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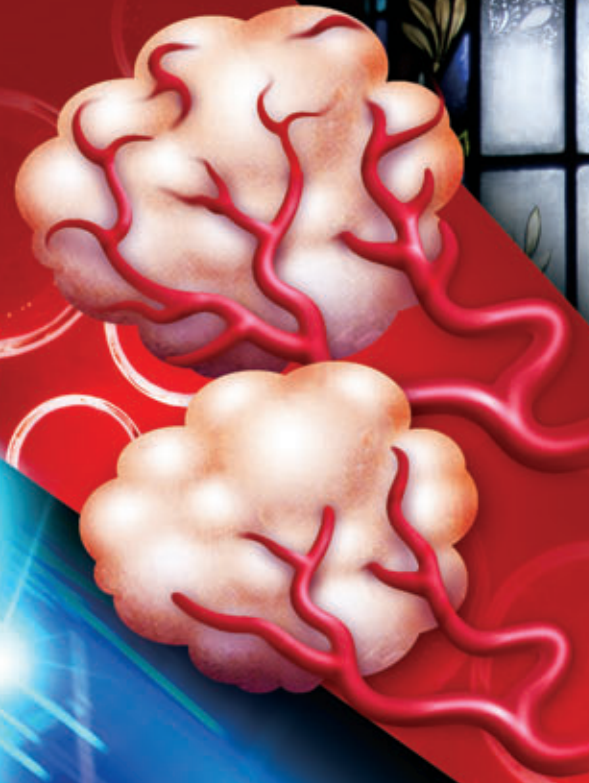
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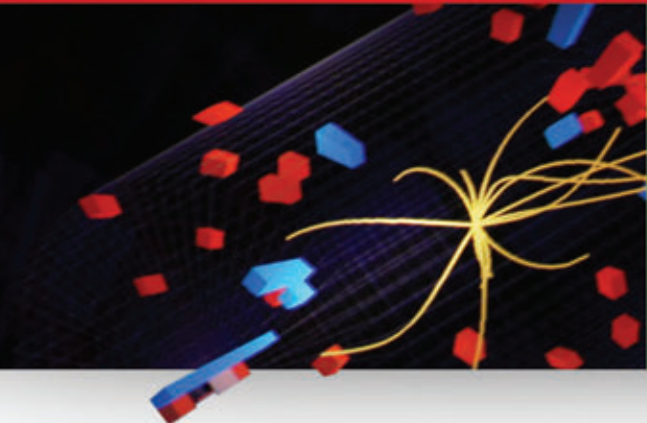
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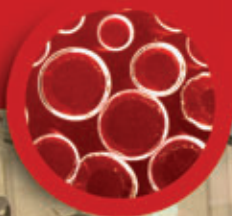


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The previous issue of *Research* focused in part on the manner in which Baylor faculty integrate their scholarship and research into the lives of their undergraduates, enriching and strengthening the long cherished Baylor undergraduate experience.

IN THIS ISSUE OF *RESEARCH*, WE BROADEN OUR FOCUS TO INCLUDE BAYLOR'S GRADUATE PROGRAMS. RESEARCH DRIVES A GRADUATE SCHOOL, AND GRADUATE STUDENTS DRIVE RESEARCH. STUDENTS SELECT A GRADUATE PROGRAM IN LARGE PART BECAUSE OF SPECIFIC ONGOING RESEARCH, WORKING FROM THEIR ARRIVAL ON CAMPUS TO CONNECT TO THE RESEARCH ACTIVITY THAT FIRST DREW THEM TO BAYLOR. AS YOU'LL SEE, BAYLOR FACULTY SHINE THROUGHOUT THIS PROCESS! YOU'LL MEET BAYLOR GRADUATE STUDENTS CONDUCTING CANCER RESEARCH, BUILDING A NEW BUSINESS OUT OF THEIR BAYLOR RESEARCH, CREATING A NETWORK TO ALLEVIATE HUNGER, AND MUCH MORE.

THIS ISSUE OF *RESEARCH* ALSO BRINGS YOU A BRIEF REPORT ON THE BAYLOR RESEARCH AND INNOVATION COLLABORATIVE (BRIC). THE BRIC IS THE CORNERSTONE PROJECT IN THE CENTRAL TEXAS TECHNOLOGY AND RESEARCH PARK AND WILL BY DESIGN PROVIDE BOTH BAYLOR AND THE REGION A UNIQUE BLEND OF UNIVERSITY RESEARCH, ADVANCED WORKFORCE DEVELOPMENT, INDUSTRY, PUBLIC

SYMPOSIA AND BUSINESS START-UP SUPPORT. NO ENDEAVOR OF THIS SORT IS SUCCESSFUL WITHOUT STRONG PARTNERS. IN THIS ISSUE, YOU'LL LEARN A BIT MORE ABOUT BAYLOR'S PRIMARY PARTNER - TEXAS STATE TECHNICAL COLLEGE WACO. STAY TUNED OVER THE NEXT SEVERAL YEARS AS THE BRIC TAKES SHAPE. IT'S AN EXCITING TIME TO BE AT BAYLOR!

AS ALWAYS, I WISH I COULD COMMUNICATE MORE OF THE WONDERFUL RESEARCH STORIES TAKING SHAPE EVERY DAY ON THE BAYLOR CAMPUS. PLEASE FEEL FREE TO CONTACT ME OR VISIT OUR WEB SITE AT WWW.BAYLOR.EDU/RESEARCH FOR ADDITIONAL DETAILS AND INFORMATION.

