's plays that examine racial issues ("Words on a Stage," *Perspectives*, Spring/Summer 2000).

His previous work, *Knock Me a Kiss*, received rave reviews from the Chicago press when it debuted at the Victory Gardens Theater in January 2000. This play,

as well as an earlier Smith work called *Freefall*, are now being developed into films.

But the playwright took a brief departure from his meditation on race and identity with his stage adaptation of the Theodore Dreiser novel *Sister Carrie*, which was performed by the Indiana Repertory Theater in January and February. It's the story of a small-town girl who takes on the big city at the turn of the 20th century.

"I was interested in doing something for the stage to exercise my theater muscles and see how I would relate to material that's really foreign to who I am as a person," Smith says. "In some respects, it's been easier for me to work on because I haven't had that emotional attachment that sometimes clouds your reason."

AG

For more information, visit the Web at [www.theactingcompany.org](http://www.theactingcompany.org).

# SURVIVING PARADISE

A H A W A I I A N T A L E

Hawaii is the world's most remote island chain and an ecological paradise for botanists. Last summer, a team of Ohio University scientists and students spent three weeks on three Hawaiian islands, trekking through forests and swamps in search of algae and violets. What they saw during their quest was discouraging: Invasive plants are choking the life out of many native species, painting a bleak ecological future for the islands. Assistant Editor Andrea Gibson joined the group for their adventure, and shares the story of the journey and the study of what's to come.



▲ **IN BLOOM** An Ohio University student found this blooming sample of *Viola kauaensis*, or bog violet, high in the Alakai Swamp — the rainiest spot on Earth — located on the island of Kauai.

▶ **PARADISE UNSEEN** We were treated to a perfect overview of Kauai's Waimea Canyon, known as the "Grand Canyon of the Pacific," from the trails to the Alakai Swamp.

## PROLOGUE

Paradise, it turns out, can be rough. After scaling 300 steps to peek at some of the world's lushest vistas, my calves burned, and my lungs struggled in the thin air some 4,000 feet above the Pacific Ocean. My feet slipped on slick state park boardwalks; the persistent drizzle pasted a flimsy ball cap to my scalp. I reached into my backpack for a sweating bottle of spring water and a crumpled bag of trail mix. Sustenance.

I caught a sweet scent more reminiscent of a perfume counter than anything I expected from this misty Hawaiian rain forest, thick with ferns and creeping moss. I stopped in my tracks and scanned the foliage. What was I smelling? The scientists leading this vigorous walk through the Alakai Swamp on the island of Kauai pointed to a crowd of exotic flowers in a clearing, their fluffy white heads as big as mine and freckled with gold and red petals. Wild ginger.

And then, just as quickly, botanist Harvey Ballard pointed to the spots where the park rangers slashed and destroyed these botanical cream puffs, as deadly to the native flora as they are pretty. It's an unfortunately common sight in the Hawaiian Islands — bountiful, sometimes beautiful, and yet highly predatory greenery tearing up the landscape, wiping out flowers and plants that can't be found anywhere else on Earth. So paradise isn't easy on the plants either, I thought.

Morgan Vis, the other Ohio University botanist heading up the trip, snapped a digital photo of the mops of ginger, and Ballard waved our team farther into the forest. Vis, one of the few botanists in the world to study freshwater red algae, a hardy little organism that fish feast on in Hawaiian streams, crinkled her nose at a tea-colored creek bubbling across our path. It was too dark and turbid for algae hunting, so we stepped across the half-submerged stones to the other side. We'd already found an abundance of the blue-green plant on the Hawaiian Islands, so we knew we'd have better luck elsewhere.

A few hours after getting our bearings in this strange woods high above the Pacific, where we found neither algae nor Ballard's target — the violet — on that day, we emerged from the trail soggy, plastered with mud, and disappointed. The sun hadn't yet set, though, so we made one last attempt to find botanical treasure on this working Sunday in mid-August, my third day in the field. A few miles down the road from the Alakai Swamp trails, we encountered its ecological opposite: the Waimea Canyon, a dusty expanse of red caverns known as the "Grand Canyon of the Pacific." We scrambled down the trail in search of Ballard's *Viola tracheliifolia*, a tree-like violet thought to be the most common violet on the Hawaiian archipelago. But after more

TEXT AND PHOTOGRAPHY

BY ANDREA GIBSON



than a week of scouting on two different islands, Ballard had yet to discover even one specimen, and he was getting a little worried. Were invasive plants suffocating the native violet? Some scientists estimated the scourge already had pushed about 100 native plants to extinction. At least another 100 were endangered.

I scanned the arid landscape. How could anything verdure and leafy like the violet spring to life amongst such parched shrubs and scraggly trees? Then, I spotted a patch of dark green leaves in the brush; it looked like nothing we'd seen so far. "Hey, Harvey," I said, "what about this?"

Ballard, a wiry, bespectacled man in a shin-length, electric blue rain poncho, scurried up the hillside to the plant, clutching at its slender leaves. "Yep, we got it!" he called back, the excitement rising in his voice. "I owe you an ice cream sundae!"

The students moved quickly, whipping out plastic sandwich bags, trowels, and scientific instruments to preserve a few leaf samples of this rather scruffy specimen of *Viola trachelifolia*. In just an hour, our dismay in the swamp had turned into delight at a real botanical find. Our smiles were just as big as those of the *proper* tourists sporting Hawaiian shirts and suntans who saw us leaving the Koke'e State Park.

To hotel resort day trippers such as those, we probably looked like we'd gotten the Hawaii concept all wrong. What were we doing romping in the muck when black sand beaches, cool ocean breezes, and an "every day is Casual Friday" attitude awaited us at sea level? Well, anyone can do that, Vis and Ballard might have argued. Through their new Global Studies in Plant Biology Program, they were offering a crew of three

students, a postdoctoral researcher, a high school science teacher, and me, a science writer, something different: a rare glimpse at the Hawaii most tourists don't see.

## CHAPTER 1: GLOBE-TROTTING SCIENTISTS

Our expedition leaders not only share an interest in globe trotting, but a passion for plants. Ballard and Vis joined Ohio University within a year of each other in the mid-1990s and study plants that few other scientists in the world have considered. The pair ponder similar basic scientific questions: Where on the planet did the plants they study originate? How did they end up on such far-flung continents and islands? Are they abundant or endangered and in need of environmental protection?

Though this sounds like material for a college textbook on plant evolution, there are larger issues at stake that make these questions even more critical for other scientists, conservationists, and government officials. Algae is the basis of the food chain for aquatic creatures, so this tiny organism's health or demise will impact fish and invertebrates in streams and lakes. And the federal government devotes resources to protect threatened species of violets, a flowering herb. Ballard and Vis are racking up frequent flier miles as they survey the global scope of these issues.

Two years ago, the botanists decided to combine their travel itineraries and invite Ohio University students along for the journey. They created the Global Studies in Plant Biology Program to offer botanists-in-training — especially undergraduates — a taste of field work. Ballard and Vis



SELF-PORTRAIT Though clad in boots — the stream work called for waterproof rubber sandals — I plunged in myself for a firsthand look.





“If we can’t put in a massive effort to save everything, we may want to save certain kinds of things, such as those that are highly unique.” — WARREN WAGNER

have since taken 19 students to Bolivia, Hawaii, and Brazil, and will head to French Guiana this summer.

While the spots in South America provide a glimpse at ecosystems enveloped by vast, pristine rain forests, the trip to the popular tourist destination of the Hawaiian Islands in August 2001 showed a darker side of paradise — what happens when man meddles with Mother Nature. Botanists and conservationists have flocked to this living laboratory over the past 20 years because it offers a rare look at some intriguing scientific scenarios. It’s a mystery how plants, insects, and animals traveled thousands of miles to the world’s most remote island chain, born lifeless from the sea millions of years ago as unwelcoming volcanic rock. But scientists also are amazed and disturbed at the way the flora and creatures we’ve introduced to these islands over the past 200 years have created such a terrific ecological ruckus.

## CHAPTER 2: A NATIVE BATTLE

Hawaii has changed dramatically over the past 2,000 years, and a little history lesson is in order. The common totems of Hawaiian paradise — the mango, the banana, the coconut, the papaya, the voluptuous hibiscus flower — aren’t really native to Hawaii. At least not in the way the scientists at the National Tropical Botanical Garden, a nonprofit organization in Kauai, define it. The true native species, they say, were those that doggedly crossed sea and air to settle on the island chain. About 240 insects, 23 land snails, 15 land birds, 135 ferns and allies, and 291 flowering plants made the journey, evolving into more than 6,000 native species.

Between 200 and 300 A.D., Polynesians traveling by boat discovered the islands, and introduced tropical plants from their homeland. That included the aforementioned fruits and sugar cane and taro, two crops that would dominate Hawaiian agriculture for hundreds of years. For unexplained reasons, Polynesians stopped migrating to the islands around 1200 A.D., and the Hawaiian environment and culture evolved independent of outside influences for 500 years. But 1778 marked the start of another botanical revolution with the arrival of British seafarer Captain Cook. About 8,000 different species have been introduced to the islands since Cook’s landing, including the mango, guava, and eucalyptus trees, and perhaps less famously, American imports such as cattle and cacti.

These modern species have become a huge threat to the Hawaiian environment. Some plants, when introduced to a new ecosystem, find the perfect conditions to grow wild, suffocating whatever might be in their path. This happens in the continental United States, too — think of kudzu that swallows trees whole in the southern states. Pigs and goats introduced to the islands — the latter of which can scale cliffs to devour the most remote foliage — have escaped and live wild, literally eating everything in sight. And cattle farming, most prevalent on the “big island” of Hawaii, has shaped the landscape as well. By the early 1900s, cattle grazing had cleared the land so completely that the government ordered the planting of 8 million trees. But because botanists at the time believed that



THE SEARCH Harvey Ballard, left, uses a map to confirm our location in the Alakai Swamp, while students Michelle Van Atta, center, and Min Feng, right, wait for instructions on where to hunt for the bog violets.

native Hawaiian trees grew too slowly, non-native trees such as banyan, strawberry guava, and Java plum were used instead.

Today, about two-thirds of native Hawaiian plants are at risk of extinction, says Warren Wagner, curator of Pacific botany with the Smithsonian Institution’s Museum of Natural History and the coauthor of the books *The Manual of Flowering Plants of Hawaii and Hawaiian Biogeography*. And though the average tourist might think that the plants’ battle for survival may impact only the composition of their decorative leis, Wagner warns that the significance of the struggles within the Hawaiian ecosystem is much bigger.

“A lot of research that’s going on globally is beginning to show the great homogenization of the planet, which is reducing the levels of biodiversity to a few hundreds or thousands of things that can grow in many different climates,” Wagner says.

Research on the way specific plants are evolving and diversifying in response to their environments — such as the work by Ballard and Vis — can give scientists some idea about how the ecosystem may fare in the future, as well as how land should be managed.

“If we can’t put in a massive effort to save everything,” he says, “we may want to save certain kinds of things, such as those that are highly unique.”

And in Hawaii, where 92 percent of the land plants can’t be found anywhere else in the world, there are many candidates for rescue.

## CHAPTER 3: THE SHRINKING VIOLET

After reading several books on foraging for wild plants, a teenage Harvey Ballard and friend set off for a meadow to find and snack on cattail stems, a crunchy, tasty treat. But after swallowing several pieces, the youngsters began to feel ill.

“For the next hour they vomited their guts out in bewilderment, and for the rest of the day and part of another they savored the flavor of burning pepper and old boat motor oil,” Ballard wrote some two decades later as a warning on his Web



**GREEN LOOT** Ohio University student Carolyn Reilly, left, picks through bog brush in search of the violets. At right, the botanists stuffed plastic sandwich bags with small, fan-shaped violet leaves and identifying tags.

guide to the edible wild plants of southeastern Ohio. “Later, Harvey discovered they had sampled wild iris, which is mildly toxic and not very scrumptious.”

After his recovery, Ballard’s determination to properly identify plants grew, and his career in botany began. His studies drew him to the violet, which he calls a “cute” plant and pleasing to the palate. A favorite among American gardeners, the Vitamin C-rich herb is used by people in Europe and the Middle East to make fruity-tasting candy and syrup for ice cream. (Ballard makes a mean jelly that features violets as a key ingredient.)

Aesthetics aside, the violet is a good research subject for several scientific reasons. It’s a botanical chameleon, changing in unique ways in response to new environments, and can be found anywhere in the world. Ballard has spent the past few years examining violets in South America, funded by a National Science Foundation grant.

The U.S. government also invests resources to protect several varieties of the prized plant from extinction. That’s important, Ballard notes, because rare plants sometimes yield important ingredients.

“We don’t know whether some of these will provide material useful for us — they could be edible or have medicinal properties,” he says, noting that the violet’s use as a medicinal herb has yet to be proven.

What’s up for debate now, though, is whether some of those supposedly rare violets should even be on the endangered species list. Ballard’s detective work on the genetic history of the plants may help determine whether certain varieties are as unique as scientists previously have claimed. Already, he’s encountered one surprise: His DNA tests have shown that the Hawaiian violets, half of which are federally endangered, descended from the arctic, instead of South America as assumed. That might suggest that violets in even far-flung places might be more genetically similar than first thought.

Ballard expected to continue his genetic sleuthing on the August trip to the Hawaiian Islands, which covered Oahu, Kauai, and Hawaii. He hoped to find out whether the common bog violet *Viola kauaensis*, the violet that grows high in the marsh of the Alakai Swamp, is genetically different from a lowland violet, *Viola kauaensis* var. *wahiawaensis*, which is on the endangered species list. He suspected they may be the same. Plants that have evolved in Hawaii can be deceptive: Often

only one species has made it to the islands, but to adapt to the different climates (rain forest, dry forest, lowlands, and mountains), it spawns various versions of itself. So the tall, reedy plant in the dusty canyon may not look like the fleshy vine in the rain forest, even though they may be genetic siblings.

When I joined the botanists in Kauai, the oldest and lushest of the Hawaiian Islands, Ballard was teaching an important lesson about field work: You don’t always find what you expect. On Oahu, the team’s first stop on their three-week trip, he’d learned that the mountainous habitat where the violets reportedly grow is located on U.S. military property, and that to enter, he would need to file for a permit — a process that could take a few weeks or months.

“Sometimes you get in the field and the plant is not there to sample. Or you need to alter your sampling strategy due to the location of the plant,” he says. “Sometimes that’s frustrating for the students, but it’s the reality of field work.”

Ballard expected to have better luck in Kauai, however, where the violets were said to be accessible from trails in the Alakai Swamp, a vast rain forest in the island center and one of the soggiest spots in the world. On a balmy Sunday morning, our third day on Kauai, we packed everything in plastic and prepared for a soaking.

We walked for an hour and a half on water-logged trails, the students stopping occasionally to ask Ballard to identify a polka-dotted leaf or a bright red bloom. (Rarely was he stumped.) At last we reached the open bog — marshy land with fleshy ferns and reedy trees peeking through the mist. Ballard instructed us to fan out in search of *Viola kauaensis*, a plant with a kidney-shaped leaf, possibly topped with a white or blue-purple flower. We stepped off the wooden boardwalks and picked our way through the bog.

Carolyn Reilly, a 22-year-old senior from Athens, Ohio, crouched on the ground near me. Had she spotted the violet? “Harvey,” she called in an uncertain voice, “can you come here?” Ballard hunkered down, inspected the leaves, and promptly announced that he owed another ice cream sundae — a deal he’d made earlier for the first person to locate the different types of violets.

The team gathered together and prepared for a sweep of the bog. Ballard produced plastic sandwich and garbage bags for collection of leaves and a few samples of whole plants, from bud to root. He began to map out quadrants of land for us to search. So strong was his excitement, he delivered some of his instructions

in song. Min Feng, a graduate student from Beijing, China, took altitude, latitude, and longitude readings with a handheld Global Positioning System device to fix our location. Robb Weinfurtner, a graduate student and high school science teacher, gently scooped soil into a paper bag for later chemical analysis.

