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# MAGAZINE



TRACKING THE SPILL

MARKING THE 20TH ANNIVERSARY OF USF'S BRITISH INTERNATIONAL THEATRE PROGRAM (BRIT), STUDENTS IN THE SCHOOL OF THEATRE AND DANCE PRODUCED THE CLASSIC DION BOUCICAULT MELODRAMA, "THE SHAUGHRAUN," UNDER THE DIRECTION OF MALACHI BOGDANOV, ASSOCIATE ARTISTIC DIRECTOR OF THE ENGLISH SHAKESPEARE COMPANY. THE BRIT PROGRAM BRINGS LEADING PROFESSIONAL DIRECTORS, CHOREOGRAPHERS, ACTORS, VOICE AND SPEECH EXPERTS AND DESIGNERS TO USF IN THE FORM OF HANDS-ON MASTER CLASSES AND WORKSHOPS, IMMERSING STUDENTS IN THE BEST THAT BRITISH THEATRE OFFERS.

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New facilities for teaching, research, interdisciplinary collaboration and artistic endeavors are transforming the academic landscape at USF while solidifying the institution's position as a top-tier metropolitan research university.

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### COVER IMAGE

USF's deep-water marine research vessel, the *R/V Weatherbird II*, has proven to be an invaluable research tool for studying the impact of the Deepwater Horizon oil spill.

PHOTO: CANDACE C. MUNDY

### A Message from President Judy Genshaft

You might think USF is winding down for the summer – nothing could be further from the truth. As always, our campuses are teeming with activity.

In the spring we graduated 5,608 students, the largest number of graduates in USF history. We awarded 3,662 bachelor's degrees, 1,073 master's degrees, and 173 doctoral and specialist degrees.

While portions of the university were focused on commencement, scientists in the College of Marine Science headed out to sea to track the impact of the Deepwater Horizon oil spill. Their cruises into the spill and projections about its impact have

"While portions of the university were focused on commencement, scientists in the College of Marine Science headed out to sea to track the impact of the Deepwater Horizon oil spill."

been the focus of nightly newscasts around the globe. It was USF marine science researchers who provided the first scientific confirmation of the presence of particles of oil from the spill far below the ocean surface.



On campus, the signs of growth are everywhere. Five new buildings under construction will help ensure that students achieve their fullest academic potential. These new buildings are good news for the local economy as well, adding about 1,000 jobs to the region.

In this issue you will read about a new USF Health initiative called "Bringing Science Home." The groundbreaking project, being launched with a \$5.66 million gift to the USF: Unstoppable Campaign, will help people with chronic illnesses, such as diabetes, transition through important life stages.

I hope you will enjoy reading about our many recent accomplishments and the fascinating work under way at USF. As you will see, even in the summer USF is unstoppable! *USF Magazine* is published by University Communications & Marketing at USF. USF is a member of the University of South Florida System.

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# Digital Revolution Takes Giant Step Forward

hen USF Health launched its PaperFree Florida initiative last year, USF Health CEO Dr. Stephen Klasko told a mediapacked press conference the program would "start a revolution." A revolution that would make health records completely paper-free by digitizing every new prescription and patient history in the greater Tampa Bay region and, eventually, the rest of the country.

A revolution that would help save lives.

In April, the initiative took a giant step forward when Congresswoman Kathy Castor announced that USF will receive nearly \$6 million through the American Recovery Act to advance PaperFree Florida. Along with helping bring electronic prescribing to the region, the funding will create jobs in the health care and information technology sectors.

"This Recovery Act award is meaningful for the University of South Florida and the entire Tampa Bay region," Castor said. "It is a proven job creator, and doctors will have the tools they need to reduce medical errors and cut down on paperwork. This is a winning formula for doctors and the patients they treat."

National studies estimate that 7,000 Americans die each year because of medication errors. Errors often caused by misreading names or dosages in handwritten prescriptions.

"We are so grateful for Rep. Cas-



DR. HUGO NAVARTE, USF ASSISTANT PROFESSOR OF MEDICINE, DEMONSTRATES THE SPEED, ACCURACY AND MOBILITY OF ELECTRONIC HEALTH RECORDS, USING AN IPAD HELD BY CHEZELLE COQUERAN OF USF HEALTH IT.

tor's hard work and leadership to have USF Health and PaperFree Florida be recognized and financed for this important project," said Dr. Klasko, who additionally serves as dean of the USF College of Medicine. "We will give doctors the personal attention that has He believes the program, which includes deploying "ambassadors" throughout the area to help convert doctors from a paper-prescribing system to electronic prescribing, will serve as a model for the entire nation.

"When we began this initiative last

### "Tampa Bay and USF will continue to be leaders in health care reform."

been the missing link in helping them to adopt and use electronic health records. Ultimately, we will help them use technology that works better for them, is more convenient for everyone and safer for patients."

### - DR. STEPHEN KLASKO

year, we said why not USF, why not Tampa Bay? And the federal government has answered us. Tampa Bay and USF will continue to be leaders in health care reform."

### Initiatives Increase Campus Safety

n emergency notification system in place on the Tampa campus is helping ensure that students, faculty and staff can be reached in the event of an emergency. The multi-modal notification system is part of a larger public safety initiative that has been taking shape at USF since the university's Division of Public Safety was established in 2008.

The notification system, which includes MoBull Messenger for text message alerts, sirens, the USF Web site, digital display boards, a 1-800 hotline number and mass e-mail notifications, was designed to reach as many individuals as possible to increase the dissemination of important information.

In June, the division began testing two new communication system components to keep the university community safe. Smart 911 provides emergency responders with critical personal data such as a subscriber's photo, class schedule and vehicle information, to be used in the event of a 911 emergency. The Guardian program allows subscribers to activate a precautionary timer on their cell phone as they travel from one area of campus to another. If the alert does not get cancelled when the subscriber reaches the destination, police are provided with critical profile information, and in some instances, a physical location via GPS. Both programs are voluntary opt-in programs and subscriber information is only accessible by emergency personnel.

Among the other safety measures that have been implemented by the division are combined dispatch operations allowing for instant radio communication among all units, a tactical response team specially trained to be first responders in the event of an emergency, self-defense classes for university community members, diversified training for security personnel, bicycle patrol officers, and special presentations as part of the campus orientation program.

### And Again, the Award Goes to Beta Alpha Psi

Continuing the longest streak ever worldwide for earning the "superior" rating for a local chapter, the USF chapter of Beta Alpha Psi walked away with the honor again this year—for the 34th time. Beta Alpha Psi is an honorary organization for financial information students and professionals. Its primary objective is to encourage and give recognition to scholastic and professional excellence in the business information field.

> The good news doesn't end there. The USF chapter additionally was named one of the inaugural KPMG Gold chapters. The Gold Chapter Challenge was implemented last year to reward student chapters that consistently do more than is

> > required to achieve superior status.

GAMMAC

# {briefing}

### **Two Deans Named**

Deans for two colleges at USF have been named. **Eric Eisenberg** will lead the College of Arts & Sciences, and **Dianne Morrison-Beedy** will lead the College of Nursing.

Eisenberg, who was serving in an interim capacity, will continue to lead the university's largest college. A nationally recognized scholar in the strategic use of communication to promote positive organizational change, he is widely published in national and international scholarly journals. As interim dean, Eisenberg guided the college through a complex process of restructuring and integrating new academic units into the college.

Morrison-Beedy joins USF from the University of Rochester (New York), where she was assistant dean for research in the School of Nursing. She has extensive experience in development, faculty recruitment, improving student diversity, community-based participatory research, building internal and external partnerships, and creating innovative learning models. She has received several awards for her research which focuses on HIV prevention in adolescent girls and young women.

### **Governor Crist Appoints New Trustees**

**Jordan Zimmerman**, founder and chairman of Zimmerman Advertising, and **Byron E. Shinn**, president and managing partner of Shinn & Company LLC, a Florida CPA firm, have been appointed to the USF Board of Trustees. Florida Governor Charlie Crist announced the appointments in March.

Zimmerman, who completed his undergraduate and graduate work at USF, leads one of the nation's largest and most successful advertising agencies. He currently endows the Zimmerman Advertising Program at USF and is a frequent guest lecturer on campus. In addition, Zimmerman shares ownership in the Florida Panthers hockey team and has a number of successful private ventures.

Shinn, a certified public accountant and USF alumnus, is a member of the American Institute of Certified Public Accountants and the Florida Institute of Certified Public Accountants. He serves on the Probable Cause Panel of the Florida State Board of Accountancy where he is a past board member and chairman. Additionally, he is a past chairman and board member of USF Sarasota-Manatee's Campus Leadership Council and served on the USF School of Accountancy Advisory Board. Shinn is a past chairman of the Manatee County Chamber of Commerce.

"We are delighted to welcome Jordan Zimmerman and Byron Shinn, two outstanding entrepreneurs, to membership on a truly dynamic board of trustees," says USF President Judy Genshaft. "Not only are they living testimony to the value of a USF education, but they in turn treasure their alma mater and see service to USF as an important part of their lives. We couldn't ask for more dedicated or committed partners in guiding this great institution."

Zimmerman, of Boca Raton, replaces Trustee Kiran Patel, and Shinn, of Bradenton, succeeds Trustee Sonja Garcia. The two highly regarded Florida businessmen were appointed to five-year terms.

### Where's the Bus?

A new Automatic Vehicle Location (AVL) system developed by USF Parking & Transportation Services is answering the age-old question: Where's the bus?

USF's Bull Tracker lets riders track Bull Runner buses in real time, predict when buses will arrive, and determine if buses are full based on passenger counts. In addition, the new system allows for recurring text message alerts.

Bull Tracker is available on the Web and can be downloaded on mobile handheld devices. Incidentally, USF is the only university in Florida that owns its own buses and offers the AVL program.