A portrait of Dr. Truett Hyde, a man with a beard and glasses, wearing a light blue shirt and a dark tie. He is smiling and has his arms crossed. The background is a blurred indoor setting.

Dr. Truett
Hyde

Vice Provost for Research



What is the Central Texas Technology and Research Park (CTTRP) and why is it important for Baylor and central Texas?

One of the primary goals of Baylor 2012 is to move Baylor into the top tier of research universities while maintaining our historically strong undergraduate teaching experience and strengthening our Christian mission. The development of the CTTRP is a critical step toward attaining these goals. The CTTRP's first project, which is already underway, is the establishment of the Baylor Research and Innovation Collaborative (BRIC). The BRIC is designed to help create critical mass around several successful research areas already in place at Baylor while at the same time providing the necessary infrastructure for development of new research areas. The local community has been very supportive of both the BRIC and the CTTRP due to their potential as local and regional economic engines. The bottom line is that the CTTRP and the BRIC are win-win initiatives for Baylor, Waco and central Texas.

Who will partner with Baylor in the CTTRP and the Baylor Research and Innovation Collaborative?

By design, the BRIC has both external and internal stakeholders.

Our primary external partner is Texas State Technical College Waco (TSTC Waco). They will provide both workforce development and advanced workforce training. Additional external stakeholders include Clifton and Gordon Robinson, Bland Cromwell, the City of Waco, the City of Bellmead, McLennan County, Waco-McLennan County Economic Development Corporation, Bellmead Economic Development Corporation, Waco Industrial Foundation, Heart of Texas Council of Governments, the Cooper Foundation, the Greater Waco Chamber of Commerce, Cen-Tex African Chamber of Commerce, and the Cen-Tex Hispanic Chamber of Commerce. Within Baylor, our primary academic partner is the School of Engineering. The Schools of Business and Music, as well as multiple interdisciplinary centers and institutes, are also involved. Finally, we've also experienced great support from our local, state and federal representatives.

A good portion of this magazine focuses on the critical relationship between faculty research and graduate education, in fields ranging from new drug discovery to high energy physics to medieval literature. As vice provost for research, how do you see that relationship evolving at Baylor?

Graduate students are the lifeblood of any research university. Fortunately, Baylor has always had strong faculty-student mentoring relationships and this has only strengthened with the advent of Baylor 2012. Baylor faculty routinely pour their lives into their graduate students, with the results of this investment obvious in the accomplishments of our wonderful alumni. As Baylor continues to move forward toward research university status, this will only expand as we add additional graduate students,

postdoctoral students and research fellows. The impact of our faculty on their undergraduate students, graduate students, research fellows and postdoctoral students will always be what drives Baylor's influence as a research university.

Are there special elements in the research environment at Baylor that attract graduate students and facilitate graduate research?

Absolutely! Students pick a university in large part due to its faculty and Baylor has long been known for our outstanding faculty-student relationships. Attending a university where this is the norm is even more important inside the graduate student realm. One, if not *the*, most important decisions doctoral students make over the course of their careers is the selection of a mentor. Prospective graduate students who could go to any university in the world routinely decide to come to Baylor because of our faculty.

How does the Office of the Vice Provost for Research (OVPR) encourage and support graduate research at Baylor?

The OVPR provides multiple avenues of support for graduate research. All of our internal funding opportunities encourage or require that faculty receiving these funds include graduate students as an integral part of their proposed research agenda. External funding pursued through the OVPR targets equipment our faculty normally could not obtain funding for by themselves but that our graduate students require to be successful. Three years ago, we created the Undergraduate Research and Scholarly Achievement initiative which is designed to integrate Baylor's undergraduates into the overall university research agenda. The bottom line is that our students at both the graduate and undergraduate level are an essential component of Baylor's success as a research university.



BAYLOR
RESEARCH
& INNOVATION
COLLABORATIVE



a New Beginning

BY JENNIFER KUNARD

General Tire latest in series of shutdowns

By ALAN NELSON
Tribune-Herald business editor

The closing of the General Tire plant is the latest in a series of layoffs and shutdowns that have hit the Waco area in the past year.

Levi Strauss is completing the shutdown of its national women's-wear distribution center, which cost the Waco area 350 jobs. American Solar King of Waco, which is engaged in a lawsuit with Western

sion was motivated by the world economic situation."

Mitchell said the closings and layoffs were not part of a trend.

"The closings we have had have not been related to one another," he said. "But certainly, it is an area for concern."

"This (General Tire shutdown) won't be diverse and grow. All signs

Closing expected to cost town \$80 million or more

From Page 1A

Aug. 22, when Goodrich plant closing, the off a fourth of

on the assumption that the downturn in the economy would be at least 20 percent. I think we're conservative in that estimate. I think

main a problem even after the plant closes and families with school-age children move away in search of work. Earlier this year, voters turned down a \$3.2 million bond issue that "would have fixed things nicely." Head said. Now, he

THE GENERAL TIRE

BAPTISTS EMPHASIZE UNITY AT CONVENTION — LOCAL, 1B

Waco Tribune-Herald

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75 CENTS

General Tire shutdown to affect 1,405 workers



By ALAN NELSON
Tribune-Herald business editor

General Tire, the city's largest manufacturer, shut plant and laid off 1,405 employees, and



Officials gear up for ripple effect

By TOMMY WITHERSPOON and CARL HOOVER
Tribune-Herald staff writers

McLennan County taxing entities, merchants and school administrators are gearing up for the ripple effects expected to be created by the closing of General Tire, one of the county's leading employers.