The rest of us scattered in search of the violets, which — now that we knew what we were looking for — seemed to appear everywhere at the base of trees and in clumps around the bog. Most of the plants didn't have flower buds, and I wouldn't have recognized these delicate green fanned leaves as violets on my own. A clear sandwich bag in hand, I gently pulled one plant's thread-like roots, about 6 to 8 inches in length, from the moist earth, careful not to tear them.

After 20 minutes or so of focused collecting, we assessed our green loot — dozens of leaves and two or three whole plants. Only one violet was in bloom, its delicate white head painted lavender on the underside of its petals. Reilly held the plant, its long, delicate roots trailing in the air, aloft for us to admire. We sighed at our prize.

#### CHAPTER 4: LIFE IN THE WATER

Our botanists had scooped up and bagged samples of algae from a half-dozen streams we'd encountered on the island of Kauai, but I didn't get a good look at this little organism until one night in our cabin. Morgan Vis split open a pouch and poured the contents into my cereal bowl. The green, furry clump floating in the water wasn't something I wanted to associate with breakfast.

Algae may not inspire the same visual delight as the violet, but after a couple of weeks of wading through serene island streams in search of it, the students and I came to appreciate the fibrous green plants that have become the focus of Vis's career. They're easy to find, as they seem to thrive on the Hawaiian Islands, and are hardy enough to live in roadside creeks within a stone's throw of a major traffic intersection. This green mass — sometimes fuzzy, sometimes thread-like — takes root on rocks, moss, or anything stable in the flowing water. As Michelle Van Atta, a 21-year-old student from Rootstown, Ohio, discovered one day, it will even make a home in the water-logged skull of a sheep.

But just what algae actually are — that's hard to pin down. The term covers a hodgepodge of unrelated organisms, Vis confesses, and the various types — green, blue-green, red, golden, etc. — don't have any more in common with each other than they do with any other plant. What's clear, though, is that these plants are vital to an aquatic ecosystem, serving as food for fish and small critters. And some algae, such as marine red, are used in our own grub — sushi wrappers are one example, and algae byproducts are in diet foods and dairy products.

Vis and several Ohio University engineers also are investigating whether algae's appetite for carbon dioxide, which they use for photosynthesis, could make the substance a useful tool in the reduction of gas emissions from coal-fired power plants, a literal "green solution" to this environmental problem.

In a project funded by a \$1.07 million grant from the U.S. Department of Energy, Vis is researching what type of algae could be used in a new device under development called a biofilmreactor, which would rely on the plants to absorb carbon dioxide before it escapes from industrial smoke stacks. The botanist has suggested that cyanobacteria, blue-green algae that live in hot springs, may be key.

But freshwater red algae, the main focus of Vis' research, would not be suitable for that job, she says. Vis would know — she's one of the few people in the world who studies this particular organism. About 98 percent of the scientists who study red algae, or *Rhodophyta*, focus on this marine version of it. But when Vis was a graduate student in Canada in the early 1990s and looking for a botanical niche, she became interested in a project her adviser was conducting on the little-studied freshwater red. In 1994, she traveled to the Hawaiian Islands to document its presence. Unlike Ballard, who has historic scientific records on violets to which he can compare current data or use as a guide for his own research, Vis often is the first person to gather data on freshwater algae in the areas of the globe she's visited. And that was the case on her first trip to Hawaii.

As we began our work on Kauai, Vis offered an algae lesson, perched on a stream bank in the woods. A pigment used for photosynthesis makes algae look blue or green. The name comes from its oceanic cousin, Vis explained, which is red in appearance. The fact that freshwater red are similar in color



**STREAM SCENE** Alison Sherwood, Vis' collaborator from the University of Hawaii at Manoa, looks for algae in a stream near the mouth of the Waimea Canyon.

Algae are easy to find — as they seem to thrive on the Hawaiian Islands — and are hardy enough to live in roadside creeks within a stone's throw of a major traffic intersection.

to many other algae types, she said, makes the hunt all the more important. Using a tool that looked like large metal tweezers to pluck one of the students' algae specimens, found in a Kauai mountain stream, out of a plastic bag and place it into a glass vial, she noted the organism's sequin shape. Probably nostoc, a blue-green algae.

Vis eased back into the water, but offered some precautions for stream work: First, slather bare arms and legs with insect repellent, as the mosquitos were biting. Second, apply sun screen, because the rays could be wicked, too. Third, immediately swab any cuts with antibacterial salve, as the streams in several areas of Hawaii were known to harbor leptospirosis, a bacterium that can cause fever, diarrhea, and rashes. (Fortunately, the worst anyone suffered was a sunburned nose and a dozen bug bites.) Though clad in boots — the stream work called for waterproof rubber sandals — I plunged in myself for a firsthand look.

Vis wandered downstream away from the group for a few minutes, but then her unintelligible but excited shouts called us to her side. We found her standing in the stream holding a view box — a clear device that looks like a shallow drawer — in the current, staring intently through wire-rimmed glasses. Like a miner panning for her own brand of gold, she had, indeed, found the freshwater red. She called for the students to break up, jump in the water, and get to work.

The four students measured water flow, pH levels, temperature, and depth with several instruments, including one that looked like a toy rocket, to understand more about the algae's habitat. As I watched from the stream bank, they fanned out to different quadrants of the stream, looking for multiple samples of the plant. Sometimes the botanists could scoop up the algae with the view box; at other times, more elbow grease was needed to free the plants from rocks. As Weinfurter held a salad plate-sized stone, Reilly employed the rather humble tools of toothbrush and turkey baster to scrub and spritz the plants off it. The algae were packed for further study in small plastic pouches of water.

Freshwater red algae fare quite well in the Hawaiian streams, Vis has found. It contains two special pigments that help it absorb light (via photosynthesis) in otherwise shady streams, such as those in forests or areas where the plant canopy is thick. On our trip, this rugged organism turned up everywhere from remote mountain streams to more mundane sites such as the creek behind a boys' prep school.

"They say it's only found in pristine streams," she says, "but I've found it at cattle crossings."

The plant's predilection for Hawaii is unusual, though, because freshwater algae and salt water — which surrounds the islands in thousands of miles of ocean — are like oil and, well, water.

"One stream we sampled in Kauai had nine different macroalgae. That's a high diversity for any stream," Vis noted toward the end of our trip, once we were back at our lodging in dry clothes. "And this is an oceanic island, which means it's difficult for a freshwater organism to make it here. It suggests



that maybe freshwater algae are dispersed more easily than we thought they would be."

That's a perplexing issue, though not an uncommon one for scientists scratching their heads over the origin of many of the plants and animals that settled on the Hawaiian Islands before humans arrived. Hawaii is 2,000 miles away from the nearest island chain (the Marquesa Islands) and 2,500 miles away from the closest continent (North America), so any seed, spore, or bird that made the journey by ocean or air was downright determined.

## CHAPTER 5: BACK IN THE LAB

When our journey was over, the fruit of our hard work left Hawaii in dozens of tiny plastic vials, tightly packed in a cardboard box and transported home in a suitcase. The scientists and students had spent a few hours over the course of several weary evenings tearing the violet leaves and algae specimens into bits, stuffing them into capsules full of silica gel to dry out. (It's the same compound in the small, white "Do Not Eat" packets you'd find in a new box of leather shoes.) Not only was it easier to transport dry samples — who wants a few dozen soggy baggies of algae to explode inside her suitcase? — but the U.S. Department of Agriculture, which carefully monitors plants and animals that cross the state border, couldn't care less about dead plants. And it's also good for future research.

"You can put this in the freezer and the DNA would still be good 10, 20 years down the road," says Ballard about his dozens of samples of dried violet leaves. In fact, he's borrowed from museums some violet samples that were 100 years old.

**THE SEQUEL** A short video feature on the trip to Hawaii, including interviews with Ballard and Vis and footage of the researchers at work on the islands, is available on the Web at [www.ohiou.edu/sciencespotlight/plant.html](http://www.ohiou.edu/sciencespotlight/plant.html). The feature is part of the program Science Spotlight, which highlights the research of Ohio University faculty and students.



▲ CAUGHT IN THE ACT Vis captures clumps of fuzzy green algae with a glass view box.

◀ FREE SAMPLES The botanist also uses a turkey baster to gently deposit an algae and stream water sample into a collection vial at a creek on the island of Hawaii.

The samples of the Hawaiian violets and algae will be the subject of research for some time to come in the Porter Hall labs of Ballard and Vis, where I met them again a few months after the trip. Has the genetic data yielded any interesting information? After presenting me with a mug that commemorates the trip with the phrase “Adapt or Die! Hawaii 2001,” they offered an update.

Reilly, who has been extracting DNA from the dried violet samples, and Ballard already had encountered some surprising news: The bog violets are genetically varied. That’s unexpected, he explains, because they most likely hail from a singular mother plant that made the brutal journey to the islands years ago.

He also expects to uncover more answers about whether *Viola kauaensis*, the common bog violet we found high in the Alakai Swamp, is the same plant as the endangered *Viola kauaensis* var. *wahiawaensis* — an important but not unusual theory. The historic record of plants on which the endangered listing is based also isn’t always accurate, says Ballard, who has conducted a number of rare plant surveys for state and federal agencies in the United States.

“In a couple of situations I’ve had the dubious honor of being able to demonstrate that some species are a hell of a lot more common than people thought they were because they didn’t know how to identify them,” says the botanist, who also has discovered and named at least a half dozen new species of plants in his career. “And so some of those got taken off the federal (endangered species) lists. But that was good because they really didn’t need to be on there and it saved the feds a bucket load of money.”

Vis will continue to work with her colleague Alison Sherwood, a postdoctoral researcher at the University of Hawaii at Manoa and a collaborator with the Hawaii Stream Research Center, to identify new samples of freshwater red algae on the Hawaiian Islands, as well as other algae taxa the team gathered during the trip. For Vis, the question of whether invasive plant species in Hawaii have impacted the viability of her plant is a moot point: She’s the first person to document that the organism even exists in the tropical streams. It’s impossible to

say whether the algae have appeared in Hawaii in the last 10 to 20 years, she says, or if they’ve been on the islands longer.

Vis’ research also will aid in Sherwood’s ambitious effort to catalog all the freshwater algae of Hawaii and determine where they came from, how they spread through the island chain, and whether they are distinct species from the algae found on other Pacific islands or the surrounding continents. Ultimately, that research will help flesh out the bigger picture of stream health in Hawaii. Sherwood’s collaborators at the Hawaii Stream Research Center are studying water chemistry, insects, fish, and plants to further understand the environment. Already, the center researchers have found that algae — including the freshwater red — are an important part of the diet of Hawaiian fish.

## EPILOGUE

The Hawaiian Islands prove to be irresistible to many tourists, who make the 2,500-plus-mile trip again and again to those shores of paradise. Likewise, Ballard and Vis can’t seem to get the archipelago off their minds.

Though the botanists were to lead two more expeditions of the Global Studies and Plant Biology Program to Brazil and French Guiana, the intriguing questions raised in Hawaii have since prompted them to find a new focus for their future research: the Pacific basin. Between 2003 and 2008, Ballard, Vis, and Ohio University ecosystem ecologist Kim Brown hope to visit Alaska, New Zealand, northern Japan, central China, Chile, and Ecuador to search for the nearest relatives of the Hawaiian violet and freshwater algae.

It’s an ambitious project for which they now are seeking funding. But they probably won’t be lacking for participants, judging by the experiences the student botanists earned on our trip to Hawaii.

“It’s nice to see what, exactly, is involved with field work, because you hardly ever get to see that side of things (in the classroom),” says Michelle Van Atta, a senior environmental and plant biology major who ventured into the field for the first time last summer.

The first step in the Pacific basin plan will be Ballard’s return to Hawaii in 2003. This time, he’ll gain entrance to the military zones and charter a helicopter to access the more remote areas of the Alakai Swamp to get a clearer picture of how violets are faring on the islands. He’s especially interested in finding out whether the scruffy sample we found of the tree violet *Viola tracheliifolia* is indeed a sign that this previously plentiful plant is succumbing to environmental degradation and invasion by other plant species, animals, and humans.

“Considering what we saw in Hawaii, it’s not a surprise, but it’s still staggering,” he says. “It’s been the most frequently collected and encountered plant for decades.”

He’s concerned about the future of Hawaii and has no envy for the botanists and conservationists fighting that uphill battle on the islands.

“It’s like being on the Titanic and being given a tin cup to bail it out, as far as saving the natural parts of Hawaii,” he says. “I don’t like to be pessimistic, but my God, they have their work cut out for themselves.” ▲

For more information on the Global Studies in Plant Biology Program, visit the Web at <http://oak.cats.ohio.edu/~ballard/hl/globalstudies/>. Seven dispatches from the field written by Gibson are available at [www.ohio.edu/researchnews/science/hawaii1.htm](http://www.ohio.edu/researchnews/science/hawaii1.htm).



**N**OW THAT WE'RE COMFY, and our national pastime is Shopping, baseball is simply too hard.

It is too hard for our kids, who, if they dared to be players — players, that is, by the standards of 1930s America or today's Dominican Republic — would unplug the earphones and turn off the tube. Would hustle on down to the sandlot or pasture or schoolyard and play for the pleasure of playing the game. Play the skin off their knees and the covers off their baseballs. Play until every last inkling of twilight had sunk from the sky.

And we, their parents, would have to find something useful to do, such as planting a flowerbed or visiting the elderly. Because we wouldn't be driving our kids and their spanking new gear to the ballpark a few nights a week, a few weeks a year, watching the mess little darlings will make of this wickedly difficult game, appalled at their strikeouts and errors and rubber-kneed fears of the ball. The failures in baseball are painfully, unfashionably conspicuous. So this game is too hard for the parents.

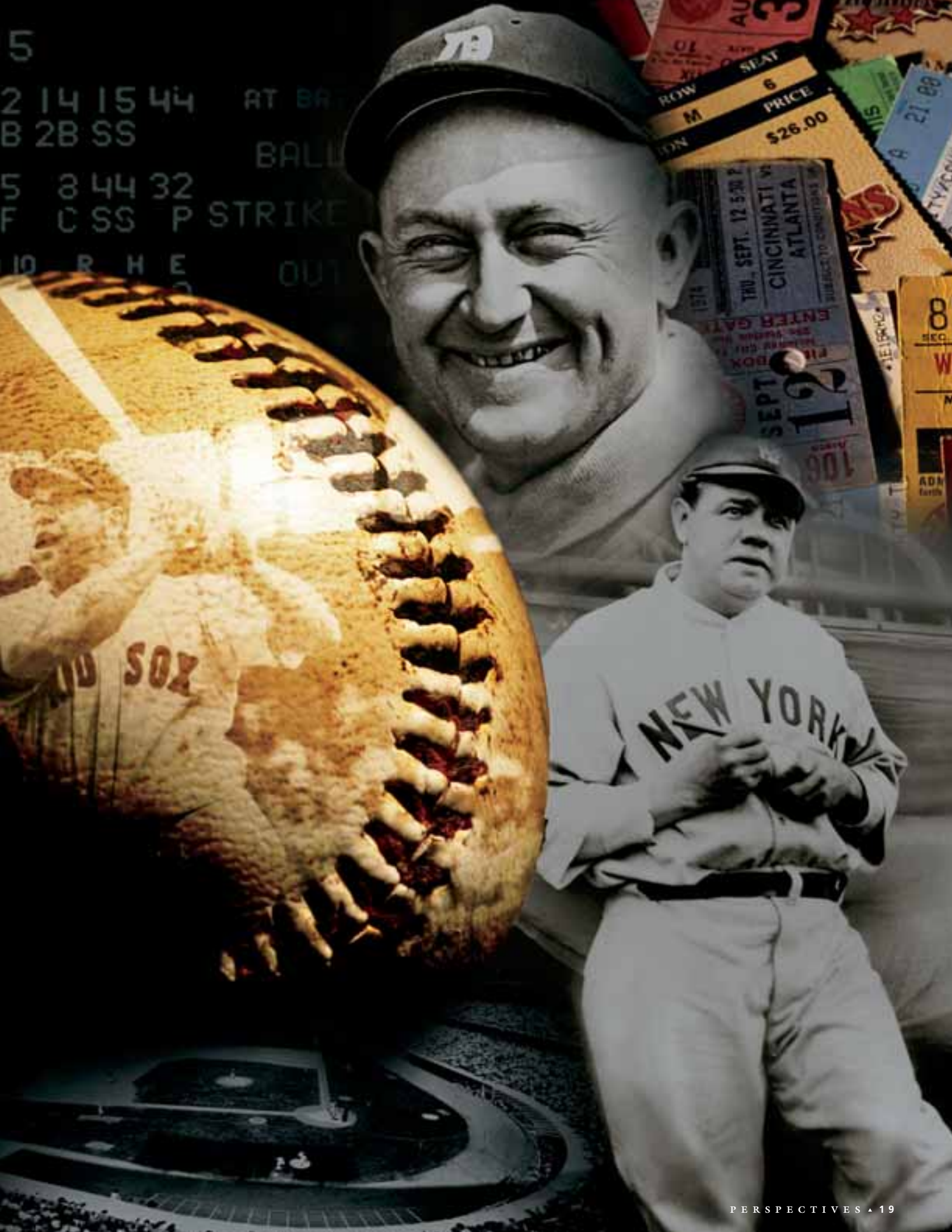
And for goodness sake, the game is hard to *watch*. Too much dead air. Too much time for reflection, the perilous prospect of thought. We can try stuffing the gaps full of nachos and sodas and trips to the souvenir stand, but ne'er appease the restless beast of Time. Maybe that's fine for the grizzled old coot down the aisle, who is patiently tending a scorecard and tracking the fielding adjustments, guessing along with the hitter on slider or fastball or curve. But who wants to learn all that technical stuff? It is too hard, like chemistry or math. So forget it. Who needs it?

