

Spring 2008

WKU Scholar

Office of Sponsored Programs, Western Kentucky University

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SCHOLAR

THE SPIRIT OF SCHOLARSHIP AND RESEARCH AT WESTERN KENTUCKY UNIVERSITY





Sadiq Shah

The 21st century knowledge-based economy has changed expectations for the global competitive market and society. It not only requires the knowledge base, but more importantly the application of knowledge in creative and innovative ways. As a result, these expectations have placed a responsibility on academic institutions for preparing our graduates for global opportunities. Our graduates will not only use knowledge to solve technical problems at work places, but they will also use it for identifying novel approaches to address societal challenges. It is the acquired knowledge that facilitates leveraging the critical thinking skills for breakthrough ideas, for creating bold visions for the future, and for creating new enterprises with implications for our world. The quest for continued growth of one's knowledge gives birth to the next generation of scholars, researchers, and leaders to improve the quality of life for all of us.

Knowledge has always been divided into two categories: existing knowledge and new knowledge. Existing knowledge has always been shared through books, lectures, publications, news media, and other platforms. The use of existing knowledge serves as a critical platform for giving people the tools and critical thinking skills to look at problems for discovery, and it encourages inquiry in new ways and different approaches. This process of discovery and inquiry and the application of existing knowledge to problems also grows the body of new knowledge that gives people the insight and the understanding for identifying creative and novel solutions.

At WKU we have been engaging our students in such hands-on research and creative activities. Such a platform integrates and complements the classroom learning experience. This hands-on activity can be carried out in a laboratory or out in a community to help gain insights and also help students to shape their dreams, their aspirations, and ideas for their unique roles in society as contributing citizens. This hands-on activity forces an individual to use the existing knowledge and think outside the box for breakthrough solutions. WKU is proud of this tradition that allows our students unique experiential learning platforms. It better prepares our graduates for 21st century challenges. None of this would be possible without the interest and dedication of our faculty members who are creating these opportunities for our students.

This issue of *WKU Scholar* is yet another illustration of the diverse research interests, scholarship, and creative activities of our faculty members. They take our students on a journey and nurture the next generation of scholars, philosophers, teachers, business leaders, researchers, political leaders, and others to make the world a better place to live for generations to come.

Sadiq Shah

*Associate Vice President
Research & Economic Development*



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THE SPIRIT OF SCHOLARSHIP AND RESEARCH AT WESTERN KENTUCKY UNIVERSITY

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About the Cover

The Quinceañero is often considered one of the most important days of a young woman's life, because it officially marks her transition from child to adult, and it brings with it respect and responsibility.

Photo by Jeanie Adams-Smith

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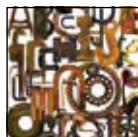
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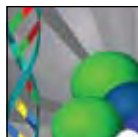
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OPENING DOORS

BY CAROL CUMMINGS

SOMEONE ONCE SAID THAT YOU DON'T TAKE A PHOTOGRAPH. YOU ASK, QUIETLY, TO BORROW IT. WHEN YOU VIEW THE COLLECTION OF PHOTOGRAPHS JEANIE ADAMS-SMITH HAS TAKEN THROUGHOUT HER CAREER, YOU GET A TRUE SENSE OF WHAT THAT REALLY MEANS. HER PICTURES ARE, QUITE SIMPLY, INDIVIDUAL WORKS OF ART, WHICH GIVE THE VIEWER A TRUE GLIMPSE INTO THE LIVES OF THE SUBJECTS.

Each photo project has been born, in some way, out of Adams-Smith's life experiences. The images provide an intimate look into not only the lives of the subjects, but at the life of the artist as well.

Adams-Smith is an associate professor of photo-journalism at Western Kentucky University, a position she took in 2002 after serving ten years as a photo editor at the *Chicago Tribune*. She has received state, regional, and national acclaim for a number of important photo projects.

Her most recent project, *Doorways of Old Havana*, stemmed from two recent trips to Old Havana, Cuba. Her involvement in the Old Havana project happened strictly by chance. Andrew McMichael, a history professor at WKU, sent a campus-wide email asking about sources for sports-oriented magazines and newspapers. Adams-Smith responded to him, and in their subsequent emails he asked if she wanted to go to Cuba. Along with her husband, David Adams-Smith, she joined Dr. McMichael on the trip during the summer of 2006, and the photo project was born.

Doorways of Old Havana takes a visual look at the cultural significance of doorways in Old Havana, the area of Cuba's national capital that lies within the original Havana city walls. Adams-Smith's photographic essay examines the city's cultural phenomenon of people doing business, socializing, and even praying in doorways.



15-year-old, SaraVe`dd Marquez, prepares for her Quinceañero near the Plaza de San Francisco in Old Havana. Marquez will spend all day on a photography shoot with her family. Her father has been saving for this day since his daughter was born. The Quinceañero is considered one of the biggest days in a young Cuban woman's life.

Adams-Smith's first ten-day trip to Cuba was the result of a summer faculty grant. She returned to Cuba in January 2006, after she received another WKU faculty grant to complete the project. "We simply walked the streets and observed," she explained. "The people were amazing, and we had no trouble getting photos. In fact, the images seemed to jump out at us. Everywhere we went, we found interesting stories to tell, and people freely invited us into their homes and businesses. It was an amazing way to be introduced to Cuba and Cuban culture."

As they walked, they saw musical events, girls learning the flamenco, and even a Pentecostal religious service. They also visited five schools and a boxing club that was managed by a former five-time Cuban national champion. A total of several hundred images will eventually be used to create a book about the experience. So far, the results of this project have been displayed at photo exhibits at WKU's Mass Media and Technology Hall, the Capitol Arts Center in Bowling Green, and at Union Pier, Michigan.

In part, this project helped earn Adams-Smith the distinction of being named Kentucky Photographer of the Year in 2006. She is the first academic professional ever to have received this award.

She says it would be difficult for her to choose a photo from Old Havana that is her favorite; however one photo that always generates comments is of a young girl who is celebrating her Quinceañera, an elaborate celebration of her fifteenth birthday. In Cuba, the Quinceañero is often considered one of the most important days of a young woman's life, because it officially marks her transition from child to adult, and it brings with it respect and responsibility. Usually the Quinceañera wears a formal dress, and the day is celebrated as the biggest party of her life. In Adams-Smith's photograph, the girl is bending over, showing a small part of her ankles, and changing her shoes.

"I was able to spend the entire day with the girl," she said. "Her family was not wealthy, but her celebration involved three different outfits and colors. I think this photograph is unique





because it captured a rare moment with a modest young woman and demonstrated her innocence and beauty.”

Adams-Smith also visited a maternity home for unwed mothers while she was in Old Havana. “This was thrilling to me and represented my passion — outlining social issues, particularly those related to women and children.”

That passion has driven her involvement with most of her major photography projects. “Each project has brought something to me and my photography,” she explained. “Each has been an enriching experience.”

Her devotion to women's issues, along with a personal experience while in college, led her to create the 2006 *Witness* project, a photo exhibit that was displayed at WKU's Mass Media and Technology Hall Gallery and at the University of Louisville during Sexual Assault Awareness Month. Funded by a grant from the Kentucky Foundation for Women, the exhibit is a series of portraits of rape victims. “The *Witness* project was born out of a personal experience in college with an attempted date rape,” she explained. “I interviewed a dozen women who had been raped or sexually assaulted and shared their stories through a portrait series. The purpose of the project was to bring awareness to college-age women that this happens and there's help.”

Adams-Smith's longest-running project was her *Survivors: Children of Divorce* collaboration with her husband. “When I married David, I became a stepmom (to Alexandra, who was nine years old), and I wanted to find information about being a good stepparent,” she said. “I found articles and support groups, but no piece that was a comprehensive, visual look at how divorce impacts children in our society across the country.”

The seven-year project was funded, in part, by a faculty grant from WKU. The *Children of Divorce* project followed thirty children whose parents were divorced. “It was powerful and a great learning experience,” she said. “It also hit an audience who was looking for guidance, and it demonstrated visually what kids go through when their parents are in chaos. Since I worked on this project the longest, it has a large sense of accomplishment attached to it. It is also the project that I get asked about the most.”