GENERAL TIRE TAXES

Following is a list of taxes paid by General Tire to McLennan County \$142,262 to City of Waco \$272,417 to WISD \$375,950 to MCC \$28,500

The total property value of General Tire is \$49.8 million.

Waco tries to regroup after layoffs

By DREW PARMA and DARRELL DUNN
Tribune-Herald staff writers

For the second time in four months, a Waco task force has been formed to deal with the shutdown of a major Waco plant — this time the closing of General Tire and the loss of 1,405 local jobs.

A task force made up of representatives of the Chamber of Commerce and city and county governments announced at a Friday news conference they will keep a scheduled appointment Monday with top GenCorp officials in Akron, Ohio. Chamber chairman Alton Pearson said the meeting with GenCorp executive officer Gilbert Neal and chief of operations William Reynolds has become a recruiting mission. Originally, local officials were to offer tax breaks and incentives in return for the plant's relocation.

now is to re-

Waco. But that b-

not be tires, s-

Cullen Smith, tie on getting fi-

minds, in view said in the past.

Pearson said other, more profit that might be inter-

plant facilities. He ventives planned to might still be offer-

expresses interest in in.

Johnson Roofing II son has presented a plan to make rubber related products.

Bill Johnson said he

Plant closing will impact Waco firms

By ALAN NELSON
Tribune-Herald business editor

The shutdown of General Tire will leave skid marks across the financial fortunes of several Waco businesses.

Among those directly affected will be Texas Power & Light, Lone Star Gas, the Texas Farm Bureau and Central.

GENERAL TIRE FACTS

Location: 600 General Parkway
Product: Ban-ply tires, ranging from 13-inch passenger tires to heavy-duty truck tires.

A LOOK BACK

In 1985,

General Tire had recently renovated the Waco plant's building interior and employed more than 1400 workers. Shortly after the renovation was complete, employees reported to work and read a corporate notice and press release stating that General Tire had decided to close the Waco plant.

"We were in complete shock when General Tire announced they were closing the plant," says Dr. Elton Stuckly, current Texas State Technical College Waco president and Waco General Tire industrial maintenance electrician from 1979-1986. "It's not fun to walk into work and see a big sign on the wall that says you're going to lose your job." In addition, workers were left in the dark on how the staggered layoffs were going to happen and when they would lose their jobs.

"Morale at the plant was bad," recalls Stuckly. "You never knew when your time was going to come or when your final day was. Everyone started looking for a job after the announcement was made to close the plant."

At the time, the General Tire plant was Waco's largest manufacturing facility and one of the city's largest employers. Waco had to absorb the influx of people looking for jobs and many suffered a pay decrease from \$13 to \$5 an hour, says Joe Dickau, General Tire maintenance worker for 14 years and building caretaker since 1995. "It was disastrous," he says.



Dr. Elton Stuckly

president of Texas State Technical College Waco

Even though the plant's closing cast a shadow on the community, Stuckly continues to remember his time working at the plant fondly. "I still have a special place in my heart every time I drive by that plant because it was such a good job," he says.

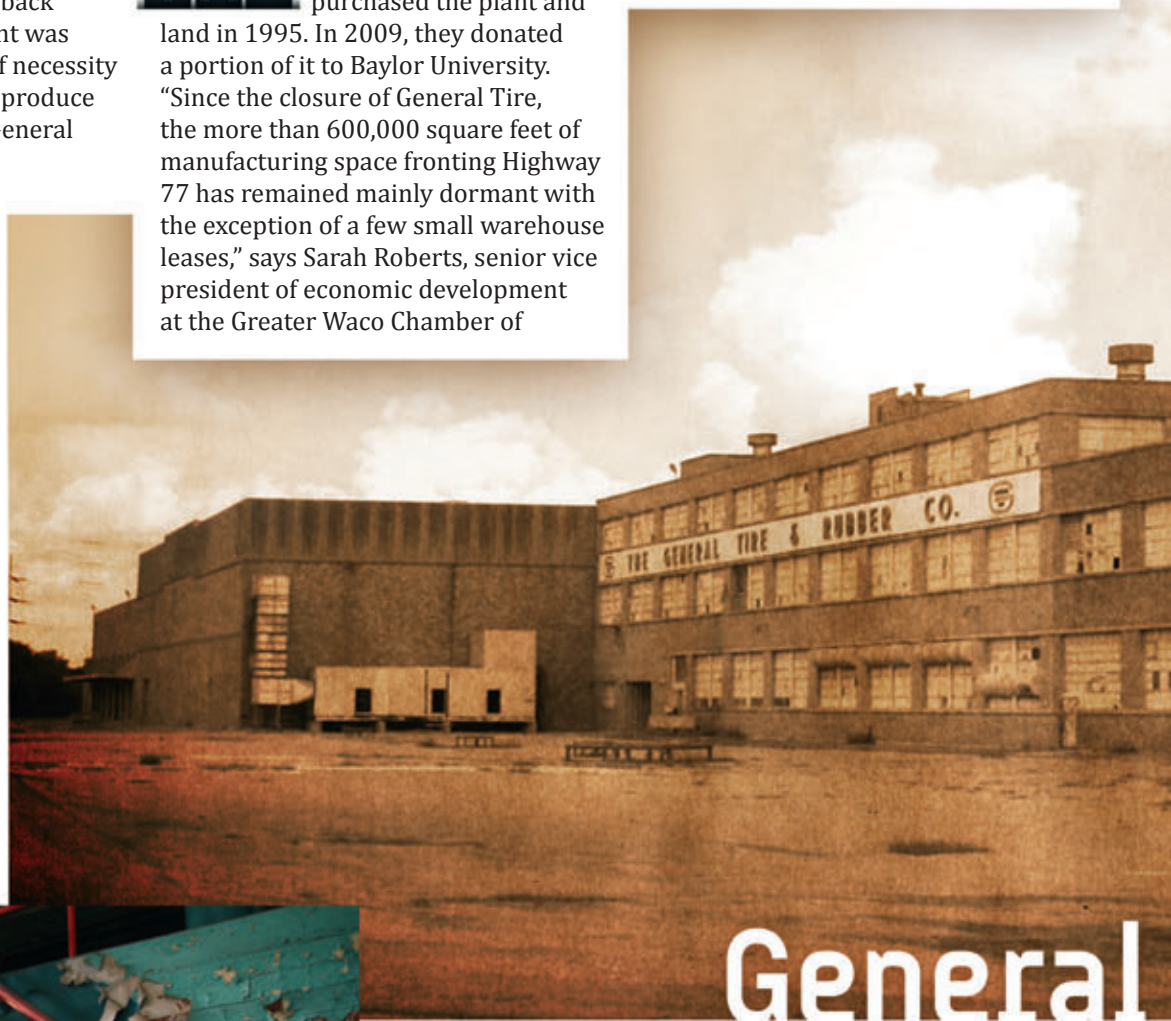
The plant's history dates back to World War II when the plant was financed under a certificate of necessity by the federal government to produce military tires. After the war, General