We do. We need it. Baseball isn't the Web or the spa or the mall. Baseball is Main Street. Baseball is so American that the French refuse to play it. Baseball is *ours*.

# HARD BALL FOR HARD TIMES

*A look at baseball's toughest era... Will the game ever be that good again?*

BY NEIL CAUDLE



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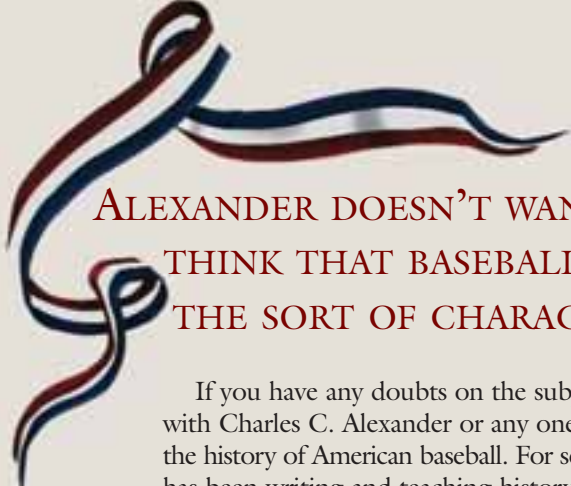
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NEW YORK



ALEXANDER DOESN'T WANT ANOTHER GREAT DEPRESSION. BUT HE DOES THINK THAT BASEBALL — AND THE COUNTRY AT LARGE — COULD USE THE SORT OF CHARACTERS TOUGH ENOUGH TO SURVIVE ONE AGAIN.

If you have any doubts on the subject, spend a few hours with Charles C. Alexander or any one of his five books about the history of American baseball. For several decades, Alexander has been writing and teaching history. And lately he's been doing this hard work about the hardest years of a very hard game — baseball during the Great Depression.

If that sounds perfectly dreary to you, then go catch the X games on ESPN. Because off and on for the next several pages, we will be tossing the ball with a man who is partial to players with grit in their craw, to pitchers who finished what they started, to hitters who could slap a single through the hole or drop a bunt down the line. Alexander doesn't want another Great Depression. But he does think that baseball — and the country at large — could use the sort of characters tough enough to survive one again.

Alexander is a self-described “moss-backed, stuck-in-the-mud baseball traditionalist.” Unless you wish to provoke him, do not mention, in his presence, interleague play, the love fest we call an All Star Game, or the designated hitter.

And come to think of it, don't even mention the weather.

Let's say you're walking with him across campus under the bell-ringing blue of an early October sky. And there's just enough breeze to unsettle the yellows and reds in the trees. “Nice day,” you'll say. But his eyes flash. “This is supposed to be World Series weather,” he growls. “Imagine going to a World Series game on a day like today. Imagine sitting in the sun, and watching the afternoon shadows stretch out across the grass, and tasting that tang in the air. You would remember that feeling the rest of your life.”

And he will. But the rascals have purloined this finest of weather from the finest of sporting occasions. Rascals who coveted the prime-time profits of televised night games. Rascals who padded the season with playoffs and shoved the Fall Classic deep into the frosty back pockets of late October.

I am making this Alexander fellow seem like a cranky, embittered old man. That would be wrong. For one thing, he doesn't seem old enough to have *emeritus* appended to the title *distinguished professor*. He claims to be 66, but this is only 49 in baseball years. Just ask Roger Clemens. Or Curt Schilling. Or Randy Johnson. All of them still flinging upper-90s heat. All of them deep in their 30s but pitching like strong 23s.

However you figure his age, Alexander is a solid and upright 5-foot-11, with a head full of iron-gray hair and a broadcast-quality baritone voice. His Texas-bred toughness has some air under it, like a Texas leaguer looped just out of reach. He can take a joke. He can answer a question, “I don't know.” And he can even admit that he “gets a little misty” when he recalls playing catch with his dad. But this is not a gushy kind of guy.

He grew up in the small town of China, on the Cajun-spiced plain of southeast Texas, playing baseball “neither

wisely nor well.” He separated a shoulder on the high-school football field and never recovered the unfettered force of his swing. So he faced the hard fact that he'd never crack a lineup in the Show.

But the game was ingrained. He had learned it from his father, a school superintendent with the good sense to play catch with his son and take him the 15 miles to Stewart Field, a Texas League ballpark in the baseball hotbed of Beaumont. Growing up as he did in the 1940s and early '50s, Alexander and baseball converged just as the game reached its apogee of power and prestige. It was the era before television. The era of Jackie Robinson, when players of color strode into the majors and gave them a kick in the pants. An era when one could hate the mighty Yankees but admire the way they played the game. And there was so





much talent pent up in the minor leagues that even a boy down in Beaumont could feast on the game in its glory.

So Alexander grew up in the right place at the right time with the right sort of disciplined, literate dad and the smarts to be just what he is, a baseball historian. And all of those years he devoted to the scholarship of American intellectual history might be regarded as so much erudite forestalling, so much postponing the inevitable. The hints were all around him. All he had to do, for instance, was to step outside his office in Bentley Hall and read the date inscribed on its cornerstone: 1923, the same year Yankee Stadium opened.

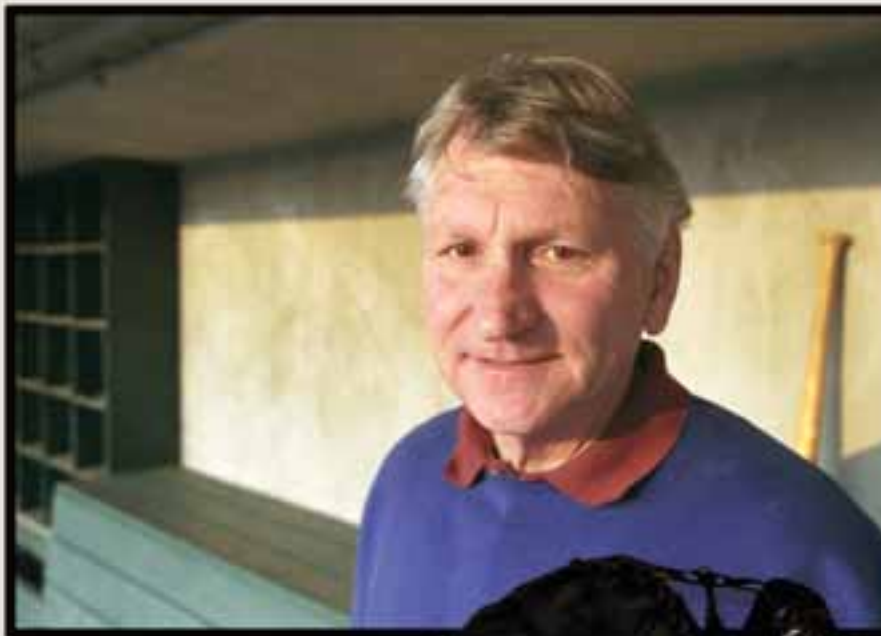
And then, about two decades ago, Alexander yielded at last. "I had just finished *Here the Country Lies*," he recalls, "a book about nationalism and the arts in 20th century America. It was a complicated and difficult book to do, and I was really fed up with intellectuals and their discontents."

When Alexander turned away from those discontented intellectuals, there stood Ty Cobb, the perfect antidote to academic fuss and bother, and perhaps the toughest and most dominant baseball player of all time. Alexander's biography of Cobb, published by Oxford University Press, appeared in 1985. Since then, he's written four other baseball books:

*John McGraw*, *Rogers Hornsby*, *Our Game: An American Baseball History*, and now, his most recent, *Breaking the Slump: Baseball in the Depression Era*, from Columbia University Press.

One of his students, Marah Eakin of Rocky River, Ohio, suggested the title, *Breaking the Slump*, after Alexander polled his classes for ideas. ("When in doubt," he says, "ask 150 people for advice.") Eakin's contribution is fitting, since Alexander has, at last count, intoned the cherished stanzas of baseball history into the ears of some 3,000 students. For Alexander, baseball history is not just a matter of recounting who did what in this or that pivotal season or game. The story of baseball, as he teaches it, is also the story of America.

"Baseball is interwoven with American life," Alexander says. "It has to do with the rise of cities and the development of transportation. It has to do with immigrants and their offspring — immigrants rising with social mobility. It has to do with race relations. It has to do with the long history of labor management and labor-management conflict. It has to do with the law. It has to do with small-town America, and small-city America. Just about anything significant in American life, baseball has related to it. And it's been like



▲ FOR THE LOVE OF THE GAME Charles C. Alexander is a self-described "moss-backed, stuck-in-the-mud baseball traditionalist."

PHOTO: David Ahnholz

► CATCH THIS George Sisler's first-baseman's mitt, 1920s.

◀ PLAYBALL Before Spud Chandler's opening pitch in the 1943 World Series, a B-17 bomber roars over Yankee Stadium. Note the wartime admonition printed on the second-deck railing: "See Score Card for Alert Instructions." (AP)



“THE OVERALL TALENT LEVEL IN PROFESSIONAL BASEBALL, INCLUDING BOTH BLACK AND WHITE PROFESSIONAL BASEBALL, MAY HAVE BEEN HIGHER IN THE 1930s THAN IT HAS BEEN SINCE THAT TIME.”

— CHARLES C. ALEXANDER

that for well over a hundred years. So that’s why historians are more interested in baseball than they are in the other sports and why writing about baseball has attracted some of the best literary talent that the country has produced.”

Alexander belongs in that company, not only for his careful scholarship and well-polished prose, but because he doesn’t truck with slick and sappy, coffee-table kinds of books. And he doesn’t think baseball is best when it’s gummy with hugging and heartwarming tributes to over-hyped stars. So here is the man with the candor and credentials to say what’s become of our game. Will it ever be our national pastime again?

Probably not, Alexander predicts, and his reasons are hard to dispute. More and more, easier diversions compete for our leisure. Television distorts not only the business of baseball but also the game on the field. And we, as a society, would never choose to relive the hard times that gave us the game at its toughest and best.

#### PLAYING FOR KEEPS

By the 1930s, baseball was the well-established pastime of choice in the United States. Boys played it by day and dreamed it by night. So the talent pool was huge and the available spots on professional squads very few. As the Great Depression swept across the nation, owners cut back, lopping two positions from each roster of the 16 major-league teams. Meanwhile, minor-league outfits in blighted towns shut down.

“A young man would have had very few options for making a decent living in the ’30s,” Alexander says. “If you were sufficiently talented to become a professional athlete, baseball was the direction you turned. You weren’t going to make any money in professional football. Professional basketball was decentralized, haphazard. And boxing was a terrible way to

make a living. So the overall talent level in professional baseball, including both black and white professional baseball, may have been higher in the 1930s than it has been since that time.”

For some fans, the players of the 1930s were almost *too* good, too uniformly professional. Where were the hell-bent, high-spiking pugilists like Ty Cobb? In a time when every job seemed at risk, when the nation was facing domestic upheaval and the rumblings of war machines abroad, players bore down on their work with a serious purpose. But if the model for the 1930s was a durable stoic like Lou Gehrig, plenty of wildness remained in the game. Dizzy Dean and the Gashouse Gang of St. Louis, among others, supplied swagger and daring and comic relief. So the game was sufficient to vent a nation’s anxieties and aggressions at the same time it offered a comforting order and form.

Teams imposed the sort of discipline impossible today. When a player signed a professional contract in the 1930s, he surrendered control over much of what mattered, including his health. In *Breaking the Slump*, Alexander recounts such tales: Physicians for the 1934 Red Sox looked into Lefty Grove’s mouth and concluded that three abscessed teeth were causing his arm trouble, so out came the teeth and his tonsils, for good measure. The arm trouble persisted. In 1935, Joe McCarthy, manager of the Yankees, blamed Lou Gehrig’s ailing back on the newfangled air conditioning in Pullman coaches, and so decreed that his players would turn off the cooling and open their windows. The onslaught of coal smoke and heat did nothing to relieve Gehrig’s pain, a symptom of the rare, progressive degenerative illness that would come to be known as Lou Gehrig’s disease.

But the most onerous of contract provisions was the infamous reserve clause, which bound a professional player to his owner as long as the owner wanted to re-sign the player.



Some of the more daring and desperate, risking the blacklists of major-league owners, took jobs as ringers on various pro or semipro outfits that thrived in the shadows of organized ball. These “outlaws,” as they were known in North Carolina’s independent leagues, played a fierce, combative game that inflamed local rivalries in the mill towns of the South.

#### SEDUCED BY THE TUBE

We won’t detail the struggles of baseball as the Depression gave way to war. You can find the story in Alexander’s book, *Our Game*. What we’re after, at the moment, is a sense of when and why the game began losing ground. As marquee veterans like Ted Williams and Joe DiMaggio came home from the war, as Jackie Robinson and the best players from the Negro leagues infused the game with talent and verve, as a new generation of players and fans shook off the pain of hard times, why did the game lose its grip on America’s heart?

“Post World War II America brought a period of unprecedented prosperity,” Alexander explains, “which means unprecedented diversification of entertainments, recreational opportunities, and travel.” For people who had endured the terrible sacrifices and insecurity of economic depression and war, America of the 1950s was “a wonderland,” he says. “There were so many ways to have fun.”

Television, for one. From 1950 forward, TV seduced us away from the ballparks, depriving the minor leagues and semipro teams of paying customers. “By the end of the 1950s, about 85 percent of the homes had a television,” Alexander says. “More than any other single factor — and there were a lot of factors — television undermined the attraction of baseball as a live form of entertainment.”

Television and baseball, Alexander will tell you, were from the beginning an unfortunate match.

“Baseball is, and always will be, a lousy thing on television,” Alexander says. “Most of the time you look at four people —

the pitcher, batter, catcher, and umpire. You can’t get the distances. You can’t get the flight of the ball. You can’t get the positioning of the players.”

At about the same time television began to enthrall us, Little League was also competing for our evenings at the ballpark — not so much to help children compete (they had been playing the game on their own), but so that their parents could get into the act. Baseball, and childhood, would never be the same.

#### MISSING THE GRIT

Last fall, we celebrated a World Series that Tom Boswell of the *Washington Post* called the best of all time. Even though Alexander can rattle off 10 Fall Classics that he says were at least as good (1924, 1926, 1946, 1947, 1955, 1960, 1968, 1979, 1987, and 1991), he agrees that the series was “splendid,” with memorable, unprecedented events. Never, not even during World War II, has baseball displayed its patriotism with so much ardor, Alexander says. And never have we seen the likes of the Yankees’ back-to-back, come-from-behind wins in games four and five, when the same thunderstruck Diamondback relief pitcher, Byung-Hyun Kim, twice surrendered the lead with two outs in the bottom of the ninth.


