CASTING LIGHT ON CANCER

ALSO FEATURED:

A NEW WAY TO DELIVER DRUGS

SHOWCASING A GENIUS

FIGHTING MODERN SLAVERY

GIVING RESEARCH A VOICE

DANCING TO THE SAME BEAT
features

Lights Fantastic  8
TCU Physics Professor Zygmunt (Karol) Gryczynski is using light-interacting substances called fluorophores to help doctors detect and treat cancer and other conditions.

Genius Finder  14
Art History Professor Babette Bohn showcases the mastery of Federico Barocci.

Giving Research a Voice  18
Professor Christopher Watts insists on evidence-based practice in speech-language pathology.

Team Work  11
Professors Jeffrey Coffer in chemistry and Giritdhar Akkaraju in biology are working together to deliver healing therapies using tiny bits of silicon.

Fighting Slavery  16
Political Science Professor Vanessa Boucé is bridging the gap between academics and law enforcement to stem human trafficking.

Dancing to the Same Beat  20
Professors Till Maclvor Meyn and Suki John team up to create a dance performance at home and abroad.

Endeavors is published by the Associate Provost for Research and the Division of Marketing & Communication. Stories represent a cross section of the research conducted at TCU. They were chosen to reflect the depth and breadth of inquiry in TCU’s eight colleges and schools.

Find us online at endeavors.tcu.edu, or call 817.257.6037. Send comments or address changes to: Editor, Endeavors, TCU Box 298940, Fort Worth, TX 76129

Copyright 2014 by Texas Christian University. Reproduction in whole or part without permission is prohibited.
The Texas horned lizard (Phrynosoma cornutum) has declined or disappeared over much of its former range in Texas. In Karnes County, however, horned lizards still live in parks, private yards, alleys and schoolyards of small towns.

Associate Professor of Biology Dean Williams and graduate student Ashley Wall are using a combination of radio telemetry, genetic analyses, vegetation sampling and habitat mapping to study horned lizards in Kenedy and Karnes City.

They hope to determine which natural or man-made habitat features may be important for horned lizards and how horned lizards use the patchwork of different habitats within small towns. An undergraduate student, Sharon Fronk, is also analyzing the DNA from horned lizard feces to determine the diet composition of horned lizards living in town.

“Given the increase in human modified habitats in Texas, understanding the factors that allow horned lizards to coexist with people will be useful for formulating management efforts that can be undertaken in the future to conserve horned lizards in Texas,” Williams says.

His research team uses eyelash glue and fishing line to make a collar that can hold radio antennas to the lizards so they can be tracked.

“We do this because they shed their skin a couple of times a year and the transmitter will fall off their backs,” Williams says. “The collar keeps it on long enough that we can reattach the transmitter.

“We then use a receiver with an antennae to pick up the signal, which is a series of beeps. These get louder as you get closer to the lizard – we can usually get to within a couple of feet of the lizard even if we cannot see it right away. They are so well camouflaged that even though we know they are within a space about the size of a desk top it can still take 10 to 15 minutes to actually see them (sometimes they bury themselves in the sand/grass).”

Researchers attached transmitters to 14 lizards this past summer and removed them in September. They mapped the lizards’ locations every day by finding them and taking a GPS reading.

“We will get the batteries replaced and use them again next year,” Williams adds. — Kathryn Hopper
READING BETWEEN THE LINES

Teachers use digital stories to engage students

Jan Lacina’s grandfather, who grew up speaking French Creole and Spanish, inspired her love of language.

Wanting to help multicultural children acquire reading skills, she spent six years as an ESL teacher prior to becoming a literacy and technology education specialist in higher education.

For five years, Lacina, now professor and associate dean of graduate studies at TCU’s College of Education, wrote a regular column on teaching with technology for the journal Childhood Education.

In 2012, she and former graduate student Sarah Matthews authored the article “Using Online Storybooks to Build Comprehension” for the same publication.

It went on to become the journal’s most-often downloaded article, summarizing the evolving field of literacy research and exploring print and online reading strategies aimed at elementary students.

With their mix of graphics, text, and narration, online storybooks give kids an opportunity to interact with the stories they are reading. From the availability of online dictionaries, which make defining words a snap, to a narrator’s clear pronunciation of new words, digital storybooks offer several methods to speed the learning process.

To motivate more reluctant learners, online storybooks often use celebrity narrators who make reading seem exciting. Because kids learn to read best in their native tongue, some storybook sites offer translations in more than 50 languages.

They also provide special effects like sound and animations to help students decode and comprehend text. Lacina says witnessing a tale come to life while simultaneously reading the words gives the stories rich context and depth.

Proven print-based literacy strategies, such as encouraging children to form personal connections to the text, still work wonders in any learning format.

“When a child reads a book where the main character is facing some of the same issues or life experiences,” Lacina says. “That child can better connect and be much more engaged with what he or she is reading.”

Reading skills boost academic performance across the board, but kids can learn far-reaching lessons through understanding stories. Reading “is a way to problem-solve situations in life. You can learn from characters and the mistakes they make,” she adds. — Caroline Collie

COMING FULL CIRCLE

Education professor explores feedback loop reasoning

A former biology teacher, Hayat Hokayem knows the value of student reasoning skills.

“Having several years of experience in the classroom, I recognize the importance of understanding how students reason because this could help develop successful curriculum and instruction design,” said Hokayem, assistant professor in science education at TCU’s Andrews Institute of Mathematics & Science Education.

“The learning progression is a promising framework that could help align the standards, instruction and assessment,” she says. “I am interested in contributing to the learning progression research by shedding light on one of the important relationships in ecosystems.”

Working with 44 students in first through fourth grade, Hokayem used semi-structured interviews to probe students’ reasoning of feedback loop relations. Her research was funded by a TCU junior faculty research summer grant.

The 2012 National Research Council framework describes feedback loop reasoning as “any mechanism in which a condition triggers some action that causes a change in that same condition.”

Hokayem researched feedback loop reasoning for predator-prey relationships to determine how elementary students reason about the dynamic relationship between predator and prey populations.

She said the study produced three findings:

• Very few students recognized the cyclic relationships among populations in a sustainable ecosystem.
• Very few identified both reproduction and food as the factors affecting population without predators.
• Students’ reasoning was inconsistent in both areas.

“Most of our participants identified either food or reproduction as the factor affecting population in a context where prey is missing,” she said. “Therefore, it is appropriate to teach elementary students to consider both factors when reasoning about change of predatory population.”

Her work is currently under review at the Journal of Biological Education.

“The next step to this research would be to consider intervention studies using modeling instruction and trying to find out how the learning progression differs due to intervention,” she said. — Rachel Stowe Master
Strategic leaders are no longer asked to focus solely on maximizing shareholder wealth but are expected to meet an increasing array of stakeholder expectations, from sustainability initiatives to socially driven demands from customers.

This emphasis of focusing on the triple bottom line – financial, social and environmental – is reinforced by a 2011 survey of millennials by Deloitte, in which 92 percent of respondents said that a firm’s success should be measured by more than profit.

To date, most research on how strategic leaders affect organizational performance is based on a financial perspective rather than value creation in multiple arenas, and there is little research on how the values, experience and personalities of strategic leaders affect their business choices, actions and behaviors.

“When top managers emphasize attention on the triple bottom line, they often change and shape the values and culture of the entire organization,” Carter said. — Elaine Cole

**Exercising Restraint**

**Linking food and exercise alters choices**

A double cheeseburger can still be a tempting choice for diners even when the restaurant lists the caloric content.

But what if the menu also noted it would take two hours of brisk walking to burn it off?

Research by Meena Shah, professor of kinesiology in the Harris College of Nursing & Health Sciences, found that giving people the information on how much physical activity it takes to equal the calories of foods makes them think twice about ordering high calorie items.