### Prestigious Student Scholarships on the Rise

Five USF students have been awarded prestigious scholarships – two of which are firsts for the university. The highly esteemed honors are another indication of the rising academic caliber of students at USF.



"The Goldwater Scholarship is the premier undergraduate award of its type in mathematics, science and engineering."

- RALPH WILCOX

### **Goldwater Scholars**



Junior chemistry major **Juan Baso** and biology major **Amber Schmidt**, both Honors College students, have become the university's first Goldwater Scholars. They are among the 278 students nationwide selected for the highly competitive scholarship pro-

gram that fosters and encourages outstanding students to pursue careers in the fields of mathematics, the natural sciences and engineering.

Baso has earned several academic distinctions, including the President's Award for Educational Excellence and the American Chemical Society Undergraduate Research Fellowship. He plans to earn a PhD in synthetic organic



chemistry and work to develop new drugs for cancer patients that better target cancer cells with minimal or no damage to non-carcinogenic cells. Schmidt, who also is pursuing a minor in public health, is an immunology research intern at Moffitt Cancer Cen-

ter where she is studying the progression of Myelodysplastic Syndrome to Acute Myeloid Leukemia. After graduating, she plans to earn an MD and PhD and continue her research in immunology.

### Hollings Scholar

**Kira Barrera**, a junior majoring in environmental science and policy at USF St. Petersburg, is the first USF St. Petersburg student to earn a

Hollings Scholarship. The National Oceanic and Atmospheric Administration (NOAA) program provides funding to approxi-

mately 100 college undergraduates to further academic studies related to NOAA science, research, technology, policy management and education activities.

The award brings Barrera closer to her goal of preserving the distinct flora, fauna and economic resources inherent and unique to Florida springs. In another first for the university, Barrera also earned an honorable mention from the Udall Scholarship program.

### **Gilman Scholars**

Junior international business

major **Shalonda Isom** (pictured) and international studies major **Danya Loutfi** are both currently studying abroad as



recent Gilman Scholarship recipients. The highly competitive scholarship program offers grants for U.S. citizen undergraduate students of limited financial means to pursue academic studies abroad.

Isom is spending a semester in Japan, a country she has grown to love from a distance. Loutfi is currently in Sweden, a country she chose because of its reputation as a "very progressive state in terms of environmental and human rights."

# {scholars}

### Sustainable Jet Fuel Process Garners International Acclaim

n the heels of taking top honors for a process that converts common organic material like sawdust, yard clippings and even horse manure into jet fuel, three USF researchers are garnering the attention of venture capitalists around the globe.

In April, chemical engineer- JAII ing professor John T. Wolan, chemical engineering graduate student Syed Ali Gardezi and Jaideep Rajput, a manager in USF's Division of Patents and Licensing and a graduate student in the College of Busi-

ness, earned an honorable mention for their project in the Global Venture Challenge 2010.

Their venture, incorporated under the name COSI Catalysts Inc., was one of 12 projects selected from hundreds to reach the semi-final round in the prestigious competition. The competition is sponsored by the U.S. Department of Energy and leading technology and venture capital organizations.

The biomass fuel reactor converts common organic materials into fuel for airplanes, jets, trucks or cars. It builds on the Fischer-Tropsch process, technology developed in



JOHN T. WOLAN, SYED ALI GARDEZI AND JAIDEEP RAJPUT WITH THEIR BENCHTOP MODEL.

the 1920s which creates liquid hydrocarbons mainly from coal.

The researchers say their patentpending process can help produce clean, sustainable fuels that would

replace common petroleum products. And, it produces 30 times less sulfur than typical refining methods, decreasing the amount of sulfur dioxide that ends up in the atmosphere. Sulfur dioxide is the precursor to acid rain.

Wolan says the team is looking to bring their benchtop model to the next step – a pilot plant. "We've got a lot of irons in the fire," he says, adding that the project recently captured the attention of the largest Fischer-

Tropsch plant in the world, and also was presented before a group of 350 venture capitalists. "Our dream is to have the pilot plant on campus."

### Esteemed Professors Earn High Honors

**John Petrila**, a professor in the Department of Mental Health Law and Policy in the College of Behavioral and Community Sciences, has been awarded a Fulbright Fellowship.

Petrila will teach a course on international perspectives on mental health law and the rights of people with mental illness at the University of Maastricht in the Netherlands from January to June 2011. In addition, he will work with other faculty at the university to develop a research agenda for the first two-year masters program in forensic psychology in continental Europe.

Sponsored by the United States government, the Fulbright Program is the flagship international exchange program designed to increase mutual understanding between the people of the U.S. and of other countries.

Jay Hopler, an assistant professor in the Department of English, is one of only two writers named this year to receive a Rome Fellowship in Literature from the American Academy of Arts and Letters. The prize is considered one of the literature world's most prestigious honors.

At the Academy, a unique intellectual community that sits in the hills overlooking the Eternal City, Hopler hopes to finish writing his second book of poems. The program's literature prizes honor both established and emerging writers of fiction, nonfiction and poetry.

Hopler's award comes on the heels of winning the prestigious Whiting Writers' Award last October.



# The House that Students Built

Use sing reclaimed shipping containers, an innovative insulation material known as aerogel, and a desire to build in a sustainable way, students in USF architecture professor Stanley Russell's design/build class put the finishing touches on a food pantry and multi-purpose space in March. Like a number of projects designed and built by USF students, the 2,000-square-foot Noah Nothing Caring and Teaching House is receiving international acclaim. Recently, the project made the short list for a World Architecture Design Award. The community awards program highlights and publishes "remarkable projects that might otherwise remain unnoticed by the international public yet have the potential to



inspire exciting questions about contemporary architectural discourse." USF's School of Architecture and Community Design was recently recognized by *Architect* magazine for excelling in community design.

# {service}

### Learning to Give

Students at USF St. Petersburg awarded nine grants of \$5,000 each in May to support local charities in Pinellas and Hillsborough counties.

Money for the grants came from a \$395,000 federal Learn and Serve America grant awarded to USF St. Petersburg last year. The grant was one of 36 grants awarded nationally to engage students in service-learning projects and promote community service while enhancing student academic and civic skills.

After researching community needs and determining funding categories, including programs that offer support for the homeless, education and abused women, nine faculty-facilitated, student-led boards evaluated the more than 60 applications received. In some instances, the boards interviewed grant applicants to learn more about specific programs the monies would fund. In total, the students awarded \$45,000 in the current round of funding.

Last year, the first student philanthropy board awarded a \$5,000 grant to the Boys and Girls Club of the Suncoast to support a program that helps young people achieve academic success through long-term mentoring, tutoring and goal setting.

Directions for Mental Health received one of the nine grants; the money will provide transportation assistance to homeless people who need medical and mental health services.

"This is a really great opportunity for our clients," says John Morgan, supervisor of homeless services at Directions for Mental Health. "We can give them more of a hand up instead of a handout."



FROM LEFT, JAMES SCOTT, DANA PARKINSON, VICTORIA SALAZAR, RYAN MITCHELL, KELSEY HASTINGS, CARMIT LEVY AND BRUNO CHERRES EACH PARTICIPATED ON A STUDENT PHILANTROPY BOARD.



### Alternative Spring Break

For a growing number of USF students, spring break isn't about sun and sand. It's about service – becoming engaged in communities and making a difference.

# 146

Number of USF students who opted for an Alternative Spring Break (ASB) in 2010

> 18 Number of ASB 2010 service locations

# \$200-400

Average cost per student to participate

Number of years USF has participated in the national ASB program

Approximate number of USF students who have opted for an ASB since 2001



### **Book Offers First Full Account** of Pivotal World War I Battle

### By Barbara Melendez

t was the ultimate cold case. Hundreds of thousands of Czech, German, Hungarian, Polish, Russian and Ukrainian soldiers dead. No remaining eyewitnesses. Entire nations seemingly anxious to pretend nothing ever happened.

For USF history professor and World War I expert Graydon (Jack) Tunstall, it was the perfect opportunity to get to the bottom of a conflict that rivaled the historic battle of Stalingrad in its tragic dimensions. And it would produce the first full story of history's forgotten fallen soldiers on World War I's eastern front, *Blood in the Snow: The Carpathian Winter War 1915*.

The battle involved two million soldiers from Austria-Hungary, Germany and Russia. By the time it was over, the dead on both sides far outnumbered the people they hoped to save on one hand – or capture on the other. For historians and history buffs alike, the battle represents a major piece in the puzzle that explains the fall of the ruling empires of the day.

"This is original research; nobody knew this material. This battle helped decide the fate of three empires, and is hardly mentioned in any history book, if at all. What we have here opens up a whole new ballgame," Tunstall says.

During his 10 years of research, Tunstall developed a deep connection to the soldiers whose experiences he relived. Over time he was able to describe the bitter cold that doomed them to death. He learned of their being ill-equipped, when it came to clothing, weapons and food – how they froze to death while marching up the treacherous mountains – often before they ever had a chance to fight. When one soldier was wounded, his blood in the snow served as a target for lethal enemy onslaughts. Hiding in the snow meant freezing to death.

The story of how he found those missing parts is nearly as compelling. Tunstall dug through mountains of documents, including official records, field reports and personal diaries to glean what happened. In some cases, he was able to get permission to search and in others, he made friends with nationals who had permission and thereby gained access to what was at times claimed not to exist.

"One of the luckiest and most surprising finds was in a box of documents about supplies where there was an official report about the losses of soldiers, exactly what I needed, but tucked away in the unlikeliest of places. It was manna from heaven, I couldn't believe it," he recounts.

Tunstall holds both a master's and doctoral degree in European history. He is a Vietnam era veteran who served in the U.S. Army from 1963 to 1965 and achieved the rank of 1st Lieutenant. ABOVE: RUSSIAN TROOPS FIRING IN THE SNOW.

RIGHT: CONRAD VON HÖTZENDORF WITH HIS ADJUTANT, RUDOLF KUNDMANN.