Survivors: Children of Divorce is a documentary photography book that was published in 2004. It features a wealth of black and white images by Jeanie Adams-Smith, along with stories written by David Adams-Smith. Images from the book have been displayed at Judge Margaret Huddleston's Warren County Family Courtroom, to bring awareness to parents and families. A multimedia piece from this project earned first place in Pictures of the Year International, and the book was nominated by WKU for a Pulitzer Prize in non-fiction literature.



Adams-Smith, a Bowling Green native, is a two-time WKU alumna, having earned both a bachelor's degree in photojournalism and a master's degree in communication. She received a second master's in visual communications from Ohio University, where she taught in the Visual Communications Department and served as a John S. and James L. Knight Fellow. While at the *Chicago Tribune*, most of her time was spent as the National/Foreign Picture Editor, where her duties included researching and assigning photographs for the national and foreign bureaus and working on many of the *Tribune's* special projects, including *Killing Our Children*, a year-long documentary on the children murdered in Chicago in 1993, that won the Robert F. Kennedy Award for Journalism.

Photography was not Adams-Smith's original thought for a career pursuit. She enrolled at WKU as a Biology major and later explored Journalism. “It was then that I took a photojournalism class with Dave LaBelle, and from that point I was hooked,” she said. “He was very influential in my career as a photojournalist and later as a teacher. He has remained a mentor to me.”

While she was working on her first master's degree at WKU, Dr. Randy Capps was her adviser and observed her as she taught a Fundamentals of Public Speaking course. He suggested that she consider a career in education, a comment she promptly dismissed. However, a number of years later she took a leave of absence from the *Tribune* to complete her second master's. “I then got a real taste of teaching, and I fell in love with it,” she said. “It combines my love of editing, teaching, and creativity.”

These experiences prepared Adams-Smith for the day when former Journalism Department Head Jo-Ann Albers contacted her and suggested she apply for the open photojournalism position at WKU. She took the job in January 2002 and hasn't looked back.

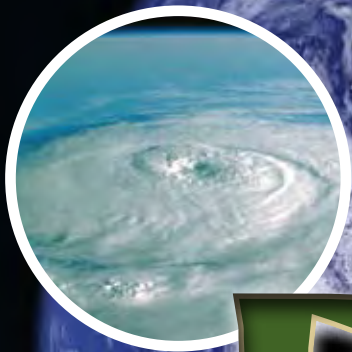
“The photojournalism community has always been a sharing community,” she explained. “I learned from countless top professionals who were willing to share what they had learned. It was natural for me to want to do that myself — to give back to students.”

Wherever she goes, Adams-Smith seems to open a window to the souls of her subjects through her photographs. “I think a lot of factors go into access, such as knowing the subject matter, so you speak to people from a knowledgeable background,” she said. “In addition, empathy is very important. A lot of my projects are because I have been through a similar experience, and I think I am a good listener. I listen to their stories and then people just feel more comfortable around me and more comfortable being themselves. Then really great pictures can happen.” ■

THE MAGIC OF

PLACE

BY TOMMY NEWTON





AS A GEOGRAPHY INSTRUCTOR IN WESTERN KENTUCKY UNIVERSITY'S DEPARTMENT OF GEOGRAPHY AND GEOLOGY AND CO-COORDINATOR OF THE KENTUCKY GEOGRAPHIC ALLIANCE (KGA), SCOTT DOBLER IS SPREADING THE NEWS THAT GEOGRAPHY IS MORE THAN LOCATING PLACES ON A MAP.

In an educational outreach role through the KGA, Dobler promotes geographic education at the K-12 and postsecondary levels through educational campaigns, teacher training, professional development, and public events such as the State Geography Bee. Since 2006, Dobler has been working to promote My Wonderful World, an educational campaign developed by the National Geographic Society.

When he's not in the classroom at WKU, Dobler oversees K-12 outreach activities for the Kentucky Climate Center and the Hoffman Environmental Research Institute, both centers in WKU's Applied Research and Technology Program. "My job is to work with my colleagues and to integrate their research into the K-12 classrooms," Dobler said.

His outreach work led to an appointment as state geographer in 2006. He served in that role until January 2007. "I've had a number of wonderful opportunities that range from speaking in classrooms about weather and climate, to presenting research and proposing activities at state and national meetings. I have also met with a

number of experts about including Geographic Information Systems (GIS) in high school classrooms in Kentucky," Dobler said. "I like helping people make good decisions using geography."

Whether it's a college graduate deciding between a job offer in a big city or a rural location, or a government agency deciding on an industrial park location, geography is an important factor, Dobler explained. "Knowing where places are is just the first step. Knowing why is a lifetime journey," he said. "The magic of place can never be explained by an atlas."

Misunderstanding people, cultures, and places has created many problems in the world, Dobler said. "Traveling abroad allows us to realize we have much in common with other people. They face the same problems and deal with the same issues that we do," he said. For example, during a 2007 trip to China with the Hoffman Institute, he learned that rural areas of China are facing many of the same environmental problems as eastern Kentucky where Dobler grew up — problems like raw sewage flowing in streams, and unregulated pollutants being released in the air.

Dobler's involvement with geography began with an interest in meteorology. He attended Morehead State University where he received training in both cultural and physical geography and then received his master's at Bowling Green State University in Ohio.

After college, Dobler worked for a GIS firm and as a sales representative selling social studies materials to schools in eastern Kentucky and West Virginia. By using the materials in teaching demonstrations, Dobler was able to show teachers the value of what he was selling. "I became fascinated with the teaching of geography," Dobler said. "Teaching became more important than selling." That prompted Dobler to seek teaching positions. He came to WKU in 2000.

As part of his teaching and outreach, Dobler wants students to realize that with a background in geography they can follow any career path. Dobler's interests include computers, finance, economics, woodworking, and music. He is a member of the 202nd Kentucky Army National Guard Band and plays the tuba, trombone, euphonium, and banjo. "I was interested in a little bit of everything," he said. "I discovered geography because geography underlies everything."

Geographic literacy is becoming even more important in a global society. Dobler asks his students to relate global climate change to geopolitical issues (such as terrorism), availability of natural resources, and globalization. "Most importantly, geographic knowledge must expand beyond a person's immediate surroundings," Dobler emphasized.

By working with teachers, Dobler hopes to enhance geographic education. Geography used to be taught as a specific subject but now it is taught in several subject areas by science and social studies teachers, according to Dobler.