Tire reimbursed the government and began producing passenger tires at the Waco plant. It manufactured tires from 1944 to 1986 when it shut down production.



Clifton Robinson family and H. Bland Cromwell purchased the plant and land in 1995. In 2009, they donated a portion of it to Baylor University. "Since the closure of General Tire, the more than 600,000 square feet of manufacturing space fronting Highway 77 has remained mainly dormant with the exception of a few small warehouse leases," says Sarah Roberts, senior vice president of economic development at the Greater Waco Chamber of

Commerce. "The front 300,000 square feet is what has been donated to [Baylor]." Many companies have leased space in the 1.1 million square feet of former General Tire distribution space, including Caterpillar Logistics Services and Clarke Products.



General



GENERAL TIRE FACTS

Location: 600 General Parkway

Product: Bias-ply tires, ranging from 13-inch passenger tires to huge, off-road construction tires

Workforce: 1,405 employees

Physical plant: Forty-nine acres under roof on 139 acres of land

Age of plant: 40 years

Payroll: \$3.5 million monthly

Total expenditures: \$18 million pumped monthly into the Waco area economy through expenditures



BAYLOR 2012 VISION BUILDING PURPOSE

Vice Provost for Research Dr. Truell Hyde first envisioned the Baylor Research and Innovation Collaborative (BRIC) in 2002 with the advent of Baylor 2012 and Baylor's commitment to become a top-tier research university, says Jim Kephart, Baylor Advanced Research Institute (BARI) program development director. Baylor 2012's third imperative states that "Baylor



Tire & Rubber Co.



will continue to recruit faculty from a variety of backgrounds capable of achieving the best of scholarship, both in teaching and research. ... A significant number of Baylor faculty will continue to be recognized as leaders in their respective disciplines and in productive, cutting-edge research."

The Robinson family and Cromwell donated the General Tire building and surrounding 21 acres to Baylor. The virtually abandoned building was a nice fit for the BRIC. In October 2009, Baylor, along with state, county and city governments and organizations, and higher educational institutions, announced the formation of the Central Texas Technology and Research Park and its first project, the BRIC.

CITY/COUNTY

COLLABORATION

Given Hyde's original vision, Baylor never considered a solely academic focus for the property, says Kephart. "What is apparent from reviews of research parks around the country is that Baylor, by itself, could not create the type of research and economic development engine which the BRIC will embody. A successful research park requires the long term collaboration of a variety of community partners, including other colleges and local school districts, municipal and county leaders, and industry partners who realize the value of combining university research, technology training and broad based community support for competitive economic development incentives to business."

The BRIC will allow collaborative interaction among Baylor researchers and industry, high technology technician training, and work force development, says Kephart. The goal is to "... provide significant economic development gains to the greater Waco region in the form of higher wage scale jobs as new businesses spin out of the BRIC and locate in the region."

The BRIC will be home to innovation, research, technologies, commercial products, collaboration, partnerships and, once again, jobs. Jobs that mean more to Wacoans than simply a means to a paycheck.

The General Tire building represents so much more than tires to Wacoans. "As BRIC discussions with local area residents progressed over the last few years, we began to notice a central theme when the General Tire plant was mentioned," says Kephart. "It seemed that in each discussion, at least one person in the conversation had direct

knowledge of former employees of the General Tire Company."

Stuckly says he frequently runs into former plant coworkers around Waco and recalls old stories with them. In fact, his next door neighbor is also a former plant employee.