Y Jun pill

# {history}





TOP LEFT: RUSSIAN ARTILLERY ON THE EASTERN FRONT.

LEFT: HABSBURG TROOPS HALTING FOR A REST IN A CARPATHIAN MOUNTAIN PASS.

# **Depression Treatment Offers Hope**

### By Lisa Greene

indsey Underwood has battled depression before. But this time, it was worse. Blackness took over his world and sucked the joy from his life.

"It permeates every aspect of your life," Underwood says. "It was very debilitating. I didn't have the energy to get out of bed."

And this time, when depression struck last year, anti-depressants didn't help.

Underwood, a 44-year-old paralegal, sought help from USF psychiatrists. He signed up for a new kind of treatment. Trans-cranial magnetic stimulation, or TMS, uses pulsed magnetic waves to stimulate cells in the brain.

### FACTS ABOUT DEPRESSION

Depression affects more than20 million people in the United States.

Depression is the leading cause of disability in the United States for individuals ages 15-44.

Symptoms include sadness; loss of interest in previously enjoyed activities; change in sleep patterns; energy loss; feelings of worthlessness; and thoughts of death or suicide.

Treatment can include antidepressants, talk therapy, electroconvulsive therapy and transcranial magnetic stimulation.

Source: National Institute of Mental Healt & Mental Health America The technology is new, but has been investigated in clinical trials for over 20 years. So far, studies show that about two out of three patients have reduced symptoms and one out of three is no longer depressed. That's slightly higher than the number helped by anti-depressants.

The patients studied were those who, like Underwood, weren't helped by anti-depressant drugs. The FDA approved the device, called the NeuroStar TMS Therapy System, to treat these patients in late 2008.

Underwood is a believer.

"I feel like the cloud of depression seems to have lifted," Underwood says. "It doesn't seem to color my every thought anymore."

Dr. Francisco Fernandez, chair of USF's psychiatry department, says the department has added a powerful weapon to help patients who had no alternatives.

"For patients with depression, the prognosis has not significantly improved in decades," he says. "With TMS and other neuromodulation therapies, we hope to optimize treatment options and improve clinical outcomes for all."

The treatment isn't invasive, and patients don't need anesthesia. It has few known side effects.

The Neurostar is made by Neuronetics, Inc., a Pennsylvania company that has licensed a magnetic coil technology patented by Emory University. Dr. Patrick Marsh, chief of the Neurotherapies Program at USF Health, estimates that USF is one of about five places in Florida now offering TMS therapy.

To receive TMS treatment, patients sit



USF PSYCHIATRIST DR. PATRICK MARSH TREATS LINDSEY UNDERWOOD WITH THE NEUROSTAR TMS DEVICE.

in a padded chair. A padded coil at the back holds the head steady. Treatments are aimed at a part of the brain that has been linked to depression, the left prefrontal cortex.

The psychiatrist finds this spot by first locating the motor strip of the brain, a narrow segment that runs roughly above the ear. The psychiatrist aims the magnet at the part of the motor strip that controls the thumb. The first time a patient receives treatment, it's clear when this spot is stimulated: the thumb begins a painless twitching.

The psychiatrist then moves the device forward to locate the prefrontal cortex. Sometimes, patients

# {health}



may find the sensation uncomfortable, but not painful, says Ruta Dimaite, director of the Neurotherapies Program.

Most patients receive 30 40-minute treatments, with five treatments each week for six weeks.

For Underwood, the treatment has been worth it. It's hard for people who have never experienced clinical depression to realize how difficult it is, he says.

"The general public thinks it's 'just a little blue,' " he says. "They don't realize how profound it can be. It's a sadness akin to trauma, like going through the death of a loved one, but it just won't lift."

Underwood wants more people to learn that there are other treatment options available.

"It's an alternative to medicine, to things that aren't responding, and it's not invasive," he says. "It really can help."

### Nursing Vaults to Highest-Ever Research Ranking

### **USF's College of Nursing**

has achieved its highest-ever research ranking from the National Institutes of Health (NIH). The college **ranked 30th among nursing schools nationwide** in NIH funding for 2009 – vaulting from a 66th place ranking in

2008. "The ranking is a credit to the skill, persistence, creativity and experience of our faculty," says Kevin Kip, executive director of the Research Center at the college. "The fact that we've managed to substantially expand our research portfolio in such a competitive environment – at a time when the NIH is funding fewer and fewer grant applications – is quite an accomplishment."

USF nursing faculty attracted more than \$1.53 million in NIH research funding for 2009. That research included palliative and end-of-life care, stress reduction in breast cancer survivors, and postpartum stress and immunity.

In addition to gaining ground on nationally prominent nursing schools like the University of Nebraska Medical Center and Emory University, USF surpassed all other Florida nursing schools in the ranking, including the University of Miami and the University of Florida.



KEVIN KIP, EXECUTIVE DIRECTOR OF NURSING RESEARCH AT USF HEALTH, WITH THE THREE SENIOR FACULTY MEMBERS ATTRACTING THE MOST NIH AWARDS TO THE COLLEGE OF NURSING – FROM LEFT: SUSAN MCMILLAN, CECILE LENGACHER AND MAUREEN GROER.

# A Passion for Karst

Portal provides vital link between information resources, scientists and cavers.

#### By Ann Carney

very day, roughly 20 percent of the world's population – more than 1 billion people – depend on karst environments for their water supplies. And every day these vulnerable terrains face increasing risk for degradation.

Karst is a globally distributed terrain created by the dissolution of soluble rocks, such as limestone and dolomite. Dissolution occurs when rain water infused with carbon dioxide passes through layers of soil and bedrock. The result is a striking landscape characterized by sinkholes, caves, disappearing streams and springs – a landscape at risk for contamination from pollution and human activity.

At USF, scientists are working on a

range of karst studies to solve complex interdisciplinary problems around the globe. And in the university's main library, librarians are working to solve another type of karst problem – a fragmented and nontraditional literature base that includes significant contributions from non-scientists. Contributions like conference notes, government reports, images and newsletters from a caving club, as well as traditional published materials.

Since 2007, USF librarians have been working to create an open-access digital library linking scientists, managers and explorers with quality information resources concerning karst environments. Known as the Karst Information Portal, the digital library today contains more than 1,000 digital objects and more than 5,000 described resources. Though registration is not required, the portal boasts more than 245 registered users from 12 countries specializing in 30 areas of karst research.

The Karst Information Portal is a groundbreaking project that brings together a complex network of collaborations, including four leading partners: the University of South Florida Libraries; the National Cave & Karst Research Institute; University Libraries, University of New Mexico; and Union International de Spéléogie, as well as the Dr. Kiran C. Patel Center for Global Solutions - the catalyst for the project. USF is the project's organizational partner, responsible for housing and organizing collections, managing the infrastructure, maintaining the technology, coordinating digitization activities and contributing content.

# libraries}

Todd Chavez, USF Libraries' director of academic resources says the portal is a prime example of a research library "getting in front of an information problem."

The problem is one that relates to a pressing area of interest to everyone. "Research in karst environments informs water and climate change issues, environmental policy issues and economic sustainability issues," he says. And while technology drives the project, it is not the focus of the project. The Karst Information Portal is about relationships and collaboration.

"We are the link between the information resources, scientists and cavers who are passionate about karst environments," Chavez says, environments that are crucial to the health and well-being of one out of every four people on Earth.





AN INTERIOR PANORAMA IN SCĂRIȘOARA CAVE, APUSENI MOUNTAINS, ROMANIA; BATS GATHERED IN CYPRESS CAVE, FLORIDA; A NEANDERTHAL FOOTPRINT, DISCOVERED IN VÂRTOP CAVE BY USF ASSISTANT PROFESSOR OF GEOLOGY BOGDAN ONAC; A CAVER PADDLES THROUGH BRIAR CAVE, FLORIDA. PHOTOS: Claudiu Szabo & Gigi Frățilă (panorama); Dorien McGee (bats); Bogdan Onac (footprint); Sean Roberts (paddler).

# USF Physicists Advance Nanotechnology

### By Randolph Fillmore

n the expanding world of nanotechnology, where everything is measured in a billionth of a meter, new electronic nano-devices for future computer chips are under rapid development. However, controlling electronic activity in nano-devices has been a major challenge.

USF physicists have now discovered a new and better way to control the electrical properties of graphene – a single atom-layer of carbon that is the current material of choice for building future nano-electronics because of its exceptional electronic properties. While graphene is expected to push processing performance to speeds up to 100 times that of silicon-based electronics, the USF discovery will significantly advance graphene electronics.

The advancement in graphene electronics comes with the development of a process for making a onedimensional extended defect in a sheet of graphene that can serve as a tiny nanowire several atoms across. Because this defect has metallic properties, it conducts electricity well. Subsequently, the new graphene nanowire can be used as an interconnect or as a structural element in electronic devices.

The work of the USF physicists is reported in the current issue of *Nature Nanotechnology*.

"Silicon is up against a brick wall," says Matthias Batzill, an assistant professor in the Department of Physics. "Because current silicon-based devices will not function below the ten nanometer level, there is an urgent need for a new material that can be used in smaller, yet faster, electronic devices."

Graphene, derived from graphite, a natural crystal phase of carbon, appears to be the material that promises to replace silicon and make electronic devices smaller and faster, but only if the controllability issue can be dealt with. The discovery of nanowire embedded in graphene made by the USF team is a breakthrough in that effort.