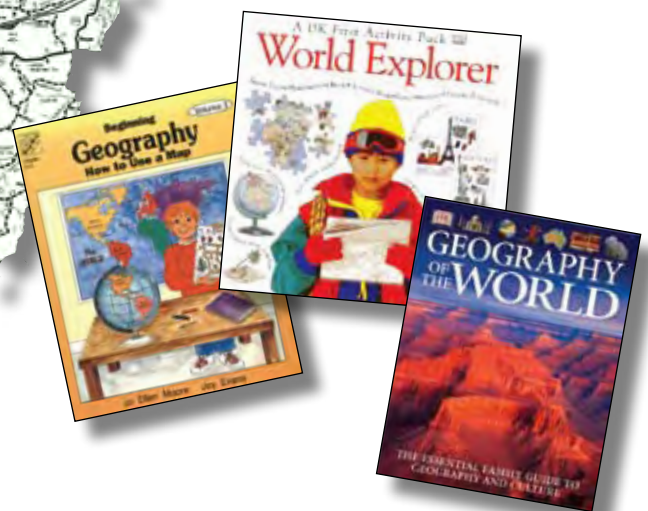
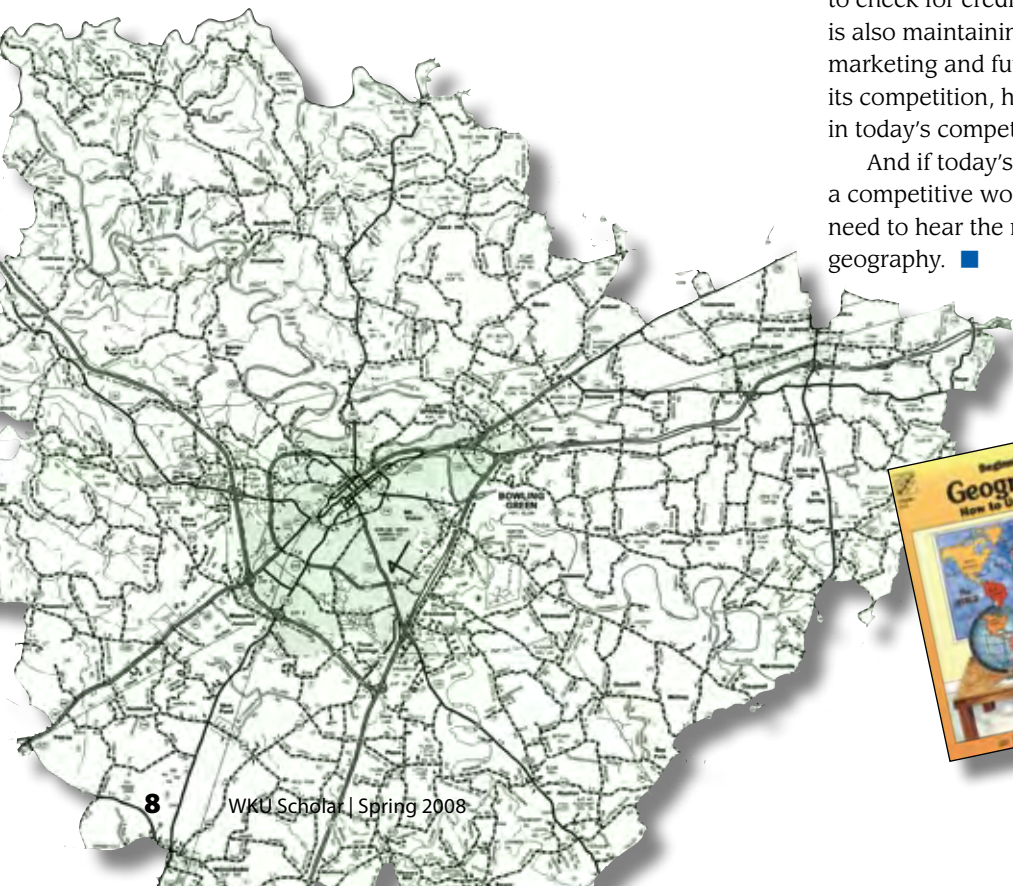
The Kentucky Mesonet project is one example of providing geographic data (meteorological observations) to schools. Teachers in science, math, social studies, and other areas can use that information in their lesson plans. In the summer of 2007, Dobler coordinated a KGA workshop for teachers on integrating the Mesonet data into their classrooms.

In turn, that aids Dobler in his mission of spreading the news about geography and improving student learning. According to the My Wonderful World website, a National Geographic-Roper survey showed that half of young Americans can't locate world powers like Japan and India and twenty percent can't even find the Pacific Ocean.

"The challenge is to get students' imaginations going," he said. "If you can get the imagination going, the learning will follow." One successful method uses geographic analysis as a thematic approach. Dobler explained, "I introduce the five themes of geography — location, place, human-environment interaction, movement, and region — to students and ask them to analyze their hometown using this tool. Once they are familiar with the tool, they can use it to explore other places or ideas."

When students reach college, geographic tools can help them analyze and understand the world around them in whatever field of study they choose. "Geography figures into much of our daily life," he said. "Students often don't understand that." For example, many businesses today ask shoppers for their zip code. "They want to know what region you are from and what goods you are interested in," Dobler said. The company might use this information to check for credit card fraud, but a successful company is also maintaining that geographic-based information for marketing and future development and expansion against its competition, he said. "It's all about survival marketing in today's competitive environment."

And if today's young people are going to survive in a competitive world of globalization, says Dobler, they need to hear the message provided by the knowledge of geography. ■



A REPULSIVE DISCOVERY

BY TOMMY NEWTON

"The emerging picture of dark energy is consistent with Einstein's prediction that a repulsive form of gravity emanates from empty space. Einstein first conceived of the notion of a repulsive force in space in his attempt to balance the universe against the inward pull of its own gravity, which he thought would ultimately cause the universe to implode. But since then astronomers have seen little evidence to support the existence of dark energy."



Dr. Louis-Gregory Strolger

TO THE UNTRAINED OBSERVER, THE IMAGE ON THE COMPUTER SCREEN IN A WESTERN KENTUCKY UNIVERSITY PHYSICS AND ASTRONOMY LAB LOOKS LIKE A SERIES OF BLURRY WHITE DOTS ON A BLACK BACKGROUND.

But to Dr. Louis-Gregory Strolger and his students, this image and thousands more like it might hold the key to unlocking the secrets of the universe. For the past several years, Dr. Strolger has been at the forefront of the study of dark energy, a mysterious repulsive force that causes the universe to expand at an increasing rate.

"We're uncovering the big mysteries," said Dr. Strolger, an assistant professor in the Department of Physics and Astronomy. Those mysteries include the age of the universe (about 14 billion years) and the fate of the expanding

universe (30 billion years from now the universe will be very cold and much darker).

Since joining WKU in 2005, Dr. Strolger has continued his research using the Hubble Space Telescope to examine long-duration gamma-ray bursts and supernovae and to track the expansion of the universe over time. "We've been extremely successful so far," said Strolger, who previously worked with the Space Telescope Science Institute. He and his colleagues have identified 130 supernovae, 60 of which are being used to measure the cosmic scale.

In November 2006, Dr. Strolger took part in a NASA press release, which reported that found dark energy was already boosting the expansion rate of the universe as long as nine billion years ago, supporting the claim that dark energy has always been an important constituent of the universe. These discoveries build on theories of cosmic expansion and composition presented nearly a century ago by none other than Albert Einstein.



FUTURE

PRESENT

PAST

The emerging picture of dark energy is consistent with Einstein's prediction that a repulsive form of gravity emanates from empty space. Einstein first conceived of the notion of a repulsive force in space in his attempt to balance the universe against the inward pull of its own gravity, which he thought would ultimately cause the universe to implode. But since then astronomers have seen little evidence to support the existence of dark energy.


However, in 1998, researchers using large ground-based telescopes and the Hubble detected the acceleration of the expansion of space from observations of distant supernovae.

"Since then, we have been trying to confirm the existence of dark energy as the driving force behind this acceleration, and then working hard to understand what is physically producing this force," Dr. Strolger said. "What we have found so far is that it does exist, comprising the vast majority of energy in the current universe. But we still don't have a clear picture of what's causing it, or why it's there at all. To know this a little better, we'll need more precise measurements of what dark energy is, or was, doing."

Supernovae have provided the cosmological "mile-markers," which have revealed the relative size and speed of expansion at several epochs in the past. But despite their usefulness, there remains much that is not understood about the physical mechanisms that lead to supernova explosions, and therefore how robust or trustworthy these tools are for measuring dark energy over the long history of the universe.

"A large part of our continuing investigation is a better understanding of the mechanism of stellar explosions," Dr. Strolger said. His research on supernovae isn't limited to the distant ones from the Hubble Space Telescope. He and his students also study relatively nearby supernovae using the WKU 0.6-meter Bell Observatory in Bowling Green and the WKU-operated 1.3-meter Remotely Controlled Telescope (RCT) at Kitt Peak National Observatory in Arizona.

The WKU researchers are working in collaboration with researchers at Vanderbilt, California-Berkeley, Yale, and the South African Astronomical Observatory. "This is a



very large project spanning five institutions to better understand supernovae," explained Strolger, "and to provide a more concrete base for future dark energy studies." These future studies will likely include another NASA space telescope (to be launched in 2020) completely dedicated to dark energy studies.

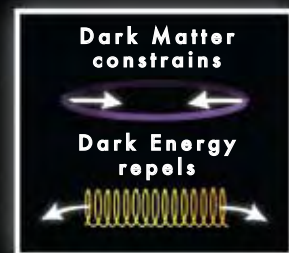
WKU and its students are making a strong contribution to the research that could result in new understanding of the fundamental forces of nature, according to Dr. Strolger. "Dark energy is a huge mystery that will shake physics," he said. "We're on the cusp of significant change."

For Dr. Strolger, looking into the past to find clues about the future remains exciting and enjoyable work. "I've always had a love for doing astronomy," he said. As a child, he visited the Smithsonian Air and Space Museum in Washington, D.C., and attended summer camp at the U.S. Space and Rocket Center in Huntsville, Alabama.

He received his undergraduate degree in physics from Earlham College in Richmond, Indiana, and earned his master's and doctorate in astronomy at the University of Michigan. During graduate school, he became interested in stellar explosions.