It was a storybook series at the end of a storybook season. Baseball rarely has produced more superlatives in the press, more record-setting performances on the field. This was the year, after all, when Barry Bonds broke Mark McGwire’s single-season home run record and Babe Ruth’s single-season records for slugging percentage and bases on balls. It was the year when Ricky Henderson broke Ty Cobb’s record for runs scored in a career.

After such glories, what could be missing? What did the 1930s have that we haven’t got?

Toughness, for one thing. “The players of the 1930s were tougher than they are today,” Alexander says. “They had to be. The times were tougher, and so was the game.” Without

BOYS OF SUMMER (Above, from left to right) Stan Musial at bat, 1952; Joe DiMaggio sliding into third base under Washington’s Eddie Yost in 1949, with the home-plate umpire covering the play (AP); Lefty Grove (left) and Dizzy

Dean, starting pitchers for the 1936 All-Star Game, Braves Field, Boston; Hank Greenberg batting at Briggs Stadium, Detroit, shortly after returning from military service in 1945. The catcher is Boston’s Bob Garbark.



## MOST FIGHTS IN THE 1930S STARTED BECAUSE OF WHAT SOMEBODY SAID, AND BECAUSE OF COLLISIONS OR SPIKINGS ON THE BASE PATHS.

a squad of well-paid relievers behind him, a starting pitcher bore down for his eighth-inning gut check to finish the game. Collisions on the base paths were frequent and violent; injuries came with the territory. After all, if baseball was your best shot at a paycheck, playing hurt didn't seem nearly so risky as surrendering your spot in the lineup to a hotshot even hungrier than you.

Today, teams have too much money invested in players to risk so much as a hangnail. The pampering of players, on and off the field, tends to make it easier for superstars to put up big numbers, Alexander says. Despite the Rawlings Company's insistence that its baseballs remain unchanged from a generation ago, many observers (and pitchers) believe that today's version is "juiced" to travel farther and yield more home runs. Lightweight bats, a smaller strike zone, and the dilution of pitching talent may also favor the sluggers of today. But these factors aside, Alexander says, hitting is easier today because batters have less to fear from their opponents on the mound.

Consider, he says, the demise of the brush-back pitch, otherwise known as the purpose pitch, the bean ball, the up-and-in, the high-and-tight, or, more whimsically, chin music. The idea is to throw a pitch sufficiently close to the chin that the batter bails out of the way. Is a hitter leaning into the zone, looking for the outside pitch? Dust him. Is he digging in for leverage? Flip him.

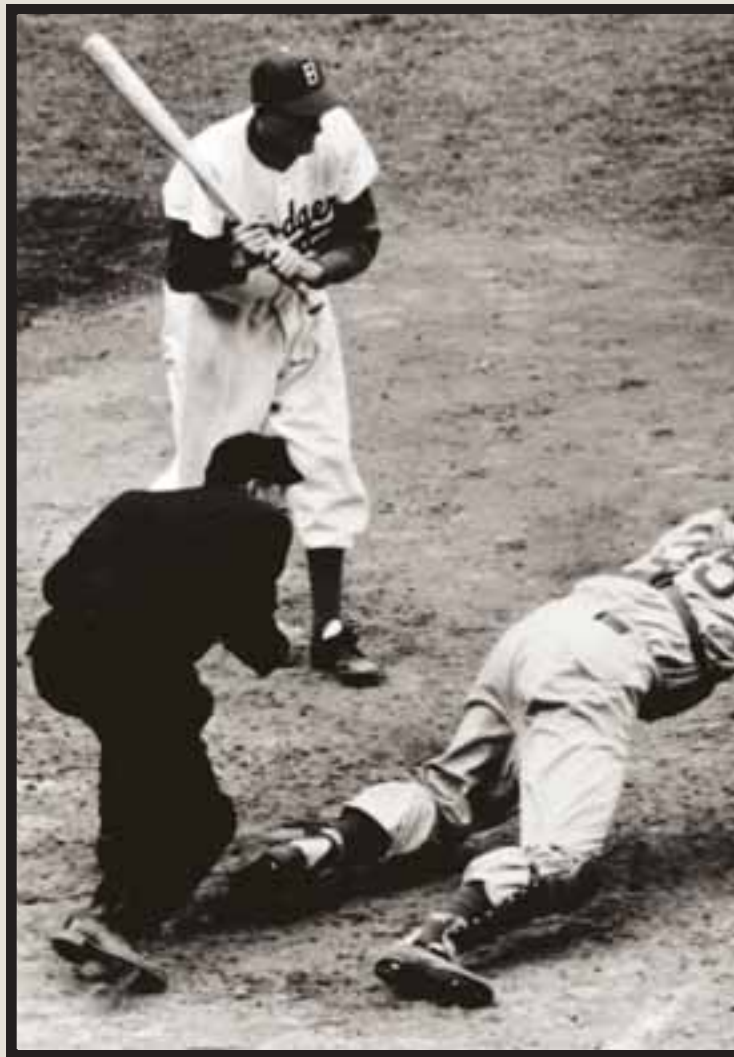
In a 1934 exhibition game in Norfolk, Virginia, a minor-league pitcher bounced a pitch off Lou Gehrig's skull, knocking him unconscious. The next day, Gehrig checked himself out of the hospital and made it to Washington to face the Senators in another exhibition game. In that game Gehrig hit three straight triples, headache and all.

Today, players wear helmets, but brush-backs are rare. Umpires eject offending pitchers, and officials levy fines. As a result, pitchers have lost a significant weapon, Alexander says, and the game has lost some of its risk and intrigue.

"Barry Bonds would not have hit 73 home runs this year if he'd been knocked down on a regular basis," he speculates. "Batters these days can dig in, and they can crowd the plate, and they really don't have any fear of being thrown at intentionally."

Wouldn't a return to chin music set off more fights? Alexander's studies of baseball during the 1930s found that most fights didn't start with batters being knocked down or hit. They started because of what somebody said, and because of collisions or spikings on the base paths.

"In the 1930s, getting knocked down with a pitch was part of the game," Alexander says. "You would dust yourself off and get back up again. Now, if somebody gets moved off the plate a little bit, he charges the mound, and the



dugouts empty, and you go through this dance that passes for a baseball fight."

### THE IMPERIAL UMP

As leagues tried to civilize the game for television, umpires gained the power to prohibit all kinds of overt aggression, especially that directed toward themselves. In fact, Alexander says, umpires now have become more confrontational than the players and managers. After Roberto Alomar spit in the face of umpire John Hirschbeck on September 27, 1996, a heat-of-the-moment blunder that continues to tarnish Alomar's otherwise brilliant career, umpires claimed victim status. No more managers storming out of the dugouts. No more Lou Pinella kicking dirt. Player begs to differ on that outside strike? Toss him. Manager disputes a close call at the plate? Run him.

Umpires tightened their grip on the game. The strike zone was *theirs*, and batters and pitchers would have to adjust. For most umpires, the top of the strike zone sagged to the belt and then bulged, obscenely, 6 inches off the outside corner. Batters could lay off the letter-high heat or a big-breaking curve. Sliders and sinkers and cutters and splitters prevailed, because these were the pitches that bored into the lower strata of the zone.

Never mind that the tipped-over strike zone fundamentally altered the game. The umpires were boss, and the umpires liked a low zone, partly because they were setting up down in the "slot" between catcher and hitter, where they



**A TOUGH CALL** Jackie Robinson tries to avoid catcher Harry Chiti while stealing home plate at Ebbets Field, Brooklyn, 1952, as batter Preacher Roe looks on. (UPI)

saw the lower pitches best. To reach the low-and-outside pitches, batters crowded the plate, encrusting their elbows and forearms with padding, taking bases on pitches that hit them but should have been strikes.

The lopsided strike zone prevailed until last year, when Major League Baseball called the umpires' union's bluff on a mass resignation and the commissioner's office took the supervision of umpires away from the leagues. Organized baseball began enforcing, with modest success, the rule-book strike zone. The game regained some of its balance. Batting averages returned to the realm of reason, and pitchers who could throw the high heat — Schilling and Clemens among them — had sensational years.

But even if umpires eased up even further, the public may never be ready for the sort of hot-headed warriors and rogues who once ignited the game. Modern tastes run to paragons like Cal Ripken, Jr., or dreamboats like Derek Jeter, or gentle giants like Mark McGwire. Players today are not permitted to be who they were in the '20s or '30s or even the '50s: unfinished men in the unabashed wildness of youth.

For one thing, big-money contracts and commercial endorsements favor presentable guys, guys who can maintain a show of civility under pressure, even with cameras

and microphones constantly pointed their way. For another, Alexander says, baseball, like American society in general, "is on terminal political correctness."

#### WHERE HAVE ALL THE PITCHERS GONE?

But the real crime, Alexander maintains, is that pitching has gotten so woefully thin that a guy with a 10-cent head and a tendency to leave his fastball up in a hitter's happy zone can ascend to a major-league roster where his backside, when he shows it, is out there for millions to see.

Without defense and pitching, hitting and scoring don't have the power to thrill. Pitching yields dramatic tension, a tension that mounts, through the course of a well-pitched game, pitch by pitch, inning by inning. Without this tension, the action of hitting is flaccid and boring.

Having just last fall enjoyed a World Series resplendent with pitching, it's easy to forget that for most teams today a good arm is hard to find. Before his death a couple of years ago, Hall of Famer Jim "Catfish" Hunter blamed this problem on pitching's extreme difficulty, and on the lack of young pitchers who are willing to learn.

"It takes a lot of time and effort to learn how to pitch the right way," Hunter said. "It's a process that you have to start as a kid and stick with for several years."

Nine-year-olds clamor to pitch, but volunteer coaches generally have neither the time nor the expertise to teach those scrawny hopefuls what they need to know. So the coach picks out a couple of kids who, by virtue of early growth spurts, are big enough to throw the ball hard. Out of earshot of mommies and daddies, the coaches call these kids their "studs."

So the studs pitch, and the rest mope. By tournament time, the studs are getting too much work and, all too often, strained ligaments, fractured growth plates, or disfiguring stiffness. The wear and tear on young arms — arms especially vulnerable because the joints are not fully formed until after puberty — is so pervasive that some pro scouts will tell you that they prefer pitchers who never took the mound in youth leagues at all.

Brad Woodall, a lefthander who pitched for the Braves, Brewers, and Cubs before he became a pitching coach with the Tampa Bay Devil Rays, was one of those scrawny Little Leaguers who didn't get to pitch until high school. He says that the failure to develop pitchers in youth baseball translates into a shortage of pitching in the majors. "It seems paradoxical to say that kids today are pitching too much and throwing too little," Woodall says. "But there's a difference between throwing a baseball on flat ground and pitching off a mound. The leverage you get from the mound applies extra stress to the arm. You have to build up to that stress gradually with a lot of conditioning and a lot of throwing on flat ground. This means playing catch almost every day, for years and years. Most kids just don't do that kind of throwing any more."

#### THE OMNIPRESENT ADULT

Why not? Alexander blames the "tragic domination of adults." His father played catch with him in the backyard, but he didn't shout instructions through a chain-link fence at a Little League field, or bribe him with \$250 scandium-alloy bats. In the China, Texas, of the 1940s and early 1950s, boys

chose up sides and played whenever they could. And boys of that era threw whatever came to hand — snowballs, wormy apples, rocks. Throwing expressed all manner of yearning.

But for most kids today, throwing anything riskier than a Frisbee without adult supervision and sanction is a punishable offense. So it's hard to develop an arm. It's also hard, without playing almost daily, to build up the wrist snap to swing a quick bat, or the "soft hands" to field a hot grounder. Baseball is a scary and dangerous game for the weak and unskilled. Add to this what Alexander calls "the omnipresent factor of adult interference," and it's easy to understand why most kids have abandoned the game by the ages of 13 or 14, turning to another sport or to no sport at all.

The loss to baseball is significant, but the loss to families and communities is what saddens Alexander most. In our zeal to organize and control, to live vicariously through our children, we are losing the casual pleasures of parent and child. One of these pleasures is playing catch, a communion that joins us at levels mere talk cannot reach.

"Fathers passing the football to sons? No, that doesn't work," Alexander says. "Fathers shooting baskets with sons? That may work a little better. But fathers playing catch with sons — you know, the late afternoon, the rhythm of the catch back and forth..." This is where his toughness mellows, his gaze turns inward. Even that most sobering of disciplines, the study of history, cannot entirely separate emotion from the game. Its memories. Its places.

"When I go back to Beaumont from time to time," he says, "I'll drive out to Avenue A where Stuart Stadium stood. There's a tacky little shopping center there now, and a plaque in the parking lot saying this is where home plate was. And it's sad."

#### THE SHAPE OF THINGS TO COME

Millions will feel a similar sadness if New York decides to tear down the most storied ballpark of all, Yankee Stadium. Before he left office, Mayor Rudolph Giuliani, negotiated a deal to build, at an estimated cost of \$1.6 billion, fancy new digs for the Yankees and Mets. At this writing, the city's budget crisis has put those plans on hold. But when the facilities are built, they almost certainly will resemble other new parks around the country — fields in a shopping-mall wrapper, with plenty of sealed luxury boxes for the corporate elite and with just enough retro architecture and museum-style exhibits to inspire pangs of nostalgia in the shoppers. No doubt, the teams will continue to put "good product" on the field. And, as products go, baseball returns as much value as most.

But the game can be more than a product. It was more in the 1930s, when baseball helped a nation muster its resolve for the test of hard times. Will it do so again? As we wake from the shock of September 11 to the long siege of war and recession and lingering grief, will baseball be part of the bedrock we'll need to survive?

Alexander declines to indulge in prediction. History, he says, teaches the folly of forecasts. It also teaches a healthy skepticism for those owners who would have us believe that players and agents are driving professional baseball into bankruptcy.

"The old saying goes that baseball must be a great thing to survive the people in it," Alexander says. "I think that still applies — and it will survive." ▲

# FIVE REASONS TO

**N**ot long ago, I spent some time with a CEO who doesn't like baseball at all, but thinks the movie *A League of Their Own* was just terrific. In motivational speeches, he quotes Tom Hanks' character, who says, after his catcher has complained that baseball is too hard, "It's supposed to be hard. If it wasn't hard everyone would do it. That's what makes it great." The trouble is, the real game of baseball really is too hard. But why should we ever admit it, when so many familiar objections come so readily to mind? Here are five of those objections, and why they don't wash.

## 1 THERE'S NOT ENOUGH ACTION.

This is true only if (a) you don't know the game, (b) you watch it only on TV, or (c) your attention span has shriveled up short as a punch line. With its peephole-sized view of the action, television creates the misimpression that offense, specifically the home run, is the measure of the game. It is not. And neither is a photogenic face. Mike Piazza, of course, is more than a hunk. He's a terrific hitter. But he couldn't have played catcher in the Major Leagues before the age of television, says Ohio University baseball historian Charles Alexander. In those days, teams could not afford to sacrifice defense, especially at the crucial position of catcher, for a little more pop at the plate.

But despite its distortions, the game on the field is still very good — probably better than we deserve. In his introduction to *Men at Work*, George Will wrote, "Being a serious baseball fan, meaning an informed and attentive and observant fan, is more like carving than whittling. It is doing something that makes demands on the mind of the doer." If you can't do the carving, you're missing the game.

## 2 BASEBALL PLAYERS AREN'T ATHLETES.

The action in baseball is not the back-and-forth running of basketball, but it's just as demanding. A third baseman goes nine nervous innings on his toes, never knowing when a lined shot will come for his head. A left fielder prowls his turf, flexing and breathing, tuning his muscles and mind for that instant when the ball will rocket off the bat, when he'll sprint for the gap or the foul line, looking into the sun for a speck of a ball that will bound back and forth with each shock of his stride.