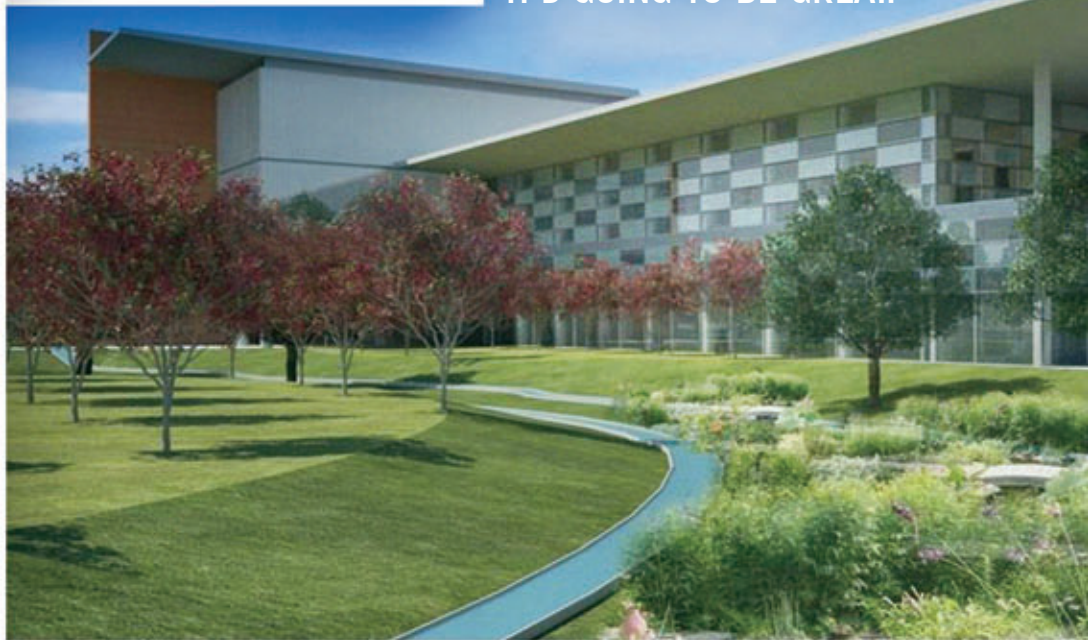
"I love Waco and I wouldn't live any other place," says Stuckly. "I want for me personally, and for all the other employees that worked there, for my grandchildren, and their children, to look back and see what the BRIC has brought to the community."

The BRIC project will not happen overnight, but the time invested in making it a success is going to be worth it. "Anytime you bring on a project of this size, it is going to take

time. Sometimes the best things are worth waiting for and in this case, it is going to take some time to do it right," Stuckly says.

The BRIC is already becoming a reality with an anticipated phase one completion date in spring 2012. Planning and fundraising for phase two, which will include equipping research laboratories and recruiting industry and other partners, is underway, says Hyde.

"I'M JUST THRILLED TO BE THE PRESIDENT OF TSTC WACO AND FOR OUR COLLEGE TO PARTNER WITH BAYLOR ON THIS PROJECT," SAYS STUCKLY. "FIVE TO 100 YEARS FROM NOW, PEOPLE WILL LOOK BACK AND SAY THIS IS A GREAT THING FOR CENTRAL TEXAS. IT'S GOING TO BE GREAT."





BRIC



research



the Whole Picture of WHOLE TREE



BY AMY SEEGER



Villages filled with smoke from smoldering, roof-high piles of coconut husks. Impoverished coconut farmers supporting large families on \$500 per year.

These are the problems that caught the attention of Baylor University research engineers a few years ago, and they responded by using their technical expertise to improve the lives of these villagers in the tropics.

Whole Tree, Inc. (WTI), founded in November 2009 by lead researcher and Baylor University distinguished professor of mechanical engineering, Dr. Walter Bradley, along with two of his former graduate students and others, is addressing these problems. They have run the gamut, from laboratory to end market, to develop a product using coconut husks to help the 11 million economically disadvantaged coconut farmers.

"The OVPR support that we had during those times wasn't a big amount of money, but you can do some important things with a small amount of money that then help you leverage into getting different support," says Dr. Walter Bradley.



Before Whole Tree, Inc.

But before there was WTI, there were just Bradley and his students working toward helping the coconut farmers. In the beginning, he was awarded a couple of small grants to kick start the research. "The first seed funding helped us get some preliminary data that then enabled us to get our first National Collegiate Inventors and Innovators Alliance (NCIIA) grant," says Bradley. The money ran out and the Office of the Vice Provost for Research (OVPR) stepped in to fill the gap so Bradley and his team could continue their research and be competitive for a second NCIIA grant.

"The OVPR support that we had during those times wasn't a big

amount of money, but you can do some important things with a small amount of money that then help you leverage into getting different support," Bradley says.

Together, the research conducted under the two NCIIA grants and the money from the OVPR enabled the newly-formed WTI to compete successfully for a \$150,000 Phase I Small Business Innovative Research grant (SBIR) from the National Science Foundation to further develop the coconut material technology. WTI took the SBIR grant and subcontracted a portion of it back to Baylor in a research grant.

Whole Tree, Inc. offers sustainable innovations in the following selected industries:

boating	luggage
appliances	toys
automotive	truck
bedding	packaging
signage	shipbuilding
filtration	building/ construction
furniture	office equipment



Coconut Shell:
upcoming innovation

Coconut Pith:
gardening

Coconut Fiber:
coconut composites

Coconut Waste Corpa:
coconut meal

Coconut Corpa:
coconut oil
bio-diesel

A New Company

WTI has been licensed by Baylor to develop commercial applications for the composite materials Bradley and his research team developed in university laboratories. Corporate and university officials continue to work closely together, primarily through the Baylor Advanced Research Institute (BARI), and Baylor has temporarily leased WTI limited operational space. The company now employs former Baylor graduate students Elisa Guzman-Teipel and Stanton Greer; Teipel as research and development engineer and Greer as research engineer.