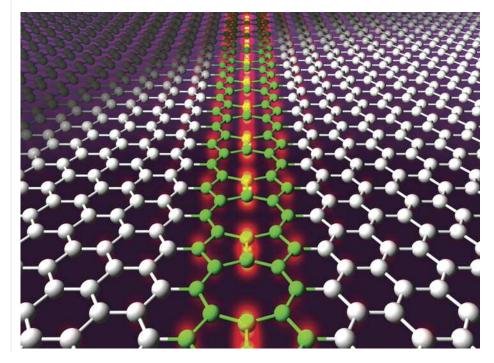
"The well-defined atomic structure of the nanowire embedded in an

atomically perfect graphene sheet can help address one of the biggest challenges of nanoelectronics – that is the formation of well-controlled contacts at the atomic level," says Ivan Oleynik, associate professor in the Department of Physics.

According to Batzill, it is the development of the scientific principles for controlled tuning of graphene's electronic properties by rearranging atoms at the nanoscale that makes their work significant.

Supported by the National Science Foundation, their work con-

Graphene appears to be the material that will overcome the fundamental physical limitations of silicon.



# {science}

tributes to the NSF initiative called "Science and Engineering Beyond Moore's Law." Postulated in 1965, Moore's Law states that computer processing power based on silicon technology doubles every 18 months. However, as silicon devices get smaller and smaller, they may start to become dysfunctional at the 10 nanometer size. Experts suspect that at this size limit, silicon circuits will start to leak electricity. Graphene may offer the solution to this problem, provided its conductivity can be altered in both a stable and controllable way.

"One way to tune the conductivity of graphene is by creating defects that are atomically stable," says Batzill.

Instead of cutting the sheet of graphene to make the defect, the USF research team put two sheets of graphene side by side, but not perfectly aligned, leaving a zigzag, atomically precise "defect" between them. The defect constitutes an atomic wire.

"The success of our process leaves us with two different functional possibilities for this new one-dimensional defect," concludes Oleynik. "We can use the defect as an interconnect, or a wire, for conducting electricity, or create something that can be used in building novel device architecture."

The research team also included graduate student Jayeeta Lahiri, undergraduate student Pinar Bozkurt and postdoctoral associate You Lin.



### Sea Slug Makes Chlorophyll Just Like a Plant

A slug that can photosynthesize? It's no joke says USF biology professor Sidney K. Pierce, whose findings made headlines around the world and even inspired a song.

Pierce, who has been studying the sea slug *Elysia chlorotica* for 20 years, goes a step further saying the slug has biochemical properties of both animals and plants. The slug has stolen enough genes from algae that it is able to synthesize chlorophyll, just like a plant. "They can make their energycontaining molecules without having to eat anything," Pierce says.

Pierce recently presented his findings at the annual meeting of the Society for Integrative and Comparative Biology – findings that grabbed headlines in media outlets including USA Today, U.S. News and World Report, Science *News, Technorati* and several other international publications.

The transferred genes, now part of the slug's DNA, get passed on to the next generation. Slug babies, when hatched, need only a big meal of chloroplast-rich algae to make the plant chemical-making pathway work. Once the chloroplasts are inside the cells in the sea slug's digestive system, the slug can make its own food by photosynthesis.

The findings have obvious implications for slug biology, but that's just the tip of the iceberg. Understanding the gene-grabbing process between species could have huge implications. "If we can figure this out," Pierce told the *Los Angeles Times*, "it may help not only with understanding evolution, but also with genetic engineering and gene therapy down the road."

# Petraeus Talk Caps Three-Day Conference on Afghanistan-Pakistan Challenges



GEN. DAVID PETRAEUS ADDRESSED INTERNATIONAL LEADERS AT THE USF MARSHALL STUDENT CENTER IN THE SPRING. IN JUNE, PETRAEUS WAS NAMED THE TOP U.S. MILITARY COMMANDER IN AFGHANISTAN.

#### **By Vickie Chachere**

ouched by the conflicts and challenges in the volatile Afghanistan-Pakistan region, they came from as far away as Kaubl and from every walk of life: health care providers, diplomats, human rights activists and military leaders, including Central Command's Gen. David Petraeus.

USF's globally-leading, three-day examination of the deep problems and potential of the region drew an unprecedented crowd of international leaders to campus. The event was capped by an hour-long talk by the general who is leading American military efforts in the region.

"Those of us who have been in this business don't use terms like optimist or pessimist," Petraeus told a standing-room only audience of more than 750 in the Marshall Student Center's Oval Theater. "We're realists. And the reality is that it is all hard and it's hard all the time. That is true of Afghanistan, very, very much."



# {leadership}



USF hosted more than two dozen of the world's leading authorities on Afghanistan and Pakistan in the public event, which explored challenges and opportunities in the region. More than eight years after U.S. forces invaded Afghanistan, the region remains a volatile and important one in the fight against terrorist extremism.

"The importance of Afghanistan and Pakistan to American national security is irrefutably profound," said conference co-organizer Mohsen Milani, chair of USF's Department of Government and International Affairs and an internationally renowned scholar on the region.

USF organized the conference as a means of advancing discussion on the development of future regional policy, with a particular emphasis on health care as a key component for human security in the region.

"Public health plays a major role in creating a stable Afghanistan-Pakistan region," said conference co-organizer Tom Mason, an epidemiologist in USF's College of Public Health. "Without good health, people are not only susceptible to disease but also to manipulation. By addressing health needs we can achieve recognition as a caring society, which is committed to providing care to all."

Among the dignitaries attending were Kevin McGurgan, British Consul-General in Miami and former U.S. Ambassador to Afghanistan Ronald Neumann. Panel discussions explored the role of global actors such as China, Russia and Iran in the region, and focused on the status of women in Afghanistan.

Neumann told participants it is unreasonable to expect the world's fourth poorest nation, which has seen governments come and go in decades of bloody turmoil, to have an effective and efficient government in a year. But he also remained optimistic that the Afghan people can slowly secure a stable nation.

"Progress, if it comes, will be incremental, it will have setbacks," he said.



### About Moshen Milani

Born in Tehran, Government and International Affairs Chair Mohsen Milani (PhD University of Southern California) has kept his finger on the pulse of Iranian politics and society throughout his career. His The Making of Iran's Islamic Revolution is required reading in many universities in the United States, Europe, Japan and Canada as well as Iran. He has also written over 50 academic articles. book chapters and encyclopedia entries about the Persian Gulf, Iran's revolution, and Iranian foreign policy. His breadth of knowledge on these matters makes Milani a much soughtafter expert. He is a frequent speaker at international and national conferences and has been interviewed or auoted in The New York Times. The Wall Street Journal, Le Monde, The Economist and Der Spiegel, among many others on a list that spans the globe. Most recently, the internationally recognized scholar has testified before a Congressional committee about Iran's policy toward Venezuela.

PROFILE BY BARBARA MELENDEZ

# Researcher Focuses on Most Forgotten of All Populations

### By Ann Carney

uduburam is a refugee camp in the west African nation of Ghana. Established in 1990 to accommodate Liberian refugees fleeing civil unrest and persecution, it was originally designed to meet the most basic human needs of 5,000 refugees.

Today, the camp teems with more than 20,000 people forced to leave their homeland – to live in temporary shelters while they wait, and hope, to restart their lives.

While daily life in an African refugee camp is something Americans can't even begin to imagine, Buduburam was the ideal place for USF Sarasota-Manatee's Lynn McBrien to put her academic research into context.

A social foundations professor and qualitative researcher, McBrien has spent the last eight years studying the unique challenges faced by resettled refugees. In particular, she has focused on students enrolled in the U.S. school system who, on a daily basis, confront poverty, discrimination, difficulty making friends, and often misguided treatment by teachers who do not understand the refugee experience.

"I have come to believe that refugees are among the most forgotten and misunderstood of all populations in the world," says McBrien.

McBrien's research focuses on the resettlement phase of the refugee experience. Her recent travels, however, enabled her to take one step back – to the temporary settlement phase. It was McBrien's first visit to the camp where she observed students in three of the camp's 20 schools, took copious notes, spoke with teachers, and conducted a preliminary needs assessment.

STUDENTS AT THE CAROLYN MILLER SCHOOL IN BUDUBURAM CELEBRATE SUCCESS WITH USF SARASOTA-MANATEE PROFESSOR LYNN MCBRIEN.



# {world}

"I believe context is critical to understanding," she says of her trip, which was funded in part by a grant from the Dr. Kiran C. Patel Center for Global Solutions. "Buduburam gave me a greater understanding of resettled refugees.

"It was amazing to see the capability of students with next to nothing developing their own talent," she says, adding that, remarkably, the students in Buduburam were on level with U.S. students.

"They learn by rote. Most students have no textbooks or computer facilities. Their dedication to education is really inspiring."

While many of the camp's refugees dream of being permanently resettled in America, most never will. In fact, less than one percent of the world's refugees typically get resettled, says McBrien. The rest remain in temporary settlements or are returned to their homeland if it becomes safe.

For the ones who do get resettled, the challenges are monumental – navigating a new culture and language.

And that's where some of McBrien's most important work comes in – work that allows her to blend her passion for education and human rights issues. Work like teaching teachers about diverse populations and identity struggles.

As an educator and researcher, she says, "I am able to continue my research in social justice and have the joy of teaching teachers about caring for all students."

Students like the ones in Buduburam.

### USF Prepares International Teachers for Global World

n her native Argentina, Mabel Tisera de Salas teaches in a high school where there's just a blackboard on the wall and no computers. Students get to school the old-fashioned way – on foot. Her colleague, Konstantin Stolbov – from across the world in Russia – teaches in a math and science high school founded by a Nobel laureate. Students in the school are hand-selected for their advanced academics.

The teachers are among 24 high school teachers from nations as diverse as Bangladesh and Poland who took part in a new program led by the Dr. Kiran C. Patel Center for Global Solutions and the Department of Secondary Education in USF's College of Education. Over six



countries and the teachers from our participating schools in Hillsborough County will gain a mutual understanding of effective teaching practices," says Patel Center director Mark Amen. "The goal is to develop a better-informed global citizenry among the students with whom these teachers work on a daily basis."