"Our first impression of how the universe would move is that it would slow down and collapse upon itself," Dr. Strolger said. "When we found that it was speeding up, that was quite startling. When I got on board, we were more certain that the universe was accelerating."

As the research has continued, Dr. Strolger and his colleagues have gathered more clues about dark energy. And he expects dark energy to remain in the news as more discoveries are made. "Sometime in the future, if NASA remains committed to science, we will likely learn a lot about the physical nature of the universe instead of being left with a great mystery." ■



(BIG BANG)

Alternative Typestyles

BY BOB SKIPPER

MATT TULLIS' OFFICE IS FULL OF CONTRAST. IN ONE CORNER IS AN OLD MANUAL TYPEWRITER, NEXT TO IT, A STATE-OF-THE-ART MACINTOSH COMPUTER. "HAVING SOMETHING ANTIQUE NEXT TO SOMETHING HIGH-TECH IS A NEAT JUXTAPOSITION," SAID TULLIS, AN ASSOCIATE PROFESSOR OF ART AT WESTERN KENTUCKY UNIVERSITY. "I LIKE COMBINING NEW TECHNOLOGY WITH TRADITIONAL FORMS OF COMMUNICATION." BUILDING BRIDGES BETWEEN UNEXPECTED SOURCES OF INSPIRATION IS AN UNDERLYING OBJECTIVE IN MUCH OF THE ART THAT MATT CREATES. TULLIS HAS NAMED HIS CURRENT BODY OF WORK, *ALTERNATIVE TYPESTYLES*—AN EXHIBITION OF DISPARATE LETTERFORMS.

Tullis began developing his unique interest in letterforms early in his career at WKU. "*Alternative Typestyles* is the most recent focus of my artistic endeavors. Initially, the project came about through a WKU Faculty Scholarship grant that I was awarded during my second year here," he said. "I was given the opportunity to further explore and document my fascination with antique and dilapidated letterforms."

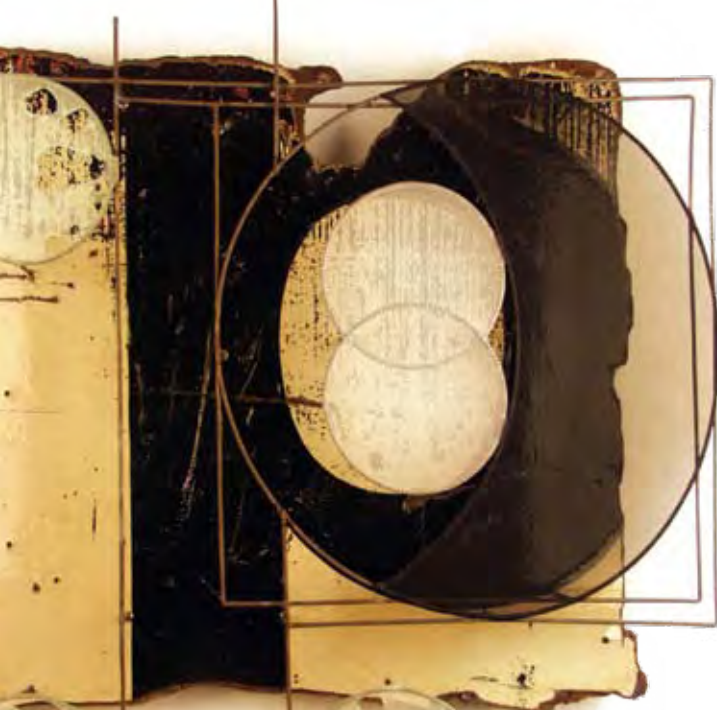
He and his family loaded a truck and spent a good portion of that summer driving across the U.S. "I took hundreds of photographs of typographic specimens, including letterforms from sources such as storefronts, road signs, and brick walls — all with an eye toward the documentation of a resource that had a limited shelf life," Tullis said. "I was looking for typography that was disappearing because of time, weather, changing corporate needs, or a combination of all of the above."

Those photographs ultimately resulted in a digital font that was named "Blue Highway." The name was

inspired by the blue lines on road maps that designate the lesser-traveled roads. "My wife, Kym, was my co-pilot that summer. She helped me quickly realize that it was the little roads and highways off the main thoroughfares that were the most fruitful for gathering imagery, so for the majority of the trip, we stuck to the blue highways."

Upon his return, Tullis began working with his research and quickly began to realize the value in his close relationship with the other Art Department faculty. He explained, "My background was graphic design and from a commercial standpoint, I was initially doing what I had been trained to do — documentation, organization, and manipulation of digital images." He went on to say, "Members of the Art Department faculty started giving me feedback on my work and the faculty as a whole deserves a lot of credit for my early attempts at building this body of work."

"For instance, Brent Oglesbee volunteered his expertise and tools in the development of one of my favorite pieces,



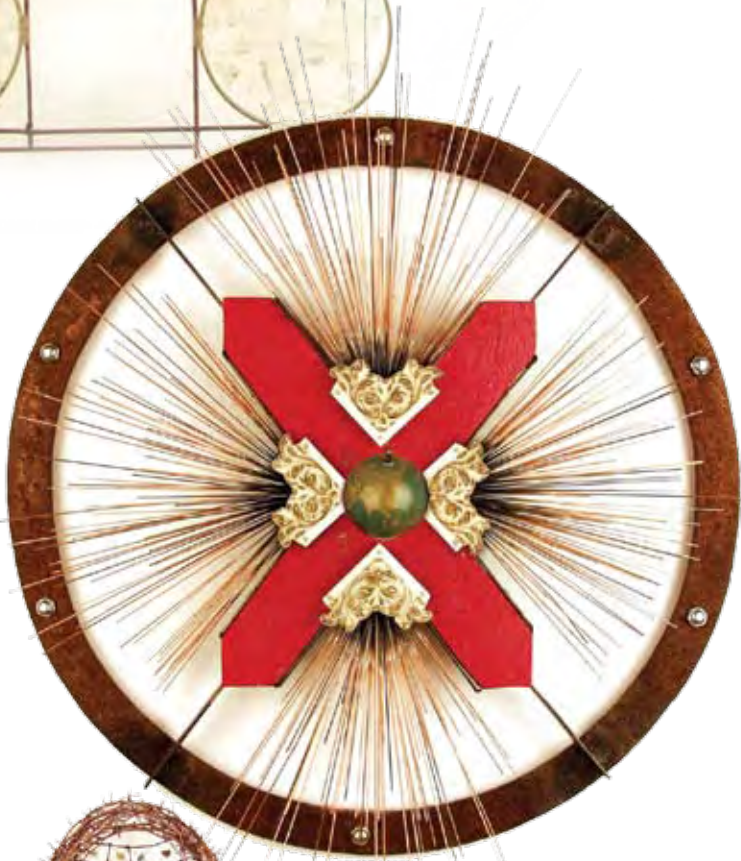
the X sculpture. I hadn't used welding equipment since high school, but with Brent's encouragement and guidance I have revisited a technique that has really solved some construction challenges."

Another example of faculty support came last fall when Tullis team-taught a Printmaking & Graphic Design course with Professor Laurin Notheisen. "Laurin taught me to silkscreen and suggested that I introduce a silkscreen element to my images. I'm still working on translating my photographs into handmade art prints, but I'm really excited about the possibilities for a better show," Tullis said.

Reflecting on the development of his work, Tullis said, "Over the last couple of years, I realized that the A to Z alphabet is a really accessible concept, one that people can easily relate to. It was at this point that I started looking for actual, physical artifacts that I could use to bring a new three-dimensional component to my work." That meant more road trips and a growing collection of artifacts in his studio. "If I discovered an old building falling in on itself and I spied an old part of a sign or a letterform, I'd crawl into the wreckage and see if there was anything I could salvage. The sculptural possibilities began to multiply. I've always been a bit of a scavenger, so these new sculptural resources felt right at home with the piles of so-called artifacts that I had in my studio anyway."

On the wall of his studio is a sculptural piece that is created around an old letter *I* that is a cast bronze artifact from a bulldozed train station in Arizona. A crumpled piece of metal serves as the sculptural backdrop, while the red-orange strip that floats behind the *I* is a torn strip of rusty rain gutter. On a more delicate note, wallpaper scraps from the same abandoned train station are used as accents. "What I bring to the sculpture is an interest in blending these various elements while trying to stay true to the original context of the found letterform," Tullis said.