The physicist Robert Adair has analyzed the complex kinetics and split-second timing of hitting a baseball and declared them right at the limits of human facility. When Michael Jordan, the most celebrated athlete of his generation, tried his hand at baseball, he quickly discovered his limits. He could buy his minor-league team a bus but, alas, could not procure a decent swing. This is no knock against Jordan, who was brave to attempt the game at all.

For ordinary athletes, the terrors of baseball must be surmounted gradually, in tiny increments from childhood. Other than, say, soldiers or firemen or policemen, how many men would have the cajones to face a 97-mile-per-hour fastball, knowing that it could dart off course and fracture their ribs or their jaws or their skulls? And, knowing this, how many could calmly wag their bats with a predatory twitch, then whip 33 ounces of maple or ash into that menacing blur of a ball?

If there were a skill more difficult than hitting, it would have to be pitching, which requires a human being to throw a baseball

# DISLIKE BASEBALL *(and why they are bogus)*

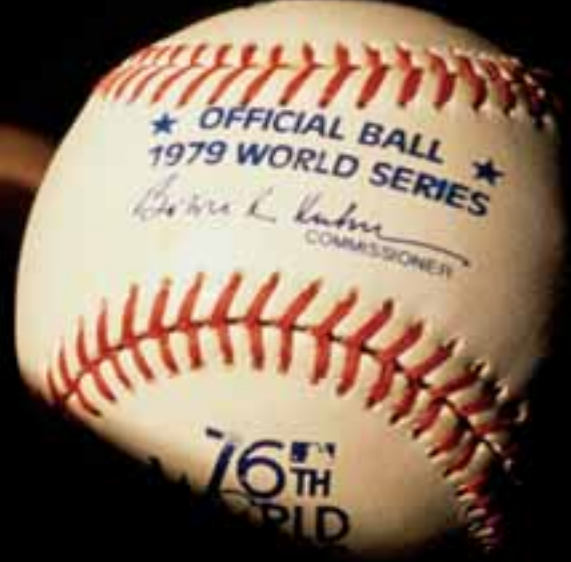


PHOTO: Rick Fatica

90-plus miles per hour, with varying spins and from varying angles, so that the ball can dip and dive and swerve and then reliably hit a 5-inch target from 60 feet away. In 1996, Jan Zelezny, a native of the Czech Republic who earned the label “world’s strongest arm” for his world-record performances in the javelin, had a pitching tryout with the Atlanta Braves. Despite some practice and instruction, Zelezny topped out in the mid-70s in miles per hour on the radar gun — good enough for junior high.

### 3 MONEY HAS RUINED THE GAME.

“Nobody seems to mind if Tom Cruise gets \$13 million per picture,” Alexander says, “but we have to figure out how much money per time at bat Alex Rodriguez is making. Free-market economists would tell you that baseball players cannot possibly be overpaid. You’re worth what anybody’s willing to pay.”

It’s a popular myth that money has only recently sullied professional baseball, and that players of old would have played for the love of the game. “One of the silliest things I think anybody can say,” Alexander says, “is ‘I would have done whatever it is I did for free because I loved it so much.’ To which I say, ‘Bullshit.’ Old ballplayers were just as money-hungry as these guys are now. There was just less money to be hungry about, that’s all.”

Even Lou Gehrig, that model of loyalty and self sacrifice, held out for higher pay. And there were many others. “By definition, somebody who is a professional baseball player is trying to make a living from baseball, and make the best living he possibly can. Ty Cobb held out. Why wouldn’t he?”

Lest we think that baseball as a business is on the whole more commercial than it was in the good old days, Alexander reminds us that Fenway Park’s Green Monster in 1934 wasn’t yet green. It was plastered with ads. The problem, he says, is not baseball’s profit motive but its blunders in business. Take the case of television money, for example.

“The pro football owners and the president of the National Football League, Pete Rozelle, saw the potential in television,” Alexander says. “They had the wisdom, as of 1960, to begin sharing revenues equally from television with all of the franchises in the league. Which meant basically that within a few years you couldn’t lose money with the National Football League, no matter how bad your team was. Whereas baseball, in its halting, faltering, uncertain way of trying to deal with television, used the model of radio, which is local contracts for broadcasting rights. Which means that the large-market teams of course got a lot of money from television, and the small market teams got very little. Montreal, for example, is getting none right now. They don’t even have a radio contract.”

This long-standing inequity has contributed to baseball’s latest crisis, the proposal to eliminate several money-losing teams. Naturally, the players’ association resists losing dozens of major-league jobs, and the collective-bargaining agreement is expiring, as well. So baseball fans, who are just now beginning to forget the strike of 1994, are bracing for another bout of labor troubles in the major leagues.

### 4 THERE’S TOO MUCH SCRATCHING AND SPITTING.

For that golden time when a young man is on the playing field, he is free to cuss and sweat and spit for all he’s worth. It’s not as though he’ll revert to unregulated beast.

Baseball has its own set of conventions, at least as rigorous and functional as the pinkies-out, buttoned-down versions. And dugout banter is, on the whole, a richer medium for social negotiation than the stylish repartee at an uptown dinner party. Funnier, too. The scratching and spitting, and dozens of other less obvious habits, are not just an absence of manners.

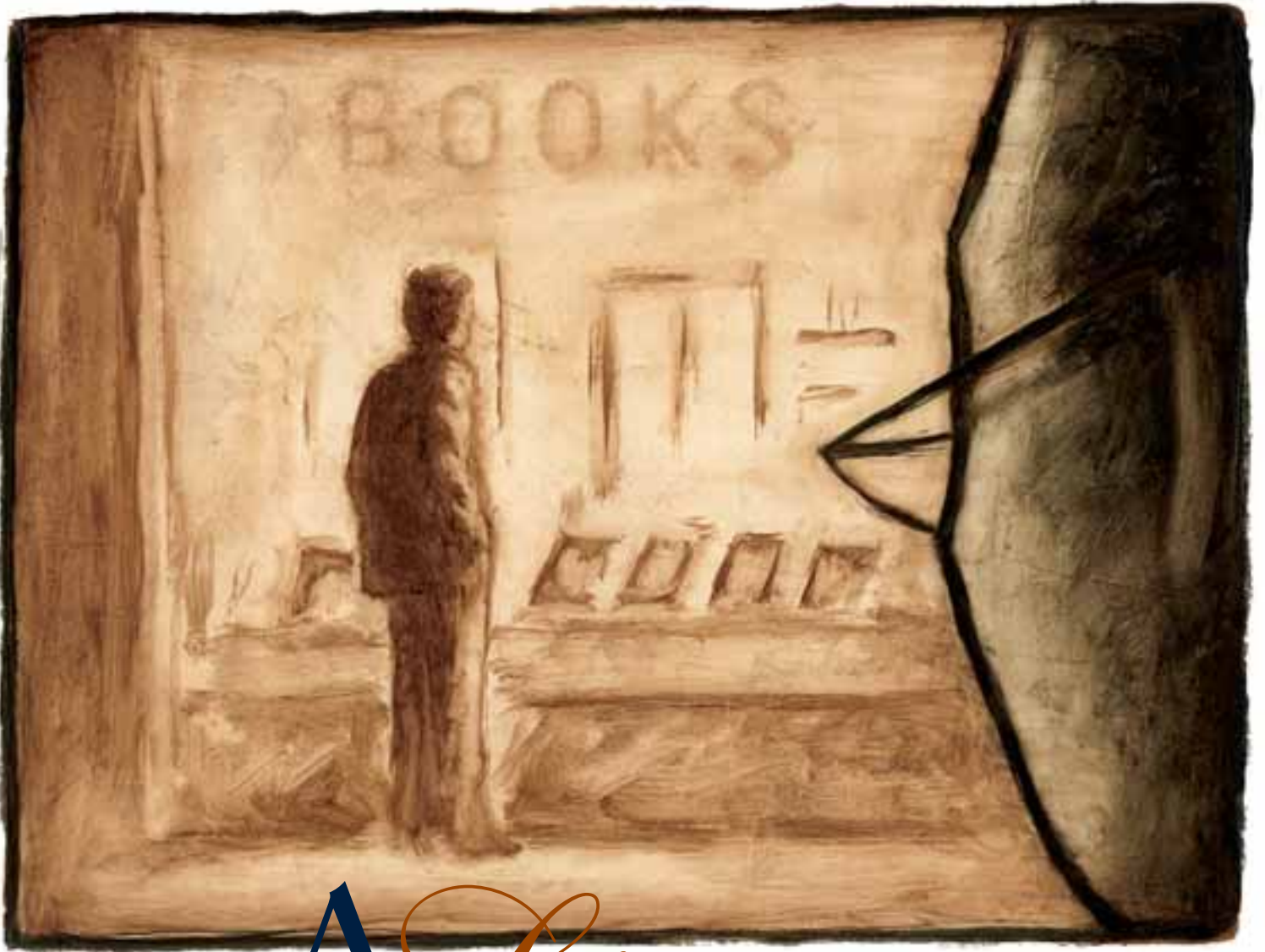
As Alexander puts it, they are “basic to baseball’s uniquely stylized movement.” There is, he says, a sort of baseball choreography: “The bat knocking the mud off the spikes. Pulling at the cap, pulling at the belt. The swing of the bat. It is part of the movement, this movement in pause, that I don’t think you find in other sports.”

### 5 BASEBALL IS DYING.

Pundits wring their hands if TV telecasts of the World Series decline a few points in the ratings. But the choices on cable have cut into everyone’s share, and the World Series hasn’t lost as many rating points as the NBA finals over the last 10 years. But who says that network TV is the measure of health in a sport, anyway? What about all of those people who actually show up at the ballpark?

In 1941, the year Ted Williams hit .400 and Joe DiMaggio went on his hitting streak, the average attendance at major-league baseball games was 7,852. Last year, it was just over 30,000. Attendance at minor-league games has been rising, as well.

The truth is, more people are paying to watch baseball games than ever before. And players, by a number of measures, are playing better than ever before. Yes, affluent white boys are dropping the game for their skateboards and video games, but many more Latinos and African Americans and young women are taking it up, ensuring a new generation of players and fans. Baseball is dying? Don’t bank on it. — NC



# A Literary Farewell

A writer remembers  
The Ohio Review

TEXT BY DALE KEIGER  
ILLUSTRATIONS BY  
NATHAN WAGONER

As a 19-year-old journalism student at Ohio University, I would frequent the Little Professor bookshop on Court Street. There one day I encountered something called *The Paris Review*. It was among the magazines, but had the dimensions of a softcover book, little advertising, and no articles, per se. Instead, it was filled with poetry and fiction and discussions of writing. I'd never seen anything like it.

Though I was a journalism major, my true ambition was to be a novelist, under the youthful misapprehension that fiction was a higher calling. So *The Paris Review* seemed like something I should check out. In the periodical section of Alden Library, I searched for more copies, and learned there was a slew of these literary journals. Some had precious artsy names like *Ploughshare* and *Spit In the Ocean*. (Paul Theroux, in his novel *Saint Jack*, satirizes them by inventing one called *Goatsfoot Review*.) But most had straightforward titles that bespoke their origins. And one, lo and behold, was called *The Ohio Review*.

I bought a copy — I no longer remember which one — from Little Professor for two bucks. *The Ohio Review* seemed intent on poetry, and if there was one thing I didn't understand, it



was poetry. But the interviews with poets like Galway Kinnell, Charles Simic, and Louis Simpson began to educate me on the word-for-word care that went into great writing. And the short stories were marvelous. On warm afternoons, I'd skip class (something I did a lot) and drive up a hill that overlooked town on one side and a bend of the Hocking on another. There was a pullout where I could park the car (a \$200, 1966 Valiant). I'd walk across the road, sit on a log that afforded a good view of the river flats, and read the *Review*. To this day, 29 years later, I can recall poems, stories, even sentences. In the *Review*, I first read verse by John Berryman, and thereafter began toting a copy of *The Dream Songs* in my knapsack. I remember Naomi Lazard's *Ordinance Poems*, Max Apple's *Vegetable Love*, and from *Rooster on the Roof* by Charles Edward Eaton, this opening line: "I do not know what it is in me that attracts the eccentric, even the grotesque, but if there is an oddball anywhere, sooner or later he will be drawn to me as if by a magnet."

*The Ohio Review* had begun thrice-yearly publication in 1971, the year before I got to Ohio. It supplanted an annual called *The Ohio University Review*, and its introduction declared, "*The Ohio Review* will actively seek to provide a vital and interesting magazine." From the start, it succeeded on both counts. The first few covers sported a large stylized *OR* reversed out of bold solid colors: powder blue, coral, emerald. Within those covers were essays, stories, poems, and the first in a distinguished series of conversations with great poets: Adrienne Rich, Mark Strand, William Matthews. Strand's interview included a photo of him, Hollywood handsome in turned-up collar and fedora. Twenty-five years later at Johns Hopkins, I opened my copy and showed Strand that photo. A man of no small vanity, he could only sigh, wistfully.

Wayne Dodd, a fine poet himself, guided the new *Review* and from the first issue established it as one of the country's preeminent literary journals. As I composed this essay, I began a list of the great writers who have graced the *Review*'s pages, and quit when I got to 33 names: Wendell Berry, Donald Hall, Philip Levine, Charles Wright, Mary Oliver, Richard Hugo, Frederick Busch, James Tate, Robert Penn Warren, Wright Morris, Tobias Wolff, Raymond Carver, Jorge Luis Borges, Czeslaw Milosz, even Dante and Horace (in new translations). Kathleen Norris appeared in the *Review* before she wrote acclaimed volumes like *Dakota* and *The Cloister Walk*. Issue No. 47 included a short story, *Heat of the Day*, by an unknown named Sebastian Junger who had yet to encounter his perfect storm.

Before I graduated, I got to know some of the people on the masthead, including Wayne. Among his assistants was the late Stanley Lindberg, who eventually would move south to become the beloved editor of *The Georgia Review*. I went to interview Stanley one day, for a story I wanted to publish in *The Post*. He was sliding a manuscript by Joyce Carol Oates into a return envelope and chortling. "It's always fun to reject one of the biggies," he said. (She wasn't always rejected; her work appeared in the magazine numerous times.) In the course of our conversation, I mentioned the few copies of the *Review* in my possession. As our chat concluded, Stanley went to a shelf, pulled out every back issue that I didn't have, and gave them to me.



*Wayne Dodd*, a fine poet himself,  
guided the new *Review*  
and from the first issue *established it as*  
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*preeminent literary journals.*

I cannot overstate what that meant to me. Pop psychology was just emerging in those days, so I wasn't conversant with the term validation. But that's what occurred when Stanley slipped me those copies. He took me seriously as a writer. In later conversations, so did Wayne. They said, in effect, "Yeah, kid... you're a writer." When I walked away with those back issues in my knapsack, I was lit up. I was a writer, by God, and I made eventual publication in *The Ohio Review* a benchmark for my literary success.

I'm still a writer, and in my house in Maryland, on the floor of my upstairs office, I spread all of my copies of the *Review*. I have every issue, save for numbers 44 and 46 (and I'm searching the Internet for those two). The covers form a brightly colored mosaic at my feet. For most of us, life doesn't follow the course we plot when we're on the cusp of adulthood. I've had a deeply satisfying career as a scribbler, but I never became a fiction writer, nor did I ever submit anything to *The Ohio Review*. Now I never will.

Wayne Dodd has retired, and retired the *Review* with him. That feels right to me. He had a lot of able help over the decades — a pair of Stanleys (Lindberg and Plumley), C.G. Thayer, Sam Crawl, Jack Matthews, Bin Ramke, Robert Kinsley, Joyce Barlow Dodd — but *The Ohio Review* was his creation. That it ceases publication now diminishes American literature, but magazines have lifespans, and it's disheartening to watch one live too long, feeble and spent. *The Ohio Review* was hale right to the end, publishing a pair of robust, 500-page retrospective issues, numbers 62/63 and 64/65, that could serve as core reading for a course on contemporary American belles lettres. From time to time, I purge my bookshelves of volumes that no longer speak to me. *The Ohio Review* will remain, forever fulfilling its promise to be vital and interesting. ▲

For more information on *The Ohio Review*, visit the Web at [www.ohiou.edu/theohioreview](http://www.ohiou.edu/theohioreview).