The research, conducted with graduate student Ashlei James, was presented at the Experimental Biology meeting held in Boston last spring. The study examined how much people ate when given menus with labels detailing how much brisk walking would be required to burn off each item versus menus only listing the calories or with no information.

For the 300 participants ages 18 to 30, the menus with and without the calories listed had no effect on food selections. But when they saw the walking times listed, participants ordered less food and ate less too.

Shah says seeing the amount of exertion required to equal the food consumed proved to be eye-opening for many of the subjects. For example, a woman would have to walk briskly for approximately two hours to burn the calories in a quarter-pound double cheeseburger.

Here are a few other examples:

- **McDonald’s Big Mac:**
  - 490 calories = mowing lawn for 75 minutes

- **Mars Bar:**
  - 260 calories = two-and-a-half-hours of gardening

- **Starbucks blueberry muffin:**
  - 475 calories = two hours of housework

---

**Strategic leaders impact more than one bottom line**

Strategic leaders are no longer asked to focus solely on maximizing shareholder wealth but are expected to meet an increasing array of stakeholder expectations, from sustainability initiatives to socially driven demands from customers.

This emphasis of focusing on the triple bottom line – financial, social and environmental – is reinforced by a 2011 survey of millennials by Deloitte, in which 92 percent of respondents said that a firm’s success should be measured by more than profit.

To date, most research on how strategic leaders affect organizational performance is based on a financial perspective rather than value creation in multiple arenas, and there is little research on how the values, experience and personalities of strategic leaders affect their business choices, actions and behaviors.

“However, we found ample evidence that leadership styles and values play an important role on organizational outcomes and corporate culture,” said Charles R. Greer, professor of management at the Neeley School of Business.

“Several leadership styles are found among strategic leaders, including more established styles such as transactional, transformational and charismatic approaches, as well as evolving styles such as authentic, servant and responsible approaches,” said Suzanne M. Carter, associate professor of professional practice in strategy at the Neeley School.


Greer and Carter found that when the performance of more strategic leaders is evaluated by triple bottom line measures, there is evidence of greater use of transformational, charismatic and authentic approaches.

“These strategic leaders tend to consider a broader range of stakeholders in their decision-making,” Greer said.

This broader range does not mean these leaders don’t focus on the bottom line. Greer and Carter found no evidence that their emphasis on financial performance is diminished with the addition of expanded measures of performance.

Another important finding is that the values of strategic leaders often pervade the company culture to affect outcomes.

“When top managers emphasize attention on the triple bottom line, they often change and shape the values and culture of the entire organization,” Carter said. — Elaine Cole

“**When top managers emphasize attention on the triple bottom line, they often change and shape the values and culture of the entire organization.**”

Suzanne M. Carter, associate professor of professional practice in strategy
Father Figures

Like mother, like daughter or so the saying goes, but the relationship a girl has with her father can have profound effects, particularly when it comes to sexual decisions.

That’s what Sarah Hill, associate professor of social psychology, and Danielle DelPriore, post-doctoral researcher, found in research published recently in the Journal of Personality and Social Psychology. Their study shows that when dad isn’t in the home, particularly in the early years of life, girls are more likely to have early puberty and engage in sex at a younger age.

“They are also more likely to be pregnant as teenagers and more likely to engage in multiple short-term sexual relationships than a single long-term stable relationship,” Hill says.

To measure a father’s influence even among girls who had a dad at home, DelPriore had the idea of setting up an experiment asking young women to think about a time when their father wasn’t there for them, then seeing if that memory caused them to be more accepting of promiscuous behavior.

“What we found is that simply thinking about a time their dad wasn’t around did cause a shift toward these more risky behaviors,” Hill adds.

The research, which received initial funding through a TCU Invests in Scholarship grant and a recent $74,000 grant from the National Science Foundation, is guided by “Paternal Investment Theory,” Hill adds, an evolutionary based theory that suggests when dad isn’t around, it sends a signal to young girls about their viable mating options.

“Dad is a cue of their ability to draw an investing male in the population they live in,” she says. “That’s the framework guiding this research.” — Kathryn Hopper

Women’s Words

The usual table of contents for feminist anthologies includes such familiar figures as Mary Wollstonecraft, Virginia Woolf and Simone de Beauvoir, but a new, four-volume anthology published this year, A Feminist Reader, expands that horizon by adding feminists from across the centuries and around the globe.

The anthology, edited by TCU literature professor Linda Hughes and her former TCU colleague Sharon Harris, who is now at the University of Connecticut, lets readers locate where any one feminist writer fits into the global, polyphonic chorus for women’s rights. With nearly 2,000 pages of essays, book chapters, manifestos, poems, letters and even a graphic novel excerpt, the anthology is the most comprehensive selection available of worldwide, transhistorical feminist writings.

“A lot of people think feminism is a 20th-century phenomenon: first suffragettes, then bra burners,” Hughes says. “Our anthology tells them, ‘No, go back, look how long women have been writing about these things.’” The anthology’s earliest selection, “Hymn to Aphrodite” by Sappho, is a poem from the sixth century B.C. that articulates same-sex desire and shows women can excel in the arts.

The anthology includes writers from Japan, Bolivia, France, Germany, South Africa, Kenya, Mexico, India and elsewhere. Kishida Toshiko’s “Daughters in Boxes” from 1883 addresses the freedoms required for younger women raised in the home and demonstrates how early feminism emerged in modern Japan. Phulrenu Guha’s “Towards Equality: Report of the Committee on the Status of Women in India” from 1975 addresses the different concerns of Muslim, Hindu and women of other faiths and served as a foundation for reform in the country.

The professors hope the anthology will inspire new scholarship but also confirm aspirations.

“Readers will discover writers whom they find powerful,” Harris says. Many of the writers in the anthology advanced their ideas in the face of oppression. Toshiko, for example, gave “Daughters in Boxes” as a public lecture despite having been arrested for a public lecture three years before.

It took the professors 10 years of hard work to bring A Feminist Reader into print.

“We researched and wrote a headnote for every selection we have, setting forth what we know about the author or authors and what the significance of the selection is,” Hughes says.

They also wrote a scholarly introduction, raised funds and annotated the selections. The anthology was partially funded by both professors’ universities, including a grant from the TCU Research and Creative Activities Fund, and by the publisher, Cambridge University Press. — Douglas Lucas
Reel men

Examining images of masculinity in the media

Kylo-Patrick Hart has always been interested in media representations of masculinity. When the film-TV-digital media professor started watching the cable show *Justified*, he felt “drawn to the characters,” he says. The show’s protagonist, Deputy U.S. Marshal Raylan Givens, to him resembles the portrayal of a typical American man as depicted in 1950s films and television shows.

Hart penned the article “The (Law)Man in the Cattleman Hat: Hegemonic Masculinity Redux” for *The Journal of Men’s Studies*. In the piece, he compares Givens, theoretically a modern Western hero, to the dominant male image of the post-war 1950s.

The stereotypical 1950s man, the one “in the gray flannel suit,” subdued his violent tendencies in order to fit in and focus on home and family life. He was not real, according to Hart. The man “was just a social construction that everyone assumed existed outside of the realms of representation,” he says.

In shows like *Leave it to Beaver* and *Father Knows Best*, Daddy went to work in his nice suit while Mommy stayed home and tended to the kids and the kitchen. However, typical family situations did not play out under these prescribed gender roles. The inability to conform to a masculine or feminine ideal “did a lot of harm to people,” Hart says.