The resulting piece, titled "Instinct," is part of the exhibit, *Alternative Typestyles*. About a third of the exhibit consists of sculptures that are accompanied by heavily manipulated digital photographs of individual letters. The result is a combination of sculpture and photography that completes the alphabet, from A to Z.



“Not every sculpture is as true to the original location as the letter *I*. Sometimes it’s a matter of trying things and simply seeing if they look good together,” Tullis said. “I stay true to the original letterforms by giving my art a sense of antiquity. I enjoy the challenge of using authentic artifacts in combination with newer, unexpected materials.”

The sculptures are a synthesis of discoveries. “Using reclaimed letterforms as the dominant thematic element, I combine various found objects to create compositions that recall the mystique of old signs,” he said. “My sculptures are informed by three factors: the decay of the original typographic specimen, the contextual history of the letterform, and my own typographic and design sensibilities.”

“Because of the structure of the alphabet, I’m constantly thinking of new A to Z applications. It’s difficult at times, to self-edit the new ideas, and focus on giving my body of work continuity,” he said. “What is evolving is an exhibition of constantly changing combinations of sculpture and photography. My goal is to someday arrive

at a body of work that is entirely sculptural. That goal, of course, is contingent on serendipity bringing to me the opportunity to discover the materials to use in new work.”



The exhibit also includes a series of word sculptures that originated in his artistic statement. Tullis states, “The words accentuate the exhibit in a punctual way. Since a majority of the show consists of individual letterforms, these words help stop viewers and allow them to focus on a specific concept.” The words are constructed of various artifacts discovered during his expeditions. For example, the word GESTALT is communicated, in part, by an old clamp that looks like a G. Seeing the artifacts individually, one might not necessarily recognize them as letterforms. But when the pieces come together, as they did in GESTALT, the sum becomes greater than its parts.

Typography, the quintessential element of visual communication, bridges both the fine art and graphic design disciplines, and is the subject of ‘Alternative Typestyles.’ My objective is to assemble typographic artifacts in an alphabetic gestalt, where the whole is more fluent than any individual piece.

—EXCERPT FROM ARTIST’S STATEMENT BY MATT TULLIS



"My exhibit has a built-in nostalgia that is easy to relate to," Tullis said. "I have a real fondness for artifacts that bring a certain history with them. I think part of the voice of my art is the history that the materials have."

He also has a fondness for audience reaction. "I am delighted at the different ways an audience will respond to the show," Tullis said. "People look at the work and they relate to the fact that my art is all about letterforms. Kids and adults alike understand my work on different levels. For instance, in the same group of people I've heard a child state, 'Hey! That's my letter!' right before the kid's parent says, 'I like this kind of stuff, too. I'm going to try something like this.' It's comments like these that mean my art is accessible. Light bulbs start going on above people's heads; people can relate to my work, and as an artist, that satisfies me the most."

Tullis, who holds an MFA in graphic design from the Tyler School of Art at Temple University, has exhibited his work on a national and international level. He says he especially enjoys exhibits at other universities where he can share his concepts with students.

"I'm a teacher," Tullis explained. "These exhibitions give me the opportunity to encourage students to explore possibilities outside their areas of expertise. I help my audience understand that the possibilities are infinite when boundaries are broken."

Tullis brings his passion for synthesis to his classes at WKU. "I talk with my students about the connection between the fine and graphic arts. I assign them projects in the classroom that are related to this cross-curricular ideal." In one class, students designed posters for a local literacy program. The students collected letterforms from around Bowling Green using digital and disposable cameras. They brought all of the photographs together and created a resource they then used in their individual designs. "Those projects turned out amazing, really beautiful," Tullis said. "By bringing my experiences into the classroom, I am able to design projects that help students develop their own appreciation of the value of original research. I bring typography into the room of every class that I teach."

Because he has several letterforms that are "still becoming sculptures," Tullis is reluctant to offer a finish date for his exhibition. "I would like to see *Alternative Typestyles* wrap up in the next few years," he said, "but I want to feel that each piece is complete." Tullis also stated, with more certainty, "I believe that, when it comes to visual communication, the alphabet is the most powerful tool at my disposal. So, alternative or not, typography will always be a part of my artistic life." ■





HOPING TO *Breathe* EASILY

BY TOMMY NEWTON

HUNDREDS OF THOUSANDS OF PEOPLE SUFFERING FROM INTERSTITIAL PULMONARY FIBROSIS, A DEVASTATING LUNG DISEASE, MAY BREATHE MORE EASILY ONE DAY THANKS TO RESEARCH UNDER WAY AT WESTERN KENTUCKY UNIVERSITY.

Dr. Nancy Rice, assistant professor of biology, and her students are using a three-year, \$204,000 grant from the National



Dr. Nancy Rice

Institutes of Health to study the role of nitric oxide in regulating the growth and proliferation of myofibroblast cells, that are involved in pulmonary fibrosis and other diseases.

“Myofibroblasts are kind of a Dr. Jekyll and Mr. Hyde type of cell,” explained Dr. Rice, who became intrigued by the cell during her post-doctoral work at the University of Colorado. “You need the cells for normal growth of organs and tissues and they’re also important



Excess collagen in the lungs from myofibroblast cells is involved in the development of interstitial pulmonary fibrosis

Pulmonary myofibroblasts are stained to show the protein tubulin — a building block of the cell's scaffolding.

for wound healing.” When tissue is damaged, Rice said, these cells are recruited to help repair and remodel the tissue because they make and secrete collagen, which helps pull the wound together. On skin wounds, for example, you see the effect of myofibroblasts in scarring.

“Normally, after the wound is healed, the cells are triggered to die, but sometimes that doesn’t happen, which is the Mr. Hyde side,” said Dr. Rice, who graduated from WKU in 1993. “In that case, after the wound or injury is healed, the cells continue to make collagen so the tissue becomes stiff.” In the case of lung injuries, such as those caused by occupational and environmental exposure, the excess collagen in the lungs from myofibroblast cells is involved in the development of interstitial pulmonary fibrosis.

Dr. Rice also is interested in how the proliferation of these cells is implicated in lymphangioleiomyomatosis (LAM), a rare but devastating lung disease in young women characterized by the abnormal proliferation of “LAM cells” that share many common features with myofibroblasts. “We’re trying to build a basic understanding of the cells in order to apply our knowledge to two disease states — LAM and

“The nitric oxide pathway is an ideal place to begin because this signaling pathway is targeted by numerous pharmaceuticals that have already been evaluated and approved for use by the U.S. Food and Drug Administration. One of the most well-recognized of those is Viagra. The idea that a possible treatment is already FDA-approved is exciting because that eliminates years of clinical testing, saves millions of dollars and provides treatment for people faster.”

In the first year of the grant-funded project, Dr. Rice and her students worked on how much and when nitric oxide is made by myofibroblasts and how it induces cells to die. In the second and third years, they will move into animal modeling and testing.

“We believe this pathway is a good pathway to target,” she said. “I hope that after three years we can say conclusively whether it is or isn’t. But either way, I foresee this work as a continuing project in our lab because results and findings might take our work in different directions. These cells are intriguing and we’ve barely begun to understand them.”

“The nitric oxide pathway is an ideal place to begin because this signaling pathway is targeted by numerous pharmaceuticals that have already been evaluated and approved for use by the U.S. Food and Drug Administration. One of the most well-recognized of those is Viagra.”

pulmonary fibrosis,” she said. “We’re specifically interested in how nitric oxide mediates the growth and/or death of these cells.

Nitric oxide was first described as a signaling molecule in the early 1980s and understanding its physiological role led to the Nobel Prize in Physiology and Medicine in 1998. It has been implicated as a key mediator of myofibroblast activity in other tissues including the heart.

“Other people have shown that if the production of nitric oxide is blocked there is an accumulation of these cells, and that excess nitric oxide can cause cell death. We are hoping to build upon these studies within the context of lung and pulmonary disease.”

The nitric oxide pathway is leading Dr. Rice and her students on the road toward improved treatment options. About 100,000 people in the United States (most over fifty years of age) suffer from pulmonary fibrosis. “Since relatively few drugs are available for the treatment of pulmonary fibrosis, and their effectiveness is minimal at best, a thorough understanding of the mechanisms regulating myofibroblast activity and death is important in designing new, improved therapeutics,” she said.