The inside-look at American high schools will help the teachers prepare

### "The goal is to develop a better-informed global citizenry among the students with whom these teachers work on a daily basis."

### - MARK AMEN

weeks they studied new ways to prepare their students for a globalized world. And they spent two weeks in local high schools working with Hillsborough County teachers.

Organizers of the program, sponsored by the U.S. State Department and the International Research & Exchanges Board, hope to create a collaboration of teachers that will enhance worldwide education in an increasingly interconnected society.

"We hope the teachers from these 12

their students to interact and compete with students from the U.S. The visiting teachers learned how to adapt their techniques to the more casual, inquisitive and interactive American style of learning.

"We have to understand Western cultures better," says Anzhelika Dziubko, a teacher from the Ukraine. "The better I can teach them about your culture, the better I can prepare the future generation for integration."

# Building Student Success

New facilities will transform the academic landscape.

### By Mary Beth Erskine

andscapes are transforming throughout the USF System. It's exciting news for students and faculty anxious for additional room for teaching, research, interdisciplinary collaboration and artistic endeavors. It's also been good news for the local economy, adding approximately 1,000 jobs related to the planning and construction of the projects.

For an institution that continues to solidify its position on the national stage as a top-tier metropolitan research university, however, the transformation goes well beyond steel, glass and concrete.

"Providing state-of-the-art learning facilities and spaces that promote the generation



of new knowledge through research, scholarly and creative activity is essential to fulfilling USF's strategic priorities," says USF President Judy Genshaft.

In recent years, enrollment growth on the Tampa campus has resulted in greater strain on the university's physical infrastructure, according to Provost and Executive Vice President Ralph Wilcox. "These long-awaited facilities will allow USF to better meet the needs of students by delivering a broader array of classes each semester and allowing for acceleration to degree – contributing to the highly skilled and educated workforce in the state of Florida," he says. "At the same time, they will support state-of-the-art facilities for performance in music and new

### Interdisciplinary Science Teaching & Research Facility

Designed to promote interdisciplinary research and teaching, this facility will support physics, chemistry and biology programs by boosting available classroom and lab space. It will be the largest building on campus at 238,500 square feet, surpassing the new Marshall Student Center by 5,500 square feet.

Completion:	August 2011
Key Features:	Two 300-seat auditoriums
	■ 45 labs

scholarship and research opportunities."

New academic spaces will create interdisciplinary learning communities bringing students and faculty together from across departments and colleges to work collaboratively to create global solutions to society's most complex problems. New and expanded athletic, recreational and dining facilities will enrich opportunities for students to become more fully engaged with the campus community.

As the doors of the new facilities open during the coming months, so do the doors to new opportunities to attract the best and the brightest students and faculty. "Recruiting and cultivating intellectual talent in the ever-more global marketplace of ideas is, in large part, dependent upon USF's ability to provide professors and students with state-of-the-art research and learning environments," says Wilcox, "environments in which they can thrive and realize their fullest intellectual and creative potential."

Places where they can achieve their goals and dreams.



### **Music Teaching and Performance Building**

With a signature concert hall engineered to produce the most sophisticated sound in the Tampa Bay area, the College of The Arts' new 103,000-square-foot Music Teaching and Performance Building will significantly change the college's musical landscape. Through its combined performance halls, teaching rooms and rehearsal spaces that meet superb acoustical and technological standards, the facility will enhance the college's reputation as a leader in music education and performance.

#### Completion: January 2011

Key Features:

- 500-seat concert hall with state-of-the-art acoustics
- 100-seat student recital hall
- Instrumental, chorus and jazz rehearsal rooms
- Electronic piano lab, composition lab



## Dr. Kiran C. Patel Center for Global Solutions

Established in 2005 as a results-oriented research center, the Patel Center focuses on improving the living conditions of the world's most vulnerable within a context of cultural and environmental sensitivity. The 71,700-squarefoot facility – made possible by a lead gift from Pallavi and Kiran C. Patel – will provide space for international programs such as the Graduate Center for Sustainable Healthy Communities, the International Affairs Center, the Confucius Institute and the Center for India Studies.

#### Completion: December 2010

Key Features:

 Will be first "green" building on Tampa campus
240-seat auditorium
State-of-the-art teleconferencing, audio/visual communications





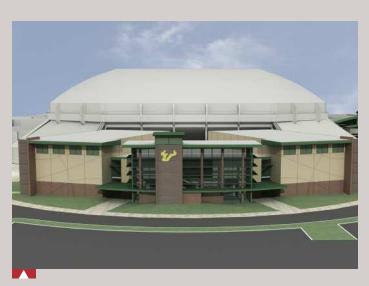
### **Campus Recreation Center Expansion and Southeast Student Dining Facility**

At its most fundamental level, student success begins with a healthy mind and body. Renovation and a 51,100-square-foot expansion of the current Campus Recreation Center will enhance opportunities for students to take responsibility for their own physical and psychological health through increased broad-based programming.

#### Completion: July 2011

Key Features: 250-seat, buffet-style dining facility

- Meeting and classroom space
- Basketball gym with 480-foot suspended, above-court running track



### Pam and Les Muma Basketball Center

Made possible by a lead gift from Pam and Les Muma, the new 50,000square-foot basketball center is the first step in the transformation of USF's Athletics District. Enhancements will include construction of new baseball and softball stadiums, a new football practice field, and new recreation fields.

#### Completion: December 2010

Key Features: Two practice courts

- Player locker rooms and lounges
- Two video/film theaters
- Joint weight room for both basketball programs



### Science & Technology Building - USF St. Petersburg

Completed earlier this year and located at USF St. Petersburg, the Science & Technology Building is the first LEED-certified building in the USF System. The 35,000-square-foot facility provided space for 76 classes during the Spring 2010 semester. The facility's teaching and research labs will enhance both undergraduate and graduate Environmental Science and Policy programs, as well as the pre-medical and pre-health sciences tracks.

Key Features: Eight classrooms and one seminar room Four instructional labs, five marine

- science research labs
- Study area

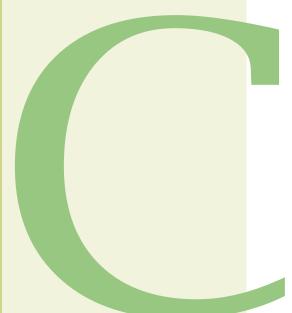
WITH DIABETES

A new USF center aims to help young people with a chronic illness live healthy, active lives.

By LISA GREENE

Photos by ERIC YOUNGHANS

USF MAGAZINE | SPRING & SUMMER 2010 29



USF IS LAUNCHING THE PROGRAM WITH A \$5.66 MILLION *USF: UNSTOPPABLE CAMPAIGN* GIFT FROM THE PATTERSON FOUNDATION. THE PROJECT WILL START BY FOCUSING ON DIABETES, ESPECIALLY IN HELPING PEOPLE TRANSITION THROUGH IMPORTANT LIFE STAGES. arly Stagg is 14, but she sleeps with a baby monitor in her room. Just in case.

It's part of the constant struggle that 14-year-old Carly and her parents, Tampa residents Micky and Steve Stagg, face as they negotiate life with a chronic disease. When is too much protection stifling? When is trust dangerous? How do you let your child grow up without letting her get hurt?

If all those questions are part of growing up for every teen, they are multiplied for teens like Carly, who was diagnosed two years ago with Type 1 diabetes.

"My mom wants to make sure that I'm healthy, but I also want to be a little more independent," Carly says. "It's hard for teenagers who have diabetes to be independent and still take care of themselves."

A new project at USF Health aims to help families with those questions, as well as other issues. Called "Bringing Science Home," the initiative aims to develop new ways of learning and caring to help people with chronic illness approach their lives optimistically. Carly is part of a group of teens helping the project take shape.

USF Health is launching the program with a \$5.66 million gift from The Patterson Foundation, a charitable foundation based in Sarasota.

The project will start by focusing on diabetes, especially in helping people

transition through important life stages, such as Carly's quest for more independence. It will train health professionals to look at diabetes outside the clinic and help families navigate how the stress of a chronic disease can affect family dynamics. Eventually, Bringing Science Home will expand to looking at other chronic illnesses, such as asthma and arthritis.

"I'm delighted that The Patterson Foundation has chosen to join with us to help people with chronic illness take an optimistic approach to their health," says Dr. Stephen Klasko, dean of the USF College of Medicine and CEO of USF Health. "With Bringing Science Home, we will take health beyond the traditional confines of a doctor's office and help people bring tools for better health to every aspect of their lives. It will be like giving each person diagnosed with Type 1 diabetes an 'invisible friend' at USF Health."

Through its gift, The Patterson Foundation aims to transform the way people with chronic illness see themselves, says Debra Jacobs, president and CEO of the foundation.

"My hope is that as we partner with the University of South Florida, we will be able to create new realities of dealing with chronic disease," Jacobs says. "We hope that patients will learn how they can manage the disease, instead of the disease controlling their lives."

The project aims to give people with diabetes a new outlook on their lives, according to Nicole Johnson, executive director of Bringing Science Home.

"Bringing Science Home is all about getting into the heart and soul of people with diabetes and other chronic diseases," Johnson says. "We want to understand their challenges, understand their frustrations, understand their daily regime and all the things that they go through, and then figure out: What is it that they need? How do

### **USF: UNSTOPPABLE**

The Patterson Foundation grant is a gift to the *USF: Unstoppable Campaign* – USF's comprehensive fundraising effort to celebrate the energy, vision and future of one of the country's most exciting and engaged universities.

In other campaign news, USF alumnus Tom Kennedy ('73) and his wife, Trish, have given a \$3 million gift to benefit three USF colleges. The Harwich, MA couple designated the gift to be equally divided among the College of The Arts, the College of Business Center for Entrepreneurship and the College of Medicine Department of Orthopaedics and Sports Medicine. The gift may be eligible for a 100 percent state match.