Based on an Elmore Leonard short story, *Justified* is set in current times, but Hart finds the crime-fighting marshal a bit of an anachronism. Givens is uniformly polite, except for when a situation calls for violence. The man in the gray flannel suit, too, had to play the calm husband while remaining vigilant should communist threats infiltrate the country’s borders. Both Givens and the gray-suited man prefer monogamous, tame sexual relationships, as this was the cultural norm for the media’s 1950s man.

Raylan Givens’ throw-back traits in terms of gender show that the stereotype still exists today. This media representation of masculinity “is still part of our American consciousness,” Hart says. “It does affect people’s choices today.” — Caroline Collier

Timothy Olyphant in *Justified*. Photo courtesy of FX Publicity

AMISO GEORGE, associate professor of strategic communication in the Bob Schieffer College of Communication was the keynote speaker and seminar leader for “Managing the Media in Crisis Situations” at Pan Atlantic University’s School of Media and Communication in Lagos, Nigeria in September. She also spoke and was a panel chair at Crisis3: Crossing Boundaries in Crisis Communications conference Oct. 2-5 in Erfurt, Germany and was appointed to its technical committee of internationally recognized crisis experts.

MICHELLE BAUMI, assistant professor of early childhood/social studies in the College of Education, led a roundtable discussion, “Confronting the Creativity Crisis: Preparing Early Childhood Preservice Teachers for Today’s Classrooms,” at the National Association for Early Childhood Teacher Educators (NAEC/TE) summer conference in San Francisco.


LAVONNE ADAMS, associate professor of nursing in the Harris College of Nursing & Health Sciences, and colleague SUSAN WEEKS presented “The Role of Nursing in an Interdisciplinary Care Team Responding to Mass Fatality Disasters: Promoting Equity and Access to Care” on May 21 at the International Council of Nurses Quadrennial Convention in Melbourne, Australia.

AARON CHIMBEL, assistant professor of professional practice in journalism in the Bob Schieffer College of Communication, presented “The Setup and the Elevator Pitch: Infusing Entrepreneurship in an Intro Class,” at the Association for Education in Journalism and Mass Communication annual conference, Aug 8 in Washington, D.C. He joined colleagues TRACY EVERBACH and JACQUELINE LAMBIASIO to also present “Fuzzy, transparent, and fast: Journalists and public relations practitioners characterize social media interactions.”

MARK THISTLEWAITE, Kay and Velma Kimbell Chair of Art History, was invited to present a lecture titled “Remington and Russell’s Paintings in an Era of Transformation, 1890-1917” to inaugurate a new series of programs at the Sid Richardson Museum in Fort Worth.

WILLIAM MONCRIEF, the Charles F. and Alann P. Bedford Professor of International Business and former senior associate dean of undergraduate programs at the Neeley School of Business, was awarded the Selling and Sales Management Lifetime Achievement Award by the sales special interest group of the American Marketing Association. The annual award honors outstanding research and teaching, encouraging sales as a career choice and fostering the professional development of others.
Early operating rooms were mainly composed of windows, either facing southeast or perched on hospital rooftops like huge lanterns. The idea was not to send light out, of course, but to bring it inside. Surgeons still need light, and these days they don’t have to wait for a sunny day. Yet despite specialized lighting and magnification in modern operating rooms, doctors often feel they’re working in the dark.

“The eye is a pretty good device,” says Zygmunt (Karol) Gryczynski, W.A. “Tex” Moncrief Jr. Chair of Physics, “but it’s subjective.” Thanks to the human body’s complex conjunction of nerves, ducts, tissues and veins, it’s difficult to distinguish tumors from healthy structures.

One of Gryczynski’s passions is creating light-interactive substances called fluorophores that help surgeons see better.

“In Poland, 30 years ago there was no application for fluorescence,” says Gryczynski in his richly accented English. “My brother was working on it at the University of Gdansk, and then I came along 10 years later and did the same. But nobody cared about it.”

At the time, there was no hint that fluorescence would become the microscope of the 21st century. Genome analysis and its dependence on fluorescence for sequencing exploded in the late 1980s, and the two brothers — with their advanced knowledge of physics, optical and fluorescence spectroscopy and protein chemistry — were suddenly in demand.

The University of Maryland’s School of Medicine brought them to the United States 25 years ago. They moved to the University of North Texas Health Sci-
LIGHTING
NEW PATHS
TO HEALTH
ence Center in 2005, where they helped found the Center for Fluorescence and Nanomedicine. In 2009, the younger Gryczynski was hired by TCU to pioneer a new direction in the physics department: experimental biophysics.

Talking Science

“In my experience, it is most difficult for young physicists to understand biologists and chemists, and learn how to talk with them,” says Gryczynski.

To foster this communication, he has his physics students work with biomedical students. “The strength of a biophysicist is a common understanding of two sometimes very different disciplines. On the surface, physics and biology are very different indeed. But deep down on the molecular level, it is all one science.”

Visible light can’t penetrate into tissue and blood more than a few hundred microns. But near-infrared (NIR) light, invisible to the human eye, can Gryczynski says. Using camera systems combined with NIR light and fluorescent dyes that highlight diseased tissue, the surgeon is finally able to see where tumors end and healthy structures begin.

But ideally, cancer would be discovered long before any symptoms, or tumors, showed. “Cancer begins on the level of protein,” Gryczynski says. “We are built from protein: myosin protein in muscles when we move a finger, neuronal signals in the brain when we think and feel. Most disease is caused by proteins misfolding. If we can detect cancer or diseases like Alzheimer’s caused by protein buildup in the brain when proteins first begin to misfold, we have a much better chance of treating it.”

Improving the View

Fluorescence is very good at this detection, Gryczynski says.

“It’s not only beautiful but also extremely sensitive, and the only way we have found so far to study single molecules. The color is not so important in and of itself, but in its ability to help us recognize the mechanics of how things are happening in the cell.”

Bonded to a macromolecule, fluorophores can tag “whatever you want in the cell, antibodies, peptides, nucleic acids. We’re using these new tools to understand the pathobiology of disease,” he says.

“Now we can see, on the cellular level, cancer-related genes, proteins and biomarkers. What used to be available only through biopsy can now be assessed noninvasively, by imaging the expression of biomarkers.”

Gryczynski’s goal is to make fluorophores even more sensitive. One way to do this is to combine them with noble metal (gold and silver) nanoparticles.

Lighting the Way

The trouble with fluorophores is that they don’t last long: They emit light only for a few seconds, when they’re going from the excited state back to normal emitting photons. However, multiple excitations frequently lead to chemical degradation of the fluorophores. This is called photo bleaching and is one of the things biophysicists want to avoid.

In the presence of metal nanoparticles, fluorophores go a little crazy as a result of free electrons in metal interacting with light. “It creates a new plasmonic phenomenon: We can see what we could not see before,” Gryczynski says.

Fluorophores combined with nanoparticles are much brighter and more stable than they are on their own and are therefore excellent bioimaging markers. They even show promise as therapeutic agents in vivo, or in whole, living organisms.

With 40 million surgical procedures performed in the United States per year, there is a real need to light the way forward. In the field of breast cancer alone, 20 to 25 percent of patients suffer incomplete resection of the tumor, and second operations are necessary in 12 to 28 percent of cases. Creating more effective dyes for pre-surgical detection of disease and to assist surgery is a vision that both brothers share.

The close collaboration between the physics departments at TCU and UNTHSC may seem as surprising as the discovery of green fluorescent protein to many, but not to Karol and Ignacy Gryczynski. Their synergy is a bit like a plasmonic reaction itself: unexpected, binding, but totally natural.

“We’re always working, even when we’re not at work,” Gryczynski says with a laugh. “Just ask our wives.”
The classic 1970s-era television show The Six Million Dollar Man opens with the near fatal crash of astronaut Steve Austin and the famous line: “We can rebuild him. We have the technology.”