Since returning to WKU in 2003, Dr. Rice has worked with about twenty undergraduate and graduate students on the myofibroblast study, as well as research on how the body stores and breaks down glycogen, and other projects. “The best way to understand science is to do science,” said Dr. Rice, who received her bachelor’s degree in recombinant genetics. “I was excited by the infrastructure WKU had in place to do research when I came back to interview for a job. I saw that I could have the best of both worlds here. I could have the interaction with undergraduates as well as do competitive, quality research.” ■



Jumping

Without a Rope

BY BOB SKIPPER



Dr. Lyons

JUMPING ROPE IS A GOOD FORM OF CARDIO-VASCULAR EXERCISE. FOR THOSE WHO LACK SUFFICIENT COORDINATION OR PROPER FORM, HOWEVER, IT CAN BE INEFFECTIVE. ARMS TIRE QUICKLY. GETTING OFF CADENCE CAUSES THE PERSON TO STOP AND START AGAIN.

Scott Lyons, an assistant professor of physical education and recreation at Western Kentucky University, is testing a machine that could help exercisers enjoy the benefits of jumping rope without enduring the obstacles.

The Digi-Jump Machine is designed to help people exercise through repetitive jumping. "I know that sounds a little strange, but just think about jumping rope without the rope," Dr. Lyons said. The machine has a blinking light and beeping mechanism that activate at a pre-defined cadence, or jumps per minute. If the subject jumps at the set rate, he is rewarded with a green light. If he gets off cadence, he gets a red light to help him get back on track. The machine also has a set of adjustable infrared beams to check the height of the jumps.

"The real benefit over jumping rope is that when you jump rope and you get off cadence or don't jump high enough, then you catch your foot and you have to stop and start all over. With this, you just get a red light and you can keep going and get yourself back on cadence," he said.

The machine was developed by Vaughan Scott and Larry Wilkins of Louisville. About two years ago, they approached WKU's Physical Education and Recreation Department about testing it. "They wanted some good, valid, impartial research data to see if this is a legitimate exercise machine," Lyons said.

Some of Lyons' colleagues and students began evaluating the Digi-Jump Machine for its exercise value. "We looked at areas such as metabolic response to repetitive jumping at different cadences," he said. "Metabolic response measures the cardio-vascular or aerobic effect of the exercise."

The researchers have also collected bio-mechanical, or motion analysis video, which was analyzed in the fall of 2007. This involves placing markers on the subjects and videotaping them in the dark so that only the markers are visible. "We can digitize the video and calculate vertical displacement and angular velocity," explained Lyons. "We can look at the interaction of bio-mechanical efficiency and aerobic efficiency."

The goal of the studies is to compare jumping on the machine with other forms of exercise. "Jumping rope is a strenuous form of cardio-vascular exercise. Theoretically this should be as well because this mimics it without the rope," Dr. Lyons said. "It's not as strenuous as running five miles, but from the data we've collected so far, it's about the same as jumping rope, which is in the range of 10-12 metabolic equivalents (METs)." The target is to provide exercise at about 65-85 percent of a person's age-predicted maximum heart rate. "As long as you can get your heart rate up to a good training zone, and maintain it, it doesn't really matter what you do."

"I've had some people ask, 'What's the big deal with this machine? Why can't people just jump up and down on their floor?'" Dr. Lyons said. "Because they won't. People like machines. What's the big deal about a treadmill? Why don't we just run in place? People like a machine telling them what to do and keeping them on track."



"I know that sounds a little strange, but just think about jumping rope without the rope."



The machine has interchangeable platforms of different thicknesses. The original platform was 1/2 inch thick and the developers have added platforms of 3/8 and 1/4 inch thicknesses. Although the data is in analysis, Dr. Lyons said they discovered that the metabolic cost of the exercise was similar on all three, but the subjects reported varying subject biases. Some preferred the increased “spring” associated with the thinner platforms while others reported that it was more difficult to jump on the less rigid platforms.

Dr. Lyons described other studies that compared exercising at cadences of 100 jumps per minute (jpm) and 120 jpm, which is about standard for jumping rope. While the exercise benefit between the two was minor, most participants preferred the faster cadence. “The 120 jumps per minute was much, much more preferred by the subjects than the 100,” he said. Subjects reported more leg muscle fatigue and more of the subjects were unable to complete the full 15-minute trial at the 100 jpm level, he said.

“Why can’t people just jump up and down on their floor? Because they won’t. People like machines.”

Lyons is also launching a study to develop a metabolic equation to estimate the energy expended from jumping. “In the *American College of Sports Medicine Guidelines for Testing and Prescription Handbook*, there are five metabolic equations that have been derived through research where you can enter a couple of known variables and estimate energy expenditure from a given activity,” he said. These equations are for walking, running, stepping, leg cycling, and arm cranking. For example, speed and grade can be entered into the running equation to estimate the energy expenditure for any runner. “We’re looking to see if we can develop one for jumping that we can get endorsed by the American College of Sports Medicine (ACSM),” he said.

The results gathered so far have been used in several professional presentations and at three ACSM regional and national meetings. Dr. Lyons and his colleagues also have published one article in the April 2008 issue of the *International Journal of Exercise Science*, along with two other articles in review at other journals.

Another benefit from the Digi-Jump may be in the treatment of bone mineral density disease. Lyons has applied for a grant from the National Institutes of Health to study how repetitive jumping exercise can help those with conditions such as osteoporosis. The grant would be used to buy additional equipment.

“We know that weight-bearing exercise positively affects bone mineral density as far as preservation of bone mineral density. And we know that impact exercise positively affects bone mineral density,” he said. While people over fifty who have not exercised at all or have not exercised recently are not going to start running, they may do a little weight lifting or may be willing to jump for a short period every day. “If we can find a positive response on bone mineral density from jumping at a defined cadence, it seems like a pretty good idea to me,” he said.

He added that the research may also show that the machine could be useful in training and rehabilitation for athletes who complete in sports with vertical components.

The owners of the machine have made changes to the original design by adding attachments that incorporate upper body movements with the jumping. Dr. Lyons will be testing standard circuit training workouts against workouts that include the machine. He explained, “We’re going to see if this machine can give a significant contribution to metabolic response from circuit training.” ■





GOING FOR

PLATINUM

BY BOB SKIPPER

AS WITH MANY CANCER DRUGS, THE PLATINUM COMPOUND CISPLATIN IS TOXIC. IT ALSO HAS A TENDENCY TO REACT TO PROTEINS INSTEAD OF THE TARGETED DNA, AND CELLS ARE PRONE TO DEVELOPING RESISTANCE. KEVIN WILLIAMS, ASSISTANT PROFESSOR OF CHEMISTRY AT WESTERN KENTUCKY UNIVERSITY, IS LOOKING AT HOW THE SIZE AND SHAPE OF THE PLATINUM MOLECULES MIGHT IMPROVE CISPLATIN'S EFFECTIVENESS.

Cisplatin, $\text{cis-Pt}(\text{NH}_3)_2\text{Cl}_2$, has been around since the nineteenth century. Its use as an anti-cancer

drug began in the 1970s. "It's really successful against testicular cancer and pretty successful against ovarian cancer," Dr. Williams said. However, since cells tend to develop resistance, the first dose is more effective than subsequent doses, he explained. "In general, we want to get the dosage down so that it doesn't take as much of the platinum compound to be effective."

Cisplatin's effectiveness comes in its reaction with the cancer's DNA. "It tends to interfere with the DNA replication processes and since cancer cells grow faster than

Cisplatin Molecule, $\text{cis-Pt}(\text{NH}_3)_2\text{Cl}_2$





Kevin Williams and undergraduate assistant Michael Starling examine data obtained from the NMR spectrometer. The NMR spectrometer characterizes products formed with the platinum compounds.

other cells, it tends to target cancer cells," Dr. Williams said. The platinum compound also reacts with proteins. Some studies have shown that even on the first day, the majority of the cisplatin begins reacting with proteins instead of DNA.

"There has been a lot of speculation as to what the protein reaction does," Williams related. "It could be that some of the side effects are caused by the protein reactions. The resistance may be a consequence of the protein reactions. In general you're going to need a higher dosage if you want to target DNA." In simple terms, the reaction with proteins is the unwanted outcome and the reaction with DNA is the wanted outcome.

"What we've been doing is looking more at the reaction to proteins and trying to find ways to prevent protein binding relative to DNA binding," he said. "We figure if we can decrease the unwanted adduct and not eliminate the reaction with DNA, it would be helpful."