Tom, who serves as a member of the USF Foundation Board, is among USF's most accomplished alumni. He is the co-founder of Cape Cod-based BackOffice Associates with his wife and co-partner, Trish. The company is one of the largest data migration companies in the world and lists among its clients Johnson & Johnson, Bristol-Myers Squibb and the U.S. Postal Service.

To date, the *USF: Unstoppable Campaign* has raised more than \$356 million of its \$600 million goal.

we bring something to them that helps them live more optimistically, and in a more empowered fashion?"

With a chronic disease like diabetes, those questions affect every moment of the day, said Micky Stagg as she watched her daughter practicing her golf swing. Even as she sat next to a glistening golf green, Stagg's worries remained close at hand. Should she rely on Carly to check her own blood sugar? Watch her own diet? What about going to friends' houses and outings?

Micky Stagg knows other parents who are more restrictive. She doesn't want to go too far – but she doesn't want to risk Carly's health. The Staggs agreed on the baby monitor after Carly had blood-sugar lows when she could do little more than call for help.

They know how dangerous such episodes can be. Carly nearly died before she was diagnosed.

"It's that struggle between childhood and independence," Micky says. "But with a chronic disease, there's a lot more on the line."

Johnson understands those issues firsthand, as she was diagnosed with Type 1 diabetes when she was a 19year-old USF student.

"It was terrifying," Johnson says. "It was an awful experience. At that time, diabetes wasn't very well-known. It wasn't popular, and people really didn't talk about living with it."

Nobody told Johnson about what she could do with diabetes. What she heard instead was everything she couldn't.

"I was told that I had to drop out of college," she says. "I was told I would

never have a career. That I would never become a mother. And that I should certainly never participate in a high-stress competitive environment like Miss America."

Johnson went on to become Miss America 1999 and now is the mother of 4-year-old Ava. As Johnson gets the project started, she pays close attention to Bringing Science Home's Teen Advisory Board, a group that includes Carly Stagg.

"The beautiful part about having the teens on the project is that they're telling what they want – and what they don't want," Johnson says. "There's a maturity to these teens that is so impressive. So much has been demanded of them at an early age because of their disease that they have a perspective that often takes years to gain."

And it's a perspective that is rarely sought, said 16-year-old Laura Bernstein, another member of Bringing Science Home's teen board. Too often, the only thing health professionals want to know about her is where her blood sugar level registers.

"I go for a check-up and the doctor looks at the numbers," Laura says. "It would be nice to have a specialist who knows how to deal with diabetes in real life."

Bringing Science Home has other plans as well. One of the project's top priorities will be to explore and develop new technologies to help people with diabetes. Laura, Carly and other teens get frustrated by having to carry so many different devices. Why can't their insulin pump also act as a sensor for their blood sugar levels? Why can't they have a cell phone do it? Shouldn't there be an app for that?

They want technology to help them connect with each other, with better online communities to ease the isolation of being different.

"I don't let it stop me, but it's hard," says Laura. "Kids see me at school and they think my pump is a cell phone. I eat in class sometimes and everyone looks at me like, 'What's wrong with her? Special privileges."

And if there's one thing these teens don't want, it's special treatment and its handmaiden: pity.

"When you have diabetes, you aren't really that different," says Carly. "You just have to deal with problems in a different way. And people who don't have diabetes need to understand that."

That's the kind of advice that Johnson wants to hear as Bringing Science Home charts its course.

"It's a principle of public health to have your audience engaged and involved in program planning," says Johnson, who holds a Master of Public Health degree and is working toward her doctorate. "Hopefully their involvement helps keep us from missteps."

Johnson hopes to encourage more teens with diabetes to live active, optimistic lives. That's why she likes to see Carly Stagg's passion for golf. Carly sees her golf lessons as a positive activity that takes her away from thoughts of illness.

"I feel like it's an outlet for energy, so I can really put my energy and thought into having to play golf," Carly says. Carly and her father recently saw actor Michael J. Fox play at the Outback Steakhouse Pro-Am Tournament in Lutz.

"It was really an inspiration to see him hit, because it was really hard for him, and he wasn't afraid of what people would think," Carly says. "He tried his best anyway. I thought if he can do that with Parkinson's, then I can do that with diabetes."

She thought it over.

"I don't want it to hold me back," she adds. "And I am not going to let it." THE PROJECT AIMS TO GIVE PEOPLE WITH DIABETES A NEW OUTLOOK ON THEIR LIVES, ACCORDING TO NICOLE JOHNSON, EXECUTIVE DIRECTOR OF BRINGING SCIENCE HOME.

# TRACKING THE



quarter-mile beneath the surface of the Gulf of Mexico, the water normally runs clean and cold. In happier times, it was seen as the playground of giant sperm whales, tiny plankton and the

regal and endangered bluefin tuna.

But on this day some four weeks into the Gulf oil disaster, the R/V Weatherbird II sliced through northern Gulf waters as reddish-brown oil floated in thick, mousse-like clumps. USF marine biologist Ernst Peebles dipped a container into the depths and saw something he'd never seen in a lifetime spent on these waters.

"What we see on the surface is not the entire story," Peebles said after reaching shore at USF's College of Marine Science at the end of the six-day mission aboard the university's cutting-edge marine research vessel.

"There was a distinct layer of invisibly small particles at depth. We're not talking about big globs of black oil. If you

pulled up a jar-full, it would look like clean sea water. But there were layers down there, and they are consistent with these particles being oil."

Laboratory tests would soon determine that the layer was, in fact, oil – possibly some of the estimated 100 million gallons that flowed into the Gulf of Mexico from the Deepwater Horizon spill by the middle of June. The blowout has become the nation's largest environmental disaster, stunned the Gulf Coast and left Florida reeling from the potential destruction of its pristine shorelines and greatest natural and economic resource.

But what is disturbing is not just the oil that scientists could see; it is the oil that couldn't be seen with the naked eye that now clouds the Gulf waters and presents unknown dangers to marine life. USF produced the nation's first scientific confirmation that microscopic particles of oil are suspended in the depths of the Gulf waters, adding an entirely new aspect to the potential environmental impact of the Deepwater Horizon spill.



RESEARCHERS IN THE COLLEGE OF MARINE SCIENCE ARE WORKING TIRELESSLY TO GAUGE THE SPILL'S IMPACT AND TO PREDICT WHERE THE SLICK WILL GO. "There is marine life down there that most people are not aware of – including species little-known even to scientists. This ecosystem is not irrelevant."

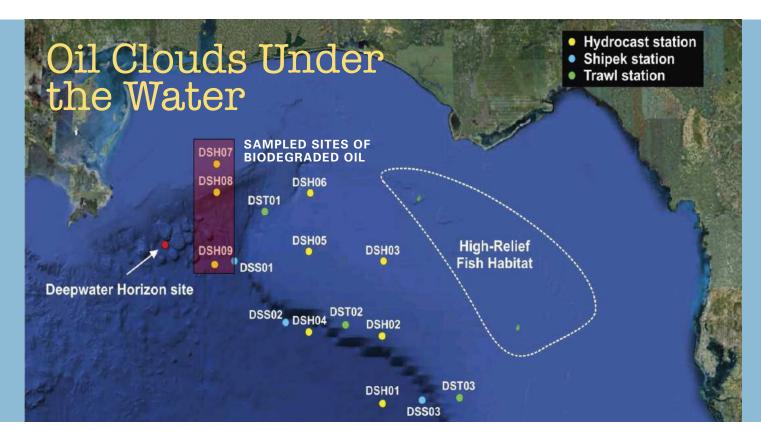
- Ernst Peebles

"We are in uncharted territory. There could be no harm – nature could adapt. That would be the bestcase scenario," says College of Marine Science Dean William Hogarth, an expert on fisheries. "But the oil could also work its way up the food chain – through the fish larvae and zooplankton and the larger organisms that feed on that. The worstcase scenario would be the collapse of the food chain."

Within days of the rig explosion off the Louisiana coast, USF's College of Marine Science was thrust into the international spotlight as a leading scientific authority on the oil spill. Within weeks, images from the Ocean Circulation Group's projections became regular features on evening newscasts.

The opportunity to apply their scientific expertise was unexpected, but faculty, researchers and students were not unprepared. Ocean circulation expert Robert Weisberg, a distinguished professor of physical oceanography, produced the first models that showed precise forecasts of where the oil would go given the complex current and wind movements in the Gulf. Weisberg's models also would help scientists find the underwater clouds of oil, some more than a half-mile beneath the Gulf's surface.

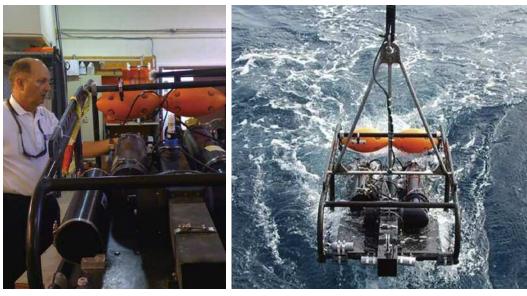
As the fingers of oil began to spread through the northern Gulf, the first of what would be three research cruises staged by the College of Marine Science were well under way. On May 5, the *Weatherbird II* set off for the first of its two cruises into the spill, carrying researchers to study the impact of the oil on marine life and to deploy USF's unique underwater imaging system, the SIPPER. The system produces clear images of microscopic plankton deep



below the water's surface, and on this mission, would also produce images of microscopic droplets of toxic oil. The second cruise – during which the underwater clouds of oil were found – followed on May 22.

As the days ticked by – and the gushing oil continued at break-neck speed – labs ran around the clock to process water samples from the Gulf and unlock the secret of the spill's impact. Weisberg and marine biologist Frank Muller-Karger were called to Washington to testify before Congress on shortcomings in the nation's research capabilities which now, in a moment of crisis, are even more glaring.