While the show’s premise of a bionic man made better and stronger through technology was science fiction then, scientific advances have made some aspects a reality. TCU’s Jeffery Coffer, professor of chemistry, has teamed up with Giridhar Akkaraju, associate professor of biology, to develop porous silicon-based biomaterials that can be safely inserted in the body to deliver life-saving drugs and DNA for gene therapy.

“In that show, they opened up his wrist and inserted a computer chip,” Coffer says. “But if you did that, the body would say: Forget this, this doesn’t belong here, let’s build protein around it.”

Then Coffer picks up a container filled with tiny bits of crystalline silicon etched to have tiny holes measured in nanometers (a nanometer is one-billionth of a meter).

“If you do it with this silicon, something very different happens,” he says. “The silicon breaks down in the body in this innocuous way that passes through the kidneys.

“You may say, that’s nice Jeff, why should I care? Because that silicon is capable of releasing drugs – very powerful drugs – into the body at selected locations.”

These tiny silicon nanostructures could have a profound impact on many medical treatments that demand precise delivery such as administering chemotherapy for cancer treatments while also minimizing the impact on adjacent healthy cells.

But that’s just one of the benefits these tiny materials could provide in the emerging field of nanomedicine. Coffer and Akkaraju are also looking at how silicon nanoparticles can be used as a type of scaffold for cells to grow on – an application that could help in the repair of bones and the regeneration of tissue.

And most recently, they are examining how the technology can be...
paired with magnetic beads to offer even more precise drug delivery.

The two professors have divided the research work with Coffer’s lab focusing on the fabrication of various silicon particles from a fine film — which he calls “smart gauze” — to tiny cylinders called nanotubes that can be created in various sizes and shapes. Akkaraju’s lab tests the materials Coffer builds to see how they react with cells and in cultures.

### A Silicon Solution

Silicon is one of the most common elements on Earth, second only to oxygen in its abundance on the Earth’s crust and is found in trace amounts of the human body, plants and animals.

Akkaraju says because the body can break down porous silicon, it offers an ideal vehicle for drug delivery and other therapies.

“You can pack the pores with whatever it is you want to deliver, put it inside the body and, as it breaks down, it releases the stuff you packed in,” he says. “We know the chemistry well enough that we can time the release or fine-tune the amount of the release so they get precise delivery of the drugs or whatever it is we are trying to deliver.”

He’s also looking at the implications for DNA therapy, where nano-technology could help target cells with bad DNA, replacing them with cells with the right DNA.

Coffer notes that silicon is also an essential element for bone growth so it’s only logical to look at how silicon nanomaterials could be used to help grow bone-like tissue in bone marrow stem cells.

“Instead of putting a bunch of screws or plates in there, you literally put our smart gauze in,” he says.

Akkaraju likens it to a type of tiny, high-tech chicken wire. His lab is currently working to grow cells on the material to see if they can grow into bone-like cells.

“The ultimate goal is if you break a bone and needed to extend the length of the bone, you could essentially stuff this material in the gap, coat it with silicon and put some stem cells on it to try to grow the bone in that gap,” he says. “That’s what we’re trying to do.”

### Tubular Cells

Looking at it through an electron microscope, porous silicon resembles a coral sponge. Coffer points out that it has a very high surface area that can be hard to exactly define and calculate.
“We know the chemistry well enough that we can time the release or fine-tune the amount of the release so they get precise delivery of the drugs or whatever it is we are trying to deliver.”

Giridhar Akkaraju, associate professor of biology

“... But from a scientific point of view, scientists want things well-defined and predictable,” he adds.

So a few years ago one of the graduate students in his lab figured out a way to create a tiny silicon tube that could be exactly measured — by starting with a defined amount of wire made with zinc oxide — the main ingredient in diaper ointment.

“We came up with a way to add the silicon to that then etch away all the zinc oxide leaving behind a hollow nanotube,” Coffer says.

That process made it possible to then create tiny silicon nanotubes to exact specification. That’s important because the proportions need to be adjustable based on the type of material and that material’s structure before they could be used in nanomedicine.

“We can grow them with a really thin shell, about 10 nanometers and their holes are like porous silicon, we can make them certain diameter, thickness or certain length,” Coffer says. “The cool part is when they are really thin, molecules in drugs can come in and go out.”

The next step in that part of their research is examining how they can utilize the nanotubes in magnetic drug delivery, using the injection of tiny magnetic particles to drag the drugs in and out of cells.

“We’re capable of manipulating them and that’s very important if you want to use magnetic field drug delivery, Coffer adds.

A Collaborative Process

Coffer and Akkaraju’s research has been funded through a variety of sources including TCU Invests in Scholarship grants plus grants from the Welch Foundation, which supports chemical research at universities, colleges and other educational institutions in the state of Texas.

Now the chemist and the biologist are teaming up with two Austrian scientists, Klemens Rumpf and Petra Granitzer at the Karl Franzens University in Graz, to secure a National Science Foundation grant to further their research in the use of silicon nanotubes to deliver drugs through magnetic therapy.

“Science is very global, very collaborative and very interdisciplinary,” Coffer says. “And that’s how our approach has been — very collaborative and very interdisciplinary.”
When TCU art history professor Babette Bohn left London last February, the exhibition she had co-curated at The National Gallery was opening to enthusiastic praise. Britain’s usually restrained art critics were in a rare state of admiration: One writer begged his readers not to miss it, while others called the show, “staggeringly ambitious,” “a revelation,” “intoxicating” and “inspired.”

The project that had gripped Bohn for seven years was a complete success. She was heading home. So why was she crying?

“It was a once in a lifetime experience,” Bohn says. “I was very moved leaving London, knowing that it was the last time I’d see Barocci’s paintings and drawings all in one place again.”

She’s probably right. In 1978, selected Barocci drawings and prints were on view at Yale University Art Gallery and in 2006, the Fitzwilliam Museum at Cambridge University combined several drawings with two paintings, but this was the first major monographic show on the artist outside of Italy, which hosted one in 1975. There has never been one like it, nor is there likely to be a repeat. For the first time, most of Barocci’s greatest altarpieces and paintings were shipped from remote parts of Italy, where they have been hanging for more than 400 years in the churches for which they were originally painted.

During his lifetime, Federico Barocci (1535-1612) was one of the leading artists in Italy:

“Although he was the most highly paid and sought-after painter of his generation, he’s now the greatest Italian painter you’ve never heard of,” Bohn says.

One reason for Barocci’s mastery of color and composition as a painter was his meticulous preparation: He was an obsessive and gifted draftsman. “He was a genius, a brilliant colorist and very experimental,” Bohn says.

Barocci used colored pastels to draw studies of heads, hands and feet that are so expressive and lifelike, they almost surpass the paintings.

“He was not the first to use pastel, but he was the first to use it so extensively and the first by whom so many drawings (hundreds of them) with pastel survive,” Bohn says.

In 2005, Bohn was working on an exhibition and catalog of the drawings of Guido Reni for the Uffizi Gallery when Judith Mann, curator of European art to 1800 at Saint Louis Art Museum, invited her to collaborate on bringing an exhibition of Barocci’s work to America. (The show appeared in St. Louis in October 2012 before traveling on to London.)

Mann’s forte is painting, while “Babette’s reputation as one of the finest scholars on Italian drawings is well-known,” Mann says of her decision to ask Bohn into the project. “I knew I needed someone with an expertise in 16th century Italian drawings, but I wanted someone who had not previously worked on Barocci to provide a fresh and original eye. Babette made a perfect choice.”

Of course, the two art historians had to track down as many of Barocci’s drawings as possible before deciding which ones to include. “Babette took on the task of visiting a large number of drawing collections, assessing the attributions of the drawings (to be sure they were by Barocci), their proper medium and condition.”