Unlike many research endeavors initially motivated by a consumer need, WTI's goal is to convert renewable resources into value-added solutions. This manifests itself in WTI seeking to address environmental, economic and health problems - and eventually spiritual needs - for people in developing countries who have underutilized renewable resources available to them, but don't have a way presently to benefit.

Greer says that the more they dove into business development, the more they knew the best way to help the poor farmers was to create a market for what they already know how to do - coconuts. "They are very smart and very capable, but in their economy, there's no one to buy anything they produce. And so, what we're trying to do is to create the absolute biggest market possible to buy the coconut parts."

Guzman-Teipel adds, "We're not a coconut company, per se. We're a research and development company that looks for utilizing renewable resources that are abundant to poor farmers around the world - in this case, coconut farmers. But some farmers might have bamboo, others might have sugar cane, and in the future we'll be working with other products, but right now our focus is with coconuts. That's the first renewable resource that we know farmers have in abundance and are making little money from it."

"We've been very pleased to discover that the coconut fiber and the coconut shell, which are pretty poorly utilized, or just burned, actually have some very, very good properties that make them potentially useful for a wide variety of applications," says Bradley. "It's entirely possible that we could have studied and even found they really have poor properties, and they really aren't worth anything, and that's why nobody used them for anything. But happily, that's not the case. It's like discovering a nugget in the rough."

Interdisciplinary Academic Cooperation

Baylor graduate student Sean Conroy says he was drawn to the engineering program because it embraces the concept of "appropriate technology": the development of technology to meet human needs while giving special consideration for environmental, social, political, religious, and cultural factors in the communities served. Conroy adds, "I enjoy hearing [Bradley's] wisdom. He's really generous with his time. I enjoy working with a world-class researcher like him."

This applied research has had "a huge learning curve," says Conroy. When combining real-world business and research, there are many different things to juggle. He says that his graduate work involves not just research in a lab, but also a business and people side.

Dr. Greg Leman, clinical professor of management in Baylor's Hankamer School of Business, uses WTI as a subject in his classes. A team of MBA and undergraduate business and engineering students, including Conroy, has developed business plans for WTI and competed in the 2010 Rice University Business Plan Competition.

Bradley says that the business research has been critical to this project. Research engineers and



business scholars are merging their findings, pulling their information together to make WTI a competitive, feasible company. Guzman-Teipel says the business students are helping with marketing, and researching questions like what the market looks like and what it will take to make the products viable.

"You know, as an engineer," she says, "you can have a great idea, but if you can't sell the idea or get it out to the marketplace, you can't help anyone. And our goal as engineers, whether it be appropriate technology, or whether it be aerospace design, is to improve mankind. So for us, that means getting an idea, but then doing something with it. Business students, in my opinion, are literally a catalyst to that work. While we're in the lab, they're in their own type of lab... so it brings a real synergy, a 'realness' to the team, to complete the equation."

Practical Application of Research and a Business

The work of the students in the engineering lab involves a number of different things, says Guzman-Teipel.

"Any given day in the lab, we'll have them analyzing data, going through some of their findings. They're getting to see what it means to design a product and get it to the market. It's not just learning basic things in engineering and learning all the rules, but actually applying them to make a feasible, sustainable business," she says.

Bradley says students learn two things. "They learn how to do research, which is a lot different than doing 'cookbook labs.' In a cookbook lab, it should work right on the first try. When you do research, you might try 10 different things to get one thing to work. So they get real-

world experience in what it's like doing R&D - research and development - and I think that's a great opportunity for them, to be discovering new things that nobody has done before.

"I think the second thing they've gotten out of this involvement is an understanding of what it takes to be successful in the marketplace. It's easy to develop things that are technologically successful - they actually work - but they can't find any place in the marketplace because they are too high priced or they don't have the right performance. Trying to invent and develop something that actually is functioning according to what

is needed in the marketplace at a price that people are willing to pay is something that students who work on this project understand every day."


One of the valuable skills he gained from his graduate work, says Greer, is "how to take an idea and get it to market - how you take something that has never existed before and get it in the hands of customers and people who can benefit from it." Bradley says that the coconut fiber is "absolutely ideal for more moderate and low-priced applications."

Bradley and his students have successfully brought to life their ideas in a way that researchers in general rarely get to see through from start to finish. From Whole Tree's roots in the lab to seeing its marketplace demand grow, Greer says, "Our goal is to help as many poor people as possible improve the quality of their life."


"We can't wait to get more funding so we can have more interns and hire more people because we have more work, which is a blessing," says Guzman-Teipel. Possible applications for the new material include boating, bedding, building, construction, toys, and more.

So what started out as an engineering professor and his students has turned into a business. WTI has now been awarded Phase II of their SBIR grant. The \$500,000, which includes another subcontract back to Baylor researchers, will help them develop ways to get their products into the hands of consumers and businesses. The WTI phase II proposal's ranking qualified the company for additional technical assistance at no charge.