"When it comes to your own backyard," Weisberg told the Associated Press, "it's essential that there is a presence by the people who live there."

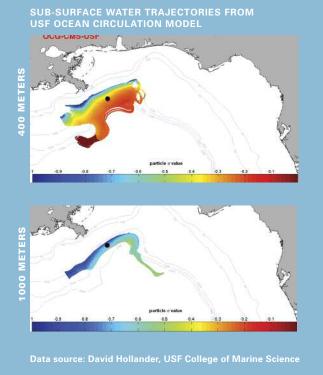


USF SCIENTISTS USE THE SHADOWED IMAGE PARTICLE PROFILING EVALUATION RECORDER (SIPPER) TO VIEW PLANKTON AND SUSPENDED PARTICLES IN THE OCEAN. THE UNDERWATER IMAGING SYSTEM USES HIGH-SPEED DIGITAL LINE-SCAN CAMERAS AND SOFTWARE TO CON-TINUOUSLY VIEW AND CLASSIFY THOUSANDS OF IMAGES IN A SHORT PERIOD OF TIME.

### Little College, Big Talent

A year ago, USF marine science researchers would never have imagined they'd be at the center of the nation's largest environmental disaster. Situated on a peaceful, 11-acre peninsula with breathtaking views of Bayboro Harbor, the halls of the C.W. Bill Young Marine Science complex are usually quiet, save the occasional smacking sound of a flip-flop-wearing scientist heading to a laboratory.

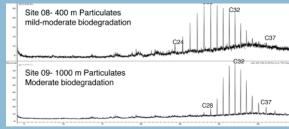
But over the years, the college has quietly amassed a faculty with worldrenowned expertise. Hogarth, a former director of the National Marine Fisheries



LARGE GRAPHIC: SITES THAT WERE SAMPLED BY THE *WEATHERBIRD II* ON ITS MAY 22-28 VOYAGE WHERE SONAR, GLIDERS AND INSTRUMENTS WERE USED TO FIND THE UNDERWATER CLOUDS OF OIL.

SUB-SURFACE GRAPHICS: OCEAN CIRCULATION EXPERT ROBERT WEIS-BERG'S OCEAN CIRCULATION MODELS WERE INSTRUMENTAL IN LEADING SCIENTISTS TO AN AREA NORTHEAST OF THE DEEPWATER HORIZON WELL WHERE UNDERWATER CLOUDS OF DEGRADED OIL WERE FOUND MORE THAN A QUARTER-MILE BELOW THE GULF'S SURFACE. A SECOND UNDERWATER CLOUD WAS FOUND 1000 METERS UNDER WATER.

FINGERPRINTS: THE SAMPLES TAKEN FROM THE DEEPWATER HORIZON SITE BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION WERE A CHEMICAL MATCH WITH OIL RECOVERED ON THE SURFACE OF THE GULF USF SCIENTISTS CONTINUE TO WORK ON MATCHING DEEP OIL CLOUDS TO THE BP WELL.



and chairman of the International Whaling Commission, leads the college.

Some of the faculty's expertise in oil spills dates back to the 1979 Ixtoc-1 spill that dumped some 138 million gallons into the Gulf's waters. Other faculty members have lent their scientific skills to understanding other national tragedies. Weisberg was a member of the National Academies panel that studied the failure of the New Orleans levees after Hurricane Katrina. Just last year, optical oceanographer Chuanmin Hu drew international acclaim for discovering that silvery glints on NASA satellite images that for years had been dismissed by scientists were in fact oil seeps in the Gulf - a discovery glaringly reinforced by shocking images that showed the spill growing from three times the size of Lake Okeechobee to more than twice the size of Rhode Island.

The college has relied on five key pillars in its program: ocean monitor-

ing systems that explain how water and oil move in the Gulf; marine biologists who explain what is happening to ocean organisms; chemical oceanographers who unlock the secrets of what can happen when sea water, oil and dispersants mix; the Center for Ocean Technology which builds and maintains cutting-edge scientific instruments; and the Florida Institute of Oceanography, the entity created by the Florida State University System to staff and maintain the research vessels on behalf of the state's marine research community.

The sense that the college needed to respond to the unfolding emergency was immediate, says Peebles, who led both *Weatherbird II* missions. Not only is oil gushing into the Gulf, but the unprecedented use of chemical dispersants calls out for answers based on sound science, he says.

"There is marine life down there that most people are not aware of –

including species little-known even to scientists," Peebles says. "This ecosystem is not irrelevant."

Gathering the water samples was just the first part of the equation. When three separate instruments aboard the *Weatherbird II* – the ship's sonar, a fluorometer and a glider – signaled the presence of underwater oil, the task of confirming the readings fell to chemical oceanographer David Hollander. Hollander and his fellow chemists soon found themselves cast in the role of forensic scientists.

"We were truly discovering and witnessing things that had never been seen before," Hollander says. "This is impacting the region we know least about in the world – which is the deep ocean. There are all kinds of things we know could be lost in this spill. Even sadder is the loss of things we didn't know existed."

Also key to the research efforts have been the captains and crews of



USF'S ERNST PEEBLES AND BILL HABICH OF THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC), HOLD A RAT FISH CAPTURED ON THE SECOND CRUISE OF THE *WEATHERBIRD II*. SCIENTISTS FROM THE FWC PARTNERED WITH USF ON BOTH *WEATHERBIRD II* CRUISES.

PHOTOS: CANDACE C. MUNDY (PEEBLES, WHITE); JOSEPH GAMBLE (WEISBERG, HOLLANDER, HU)

USF SCIENTISTS ROBERT WEISBERG, DAVID HOLLANDER, CHUANMIN HU AND MATTHEW WHITE

the *R/V Weatherbird II* and the *R/V Bellows*, which also carried USF scientists to the Loop Current and later, scientists from Florida State and the University of West Florida on separate spill-related missions.

It is up to the crew to get scientists to the spill and back safely and to deploy the heavy ocean-going instruments which allow scientists to gather the water, particulate and plankton samples and images they need.

Marine biologist David Jones, who was a member of the first *Weatherbird II* scientific team, recounted how, as the vessel traveled within a half-mile of the ruptured wellhead, the blue waters of the Gulf turned muddy-looking, then dark brown and then black with oil. The *Weatherbird II* crew and the scientists worked in noxious fumes for hours on end, handling dangerous, swinging gear in six to seven-foot seas to gather the water samples that will play an important role in determining the extent of damage to the ecosystem.

"It's a tragic event," says *Weatherbird II* Capt. Matthew White. "You see the pictures on TV from a thousand feet up and you get there and you see it and you are cruising for 20 miles and you see different thicknesses of oil. It is very large."

### Florida Joins Forces

USF's work came in conjunction with its 11 sister Florida universities. The Florida Board of Governors quickly formed the Oil Spill Academic Task Force to work as a cooperative in oil-related research and as means of planning for a scientific response to the spill, which could easily last a decade or more after the gushing well is capped.

"It's not only science, it's public policy, tourism, economics and legal issues," says Ross Ellington, Florida State University's vice president for research who chairs the academic task force. "We have more than 250 faculty with a spectrum of expertise. This is a very complex problem that can't be solved with a narrow focus."

Researchers say they cannot speculate on what impact the spill will have on the Gulf – its unprecedented size, the use of dispersants and the complexities of deep ocean chemistry and currents are just the start of the mystery. At press time, the oil was still flowing from the well and it is only when the gusher is stopped that scientists can begin to assess the potential damage to this fragile and unique ecosystem.

But given its unique position and the depth of skills and talents, there is no question that USF's College of Marine Science has cemented itself as a leading voice in the science of the spill.

# **Dedicated Scientists**

t takes teams of researchers, engineers and technicians working nonstop for weeks to do the kind of pioneering L science USF's College of Marine Science has undertaken since the explosion of the Deepwater Horizon oil rig. While some USF scientists have become familiar faces on the evening news, others - like researcher David Jones, geological oceanographer David Naar and marine biogeochemist Paula Coble - were quiet leaders. Researcher Drew Remsen operated the SIPPER on the first RV/ Weatherbird II cruise only to turn around and deploy on the NOAA's *R/V Gordon Gunter*. Doctoral students Greg Ellis and Elon Malkin collected the important oil samples in the depths of the Gulf and, along with research associate Ethan Goddard, conducted the extensive lab tests that redefined the BP oil spill. Tracking the spill has required many hands: Brock Murch, a computer systems engineer,

played a vital role in obtaining and processing NASA imagery so the public could have access to it. In the Ocean Circulation Group, associate research scientists Yonggang Liu and Lianyuan Zheng tracked surface and subsurface oil using state-of-the-art ocean circulation models through long days, nights and weekends, while senior technician Jay Law deployed drifters and maintained buoys, and Clifford Merz maintained radar systems. All the data acquisition systems and model simulations needed to provide the public with accurate forecasts required the efforts of Jeff Donovan, Vembu Subramanian, Patrick Smith and Dennis Mayer. And on the *Weatherbird II*, Brian Donahue acted as the ship's technician and "deck boss" on a crew that was instrumental in deploying the scientific tools scientists needed to understand what has become the worst environmental disaster in U.S. history.

# Selvie Ends College Career on a Familiar Note

### **By Chris Freet**

N MANY WAYS IT WAS FITTING that another record was broken when George Selvie was taken in the seventh round of the 2010 NFL Draft.

Selvie made a career out of breaking records while playing for the USF football team. On the final day of the draft, Selvie became the fifth Bull selected by an NFL team when the St. Louis Rams chose the two-time All-American.

Selvie joined fellow defensive lineman Jason Pierre-Paul, who was chosen

with the 15th overall pick by the New York Giants and heads to the 'Big Apple' as the highest draftee in USF history. Also part of the history-making class were safety Nate Allen in the second round to the Philadelphia Eagles, cornerback Jerome Murphy in the

**IN APRIL, JASON PIERRE-PAUL BECAME THE HIGHEST DRAFT PICK IN USF HISTORY.** 

third round to the Rams, and wide receiver Carlton Mitchell in the sixth round to the Cleveland Browns.