It took Bohn four years to fit her trips to Europe around the Reni project and full-time teaching at TCU. She viewed about 90 percent of Barocci’s extant works on paper and “provided extensive notes on the 1,200-plus drawings that she examined,” said Mann. “Due to Babette’s diligent and thorough analysis of the drawings, we were able to make selections for the exhibition that not only demonstrated Barocci’s process, but also enabled us to highlight his originality as a draftsman and his contributions to the development of drawing process.”

The critical and public excitement about the exhibition was caused as much by these in-process drafts as by the paintings themselves. Hanging the drawings alongside the paintings revealed how Barocci made each ap-
approach — the expressions he tried and kept or discarded, bodily gestures he varied, experiments and ideas he ventured and reworked — affording a fascinating glimpse into the artist's mind.

“Making those decisions about which drawings to include was only possible because of the extraordinary work that Babette did,” Mann says. Getting the drawings and paintings across the pond was another feat, helped enormously by their European partners, National Gallery Director Nicholas Penny and fellow curator Carol Plazzotta.

It required negotiation with more than 40 lenders from all over Europe and the U.S., from churches and museums to private collectors, including the Louvre, the Vatican, the Hermitage and Queen Elizabeth II.

Bohn and Mann also collaborated on writing and editing an exhibition catalog, which the Midwest Art History Society honored with its 2012 Outstanding Exhibition Catalogue award. Bohn’s essay, says Mann, “will serve scholars and teachers for some time to come as the definitive discussion of Barocci’s draftsmanship.”

Barocci’s style exerted a profound influence on his contemporaries and on many later Baroque artists, especially Flemish painter Rubens, the Carracci and Guido Reni. In her essay, Bohn discusses his innovation as a draftsman: “Apart from the earliest examples, his cartoons are exceptionally tonal compared to most 16th-century examples.”

The word “cartoon” comes from cartone, meaning literally “big paper.” Artists would put this onto the canvas and incise outlines to help guide their painting.

In contrast to most artists working at the time, says Bohn, “Barocci’s more complete cartoons differ from the paintings, confirming the ongoing character of his creative process to the very end.”

Paradoxically, “his lengthy preparatory process coexisted with a constant willingness to supersede his own drawings, even cartoons, with new ideas.”

Beginning in the mid-1560s, Barocci also drew from nature, using his male assistants as models. Due to his piety, he probably never used female models, but would change the male body to a woman’s form in subsequent drawings. So many of Barocci’s drawings survive today, says Bohn, because he was so enthusiastically collected. He produced only 68 paintings but at least 1,500 drawings that are still known.

With the Barocci exhibition, Bohn continues her study of artists connected by time and place: 16th and 17th century northern Italy. Barocci greatly influenced Annibale, Agostino and Ludovico Carracci, about whom she has already written three books. They were, in turn, Guido Reni’s teachers. Bohn’s Reni exhibition and catalog appeared in 2008, but even that solo project wasn’t as taxing as her work on Federico Barocci.

“This has been the most ambitious project I’ve ever tackled,” she says. “For seven years, Barocci was the subject of my nonteaching waking hours. I’m happy that we were able to bring such an extraordinary artist back into the limelight. Of course, the exhibition is by its nature ephemeral, which is why I felt so sad when leaving London. But the catalog remains.”

She’s already thinking about her next book. It will focus on 17th century Bolognese painter Elizabeth Sirani, the daughter of Guido Reni’s assistant. “Sirani opened a school of art for women who aspired to be painters — the first time outside of the convent that women were educated professionally. The book will include several women artists, but Sirani will be the focal point.”

Last summer break, Bohn returned to northern Italy to begin her research. “Now that the Barocci exhibition is over, I feel I can move on.”
The past decade has seen a flurry of activity to fight human trafficking: laws passed, grants awarded, curricula developed and public service announcements made. But do these efforts to combat modern-day slavery actually work?

Vanessa Bouché, assistant professor of political science, is finding out.

When Bouché began researching trafficking in the final years of her doctoral program, she was startled to discover that the academic community had produced very little empirical research on the subject. State laws have criminalized trafficking only in the past 10 years, and social scientists are just beginning to study their effects. Bouché is working to bridge the gap between the academy and the practitioners and ensure that activities to combat trafficking are based on sound science.

“There are lots of assumptions that haven’t actually been empirically proven,” she says. “I think that government agencies are taking a step back and saying, ‘OK, let’s assess how well we’ve been doing these things. We’ve been doing a lot and throwing a lot of money at it, but are we being effective?’”

Bouché is part of three federally funded research projects designed to provide answers. The first is a National Institute of Justice grant comparing state efforts against trafficking and measuring public opinion on the issue. Bouché and colleagues from Northeastern University and Colorado College are interrogating the assumption that a comprehensive law is more effective at combating trafficking. States with “comprehensive” laws have taken steps beyond criminalizing trafficking (as every state but Wyoming has done) like forming task forces on trafficking and requiring that law enforcement officers receive training.
“We’re assuming that the more [states] legislate, the better — without really paying attention to how effective these statutes are,” Bouché explains. “Are prosecutors actually using them? Is law enforcement even aware of them?”

The team is also collecting case records for successful prosecutions of trafficking in all 50 states and examining the types of evidence used in these cases. Trafficking victims generally don’t testify against their traffickers — sometimes because they’ve been threatened, sometimes because their trafficker is also their romantic partner — and Bouché says prosecutors assume that without this testimony, they can’t successfully prosecute. If the data show that successful prosecutions actually don’t require victim testimony, both prosecutors and law enforcement can shift their focus to other types of evidence with a proven track record.

For the third part of the grant, Bouché and her colleagues designed the first detailed survey of American public opinion about human trafficking. Many people confuse trafficking, which is the control of one person by another for economic gain, with human smuggling or illegal immigration. Bouché’s survey evaluates the public’s level of knowledge and concern about human trafficking, and it also includes built-in experiments to assess how framing the issue in different ways influences people’s level of concern.

That aspect of the project led to the team’s second big grant: a USAID-funded public opinion survey about human trafficking in Moldova and Ukraine. In summer 2014, they’ll travel to both countries to oversee the administration of the survey.

In addition, Bouché is also beginning work on a third NIJ-funded project with Michael Bachmann, assistant professor of criminal justice at TCU, and Brittany Bachmann, lecturer in criminal justice. This study examines the presumed link between organized crime and human trafficking.

“Once again, what you find when you look at the literature is that there’s a strong assumption that there is a strong connection, but it’s actually never been empirically examined,” Bouché explains.

Her interest in human trafficking began her junior year at Columbia University when she read a book by Gary Haugen, the founder and president of anti-trafficking agency International Justice Mission. But she didn’t pursue the topic professionally until she had almost completed her PhD and after working as a legislative aide to a Texas state representative and as a threat analyst for the CIA.

Now Bouché has come full circle and introduces TCU students to trafficking through the service-learning course “Human Trafficking in the United States: Public Policy and Political Discourse.” In addition to reading and watching documentaries about trafficking, her students have done site visits and accompanying research on different aspects of anti-trafficking work.

They learned that 80 percent of trafficking is for the purposes of commercial sex — and accompanied undercover Fort Worth police officers on patrol. Students also visited a prostitution probation court in Fort Worth and surveyed women in the program, finding that their average age of entry into prostitution was 16 and that 87 percent had been abused in some way by their parents.

To help prevent future trafficking, Bouché’s students taught an anti-trafficking curriculum to students at a high-risk high school in Fort Worth. Their pre- and post-test results showed significant positive changes in the high-schoolers’ levels of knowledge and concern about trafficking.