"The way a lot of this has worked out, it's really providential," Bradley says. "It's hard to imagine finding the path that we have found by trial and error, or by good luck. There are too many things in terms of people, in terms of the material we have chosen to work on, the partners that have come to us, in most cases, to work with us; it's been a very, very exciting experience. It's an amazing journey."



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“Our inherent curiosity drives us on this search,” says Dr. Jay Dittmann. “It is humbling and exciting that we can learn more and more about the universe.”

He generates excitement as he talks about the search for the predicted – but as yet unobserved – Higgs boson, the particle that gives other particles mass. Physicists believe finding this missing piece would confirm the Higgs theory that a field surrounds particles, which gain mass by coming in contact with it.

An associate professor and director of undergraduate studies in the physics department, Dittmann heads Baylor’s Experimental High Energy Physics (HEP) group, which collaborates in experimental elementary particle physics research at the Fermi National Accelerator Laboratory (Fermilab) in Batavia, Illinois.

At Fermilab, protons and antiprotons are accelerated to nearly the speed of light by the Tevatron, where some collide at the center of two 5,000-ton detectors. In a series of explosions over nanoseconds, the original particles decay and new particles are created.

“While we believe the Higgs boson exists – based on what we know about particle behavior – no one has actually observed it,” Dittmann says.

Since 2005, Baylor graduate students in the HEP group have been on the front lines of this research, working in the Collider Detector at Fermilab (CDF). That same year Baylor was voted in as a university collaborator/partner, one of only about 60 universities worldwide with that designation.

Search for the UNKNOWN

BY MARGARET SANDERS

“This has really put Baylor on the map in high energy physics,” Dittmann says. “Also, our collaboration with Fermilab has opened lots of doors for our students.” All HEP graduate students spend at least three months onsite at the facility, where they collect and record collision data. During this time, they are able to begin building professional contacts, networks and friendships with other graduate students and leading particle physicists already working in the field.

Dittmann knows firsthand how rewarding these experiences can be for students, having served a postdoctoral fellowship at Fermilab himself. Eventually, however, he realized his true passion was teaching. At Baylor, he found the opportunity to begin a new research group in an academic community that valued both faith and serious science. The resulting HEP group is funded primarily by the U.S. Department of Energy, along with Baylor research grants.

Along with his experiences and training, Dittmann brought contacts and connections that opened doors for students.

Fourth-year doctoral student Martin Frank worked at Fermilab from May 2007 to July 2008 and continues to analyze data online from the Baylor campus. He says the unique combination of the HEP’s small size and Fermilab’s collaboration gives students the best of all worlds.

“I’ve made so many contacts, networking with the real leaders in this field,” Frank says. He also has credit for more than 30 publications, thanks to CDF’s policy of naming all involved in a project.

While he had originally planned to enter business after graduation, his experiences at Baylor have led him to an academic career. “Dr. Dittmann really encourages and mentors us,” Frank says. “He’s inspired me to continue to research and teach.”

Everyone benefits from this mentoring atmosphere. “We are a close-knit community that values each other’s work,” Dittmann says.



"I try to be supportive so students feel free to explore their interests on their own, ask questions and search for answers. I take the philosophy that graduate students need to learn how to be independent researchers who can go beyond just following instructions and get to the point where they are among the world's experts."

In the spring, Baylor was accepted into the Compact Muon Solenoid (CMS) experiment at the European Organization for Nuclear Research (CERN) near Geneva, Switzerland. CERN is the world's premiere particle physics laboratory and houses the Large Hadron Collider - the most complex and powerful particle accelerator ever built. Dittmann and Dr. Kenichi Hatakeyama, assistant professor of physics and critical team member on the research, presented the proposal for Baylor to join the CERN experiment. "The future of our Baylor high-energy physics research program lies at CMS," Dittmann says.

With powerful enough equipment, Dittmann and other physicists expect to be able to eventually produce the elusive Higgs boson. When this is found – or even whether it is found – remains to be seen, but the search is not in vain, Dittmann says, because it will reveal more about the universe. And that is much of what drives scientific research.

"We do what we do, not necessarily because we know where we're going, but because we want to know what's along the way," Dittmann says. "The journey really is the destination."



research



Medieval manuscripts MADE MODERN

BY DANA WALLACE

“We lose an understanding of who we are as humans if we let our past slip away from us,”

says Dr. Sarah-Jane Murray, associate professor of medieval literature and French in Baylor’s Honors College.

It is with that knowledge that Murray approaches her work on making manuscripts from the medieval period available to readers today. “Our job is to be guardians of cultural history,” says Murray.

Medievalists rely on manuscript copies of texts passed down through the years and often translated from earlier documents. Sometimes great works survive in a single copy, other times dozens - even hundreds - of manuscripts of a single work survive, each with its own additions and variations. Because of this, Murray sees importance in preserving the past and analyzing what’s available to understand, as closely as possible, the transmission of these great texts.

Her vision for the future is a large-scale digital database that explores significant medieval works in an electronic text and photo library through the help of coding to make the works searchable.

There is no set beginning or end to her work; instead, it’s a winding road that she follows wherever it takes her, says Murray.

Murray’s humanities computing work began on the Charrette Project

while at Princeton pursuing her Ph.D. That early project cataloged and studied manuscripts of Chrétien de Troyes’ *Chevalier de la Charrette*.

After joining Baylor in 2003, Murray took the principles she learned on the Old French Charrette Project and applied them to a work in Latin. She started on the Digby 23/Timaeus Project, which grew out of the study of Plato’s *Timaeus*, the manuscript in the Latin translation by Calcidius, and the Old French *Song of Roland*. These two cataloged Web sites continue to undergo transformation.