Working with up to fifteen students, Dr. Williams has been looking at the structure of cisplatin molecules, specifically their size and shape. "Cisplatin is about as small of a molecule that you can make to have the

properties that it has, so just about anything that you make is going to be bigger," he said. "We're looking at what happens if you take a molecule that's pretty close to

In simple terms, the reaction with proteins (methionine) is the unwanted outcome and the reaction with DNA (guanine) is the wanted outcome.

the size of cisplatin and compare it to something bigger to see if that affects things differently."

Since the main DNA target, guanine, is less bulky than the main protein target, methionine, Dr. Williams theorizes that changing the size and shape could cause the platinum molecules to react with one over the other. "Fortunately for us, the protein target is a little bigger target to hit. By making the platinum molecules bigger, we're hoping to see selective reaction with DNA and not with proteins," he said. The researchers attach carbon and hydrogen atoms to cisplatin to add bulk.

“We have developed parameters that will allow us to use molecular mechanics calculations to generate computer models of complexes between platinum and methionine residues, and we are using parameters developed previously for platinum and guanine,” he said. “These calculations are being used to predict the effect of the size and shape of the platinum complex on the stability of guanine and methionine complexes.”

Dr. Williams has synthesized selected cisplatin analogs and reacted these analogs with methionine and guanine derivatives. He and his students have used nuclear magnetic resonance spectroscopy to characterize the products. They have also studied the effects of carrier ligand size on the rate of protein adduct formation and will use instrumentation from WKU’s Materials Characterization Center to determine the amount of platinum bound to the protein. They are also using liquid chromatography/mass spectrometry and gel electrophoresis to study the cleavage of proteins by selected platinum complexes.

While changing the size and shape of the platinum molecules has affected their reactions, Dr. Williams said the rate of those reactions is also important. “Just because you can get the products to form doesn’t mean they are going to form in a timeframe that is reasonable biologically,” he said. “We found that regardless of which target you are looking at, the bulkier compound is going to react slower. What is a little more interesting is that both of the platinum compounds that we tested reacted faster with our guanine target. What that’s suggesting is that if you have a little bulk on the platinum compound you might get fewer protein adducts and fewer protein adducts might make it work better.”

But that particular compound is too slow to react to be effective as a cancer drug, he said. “There has to be a balance and that’s where we are headed in the future, to see how much bulk it takes in order to get the reaction with protein slowed down and not interfere too much with the reaction with DNA. We don’t know if we’re going to find something that will work really well or if we’re going to have to keep being creative.”

Dr. Williams is using a \$197,000 grant from the National Institutes of Health to continue this part of the research. “With this grant, we are looking at several different platinum compounds to see if any of them might be the magic compound,” he said. “Our goal is not necessarily to produce the next generation of anti-cancer drug out of our lab. It is more to find the trend.”

Dr. Williams began working with platinum compounds while in graduate school at Emory University. It was there that he studied how shape affected reactions with DNA. When he came to WKU

to teach in 2002, he developed the idea that proteins would be affected differently and received funding from Kentucky Experimental Program to Stimulate Cooperative Research (EPSCoR) for a one- to two-year project.

“By the end of the first summer we had figured out what was happening and that led to our first paper,” Dr. Williams said. “That’s when he realized the dramatic effect the bulk of the platinum molecule was having and that the rates of reaction were going to be important.”

When he started, Williams said he did not envision continuing to where the research is now. The research has led to one honors thesis and two articles in which five students have been co-authors. “I really have had some good students who have worked with me and I consider their success more a testimony to their talent than to the project,” he said.

Williams also asserted that many of the ideas during this research evolved from conversations with students. “Whether the idea was mine or theirs, it came up during the conversation so they contributed to it.” ■



Kevin Williams loads a sample into the departmental NMR spectrometer for analysis.



Two Victorian Women

BY CAROL CUMMINGS



Dr. Deborah Logan

DEBORAH LOGAN HAS SPENT MUCH OF HER CAREER STUDYING THE LIVES AND WORKS OF VICTORIAN WOMEN WRITERS. THE PROFESSOR OF ENGLISH AT WESTERN KENTUCKY UNIVERSITY HAS ESTABLISHED HERSELF AS A PREEMINENT SCHOLAR ON HARRIET MARTINEAU, A CONTROVERSIAL WRITER AND SCHOLAR WHO, FROM THE 1820s

TO THE 1870s, WAS RENOWNED FOR HER WRITINGS ON SOCIAL REFORM, SOCIOLOGY, ECONOMICS, POLITICS, AND ABOLITION. LOGAN'S MARTINEAU RESEARCH ALSO LED HER TO STUDY A MORE WELL-KNOWN VICTORIAN FIGURE — FLORENCE NIGHTINGALE — THE SUBJECT OF HER LATEST BOOK.

"I was introduced to Harriet Martineau during my first year of graduate school, when I took a Victorian literature class," Dr. Logan explained. "I was impressed by what she'd accomplished. I had already chosen Victorian literature as my major and was looking for an area of concentration. I feel privileged because I discovered her when I was going through graduate school and was able to

develop original research. It is inspiring to be a part of that and to be considered an expert on her writings."

Dr. Logan received her bachelor's degree from Hamilton College in Clinton, New York. She then earned a graduate certificate in Women's Studies from Duke University in 1991 and a master's degree in English Literature from the University of North Carolina at Chapel Hill in 1991. In 1997, she received her Ph.D. in English Literature from the UNC Chapel Hill. She uncovered more about Martineau while writing her doctoral dissertation, later published as *Fallenness in Victorian Women's Writing: "Marry, stitch, die, or do worse."*

When Dr. Logan first read Martineau's work, she was amazed that she had never heard of her before. The more she studied and read, the more she became convinced that this writer was truly important to literary and intellectual history. Martineau rarely used a pseudonym — even when it was fashionable to do so. She had only two years of grammar school, and the rest of her extensive and cross-disciplinary knowledge was self-taught. According to Logan, Martineau was exceptionally well-read and well-connected with Dissenting intellectual circles. She was also able to overcome a serious obstacle — being almost completely deaf — and to achieve great things in her life. She built her own home at a time when it was uncommon



Martineau



Nightingale

for women to do so. In short, she was a role model for women of her day and of ours.

When she was about twenty years old, Martineau wrote: "I have plans innumerable in my heart, and mean to go on as long as I have faculties for it." For the next half century she did exactly that. During her lifetime, Martineau was far more popular and well known than many of her contemporaries, such as Emily and Charlotte Brontë, and even Charles Dickens.

"During the Victorian period, middle-class women were expected to get married and stay married," Dr. Logan said. "Martineau had planned to do that, and she became engaged as a young woman. Then her fiancé died, her father died, and her family lost its business. Her brother, with whom she was very close, went off to the university, and Martineau was then able to follow her talent. Because she was deaf, she couldn't be a governess or a music teacher, which were typical professions for a woman of her background. So she began to write." She wrote not only because it was her passion, but because she was able to support herself through her talent.

Why, then, had Dr. Logan never heard of Martineau, even though she had spent a great deal of time learning about Victorian literature? "My theory is that she was a self-educated woman, so it was easy to write her off. It has taken a long time to bring her back into literary history, and many are assessing her contributions for the very first time. She also said what she thought, and people often didn't like that," Dr. Logan said with a smile.

Logan said Martineau's status as both a dissenter and a Unitarian shaped her thinking. "Her religion was based more on human rights than on rituals and dogma," she said. "She subsequently became an agnostic, though many commentators said she was an atheist. She was outspoken and passionate about such causes as slavery in the United States. She was also a radical."

The first time Dr. Logan wrote about Martineau was an article on her life and her fiction for the 1996 Dictionary of Literary Biography. Since that first piece, Dr. Logan has written numerous journal articles and chapters on Martineau. She has also completed three extensive series of reprints of her materials. These sixteen volumes include Martineau's writings on the British Empire, British history, and her personal letters. In support of this scholarship, Dr. Logan has received a number of WKU faculty fellowships and two fellowships from the National Endowment for the Humanities. She is currently working on an analysis of Martineau's non-fiction writing on the British Empire, focusing on Ireland, India, the Middle East, China, and Africa. "Her work is interdisciplinary," Dr. Logan explained. "It is hard to place her, because she doesn't fit into a neat compartment."