And Bouché’s students have had their eyes opened, too. In last fall’s discussion of labor trafficking, supply chains and corporate responsibility, one class member was asking particularly tough questions. The next week, he approached Bouché after class; turns out, he’s a budding entrepreneur whose first product was being manufactured in China. He had started asking his Chinese factory some questions and realized there were “definitely some sketchy practices going on.” He had decided to look more closely at his supply chain and had scheduled a phone meeting with his investor to talk about it.

“You hear people say this all the time, this cliché — ‘these are the next generation of leaders’ — but it’s true,” Bouché says. “He’s an entrepreneur, and he’s now aware of the ways in which he has to be scrutinizing of the labor practices that he’s using. That was extraordinarily gratifying.”

It’s moments like that and meetings with survivors that sustain Bouché through years of research into the worst dimensions of human nature. She’s become close friends with a trafficking survivor who lives in the DFW area and whose story makes Bouché hopeful.

“She’s one of these people for whom there’s no logical reason for her to be who she is today, given her past. When you see the tenacity of the human spirit exhibited in someone like that, you’re just amazed. Other people deserve that, and it’s possible for other people, too.”
Christo pher R. Watts is passionate about research. At any given time, the professor and chair of TCU’s Department of Communication Sciences & Disorders could have a hand in almost a half-dozen research projects with TCU students and colleagues across the United States.

“The treatment and the evaluation that we do in speech-language pathology must be backed up by evidence — evidence that was gathered through scientific methodology,” he says. “Otherwise, we’re treating patients without knowledge that what we’re doing is truly effective.

“That’s fine if I want to sell you snake oil. But I want to improve your life. I want to help you communicate and swallow better. To do that ethically, I have to apply principles of evidence-based practice.”

Watts’ research efforts all come back to laryngeal function in voice, motor speech and swallowing disorders. Here’s a look at some of his recent work:

Texas Twang

Watts is finishing a collaborative research effort investigating patterns of nasal resonance during speech production in speakers from six different dialectal regions across North America. Watts, who focused on Texas, worked with professors from Pennsylvania, Canada, Minnesota, Michigan and Utah.

Watts and his team, which included former graduate student Rebecca Becknal who completed a thesis on the project, used an acoustic procedure called nasometry to measure how much sound is coming out of the nose when a person is speaking.

Research found speakers from Texas to be more “nasal” than speakers from most other dialect regions — except Canada and Minnesota. That information is important to speech-language pathologists using nasal resonance measurements in populations with cleft palate or stroke.

“If I have a patient who’s had a stroke and they are from Texas and I want to know if he’s abnormally nasal or not, I need to make sure I compare him to ‘normal’ folks from his dialect region, or I may miss diagnosing someone who has a problem — or misdiagnose someone who does not,” Watts says.

This is the first cross-continent study to look at the effect of dialect regions on nasalance measures. The study involved 50 speakers from each dialect region — a total of 150 males and 150 females. It is being written up for submission to the Journal of Speech Language and Hearing Research.

Stretch and Flow

In collaboration between TCU and the University of Texas Southwestern Clinical Center for Voice Care in Dallas, Watts is investigating the effectiveness of Stretch-and-Flow Voice Therapy in a randomized controlled crossover trial of patients with voice disorders.

“Stretch-and-Flow Voice Therapy is not a new voice therapy, but there is very little science that backs up its effectiveness even though many speech language pathologists are using this,” he says. “So one of our goals is to apply scientific methodology to Stretch-and-Flow Voice Therapy in clinical research to determine if indeed we can establish a valid treatment effect.

“Certainly the initial data we are getting from patients enrolled in this study is showing that yes, it does,” he adds.

Watts is about a third of the way through the study, which he hopes will have 30 participants. Patients diagnosed at TCU’s Miller Speech & Hearing Clinic or UTSW who fit the study’s criteria are invited to participate, and they have equal chance of being assigned to the treatment group or the control group.

Patients in the treatment group receive six weeks of Stretch-and-Flow therapy. Patients assigned to the control group receive no therapy for six weeks but then cross over to an alternative treatment group and receive Resonant Voice Therapy. A TCU grant helps pay for the therapy patients receive, so there is no cost to participants.

“We have created two studies in one,” Watts said. “We’re able to compare Stretch-and-Flow Voice Therapy to a no-treatment control, which is the gold standard for clinical treatment research. We’re also able to compare it to this alternative voice therapy — Resonant Voice Therapy — and there is empirical data supporting the effectiveness of RVT. So we can compare this against an already validated treatment.”

Second-year graduate students Mackenzie Meredith, Stephanie Lewis and Jillian Stanfield, along with first-year graduate student Tracy Littlefield, have helped Watts with measurement of the outcome variables in the Laryngeal Function Laboratory in the Miller Speech & Hearing Clinic.

Watts hopes data from this study will help support a larger federal grant application. “That’s how we hope to repay TCU for its investment,” he says.
Chin to Chest

Watts also is developing a new exercise for people who have swallowing difficulties because the muscles that lift their larynx are not working well. If the larynx doesn’t elevate when a person swallows, food can get into the airway and cause aspiration — which in the elderly often leads to pneumonia.

Noting that strength training promotes muscles to grow stronger by using resistance, Watts began thinking how to apply resistance to the muscles that lift the larynx. Using non-impaired participants, he investigated whether opening their mouths while pressing their chin against resistance activated these muscles with a significant difference than just sitting with their mouths closed.

In Watts’ new Chin-to-Chest exercise, individuals press their lower jaw into a custom fitted neck brace with chin support, which adds resistance to the muscular contraction. Watts compared results from Chin-to-Chest with a rest condition and with current clinical exercises used in patients with swallowing impairments.

“Because it was using resistance, Chin-to-Chest was activating the muscles to a much higher degree than both rest and other validated exercises which target these muscles,” he says.

Watts’ initial research has been accepted for publication in *Archives of Physical Medicine and Rehabilitation*. Already applying this exercise to clinical populations, he is seeking to recruit individuals who require tube feeding for nutritional needs due to impaired laryngeal elevation. He hopes to determine if the Chin-to-Chest exercise can rehabilitate the laryngeal elevator muscles to a degree that will allow these patients to once again eat food orally.

New Knowledge

In addition to his own primary research, Watts is mentoring five students working on honors theses, and he includes his four graduate assistants in his research as much as possible.

“I’m just interested in so many things,” he says. “Thank God I have students who are also interested in research that I can mentor. They help me with these projects, and without them I would not be able to investigate all the things I am interested in. That’s one of the things that makes TCU so great — students want to get involved.”

Watts says the purpose of a university is twofold: disseminate knowledge and create new knowledge through research.

“I get to teach students what I know and what they need to know for their major or their discipline, but I also get to create new knowledge with the students. And that’s rewarding.”
In the fall of 2007, two freshly recruited professors to TCU’s music and dance departments encountered each other for the first time at a new faculty orientation.

Unbeknown to them, that first meeting between Till MacIvor Meyn, associate professor of music theory and composition, and Suki John, associate professor in the School for Classical and Contemporary Dance, would lay the groundwork for an artistic collaboration that has met with both local and international acclaim.

Meyn and John's joint creation, “Wall of Babel,” a 12-minute one-act concert dance piece with choreography designed by John and set to Meyn's original score, debuted in a 2012 performance at the W.E. Scott Theatre in Fort Worth. It also enjoyed an international premiere in Cuba last May — underscoring John's long-forged ties with that artistically rich, if geopolitically isolated, country.

“It’s absolutely true that Suki and I first became great friends when we met,” recalls Meyn. “And from that very first day, we felt that, someday, we had to collaborate on something.”

Except that “someday” would be years in the making. Two years ago, John, born in Los Angeles and raised in both New York and New Mexico, approached German-born Meyn with an idea for a dance piece for which she wanted him to compose the music.