# a recipe

## FOR GOOD POLICY

The most important ingredient for good environmental and public health policy is sound science. Unfortunately, a new book argues, that's the one ingredient policymakers often overlook.

TEXT BY RANDALL EDWARDS  
ILLUSTRATIONS BY CHRISTINA ULLMAN

**S**ound science is made like good baklava. At its best, the pastry consists of layer upon layer of paper-thin phyllo dough, with just enough nuts and honey to bake up into a chewy delight you can sink your teeth into. A single layer would seem thin on its own, and flavors wouldn't be right if the thing weren't properly baked.

Similarly, good environmental science relies on the work of many researchers who may be working miles, or even generations, apart — each adding his or her own layer to the mix. Any one piece of information, acquired through observation or experimentation, may seem thin and brittle on its own. When lots of information comes together, however, it can create a rich, textured body of knowledge that can be used to make decisions, including environmental policy choices.

Sometimes, however, the politicians, industry lobbyists, or activists promoting a policy purposely leave out layers of dough. Other times, they don't let the mixture bake long enough. And when things turn out sticky, as environmental policy debates so often do, the same bakers who left out key ingredients in their own pastry accuse the other side of using “junk science.” The phrase irritates Michele Morrone, an Ohio University assistant professor of environmental science and coauthor of the upcoming book *Sound Science, Junk Policy*, to be published this summer by Greenwood Press. Morrone, who has watched environmental policymaking from the inside as the former chief of the Ohio Environmental Protection Agency's Office of Environmental Education, has seen too much bad baklava, and it's left a bad taste in her mouth.

“The majority of scientists use sound scientific practice to search for knowledge and have debate,” Morrone says. But when environmental issues take a political turn, researchers “don't have time to debate with other scientists before (data) is trotted out (and used for making policy). Scientists are generally caught in the middle, between the public and policymakers.”

Morrone has built a career on trying to bridge the gap between public perception of environmental threats and what scientists say we should be concerned about. Her studies question environmental policy created when the public pushes politicians to enact laws and regulations that are based more on passion than science. And that sums up her book's provocative thesis: Bad environmental policy usually isn't the result of bad science, but instead evolves from perfectly sound research that is misinterpreted, twisted, or otherwise abused by policymakers who can't accept the ambiguities inherent in science.

### BUT IS IT MAKING PEOPLE SICK?

It's a bleak February morning in Athens, with a chalkboard-gray sky that makes a windowless classroom in Grover Center seem less dreary by comparison. Morrone speaks to a couple of dozen students in one of her classes who are watching a television documentary



about the widely publicized “cancer cluster” in Woburn, Massachusetts. In the early 1980s, several Woburn parents filed a lawsuit against W. R. Grace & Company, claiming the firm poisoned the town wells, causing leukemia in their children. The case eventually was settled out of court.

Morrone, who turns 40 this year, is casual in her long wavy dark hair, jeans, and a sweatshirt. But her questions are pointed and her goal clear: She wants her students to dig deeper into the facts of the story, deeper than the directors

of the Hollywood version of this story did in the film called *A Civil Action*.

While the story made for an entertaining film, Morrone says it ignored the detailed science found in Jonathan Harr’s book by the same name, on which the film was based. The documentary she shows the class does what the film does not: lays out the scientific ambiguities that demonstrate how difficult it is to prove a cause-and-effect relationship between chronic exposures to low levels of chemicals and disease. The movie portrayed an evil corporation poisoning its neighbors.

But the truth, Morrone tells her students, is that scientists couldn't clearly say the chemicals caused the cancer.

"But are they guilty?" Morrone asks her class.

"Well," sputters a student. "They're guilty of something."

The desire to simplify environmental issues and identify heroes and villains, as Morrone's students tried to do, is not uncommon.

"They make the mistake that many people do, thinking that just because (the chemical) is there, that it's making people sick, not understanding the dose, the exposure, the mechanism of disease," she suggests. "Our whole regulatory system is set up that way, with the emphasis on making sure the chemical isn't there, rather than asking, 'Is it making people sick?'"

### EMBODIMENT OF EVIL?

Finding Michele Morrone in the middle of a dispute over the scientific underpinning of environmental policy will be no surprise to those who know her.

She made a career of challenging popular assumptions about environmental issues while at the Ohio EPA in the mid-1990s, when she led an endeavor to identify and prioritize threats to human health and the environment across the state. Known as the Comparative Risk Project, the initiative invited hundreds of scientists, industry experts, and citizens to

develop a list of environmental problems that all could agree were significant threats to human health, natural ecosystems, or quality of life in Ohio.

The project was a signature effort of the administration of Governor George V. Voinovich, and hugely controversial among environmentalists — most of whom refused to participate because they believed the administration wanted to suppress environmental debate. As the project's leader, Morrone bore the brunt of their criticisms. Morrone recalls one public meeting in particular when an activist called her the "embodiment of all evil" and accused her of intentionally trying to prevent low-level radioactive waste from achieving a high-priority ranking.

Others, such as Richard Sahli, were less vitriolic, but still critical of the project.

"It had the effect of under-emphasizing any of the issues that could lead to corporate liability, to promote feel-good projects where corporations would be happy to see resources realigned," recalls Sahli, a former deputy director and chief counsel for the Ohio EPA when Richard F. Celeste was governor in the 1980s. When Celeste left and a Voinovich appointee took over the EPA, Sahli became executive director of the Ohio Environmental Council, a statewide advocacy group.

But Morrone points out that the final list of top threats from the Comparative Risk Project included drinking water contamination, automobile emissions, ozone

depletion, and abandoned industrial sites, items

she says prove the project wasn't trying to protect any corporate sacred cows.

After the risks were prioritized, Morrone and others began working on plans to solve the problems. But after Voinovich went on to the U.S. Senate and a new governor was sworn in, the Comparative Risk Project was shelved and Morrone left government for academia. She carried with her what she had learned from years of standing at the intersection of science and politics, and poured that



# Developing policies IS LIKE MAKING BAKLAVA. OR ACTIVISTS SOMETIMES, THE POLITICIANS, INDUSTRY LOBBYISTS, promoting a policy leave out layers ON PURPOSE. OTHER TIMES, THEY DON'T LET THE MIXTURE BAKE LONG ENOUGH.

into the new book, which she coauthored with American Electric Power researcher Timothy Lohner.

## RISKY BUSINESS

If Morrone sometimes plays the role of environmental devil's advocate, she took a strange path to get there. It was the romance of work outdoors that drew her into the environmental field, a passion she shares with many of her environmentalist critics. She grew up in New Jersey, about 20 minutes from New York City, but took an interest in the outdoors at an early age. When she was 14, she saw a photograph in a magazine of a woman wearing a forest ranger's hat. *That hat*, she thought. *I want to wear that hat*. She earned a bachelor's degree in forestry at Ohio State University and a master's degree in forestry at the University of New Hampshire, and then returned to Ohio State, where she went to work in the zoology department, operating an electron microscope.

As she began work toward a doctoral degree in environmental planning, Morrone's dreams of wearing a forest ranger's hat began to give way to a desire to have a broader influence on policy. She remembers attending state legislative hearings in the early 1990s on the law that would create a low-level radioactive waste repository. The highly controversial project, which was later scrapped in the face of mounting controversy and changing economics, would have served a compact of several Midwestern states. Morrone listened to scientists explain the need for a centralized repository for radioactive waste and the relative safety of the proposed facility. She listened to the passionate pleas of antinuclear advocates, demanding that state lawmakers block the plans.

"That's when the light bulb went off," she recalls.

Why were people so opposed to the plans, she wondered, even after scientists explained that a central waste facility would be less risky than the way the problem was currently being managed? It was a disconnect she wanted to study further. Three years before she

finished her Ph.D. in 1994, Morrone joined the EPA as an environmental planner, writing environmental assessments for sewage treatment plants before taking on the Comparative Risk Project and then becoming the agency's first-ever chief of the Office of Environmental Education.

While at the agency, Morrone helped to create a culture that encouraged public participation, says Bruce Cornett, an environmental activist from Yellow Springs, Ohio. Cornett was one of the few environmentalists

to participate in the Comparative Risk Project even though he was an outspoken critic of the Ohio EPA.

"The thing that impressed me most about Michele is that she was really, sincerely committed to having everyone at the table," Cornett said. "There was more public involvement than there ever was at the agency, and (it's) still present today."

Cornett doesn't want to see existing federal regulations weakened, but he shares Morrone's view that the full-contact politics of environmental debate often leaves science on the sidelines.

"Politicians are listening to those who are the loudest, and ... half the time, the only way we can get a hearing is to make outlandish claims, to get out there on the edge and scare people to death," Cornett says. "If you're a member of the environmental community who doesn't want to do that anymore, if you're tired of that, then it's really hard to get ink."

"Getting the politicians straightened out so that they listen to real scientists would be a great idea."

## THE NOT-SO-CLEAR BUT PRESENT DANGER

The politicians, however, often don't want to be straightened out, Morrone says. In fact, "sound" scientific method, in which scientists are expected to identify weaknesses in their research and draw attention to uncertainty, usually is exactly what lawmakers don't want.

"The policymakers are at fault, because they're not brave enough to say 'We're never going to have certainty in science,'" Morrone claims. "The public gets the ear of the policymakers, and these laws and regulations are made very quickly."

The result, she explains, is a body of law and policy that directs large sums of money and attention toward what Morrone maintains are minor threats to human health and the environment, while larger, more dangerous issues are ignored.

As an example, she cites the Toxic Release Inventory (TRI), approved as part of the Emergency Planning and Community Right to Know Act in 1986, two years after the notorious chemical spill in Bhopal, India, that killed more than 2,500 people.

The multifaceted law requires companies to let their employees, their neighbors, and local emergency officials know what kind of chemicals they are using and to sound a public alarm if there is a spill. But it also requires companies to give an annual, pound-by-pound accounting of poisonous chemicals released into the environment, even if the amounts are released legally and are considered by scientists to be safe.

Known to industry officials as "regulation by shame," the law has led many companies to find ways to reduce their emissions. But has the law, which places expensive and time-consuming demands both on industry and regulators, led to better public health?

“I think YOU COULD PROBABLY MAKE THE CASE THAT ON ANY GIVEN ISSUE, science could be used more THAN IT IS. BUT I’D ALSO HATE TO leave the impression THAT THE policymakers are not using science, BECAUSE THEY ARE.” — GEORGE DASTON

Morrone doesn’t think so. The TRI has value in tracking pollution trends and in informing the public, but because it is based solely on pounds of chemicals released, its overall value is limited. The inventory industries release to the public does not say how toxic those chemicals are or how likely they are to cause environmental damage, she says.

“Environmental groups pick it up and they equate pounds to threat and that isn’t right. It isn’t scientific,” Morrone complains. “It says nothing about how toxic a chemical is.”

Morrone cites the federal Superfund waste cleanup program as another example of environmental policymaking gone awry. Suspected “cancer clusters” at Love Canal, New York, and Times Beach, Missouri, pushed lawmakers into the Superfund legislation in 1980, even though scientists were and still are divided over the health threats created by chronic environmental exposure to toxic chemicals.

The law imposed a tax on chemical manufacturers and gave the federal government broad authority to force cleanups of contaminated properties. Superfund, Morrone says, “was pretty much done in a weekend. Now it is one of the most protective and stringent laws we have. Twenty years later, we’re debating whether it is working.”

Although some studies have established associations between chronic environmental exposure to some chemicals and human illness, “I’ve never met a scientist who will tell you that low-level, chronic exposure to chemicals causes illness,” Morrone asserts, adding that there usually are a number of factors that cause disease. “But we have massive federal regulations and resources devoted to it.” The cost of giving so much attention to low-level exposures, she says, is that more important public health threats pass by with little notice.

In their book, Morrone and Lohner assert that science often is “overshadowed by politics” when state and federal

legislators make environmental regulations and laws. These decisions can lead to costly and cumbersome environmental enforcement programs. Morrone and Lohner take aim at all sides in the major environmental policy debates of our time — including environmental activists at the Environmental Working Group, the anti-regulatory think tank pundits at the Competitive Enterprise Institute, and personal injury lawyers who often have no background in environmental science but file multimillion lawsuits against companies suspected of wrong-doing.

#### TOO BROAD A BRUSH?

Casting scientists into the drama of policymaking is a delicate act. At least one scientist who has played the role suggests critics such as Morrone and Lohner should not paint the situation with too broad a brush. Sometimes government officials have to make decisions even when the science can’t be as precise as they’d like it to be, says George Daston, a research fellow at Procter & Gamble in Cincinnati. Daston served on the National Research Council panel that recently reviewed the proposed federal standard for arsenic in drinking water, a controversial environmental debate cited by Morrone and Lohner as an example of environmental policy made on the basis of politics instead of science.

Arsenic is a commonly occurring chemical that can become an environmental toxin through natural processes, including volcanic eruptions. It’s also a byproduct of burning coal. After years of debate, the U.S. EPA decided to decrease the allowable concentration of arsenic in drinking water from 50 parts per billion to 10 ppb by 2006. An outcry followed, led by the electric power industry and drinking water utilities, which said meeting the new standard would cost the water treatment industry alone \$6 billion in capital outlays and \$600 million a year to implement.

Opponents accused the federal agency of ignoring some available sound science. Among other things, critics said the U.S. EPA relied primarily on epidemiological studies out of Taiwan, Argentina, and other countries, while ignoring a Utah study that showed no



increased mortality from bladder or lung cancer due to exposure to elevated arsenic levels.

The Bush Administration delayed implementing the new arsenic standard for months, but in the face of public pressure and after an independent review by the National Research Council, the EPA announced in October 2001 that it would move forward with implementing the 10 parts per billion standard. The arsenic debate, the authors argue, is more of a political debate than a scientific one.

Not true, says Daston. The scientists involved in the arsenic review gave EPA Administrator Christie Whitman plenty of information on which to make her decision. It's true, he says, that issues other than science probably influenced Whitman as well. But that doesn't mean her decision wasn't based on science.

"I think a person can have an argument as to how important a role science plays in every policy decision," Daston says. "I think you could probably make the case that on any given issue, science could be used more than it is. But I'd also hate to leave the impression that the policymakers are not using science, because they are."

Of course they are using science, Morrone and Lohner admit. But only selectively. "There is no consistency in (policymakers') use of science," Morrone says. "Policymakers rely on science that will lead them to the most politically acceptable decision."

### SAFE FOOD, SAFE KIDS, AND BAD BUGS

Lengthy arguments over isolated policies such as arsenic in drinking water miss the point Morrone most wants to make: that resources ought to be re-allocated, based on what sound science suggests are the true threats to human health and the environment.

Morrone and her husband, Steve Cothrel, have two children, a 10-year-old son and an 8-year-old daughter. When it comes to her family, Morrone says she doesn't spend much time fretting over low-level exposures to industrial chemicals.

She remembers the time her daughter got sick from swallowing water in a farm pond, the fifth-grade neighbor who spent weeks in the hospital after contracting E.coli at the county fair, and the 13-year-old boy from her hometown who, in 1999, died after being bitten by a mosquito carrying encephalitis. The mosquito may well have been born and bred in an illegal tire pile in the area, because the mosquitoes most likely to carry disease like to breed in cavities afforded by tires.

"There are things we should be concerned about, including vector-borne (carried by insects and arthropods) and



food-borne diseases," she says.

West Nile virus, a mosquito-borne virus identified in the western hemisphere for the first time in 2000 after several people died along the East Coast, caught public health officials by surprise. But, Morrone says, it shouldn't have.

"We weren't ready. We were not doing any surveillance. It really scares me, as a parent and as a scientist. We should have more resources devoted to trapping mosquitoes and testing."

Food poisoning is another threat that doesn't get enough attention, she argues. "Millions of people every year are being sickened by the

foods that they eat, and some of these people die — and it is left up to the local health departments, with hardly any resources, to keep us safe," she says. While Morrone can cite many studies that point to the dangers of public health threats such as these, she points to the lack of government emphasis or set of laws designed to protect consumers from hazards found in the supermarkets or restaurants. The reasons, she adds, are largely political.