Dr. Logan's work has made reprints of Martineau's work easily accessible for future researchers and scholars. As she worked on each of her sixteen volumes of reprints, she scanned old text, corrected it, and put it into word processing documents. She then annotated the writings and developed bibliographies. In addition, she included histories of Martineau's reception and criticism received from her contemporaries. "Doing reprints is thankless labor, but it serves an important purpose for scholars and researchers," she said. Complementing these editions is *The Hour and the Woman*, Logan's literary biography of Martineau's life and work.

Logan said her most rewarding work stemmed from her collection of Martineau's letters. "There were more than 2,000 of her letters all over the world," she said. "I did a great deal of traveling. The collected letters project was labor-intensive but an intellectually rewarding project. To Martineau's knowledge, all of her letters had been destroyed during her lifetime. She did not believe in saving and publishing personal letters. The letters are illuminating. She was very outspoken." Of Martineau's autobiography, Logan observes, "It is interesting to compare her public version of her life with her private letters."

"Her [Martineau's] work is interdisciplinary. It is hard to place her, because she doesn't fit into a neat compartment."

Dr. Logan's latest book, set to be published in 2008, is titled *Lives of Victorian Political Figures: Florence Nightingale*, which is a collection of articles written about Nightingale by her contemporaries. "Florence Nightingale (1820-1910) is without doubt the most recognized name in the fields of nursing, health and sanitation reform, and more recently, women's studies," Dr. Logan wrote. Nightingale's greatest strengths and accomplishments were less about practical nursing than about hospital administration and nurses' training. She helped reshape the official policies of social and political, civil, and military institutions that collectively kept public health at a "dangerously primitive standard."

Martineau and Nightingale were contemporaries who were years ahead of their time. Although they never met face-to-face, they corresponded regularly and collaborated on several social reform projects. "Both had remarkable and unusual early lives, for women, especially," explained Logan. "Martineau became an overnight international sensation as an author, after which she was remarkably well-traveled. This early success made her highly influential among public policy makers and social reformists."

According to Dr. Logan, the young Nightingale read Martineau's early works and was particularly impressed with her sensitive treatment of female alcoholism in *Sowers not Reapers*. "Nightingale made a pen case for Martineau, sent as a sort of fan letter, as the two had not met," she continued. Martineau, in turn, sent Nightingale a pillow she had needleworked "on which to rest your honoured head."

"Martineau became an overnight international sensation as an author, after which she was remarkably well-traveled. This early success made her highly influential among public policy makers and social reformists."

There are striking similarities in the lives of the two women. Like Martineau, Nightingale was also well-traveled, Dr. Logan explained, but was prevented from following her desire to study nursing until she was thirty years old, when her family finally gave in to her desires. "Like Martineau, Nightingale, too, became an overnight sensation through her work in the Crimean War. By the age of thirty, both women had found their profession, and both quickly earned fame and respect."

Following a number of high-profile years, both women became house-bound invalids and remained so for the rest of their lives. "Martineau wrote glowingly of Nightingale's Crimean War exploits in the *Daily News*, and the two women began to collaborate on sanitary reforms in the military, with Nightingale providing the statistics she collected at Crimea and Martineau providing the narrative," Logan said. "Nightingale conducted her business from 'The Little War Office' — her London sickroom — while Martineau conducted hers from her sickroom in Ambleside, far from London. Nightingale, like Martineau, wielded considerable influence among policy makers. That these two chronically ill, single women successfully took on the War Office is astounding."

Martineau actually wrote Nightingale's obituary around the year 1860, but it was the elder Martineau who died first, in 1876, while Nightingale lived another fifty years.

The women had great respect for one another. In the Nightingale obituary, Martineau wrote, "It is no small distinction to our time that it produced a woman who effected two great things: a mighty reform in the care of the sick and an opening for her sex into the region of serious business, in proportion to their ability to maintain a place in it."

Of Martineau, Nightingale wrote: "She was born to be a destroyer of slavery, in whatever form, in whatever place, all over the world, wherever she was or thought she saw it . . . no matter what, she rose to the occasion."

Having spent the past fifteen years immersed in Martineau's work, Logan is considered one of the most prolific Martineau scholars at this time and has published more about her than any other scholar. In support of WKU's vision to be a leading American university with international reach, she has given papers all across the United States and in England, Scotland, Ireland, and Italy.

"It is easy to say this is a minor research niche, but I feel it is important work that has generated other important work throughout the world," Logan said. "Martineau had an amazing mind and intellect, and her writing was so polished. She has a lot to teach us about how Victorian women lived their lives. My work with Martineau led naturally to the two Nightingale projects: one volume on the literary-social reform collaboration between the two, and the most recent volume. I hope this work will enable other scholars to continue the process of making the accomplishments of pre-first-wave feminists available to students of literary and social history." ■



RESEARCH BRIEFS

Word Recognition



Lance Hahn

Associate Professor Lance Hahn of the Department of Psychology in the College of Education and Behavioral Sciences is determining how

the neural representation of a word affects the ease with which a word is read. The WKU Faculty Scholarship Council funded Dr. Hahn's research through a Summer Faculty Scholarship.

Reading one word appears to facilitate the recognition of related words. For instance, reading the

word "nurse" will enable a reader to recognize "doctor" faster than an unrelated word such as "bread." Establishing which words share meaning has often been determined with a free association task in which a group of people are asked to give a word in response to a cue word provided by the researcher. Given the word "nurse," most people respond with the word "doctor" while nobody responded with "bread."

While free association is certainly useful, it has several drawbacks. One drawback is that it only provides a single associated word for each cue word. This drawback is particularly burdensome if we are interested in individual differences in how

a specific word is represented. For instance, a nurse is likely to have a much more complex neural representation of the word "doctor" than the typical college student. Similarly, the neural representation of a word for a typical reader may be very different from the representation for an unskilled or impaired reader.

Dr. Hahn is developing new methods that extensively assess an individual's representation of a word. Such methods could enable educators to compare atypical readers with typical readers. These methods include extensions of the free association task and more complex computer-based tasks.

Sources of Strain

Holli Drummond of the Department of Sociology in the Potter College of Arts and Letters is currently surveying 1,000 undergraduates in an effort to identify and evaluate sources of stress and strain among WKU students.

Specifically, she hopes to identify the prevalence of a variety of hardships stemming from academics, work, and personal relationships.

The second goal of the project is to evaluate the effectiveness of these stresses and strains at predicting negative emotions and behaviors such as depression, anger, anxiety, substance abuse, and eating disorders.

Finally, the project explores whether the reaction to any of these types of strain varies by personal characteristics such as race, gender, or class. Dr. Drummond's project is funded by a grant through the WKU Faculty Scholarship Council.



Holli Drummond





Rewards Programs



Joana Phillips

Joanna Phillips of the Department of Marketing in the Gordon Ford College of Business is at work on a multi-stage research project to determine the value of relationship marketing programs in which many of us have participated. She is collaborating with Drs. Stephanie and Charles Noble of the University of Mississippi.

Most people are aware of loyalty programs, affinity programs, and special-treatment programs that portend to offer consumers various rewards in exchange for repeat patronage. Sponsoring companies spend large sums of money on these campaigns to increase clientele, but little research exists on the long-term benefits of these programs for the company.

Dr. Phillips is applying a research model that addresses how consumers are motivated by program rewards and policies, the resulting form of commitment evoked by intrinsically versus extrinsically motivated consumers, and how the nature of a consumer's commitment to a company influences both the lifelong financial and relational worth of the consumer to the company. A grant through the WKU Faculty Scholarship Council funds Dr. Phillips's work.



Directed *ortho*-Metalation Chemistry

Research Professor Donald Slocum has a grant from the National Science Foundation to demonstrate a new approach to methodologies in *ortho*-metalation chemistry. His goal is to demonstrate use of "promoted" hydrocarbon media to provide safe, green, sustainable, synthetic procedures.



Donald Slocum

Dr. Slocum's research is of importance for pharmaceutical, biotechnology, nanotechnology, polymer, and specialty chemical companies. The overriding goal of the program is to provide environmentally friendly systems for potential large-scale operation.

Students initially assist in small projects and, once they attain suitable proficiency, undertake their own projects within this framework. In addition they provide reports. Once student progress nears completion, they are invited to make presentations. Completed work is published in major international chemistry journals with the students listed as coauthors.