So, they did what any two TCU professors do when looking to hatch an artistic project — they headed for Café Brazil on Berry Street, downed cups of industrial strength coffee and started hashing out some of the work’s preliminary details.

John was initially inspired to create a work about peace, with her...
creative impetus coming from the rolling conflicts in Iraq and Afghanistan. But Meyn immediately weighed in that peace as a subject was not very dramatic, even inherently boring. Instead, he suggested John work backward and treat conflict as the work’s main driver.

“So the piece evolved into exploring what conflict looks like,” John says. “And I very much wanted to do something about the separation of people due to political differences.”

Indeed, during the first month of their collaboration, both John and Meyn brainstormed large-concept ideas. John kept circling back to the notion that dancers represent opposing groups, working their differences out, bouncing off imaginary boundaries, pitching a battle of ideas glimpsed through the filters of dance and music.

As for the origins of the word “Wall” in the work’s title, John was motivated by any number of real-life examples, including the division between Israelis and Palestinians in Gaza, the anti-immigrant wall between Mexico and the U.S. and the geopolitical blockade between Cuba and the U.S.

“The final title summed up the idea of not being able to communicate,” says Meyn.

“Wall of Babel” immediately inspired Meyn to write music influenced heavily by Spanish folkloric songs, whose original archival sourcing came from John’s undergraduate alma mater, the University of New Mexico. Meyn took about three months to craft a polished first draft of his score, punctuated by the occasional e-mail or phone call to check in with John.

“We might have talked about dramatic tension and release in the piece,” recalls Meyn. “At first, Suki didn’t specifically tell me where she might want the release or the tension to build.”

So working within John’s rather loose, structural guidelines, Meyn was free to let his musical muse roam untethered. Relying on the vast electronic archive of Spanish folk tunes from the University of New Mexico, Meyn homed in on the music of Valencia, Spain — after John politely nixed Meyn’s initial thought of drawing on Native American music for inspiration.

“So I steered my way from Native American music worked well for me because it brought my other ideas more into focus,” reflects Meyn.

Understanding that a dance stage could not accommodate many live musicians, Meyn scored his music for three players — pianist, alto-saxophonist and percussionist. Both the piano and the percussionist would provide the dancers much of the vital rhythmic cues they would need in the performance.

“With conflict as one of the work’s primary themes, I felt the sax and percussion would provide some of the gritty musical tension underlying the dance’s message,” says Meyn. “I also knew that a classical, Baroque style of music wouldn’t fit the tension we were looking to create.”

Musically, Meyn was also aware of John’s adoration of Cuban dance and Cuban rhythms. So, Meyn reasoned, Spanish-flavored songs would play to John’s strengths.

Rather than present piecemeal snippets of his score, Meyn passed the entire finished product to John in January 2012. She listened and was enthralled.

In dissecting their collaboration, what both John and Meyn discovered is how they could express with uncensored honesty what their individual artistic vision was without fear of offending their creative partner.

If Meyn came up with an idea that didn’t suit John, no problem, he would simply toss out another one that often hit the spot.

“After Till suggested something that I didn’t like,” recalls John, “then he told me how much he was into Flamenco-style music, which I love, especially for its unusual rhythms and haunting melodies that faintly suggest the Middle East.”

John, who first got hooked on dance after seeing an early 1960s road production of West Side Story, admits to learning from Meyn’s musical experience of injecting a certain point of portent and climax in a piece’s dramatic arc.

“To be sure, John and Meyn had their share of disagreements along the way.

While John had no problems saying yes to Meyn writing music for piano and saxophone, she had more trouble with his working in percussion.

“At first I didn’t really want the drums,” John recalls. “But then Till wrote the percussion so brilliantly that it fit perfectly with what we were doing.”

And Meyn remembers “Suki saying how much she loved strings as a musical element. It didn’t take me long to tell her that we probably wouldn’t be doing strings because I just didn’t feel strings would convey the message we wanted to say.”

The collaboration was so open and trusting that Meyn recalls being “free enough to write Suki and tell her, directly, that ‘I don’t think you want this’ — always explaining to her why she might not want it.”

When it came to deciding how to end “Wall of Babel,” some indecision clouded their collaboration. For his part, Meyn didn’t want it to end on too much of a lax, slow note, as he was worried about boring the audience.

“I’m also not for boring an audience,” admits John. “I could see the end of the piece, but I couldn’t hear it. We had a couple of false attempts for the end, but when he finally gave me the ending, it was perfect.”

Less than perfect was John and Meyn’s coordination of the trip to Cuba to perform their work.

After receiving a special $12,000 TCU Invests in Scholarship grant, John and Meyn had to endure months of bureaucratic entanglements involving the U.S. State and Treasury departments to gain permission to travel to Cuba. Finally, only John, traveling as a TCU cultural missionary, could go. In May, John rehearsed “Wall of Babel” with a local Cuban troupe (Danza Espiral) of 10 dancers, plus three professional Cuban musicians, who gave two performances in Havana and two in Matanzas.

“I loved doing it in Cuba,” says John. “Artistically, it was like going home. And because the piece really speaks to the idea of separation, I felt it was making an important statement about the futile conflict between Cuba and the States.”

Despite not being able to attend its landmark Cuban premiere, Meyn gives his collaborative experience with John only high marks, especially for how it revealed certain aspects of his personality.

“I learned that collaboration takes a lot of effort and that I have very strong ideas,” says Meyn. “So I would not go into my next collaboration lightly unless I knew of a shared vision I had with the other artist. If that is the case, then the outcome will be larger-than-life than if I just did it on my own. No surprise that I would absolutely collaborate with Suki again.”

John echoes Meyn’s desire to do future collaborations.

“Till and I have talked about the tango piece I know he’s written,” she says. “I have every reason to believe another collaboration will happen. I have collaborated with other composers in the past, but it was never as easy as it was with Till. We all took to calling him ‘Chill Till’ because he’s so naturally chill and not a drama queen at all. He puts all the drama into the music. It’s all about the work for him. ‘Wall of Babel’ ended up not being mine or his. It was ours.”

John, who first got hooked on dance after seeing an early 1960s road production of West Side Story, admits to learning from Meyn’s musical experience of injecting a certain point of portent and climax in a piece’s dramatic arc.

“To be sure, John and Meyn had their share of disagreements along the way.

While John had no problems saying yes to Meyn writing music for piano and saxophone, she had more trouble with his working in percussion.

“At first I didn’t really want the drums,” John recalls. “But then Till wrote the percussion so brilliantly that it fit perfectly with what we were doing.”

And Meyn remembers “Suki saying how much she loved strings as a musical element. It didn’t take me long to tell her that we probably wouldn’t be doing strings because I just didn’t feel strings would convey the message we wanted to say.”

The collaboration was so open and trusting that Meyn recalls being “free enough to write Suki and tell her, directly, that ‘I don’t think you want this’ — always explaining to her why she might not want it.”

When it came to deciding how to end “Wall of Babel,” some indecision clouded their collaboration. For his part, Meyn didn’t want it to end on too much of a lax, slow note, as he was worried about boring the audience.

“I’m also not for boring an audience,” admits John. “I could see the end of the piece, but I couldn’t hear it. We had a couple of false attempts for the end, but when he finally gave me the ending, it was perfect.”

Less than perfect was John and Meyn’s coordination of the trip to Cuba to perform their work.

After receiving a special $12,000 TCU Invests in Scholarship grant, John and Meyn had to endure months of bureaucratic entanglements involving the U.S. State and Treasury departments to gain permission to travel to Cuba. Finally, only John, traveling as a TCU cultural missionary, could go. In May, John rehearsed “Wall of Babel” with a local Cuban troupe (Danza Espiral) of 10 dancers, plus three professional Cuban musicians, who gave two performances in Havana and two in Matanzas.