"Consumers are generally more concerned about pesticide residues on their food than the microbiological organisms that are endemic to the food supply," Morrone says. "I'm more concerned about microbiologicals than I am about chemicals. We're 24 hours away from every infectious disease on the planet."

Morrone has faith in the ability of education to overcome some of the obstacles to good public policy, and that's where she devotes her time. For her next research project, Morrone is eyeing the seemingly obvious, but by no means noncontroversial, connection between poverty and environmental health. There are poor people throughout the world who live in unsanitary conditions without access to proper health care, she says, and the combination leads to widespread illness and death.

"There are still kids all over the world who die of diarrhea because they don't have good drinking water or waste water treatment," she says. "It boggles my mind to think of it, because we have the technology to treat drinking water and waste water, and yet kids are still dying."

But the technology, despite all the sound science behind it, often can't overcome the junk policy that leads to global poverty. And while it may lead her deeper into the sticky pastry of environmental politics, Morrone seems willing to explore the reasons why.

"There's such a connection between all of our social policy and the diseases spread through the environment. I think that's where I'll be going next." ▲

# SACRED

## *treasures*

BY ANDREA GIBSON

*A curator connects a Native American collection to its cultural roots*

For years, few scholars knew what had become of this rare and precious Native American artifact, but Jennifer McLerran unexpectedly discovered it last year in the collection of a fledgling art museum in rural Ohio. The gigantic textile, stretching 9 feet high by 10 feet wide, was the last creation of famous Navajo weaver and medicine man Hosteen Klah.



#### ▲ BEHIND THE SCENES

Jennifer McLerran oversees the Native American collection at Ohio University's Kennedy Museum of Art.

PHOTO: Gary Kirksey

◀ CENTERPIECE Images from nature, such as birds, snakes, and trees, as well as deities, feature prominently in this collage of textiles from the Kennedy collection. At center is *The Shock Painting from the Shooting Way Chant*, woven by Anna Mae Tanner in 1981. The symbols in the center are bear tracks.

ALL WEAVING IMAGES: Courtesy of Jennifer McLerran

Klah was the first person to design wool textiles with the religious icons of sandpaintings, which are used in ceremonies performed to heal the sick. Though artisans have recorded such sacred images in weavings for the past 100 years, the practice continues to spark controversy in the Native American community.

Klah's weaving, which depicts sky images from the Shooting Way chant, reflects a classic sandpainting textile design. Each quadrant of the massive brown piece is splashed with blocks of primary color to represent the sky at various seasons and times of day: the cerulean blue of a summer afternoon, a swatch of black night dappled with constellations. Figures representing the sun, moon, and wind appear in the center.

Klah had almost completed the weaving when he died in 1937. His nieces, whom he had taught to weave sandpainting textiles, completed the piece, selling it to pay for his funeral. Prolific Native American art collector Edwin L. Kennedy later purchased the rug, which became one of 2,000 artifacts and artworks he trusted to Ohio University. His alma mater created a museum to house the unique collection in 1996.

Of the 108 Navajo sandpainting textiles in Ohio University's Kennedy Museum of Art, McLerran admits with a shy smile that the Klah is her favorite.

"It's more the history of the piece itself — the fact that it's the last one," says McLerran, the museum's curator.

McLerran, at the time a university scholar of women's studies and Native American art, first stumbled upon the Klah piece during a visit to the museum. The museum staff were so impressed with her interest in this rare item that they invited her to guest curate a show about the weaver in early 2001. She then discovered the museum's entire trove of more than 100 Navajo sandpainting textiles, possibly the largest such collection in the world, as well as a mysterious trunk of feathers, stones, and buckskins. McLerran did some digging, and found that debate still brewed in the Navajo community about the display of such textiles. And recent legislation on the possession of Native American remains and artifacts could require the museum to return the items in the trunk to the Navajo people. The contents, McLerran suspected, likely were sacred objects used in religious rituals.

McLerran struck a deal with the museum: She would serve as the new curator if the institution would fund her research into the origins and cultural issues related to the Native American collection. The museum agreed, and McLerran traveled to the Navajo Nation in Window Rock, Arizona, to make a connection between the collection and the people whose culture it represents.



## STARTING A COLLECTION

On a business trip through the Southwest in 1954, Edwin L. Kennedy developed a love and fascination for Native American crafts. At the Red Rock Trading Post in Red Rock, Arizona, he bought a Navajo ye'ii rug, a weaving that features images of deities drawn from the medicinal sandpainting ceremonies. Over the next 40 years, Kennedy would commission and purchase an impressive collection of textiles representing the major styles and periods of Navajo weaving. His growing collection also included Navajo, Hopi, and Zuni jewelry, such as spangled silver and turquoise necklaces, bracelets, and pins, and other items such as belts and silver boxes. Some of these items have a similar theme: imagery from religious ceremonies.

Museums in the southwestern United States — arguably the seat of Native American art and artifacts, given their proximity to those communities — wooed Kennedy to donate his substantial collection. But in 1990, Kennedy chose to offer these objects to Ohio University, where they would serve as an educational oasis of Navajo culture for people who were largely unfamiliar with Native American art and life.

“I’ve found that in Ohio, there is a very romantic concept of Native Americans because there is so little daily contact with those who are Native American,” agrees McLerran, who studied American Indian art and lived in Washington, Colorado, and New Mexico before moving to Ohio. “I think the museum can play a very important role in that area.”

The university housed the collection in the main administrative building of the former Athens Mental Health Center, an imposing Victorian structure that overlooks the city of Athens. After extensive renovation, the Edwin L. and Ruth E. Kennedy Museum of Art opened to the public in 1996, just two years after the collector’s death at age 89. The museum has since featured several exhibitions of jewelry, Navajo chief blankets, tapestries, and the sandpainting textiles — also known as “chant weaves” — and has sponsored visits and lectures by weavers and textile experts.

But just as plans for the museum and the unprecedented display of Kennedy’s collection were under way, recently passed legislation granting Native American groups the right to repatriate items of religious significance was being enforced. And it was giving museums pause.

## RECLAIMING CULTURAL HERITAGE

In November 1990, the federal government passed the Native American Graves Protection and Repatriation Act (NAGPRA), which gave Native Americans the legal right to obtain a listing of all human remains and cultural artifacts possessed by public institutions, including museums. The law also mandated the return of some items — especially human remains, but also objects used in religious rituals — to the tribes laying claim to them. The goal is to protect and preserve the culture and traditional religious practices of American Indians.

To comply with the act, the university submitted a general list of its holdings in 1994. No native tribes inquired about or laid claims to any of the items. But when McLerran became curator and started conducting research on the collection, she discovered that a strange trunk of miscellaneous leather pouches, feathers, and sticks appeared to be tools used by Navajo medicine men, items collectively known as a *jish*. Records showed

▶ *MOTHER EARTH, FATHER SKY* Created by Despah Nez in 1965; measures 41.2 x 41.75 inches. The white figure on the left represents the earth and the black figure on the right represents the night sky with the sun, moon, and constellations. The Milky Way crosses Father Sky’s shoulders. Mother Earth’s body holds the four sacred plants — corn, beans, squash, and tobacco.

▶ *NAVAJO TREE OF LIFE* Created by Ruby Dinea in 1967, measures 30 x 53.25 inches. Corn, a sacred plant in Navajo culture, is used in a wide range of ceremonial practices and serves as a design element in many Navajo textiles. It also represents the Tree of Life, a Judeo-Christian or western symbol of growth, abundance, and the succession of generations.

Kennedy had donated the *jish* a few years before, in honor of the museum’s debut. The trader had acquired the *jish* before NAGPRA was established, McLerran says, and the museum staff had never examined or displayed the contents since receiving it.

Because the *jish* is considered to be a sacred object used in religious rituals, McLerran realized that it could be subject to repatriation. She sent a list of the trunk’s contents to the Navajo Nation Historic Preservation Department in Window Rock, Arizona, asking for advice. She recently had resumed discussions with the Navajo Nation about the vast collection of sandpainting textiles housed at the Kennedy Museum of Art, a conversation she had begun earlier that year as part of her research for her guest-curated show on Klah’s weavings. The textiles are not subject to repatriation under law, McLerran explains, because while they *depict* sandpaintings used in religious ceremonies, they are not used in the actual rituals. Still, some Navajo are uncomfortable with the display of these sacred images, so McLerran requested that members of the Navajo Nation consult with the museum on how it could address that issue. She wanted to learn, too, if any of the weavings in the collection were exact replicas of ceremonial sandpaintings or perhaps altered versions of them, as unaltered reproductions could be most objectionable to the Navajo. Regardless, McLerran reasoned that Navajo scholars and weavers might want to visit the collection for research or educational purposes.

The Navajo Nation, the largest Native American tribe in the United States, was interested, and four members agreed to travel

▲ *THE SKIES FROM THE SHOOTING WAY CHANT* Created by Hosteen Klah, 1936-37; measures 110 x 123 inches. This weaving features a common motif in sandpainting textiles – quadrants. The four blocks of color on each side of the weaving represent four types of sky, and the four figures in the center represent four objects from nature: sun, moon, and two winds.

the 1,700 miles to Athens in November to take a closer look at the textiles and jish and, McLerran hoped, offer some answers.

### A TASTE OF NAVAJO TRADITION

When the Kennedy Museum of Art is not displaying the sandpainting textiles, the staff store them on the second floor of the building in a climate-controlled room, each weaving rolled carefully on large rods and handled only with cotton gloves. (The oils on the hands can degrade the fabric over time.) But for two days in November, each textile was laid out on tissue paper on the floor throughout the galleries of the museum so the Navajo representatives could study them.

The delegation included Steven Begay and Timothy Begay of the Navajo Nation Historic Preservation Department, which oversees national compliance with NAGPRA; Clarendia Begay, curator of the Navajo Nation Museum; and Ronald Largo, a medicine man from Coolidge, New Mexico. A number of teachers, community members, and Ohio University students and staff joined them throughout their two-day visit, eager for this rare view of the collection and for a chance to learn more from the Navajo people about the cultural significance of these pieces.

Raymond Tymas-Jones, dean of the College of Fine Arts and interim director of the Kennedy Museum of Art at the time of the visit, encouraged both McLerran's research and the ensuing public discussions with the Navajo group.

"I consider it to be critical that dialogue is ongoing," he says, "so that the museum, in an effort to educate the

community about Navajo culture, is accurate."

Largo and Steven Begay, both younger generation Navajo trained to conduct traditional ceremonies, provided much of that education, which McLerran recorded in detailed notes. Medicine men create sandpaintings as part of a larger ceremony to summon gods who can cure people of physical and mental ailments, Begay explains. They use sand of various colors to draw images of people, animals, and nature. Each sandpainting is developed for a certain medical condition (moths, for example, symbolize mental disorders) and are tailored to the individual patient as part of a larger cure.

The medicine men, known as "singers" in the Navajo culture, also chant phrases or sing bits of melody during the ceremony. As McLerran looked on, Largo, a slim man clad in blue jeans and a leather jacket, repeatedly chanted a blessing in Navajo and sang a piece of a traditional tune over one of the sandpainting textiles.

"It was interesting — he was making bird-like sounds," she says. "People outside the gallery heard it and thought there were birds inside."

The sandpainting textiles offer to people outside of the Navajo culture a rare glimpse of these ceremonies. The vast number of such chant weaves in the Kennedy collection suggests how varied the images can be. Several, such as the Hosteen Klah piece, have designs that are separated into quadrants, to represent the four seasons, the four compass directions, the four times of day, and/or four stages of life. Tokens of nature, such as lightning bolts, skylscapes, and corn stalks appear, as do a number of deities and human figures in



**PRESERVING HERITAGE** Steven Begay of the Navajo Nation Historic Preservation Department serves as a consultant to institutions and museums with Navajo collections, including the Kennedy Museum of Art.

PHOTO: Monty Roesel

traditional Navajo dress. Animals — ranging from coyote to bear to snake — are represented in bright golds and greens. Some textiles feature singular images, such as two figures depicting “Mother Earth and Father Sky.”

The tapestries range in size from 2 feet high and 2 feet wide, to 5 feet high and 6 feet wide, to the enormous Klah piece. Some are made from hand-spun wool and natural dyes, while others consist of commercial wool and artificial color.

The first time McLerran saw a series of Kennedy collection chant weaves displayed across the gallery walls was during her own guest-curated Klah exhibit in early 2001. Viewing so many unusual textiles in one place amazed and overwhelmed her.

“It’s incredible to see them in person — they’re very elegant, very beautiful,” says the curator, who notes that the show struck a chord with the public as well. “There’s also a beauty about the part of the culture they express that’s fascinating, neat to experience.”

But the fact that any non-Navajo audience would view such sacred images, rendered permanent in wool and dye, has been a point of debate in the Navajo community since the early 1900s, when Klah and his nieces first began to create chant weavings.

### SACRED IMAGES

Klah, who lived in Newcomb, New Mexico, sparked controversy in the Navajo community when he began to make a record of sacred sandpainting images by weaving them into textiles. The images are considered to be powerful tools of the gods and only meant for temporary, medicinal purposes: The paintings are wiped clean from the ground by the medicine men who create them. Some Navajo believe that viewing the images outside of the ceremonial context could bring harm — blindness, paralysis, or spontaneous abortion.

Despite those taboos, many Navajo artisans have recorded these images in weavings or on wooden boards, for artistic expression, cultural preservation, and for sale. But to avoid the danger many anticipated, some weavers purposely altered the designs, changing colors or other details. Kennedy, who first commissioned chant weavings some 40 years after Klah

began producing them, took a step further. He hired a medicine man to sing a cleansing chant over the weavers who were creating his pieces, freeing them from the fear of damage.

“I think that’s incredibly sensitive and respectful of him, especially at a time when there wasn’t such awareness of these issues,” McLerran says. “He could have easily forgone that.”

Today, sandpainting textiles are one of 70 styles of weavings still created by Navajo artisans, says Wesley Thomas, a Navajo weaver and assistant professor of anthropology at Indiana University. Some artisans produce the chant weaves for cultural preservation, he says, while others create them for purely economic purposes. But disagreement still exists, he adds, on whether it is ethical for weavers to record sandpainting images.

“There are some traditional weavers who are very uncomfortable seeing woven textiles depict sandpainting,” Thomas says. “On the other hand, they are still being produced on the reservation. They’re generally going to collectors.”

Both Thomas and Steven Begay point out that while some Navajo are upset by the creation and display of chant weaves, many of the critics aren’t familiar with the actual ceremonies or songs that accompany them — partly because only trained medicine men know them, but also because several of these rites are no longer performed. In fact, Largo was unfamiliar with some of the images represented in a set of Kennedy weavings that depict the Coyote Way chant.

“People making the most commotion don’t know the details of these paintings,” Begay says. “To a skilled sand painter, they know there are things not included and purposely changed (in the textiles).”

Because singers have exclusive authority to perform these powerful rites, the ceremonies are taught to only a select few. But throughout the past two centuries, as more people have assimilated into mainstream American culture, many of those rituals have been lost. In fact, creating a historical record of the sandpainting traditions and teaching European Americans about Native American culture was the reason Klah preserved these unique ceremonies in tapestry form, McLerran says.

Thomas of Indiana University also points to cultural preservation as a justification for producing chant weaves.

“We’re at a time period when we’re losing so much of our culture,” he says. “I see no major conflict in displaying them outside the seasonal affiliation.”

Today, however, a new, younger generation of Navajo men such as Steven and Timothy Begay are learning to conduct the ceremonies, which is a revival of a traditional practice. Historically, someone in the family would learn the ceremonies starting in childhood. Largo is an example of this custom, and now practices a number of Navajo ceremonies, including the Mountain Way and the Blessing Way. Steven Begay, who comes from a traditional family in which several members speak only Navajo, says he wanted to continue along the path of his grandfather, a seasoned singer who died last year at age 108. His interest in his native culture also prompted him to join the Navajo Nation’s Historic Preservation Department in 1997, a role that has allowed him to serve as consultant to institutions and museums around the country, including the Kennedy Museum of Art.