The previous record for USF draft picks was three players chosen in 2001 and 2003.

Perhaps the most decorated player ever to don the Green and Gold. Selvie was twice honored as an All-American. In 2007, he was a consensus selection, and in 2008, the American Football Coaches Association hand-picked him. He currently stands



as USF's only two-time All-American. Selvie had

perhaps the

greatest defensive season in USF history his sophomore year (2007) when he was named the BIG EAST Defensive Player of the Year and was a finalist for the Ted Hendricks Award and the Bronko Nagurski Trophy. Selvie led the NCAA and fell half a tackle short of tying the NCAA all-time record for tackles for loss when he posted 31.5.

In addition, Selvie ranked second in the country in sacks with 14.5 and was named the Walter Camp Defensive Player of the Week after racking up five tackles for loss and three sacks against North Carolina. Selvie posted six tack-

### **USF'S ONLY TWO-TIME ALL-AMERICAN GEORGE SELVIE BECAME THE UNIVERSITY'S** FIFTH PICK OF THE 2010 NFL DRAFT.



### **History-Making 2010 NFL Draft**

Round	Sel#	Player	Position	Team
1	15	Jason Pierre-Paul	DE	New York Giants
2	37	Nate Allen	DB	Philadelphia Eagles
3	65	Jerome Murphy	СВ	St. Louis Rams
6	177	Carlton Mitchell	WR	Cleveland Browns
7	226	George Selvie	DE	St. Louis Rams

les for loss and four sacks in a win against Elon to begin the season.

In his senior season, Selvie, the team captain, and Pierre-Paul formed one of the most feared defensive lines in the country, finishing with 42 tackles, 9.5 tackles for loss, 3.5 sacks, seven quarterback hurries, two pass breakups and a forced fumble and fumble recovery. He was named to the Phil Steele All-BIG EAST First Team as well as the All-BIG EAST Second Team as named by the league's coaches.

For his career, Selvie finished as the all-time USF leader in tackles for loss with 69.5, sacks with 29 and forced fumbles with nine. Selvie also started more games than any other player in USF history with 50, competing in 51 all-together. The Pensacola, Fla., native also had 227 tackles, 32 quarterback hurries and five fumble recoveries during his time at USF.





### **Athletes Keep Academics in Focus**

or USF student-athletes, stellar performance isn't limited to the field of play. Stellar performance is what happens in the classroom as well.

During each of the last two spring semesters, the Department of Athletics posted a GPA of 3.0 or greater. That cumulative total was boosted most recently by 32 studentathletes posting a GPA of 4.0, and 224 student-athletes earning earned a GPA of at least 3.0. Eleven of USF's sports teams earned a combined 3.0 GPA for the 2009-10 academic year.

"Our student-athletes understand the importance of academic success during their time at USF," says Associate AD for Student Athlete Development Amy Perkins. "The data is a true reflection of all the hard work of our student-athletes and our staff of academic advisors and tutors."

Both the men's and women's soccer program established records for cumulative team GPA. The women's soccer team posted a cumulative GPA of 3.48, the best in program history. Seven players on the 32-member team posted 4.0 GPAs.

The 19-member men's soccer team registered a 3.24 GPA, led by 15 players with a 3.0 GPA or better. In fact, this year USF became just the second BIG EAST school to win the BIG EAST Male Scholar Athlete of the Year award in back-to-back years.

"Our academic support staff is the best in the country," says men's soccer head coach George Kiefer. "When we recruit student-athletes, we impress upon them the standards they must uphold on the field and in the classroom. The student-athletes on our team are now ingrained in the process of excelling academically."

# Max L. Bromley

### by Mary Beth Erskine

An expert in campus law enforcement, Max Bromley says universities have evolved into small cities with policing needs that mirror urban areas.

ax Bromley is a 35year veteran of USF's Criminology Department with 24 years of law enforcement and criminal justice experience. A nationally recognized expert on campus law enforcement, he can sum up quickly how changes in campus policing reflect the evolving climate on college campuses in recent decades.

"In the 1940s and '50s, college campuses were pretty secure and tranquil places," says Bromley. "In the '60s and '70s, Vietnam War protests affected campus environments, as did the tremendous influx of students due to the G.I. Bill. During the '80s and '90s, campuses grew dramatically, becoming larger and more complex and spawning increased crime rates."

Consequently, campus law enforcement has evolved from offices focused on security detail and student conduct issues to full-fledged police departments.

Since his entrée into law enforcement in 1972, Bromley, who was assistant chief of USF's University Police Department until 1996, has remained on the leading edge of campus policing, campus crime and crime prevention issues. Currently director of USF's Master of Arts in Criminal Justice Administration (MACJA) program, Bromley teaches students ranging from first-year undergraduates to seasoned criminal justice professionals, while lending his expertise at local, state and national levels. He chaired the USF president's campus security task force following 9/11, assisted in the development of a survey used by the U.S. Department of Justice to conduct the first national study of campus law enforcement departments, and participated in the Florida governor's task force for university campus safety, as well as the Florida attorney general's committee on campus law enforcement crime prevention training.

# USF: How did you become involved in campus law enforcement?

**Bromley**: As an undergraduate at FSU, I interned with the university's campus police department and, as a graduate student, I had an assistantship there under Bill Tanner, the "dean" of campus chiefs in the 1970s. Right from the beginning, it felt like the niche for me.

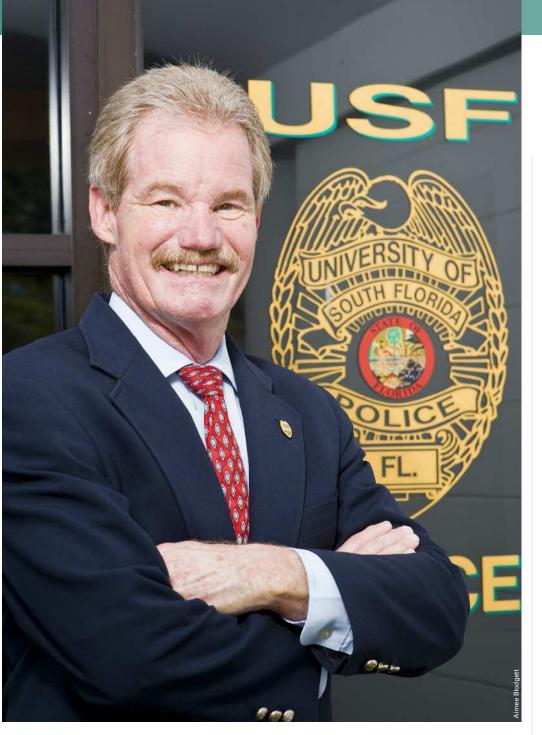
USF: What was the atmosphere like on college campuses when you started at USF in 1974? Bromley: That was the year Nixon resigned, and it was also the end of the Vietnam War, so there was still resistance to police on campus. It was not a really popular time to be in law enforcement. Chief Paul Uravich hired me and provided me unique opportunities. I came in as public education and information officer, so I worked with people like Phyllis Marshall in Student Affairs implementing crime prevention programs.

# USF: Describe the transition from police practitioner to instructor.

**Bromley**: I started teaching in 1975 while working in USF's Division of Public Safety. I was what I call a "prac-ademician." I enjoyed being in the classroom from day one. Lenny Territo, professor emeritus in criminology, taught me the importance of mentoring younger people. There's a gratification unlike anything else that you get from working with students and seeing them succeed.

# USF: How have changes on campus impacted campus policing?

**Bromley**: As more significant crime began to occur on college campuses during the 1970s, colleges upgraded the quality and professionalism of their personnel, transitioning from a "security" type mode to police departments. At the same time, campuses like USF were growing and becoming more complicated. USF is a sophisticated campus – a city within a city



with an elementary school, hospitals, stadiums, special events, and thousands of visitors – with all the related issues of a small city.

# USF: How has technology changed the campus policing landscape?

**Bromley**: The greatest changes have been the proliferation of computer systems and data bases offering access to virtually unlimited information, the use of high-tech video surveillance cameras, as well as key card access to buildings. Not only are the days of having 40,000 master keys gone, but these systems give us information such as who entered the building and when.

# USF: What effect did Virginia Tech have on higher education?

**Bromley**: It was a reminder that college campuses are not immune to horrible acts of violence – that there is no invisible shield around campuses.

USF: What effect did it have on campus police departments?

### **Quick Takes**

Best crime fighter of all time: Dick Tracy

Hero: My parents

Number of classes taught: 144

Favorite TV police show: NCIS

What you do to recharge: Attend sporting events with my wife, Debbie.

**Bromley**: It heightened awareness of the need for constant vigilance and increased training in response to active shooter situations, something that had been changing since Columbine. It also clarified the need to re-educate all campus constituents to pay attention to potential threats and red flag situations and to share information.

USF: Are college campuses safe? Bromley: While serious crimes do occur on college campuses, they are generally much safer than their surrounding communities.

USF: What're the most important lessons you teach your students? Bromley: I've been teaching American Law Enforcement for 25 years, and the first thing I tell students is to forget about what they see on television cop shows. Reality is quite different.



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USF GRADUATED ITS LARGEST-EVER CLASS IN THE SPRING, CONFERRING DEGREES ON 5,608 STUDENTS. CELEBRATING THEIR NEW STATUS ARE, FROM LEFT, LINDSAY SKILLMAN, B.S., MARKETING; TIFFANY PIQUET, B.S., BIOMEDICAL SCIENCES; GENINE MORTON, B.S., MARKETING; CARLA JOHNSON, B.S., ELECTRICAL ENGINEERING; AND MARK HARSHBARGER, B.A., INTERDISCIPLINARY SOCIAL SCIENCES.