“I loved doing it in Cuba,” says John. “Artistically, it was like going home. And because the piece really speaks to the idea of separation, I felt it was making an important statement about the futile conflict between Cuba and the States.”

Despite not being able to attend its landmark Cuban premiere, Meyn gives his collaborative experience with John only high marks, especially for how it revealed certain aspects of his personality.

“I learned that collaboration takes a lot of effort and that I have very strong ideas,” says Meyn. “So I would not go into my next collaboration lightly unless I knew of a shared vision I had with the other artist. If that is the case, then the outcome will be larger-than-life than if I just did it on my own. No surprise that I would absolutely collaborate with Suki again.”

John echoes Meyn’s desire to do future collaborations.

“Till and I have talked about the tango piece I know he’s written,” she says. “I have every reason to believe another collaboration will happen. I have collaborated with other composers in the past, but it was never as easy as it was with Till. We all took to calling him ‘Chill Till’ because he’s so naturally chill and not a drama queen at all. He puts all the drama into the music. It’s all about the work for him. “Wall of Babel” ended up not being mine or his. It was ours.”
NOVEL ENDING

Honors Professor Dan Williams publishes his first novel.

It’s not unusual for an author to be inspired by another writer’s work, but for English professor Dan Williams, the inspiration came from irritation not admiration.

He recalls slogging through Ayn Rand’s 800-page post-apocalyptic novel *Atlas Shrugged* only to be disappointed by the ending, when a group of superior-intelligent elites give up on the rest of humanity after a national catastrophe and fly away to their mountain retreat.

“In the last scene they look out and see the lights of the electrical grid flicker out,” he says. “I thought what a wretched way to end a novel, with people giving up on each other.”

So Williams began thinking about what was happening to those left behind. It took more than two decades, but now that novel, *The Lords of Leftovers*, has been published.

“In my mind it’s about a world coming back together,” he says. “There has been chaos, I refer to it in the book as the Fires, but things are reconnecting now. That reconnection is what I wanted to write about.”

The novel is set in the burned-out remains of the United States after a series of fires and armed confrontations, and survivors are scavenging and bartering for leftovers in a world with no working government or stable economy. The lead characters are two traders who must make their way past bandits, religious zealots and armed militias to a “magic mountain” where there is some semblance of the civilized world.

“It’s about people adapting, what do they do when there’s no technology,” he adds.

Williams, Honors Professor of Humanities in the John V. Roach Honors College and Director of the TCU Press, has been working on the novel since the 1990s. He remembers years ago when he built up the nerve to show it to his friend, acclaimed Southern writer Barry Hannah who passed it along to his literary agent.

“His agent wrote a nice note back saying, ‘It’s interesting. I’m not sure why there’s humor in it. We don’t publish this kind of thing,’” Williams says. “I was crushed.”

He didn’t show it to anyone else for years but decided to start “playing with it” again a few years ago. Eventually, he showed the manuscript to TCU colleague David Kuhne, former associate director of the W.L. Adams Center for Writing. Kuhne had recently published a collection of short stories titled *The Road to Roma*, and sent Williams’ work to his publisher, Ink Brush Press, which agreed to publish it.

“It was kind of an out-of-body experience,” Williams adds. “I didn’t believe it for a while.”

The book is also indicative of the fast-changing world of book publishing because it’s a print-on-demand product, a new technology that allows publishers to print a smaller number of books at a time as orders are placed and reduces inventory cost. Williams says TCU Press is also exploring the concept for certain titles.

“It’s something a lot of publishers are looking at,” he adds.

Williams says he is already at work on a sequel.

“The hardest part of the process was putting faith in the manuscript and thinking it was good enough to keep writing,” he says. “But as I drew to the end and realized the novel was going to get done, I decided maybe it wasn’t so bad.” — Kathryn Hopper
Between Day and Night: New and Selected Poems, 1946-2010 Miguel González-Gerth
EDITED BY DAVID COLON, ASSISTANT PROFESSOR OF ENGLISH AND LATINO STUDIES
TCU PRESS
Colón's collection of Miguel González-Gerth's Spanish and English poetry showcases the talent and creativity that comes from the native Mexican poet's unique cultural perspective and a profound understanding and commitment to the process of translation.

Shakespeare's Anti-Politics: Sovereign Power and the Life of the Flesh
BY DANIEL JUAN GIL, ASSOCIATE PROFESSOR OF RENAISSANCE LITERATURE
PALGRAVE SHAKESPEARE STUDIES
Gil's book takes the position that Shakespeare was essentially anti-political, but did chart a surprising form of resistance to the nation-state. He argues that Shakespeare does not imagine directly opposing sovereign power; rather, he uses sovereign power against itself to engineer new forms of selfhood and relationality that escape nation-state politics.

Fashion in the Time of the Great Gatsby
BY LALONNIE LEHMAN, PROFESSOR OF THEATRE AND COSTUME DESIGN
SHIRE PRESS
The classic novel *The Great Gatsby*, which is set in the Roaring Twenties, is the inspiration for Lehman's research with focus on the style and glamour of this time period. The 1920s represented new popular fashions and style excess, not to mention a major economic surge. The Jazz Age flourished with flapper dresses and fedoras. Sketches from designers, photographs and main passages from the book make this novel of brilliant fashion that much more real.

Queer Males in Contemporary Cinema: Becoming Visible
BY KYLO-PATRICK R. HART, PROFESSOR OF FILM, TELEVISION AND DIGITAL MEDIA
SCARECROW PRESS
Hart examines films pertaining to bisexual, gay, and transgender men, as well as transsexuals, transvestites, queer people with HIV/AIDS, queer teens, and others in films from the mid-20th to the early 21st century. Covering a range of films, including *From Here to Eternity*, *The Boys in the Band*, *Saturday Night Fever*, *Cruising*, *Point Break*, *The Doom Generation*, *Boys Don't Cry*, *Hedwig and the Angry Inch*, *Kinsey*, *Brokeback Mountain*, *Transamerica*, and *Shortbus*, this book shows not only how much has changed since the mid-20th century, but also how much has remained the same.

Cherokee Sister: The Collected Writings of Catharine Brown, 1818-1823
BY THERESA STROUTH GAUL, PROFESSOR OF ENGLISH
UNIVERSITY OF NEBRASKA PRESS
Catharine Brown was a Cherokee woman who converted to Christianity and was one of the first Native American women to have her writings published extensively in her lifetime. Though Brown died of tuberculosis at age 23, Gaul's collection of Brown's work shows how she influenced American perceptions of Native Americans in the years just before the Trail of Tears.

The Wright Stuff: Reflections on People and Politics By Former House Speaker Jim Wright
EDITED BY JAMES W. RIDDLESPERGER JR., PROFESSOR OF POLITICAL SCIENCE, AND DAN WILLIAMS, HONORS PROFESSOR OF HUMANITIES
TCU PRESS
This collection of Wright's finest work follows the major elements in his political career, ideological development and philosophical thought as it gives insights to many of the signature events of the 20th century.

Paradoxes and Sophisms in Calculus
CO-WRITTEN BY SUSAN G. STAPLES, ASSOCIATE PROFESSOR OF MATHEMATICS
THE MATHEMATICAL ASSOCIATION OF AMERICA
Designed for high school and university calculus students and teachers, this collection of paradoxes (counter-intuitive statements that look false but are actually true) and sophisms (intentionally flawed arguments that appear formally correct) promises to help enhance the comprehension of the underlying calculus concepts.
MORE THAN A MASCOT  Graduate student Ashley Wall is involved in a horned lizard study in south Texas led by Associate Professor of Biology Dean Williams.