### CULTURE ON DISPLAY

When Begay’s examination of the more than 100

sandpainting textiles in the Kennedy collection ended, he and his colleagues offered encouraging news.

“These are not the actual images, but replicas of them out of context,” says Begay. Because these are weavings, he adds, and not the actual sandpaintings themselves, it’s acceptable for the museum to display them.

The Navajo Nation representatives did advise the museum, however, that some sandpaintings should be displayed only during certain seasons, in order to accurately represent the ceremonies they portray. They also requested that the museum reproduce textiles with great discretion, and only for educational purposes. While a number of these weavings have been reproduced in books over the years, and the images have been widely disseminated, some, such as the bygone Coyote Way ceremony, are rare. (Begay requested that photos of textiles representing images from the Coyote Way not be used for any publication. *Perspectives* will honor that request.)

“They are Navajo intellectual property, if you will. They belong to Navajo people and are used in very specific circumstances in our culture,” Begay says. “So in some instances we do want to safeguard that information.”

While they were impressed with the large collection of sandpainting textiles, the Navajo Nation representatives also were excited to find the jish. The trunk contained medicinal herbs and other instruments and items used in healing ceremonies. Because this is considered a sacred object that still can be used in rites today, the museum will return the jish to the Navajo Nation under NAGPRA rules.

“This is made for a purpose, and that’s to maintain the balance and harmony for all people and the universe that we live in,” Begay says about the jish. “It’s not meant to be stored, not meant to be displayed.”

Begay reports that since 1993, his office has made 30 such successful repatriations of three to 300 objects each. NAGPRA not only has allowed the tribe to reclaim items it believes rightfully should be in its possession, he says, but also has helped them locate resources for their own education and research of cultural issues.

## PARTNERSHIPS

Papers filed with the federal government will allow Begay to take the jish back into the possession of the Navajo Nation — but not until the filing process is complete, which could take several months. McLerran informed the trader who originally donated the trunk of religious objects, who had no objection to the museum returning the items.

The Navajo Nation isn’t the only tribe that could pursue repatriation under the NAGPRA act. As the Kennedy collection represents items from at least seven American Indian groups, McLerran expects the museum could go through this process again. Already, the Zuni tribe of New Mexico has expressed interest in traveling to Ohio to examine what may be one of

their sacred objects in the museum’s vaults, and the curator would like to invite members of the Hopi tribe of Arizona as well.

Meanwhile, when McLerran traveled to the Southwest in March to conduct more research, she received a rare invitation to attend a traditional ceremony. The curator also met Despah Nez, the 98-year-old woman who wove a number of the textiles in the Kennedy collection, and made several connections that will help her establish a visiting artist program at the Kennedy Museum, so that southwestern weavers can share their talents with students and scholars in Ohio.

Developing a permanent exhibition of the Kennedy collection also is on the drawing board, says new director James Wyman, who joined the museum in April.

“Given the fact that it’s such a rare and wonderful collection, it makes it all the more important to pursue that,” says Wyman, who supports McLerran’s work with the Navajo. “But I also want to be careful that we’re doing it in a conscientious way.”

While willing to work with the Kennedy Museum of Art on these issues, Begay says the Navajo Nation will be discreet about what it shares.

“We don’t want to give a wholesale account of our culture and our rituals. That’s for our people, and our people alone,” he says. “We want to ensure that we share some information with the world about who we are, and how these textiles came about, and how we can share that information. But we’re trying to be careful because a lot of those images, a lot of that information, is still held very sacred by the Navajo people.”

As she gazes at a reproduction of the Klah weaving in her office, McLerran echoes a similar sentiment. She attempts to name the icons in the design, and confesses that she doesn’t know much about the ceremony or meaning behind the images on this weaving — her favorite. But that may be for the best.

“In some ways I feel it’s not my place to try to interpret and communicate to others that aspect because it’s not my culture,” she says. “I think that’s for the Navajo to do.” ▲

For more information on the Kennedy Museum of Art, visit the Web at [www.ohiou.edu/museum](http://www.ohiou.edu/museum).

## ON DISPLAY

Visitors to the Kennedy Museum of Art will have several chances to view the Navajo collection in the coming year. The museum currently features selections from the Native American collection in its educational gallery, an ongoing exhibit. This fall, the museum will host an exhibit on Navajo code talkers from September 3 to November 24, as well as the show *Multiple Impressions: Native American Artists and the Print*, which will run September 10 to December 1.

► CEREMONIAL GREAT STAR CHANT Created by Albert Thomas in the 20th Century; measures 52.25 x 61.25 inches.

BIOCHEMISTRY

## UNDER THE MICROSCOPE

STUDY LOOKS AT ENZYME'S ROLE IN CANCER

Many of the laboratory experiments that once seemed extraordinary to Melissa Mingler now seem ordinary. Making DNA and RNA? "Old hat," she says. Unfolding proteins? Child's play. After three years as a research assistant in the labs of biochemist Martin Tuck, the Ohio University senior has completed dozens of experiments like these.

But today's task is one she only recently learned to do. Today, Mingler will break open a few million sarcoma cells, take out their nuclei, and extract their proteins. It's a long procedure — takes about three hours to complete — and very precise. But it's one that could tell her more about what role a particular enzyme (a protein or group of proteins that prompt a chemical reaction in a cell) might play in the out-of-control growth of cancer cells.

When a cell becomes cancerous, it undergoes a series of biochemical changes, including a change in the enzyme Mingler and Tuck are studying — RNA methyltransferase — which Tuck suspects is involved with the creation of proteins that tell a cell to divide or grow. The enzyme is far more active in cancerous cells than in normal tissue. The question for Tuck's research team is whether this heightened activity is to blame for the rapid growth and multiplication of cancer cells.

"A human tumor is just a bunch of cells that are growing out of control," says Mingler. "If this enzyme is part of the growth process and if we can stop it, we could stop the tumor from growing, or at least from growing at such a fast rate."

But before scientists can attack the tumor, they must first understand the enzyme and its function in a cell. And that, Mingler admits, is a very complicated process. The methyltransferase enzyme actually is a group of proteins, any one of which may be involved with the enzyme's overactive tendencies in cancer cells. Some of those proteins have been well studied, but one in particular — the short form of MT-A70 — is less understood. Mingler is studying what effect the short form has on enzyme activity, which could explain what happens to the enzyme in cancer cells.

Before she graduates in June with degrees in biochemistry and microbiology, Mingler will complete this study, which was supported by a grant from the Provost's Undergraduate Research Fund. And while Mingler plans to continue her work on the molecular roots of human disease in the fall as a doctoral student at Michigan State University, she likely will leave behind her pursuit of the methyltransferase enzyme. But she'll be taking some things with her.

"When I first started working here, I didn't know much because I hadn't taken the science classes yet," says Mingler. "I could mix two solutions together, but I didn't know what they were doing."

And now? "Well," she says, "I'm getting there."

KW

ASTRONOMY

## SKY SHELLS

STARGAZER EXAMINES SECRETS OF THE UNIVERSE

Drawn in by *Star Trek* reruns and other extraterrestrial lore, Dan Wik has been interested in space exploration for as long as he can remember. He began his journey from science fiction to science fact more than a year ago, when he accompanied Ohio University astronomer Tom Statler on a trip to Kitt Peak National Observatory near Tucson, Arizona.

Wik knew that the universe was vast, made up of billions of galaxies, but he soon learned something intriguing: Scientists don't really know how it was created. And yet they've made some impressive discoveries that are helping us find the answer.

"It's amazing what we can figure out," says Wik, a junior astrophysics major in the Honors Tutorial College, and a recent

PHOTOGRAPHY

## A PLACE TO GROW OLD

PROJECT DOCUMENTS ELDERLY LIFE

Vivian Martin's home of 60 years was once a Vinton, Ohio, schoolhouse that she and her husband renovated. But in summer 2001, the health department told the 83-year-old widow that the house was unfit for habitation.

Martin's is one of eight stories depicted in a photo documentary project on elderly life in southeastern Ohio, a project led by senior visual communication student Nate Thomson. "Vivian just has her memories of that home, which was taken away from her," says Thomson, who visited Martin a dozen times to snap more than 500 photographs. "It really devastated her to leave. She gave me a good idea of what the relationship between aging and environment can be when it's one of the last things you have."

Thomson's interest in the elderly began a few years ago when he worked at a Columbus assisted living center. After he enrolled at Ohio University, he commuted from Athens every weekend to cook meals and plan activities for residents, most of whom he photographed. He left



IN THE LAB Melissa Mingler scrapes sarcoma cells into a beaker for study.

PHOTO: Rick Fatica



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**SHELL GAME** Astronomers are trying to solve the mystery of these “shells” that ring elliptical galaxy NGC 2634.

PHOTO: Courtesy of Doug Goetz

recipient of a national Barry M. Goldwater Scholarship. “We have so little information about this stuff.”

The student astronomer already is making a contribution with a new study on the elliptical galaxy NGC 2634, which is about 90 million light years from Earth. Statler

and some colleagues recently discovered that the galaxy has a shell system, celestial matter that looks like shells or parentheses enclosing the galaxy. Scientists believe that shell systems are created when a small galaxy collides into a larger one, breaking into debris that encircles the major galaxy.

Wik is taking a closer look at NGC 2634 as a case study of shell systems, which he hopes will provide some information about how galaxies in our universe interact. He is examining data collected with telescopes at Kitt Peak to learn how old the galaxy is and whether it has any connection to the galaxies immediately around it. NGC 2634 also is dimmer and more spread out than the average galaxy, which could be evidence of the collision with the smaller cluster of stars, says Wik, who presented preliminary findings at the annual meeting of the American Astronomical Society in January.

Getting that information can require at least five hours per week in front of a

computer, where Wik uses software to filter data and reconstruct an image of the galaxy. He strips away cosmic litter from the image until a clear picture of the shells and other celestial objects emerges.

But Wik won't spend all of his time in the lab. This and other astronomy projects will ensure that he'll be making return trips to the observatory for a first-hand gander at the stars. As an intern last summer at the National Optical Astronomy Observatories, under the National Science Foundation Research Experience for Undergraduates program, he studied brown dwarfs — small, faint stars. Next he'll be examining the structure of dwarf elliptical galaxies, which may be the most abundant type of galaxy in the universe.

Such mysteries of the cosmos are major questions to tackle, but Wik is undaunted.

“I've always been the kind of person who thinks big.”

AG



**ONE LAST LOOK** During Fall 2001, Vivian Martin of Vinton, Ohio, takes one of her last walks around her home of 60 years.

PHOTO: Courtesy of Nate Thomson

that job last year, but his interest in elderly life continued.

Photographing people during their daily routines “keeps things in the present,” says the 23-year-old Akron, Ohio, native. “A lot of documentaries that I've seen done on aging look to the

past; I'm more interested in the present.”

Thomson chose to focus on rural elderly because, photographically, he didn't find much variety in the way they were depicted. The urban elderly have been portrayed in almost every possible situation, he says, including in nursing

homes and retirement communities, receiving home health care, and living independently. But the rural elderly, he adds, are seen stereotypically.

“In researching what photos have been taken, it seems that most photographs of the rural elderly are shot in decrepit old houses or are nice, traditional portraits just looking at their wrinkles, you know, a tight shot of their face,” says Thomson, who will graduate in June.

While working on the documentary, Thomson accompanied home health care workers from the Area Agency on Aging District 7, the southeastern Ohio branch of the federal program that provides services for the elderly. He met about 20 people through the local agency before choosing his eight subjects.

Thomson plans to share the project, which was funded by the Provost's Undergraduate Research Fund and is tentatively titled *A Place to Grow Old*, with the agency. He one day hopes to expand the documentary to include photographs of older people in other regions and living situations.

NK

## SOCIAL MEDICINE

### DON'T KILL YOUR BABY

PUBLIC HEALTH AND THE DECLINE OF BREASTFEEDING IN THE 19TH AND 20TH CENTURIES

Though a number of medical studies has shown that breastfeeding has health benefits for babies, the practice is still viewed by some with discomfort and distaste in this country. That wasn't always the case — 200 years ago, breastfeeding was considered a common rite of motherhood and critical for a child's well-being. Medical historian Jacqueline Wolf details the cultural shift from breast to bottle beginning in the late 1800s, when social factors associated with urbanization prompted women to choose cows' milk over human milk — despite the health risks.

Wolf, an assistant professor of social medicine, uses Chicago as a case study in the book, which is titled after a 1910 public health poster used to combat the death of thousands of babies from unpasteurized cows' milk each year. By that time, many economic and social changes — ranging from attitudes about health, medicine, sex, marriage, and class — had made breastfeeding less appealing to women, who were turning in large numbers to cows' milk as an alternative.

Alarmed by the gloomy mortality statistics for babies — in 1907, 12.7 percent of Chicago's babies died before their first birthday, almost half from diarrhea — physicians and health officials began campaigns to persuade women to return to breastfeeding with slogans such as "Mother's Milk for Mother's Babe — Cows' Milk for Calves." Wolf's research disputes the notion that breastfeeding fell out of favor in the 1940s and 1950s, and refutes that infant formula companies were behind the move. She argues instead that the work of doctors and infant food companies to perfect artificial food actually occurred much earlier and was a reaction to the dangerous trend of bottle-feeding already instituted by women.

BY JACQUELINE WOLF

Ohio State University Press, 320 pages.  
[www.ohiostatepress.org](http://www.ohiostatepress.org)

## THEATER

### NEW PLAYWRITING STRATEGIES

A LANGUAGE-BASED APPROACH TO PLAYWRITING

The word's the thing in this new book about playwriting, which argues that deft use of language is the key to the new generation of theatrical works. Paul Castagno, the director of the university's School of Theater, challenges conventional ideas about what constitutes a play (elements such as conflict and having one central protagonist) and contends that language is the dominant force in shaping characters, action, and theme.

"Many of the Pulitzer Prize-winning plays of the 1990s, including Margaret Edson's *Wit*, Paula Vogel's *How I Learned to Drive*, Edward Albee's *Three Tall Women*, and Craig Lucas's *Prelude to a Kiss*, used innovative forms and techniques to tell their stories," he writes. "Now more

than ever there is a widening gulf between the writing of contemporary plays and what is prescribed as correct playwriting."

Until now, though, little research had been done on this method, which inspired two of Castagno's own plays. Based on his interviews with several established "language playwrights" and his analyses of how these plays work, he provides a number of practical examples and exercises for the reader. The author argues that the language-based approach allows playwrights more creative freedom and can create stronger characters.

BY PAUL CASTAGNO

Routledge, 192 pages. [www.routledge.com](http://www.routledge.com)

## JOURNALISM

### LIVING WITHOUT FEAR

UNDERSTANDING CANCER AND THE NEW THERAPIES

To best understand new therapies for cancer treatment, patients first must know how the treatments and the disease itself work inside the body, according to the authors of a new book on the topic. Having this grasp of the science behind cancer, they write, could help patients make more informed medical decisions.

Ohio University ethicist and writer Michael Bugeja and Tom Wagner, a former Ohio University scientist now at Greenville Hospital in Greenville, South Carolina, collaborated on the text, which covers topics ranging from how cancer cells form to how certain new therapies attack the disease.

"This book does not offer cures. If it did, the authors would be guilty of raising false hope in millions of cancer patients, survivors and their families. Yet the new therapies are covered here in detail," write Wagner and Bugeja, a professor of journalism, in the foreword of the book.

Wagner asked Bugeja — the author of 18 books on subjects ranging from ethics to poetry and nonfiction writing — to add a



personal, poetic touch to a text that describes cancer on a cellular and molecular level. Bugeja also included ethics sections to each chapter in the book, along with exercises on kindness, discretion, and other concepts that the authors believed would help diminish fear associated with the disease.

The book also contains "inspiration points," brief passages about progress in cancer research, along with nearly 20 graphic artist renditions and photographs of molecules and cells to help readers visualize important genetic processes.

BY MICHAEL BUGEJA  
AND TOM WAGNER

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