Murray’s current digital work focuses on the *Ovide moralisé*, a work in Old French that is a translation of the 15 books of Ovid’s *Metamorphoses* with moralizing and allegorical commentary. The work contains 72,000 lines of octosyllabic rhyming couplets, or about 2,000 pages in the early twentieth-century edition. To date, no English monograph exists to aid in understanding the impact of the *Ovide moralisé* on Western literature. Of the 20 existing manuscripts,



Murray has studied all in various languages and seen most first-hand.

Referring to Baylor as his "slice of Princeton in the south," sophomore great texts major Preston Yancey says he's "grateful to come to a university where very, very serious academia gets to be freely explored through the light of Christianity."

He's currently working with Murray to digitize and catalog images found in the *Ovide moralisé*, and has co-authored a paper with Murray that's under peer review and has been presented at a national conference, all before completing his sophomore year.



"We live in a world that's fluid, so our research has to be fluid as well," says Yancey of bringing the

medieval documents into the digital age.

Stephen Bush, a recent Baylor graduate who is now at the University of North Carolina at Chapel Hill studying bioinformatics and computational biology, has been able to apply the technical work he did on the Charrette and Timaeus/Digby 23 Projects to his doctoral work. A grant Murray received from the Office of the Vice Provost for Research's (OVPR) Young Investigator Development Program allowed him to serve as a research assistant while pursuing his master's at Baylor.

He took his knowledge of coding and applied it to the medieval texts. "I treated the manuscript as genetic code," Bush says. Every letter became an individual

object, making it easier to search by word or literary type. The experience made him a better programmer, and he attributes much of his success today to Murray's mentorship.



urray's work has also been honored with a grant from the American Philosophical Society and

a stipend from the National Endowment for the Humanities. In addition, a grant from the OVPR's Faculty Research Investment Program supported student research assistants and allowed her to travel to review manuscripts. In 2007, Murray was elected the eighteenth permanent member of the CEMA-Sorbonne Nouvelle (Center for Medieval Studies) research team in Paris; she is the only scholar outside the French-speaking world to be awarded that honor.

She hopes that studying these works and making them available electronically will encourage scholars to ask questions not considered previously while viewing the manuscripts side-by-side.

"We're making the preparation for the people who will come after us as much as we're honoring the people who came before," says Yancey.



It may seem like a mild discomfort, but hot flashes can be a significant health issue.

Some treatments can lead to increased health risks, but an important clinical study being conducted at Baylor University investigates the effectiveness of a hypnosis-based intervention for the treatment of hot flashes. The principal investigator, Dr. Gary Elkins, director of the Mind-Body Medicine Research Laboratory in the Department of Psychology and Neuroscience, initiated the study after recent findings that hormone replacement therapy is associated with a significant increased risk of breast cancer.

"Alternative treatments for hot flashes are needed," Elkins says. "Hypnosis is a mind-body therapy, with few negative side effects, that may be of significant benefit in reducing the frequency and severity of hot flashes in post-menopausal women and breast cancer survivors." The \$2.6 million, five-year study, funded by the National Institutes of Health's National Center for Complementary and Alternative Medicine, is currently in year three and will involve more than 180 women who will receive non-hormonal treatment for hot flashes.

The research is based on an earlier pilot study conducted by Elkins using hypnosis to help breast cancer survivors who experienced hot flashes resulting from chemotherapy. The pilot study

demonstrated that hot flashes treated with hypnosis could be reduced by almost 70 percent.

Participants are randomly assigned into either hypnosis or another mind-body intervention that provides identical contact time. However, all of the participants can eventually receive the hypnosis intervention. "One of the main issues is having a solid control group," says Cassie Kendrick, clinical psychology

Hypnosis for HOT FLASHES

BY MARY LANDON DARDEN



doctoral candidate. "There are no placebos for hypnosis." According to Elkins, each hypnotic induction session lasts 25 minutes and the participant meets with a trained research therapist.

"Clinical hypnosis generally involves a hypnotic induction in which suggestions are given for the patient to achieve a

used to reduce anxiety and to treat stress-related problems that help a patient relax. Hypnosis and mind-body interventions can also have a significant benefit in treating chronic pain, insomnia and other disorders, he adds.

The women are also given CD recordings of the sessions to practice hypnotic relaxation at home. "The practice of self-hypnosis on a daily basis is a very important aspect of the intervention because the goal of clinical hypnosis is always to give the participants greater control of their symptoms," Elkins says.

Elkins says one of the variables examined in the study is the manner in which hypnosis may affect certain aspects of participants' immune function, assessed with blood-markers, and their response to stress, assessed through salivary cortisol. Several other self-reported variables are studied, including anxiety, depression, sexual function, and sleep-response.

Being invited to participate directly in conducting the research and clinical aspects of a new study on hypnosis was exactly the kind of graduate experience Kendrick was hoping for. "I chose Baylor primarily because of the strong clinical and research components."

Working in Elkins' lab on this particular study has helped Kendrick understand research from both a focused and global perspective, she says. "In the Mind-Body Medicine [Research Laboratory], students are afforded the opportunity to work on a majority of the activities involved in major research studies. While many [doctor of psychology] programs don't have the type of research opportunities that our program offers, clinicians graduating from our program are well-prepared to face a competitive job market, because they possess a strong background that combines sound clinical and research experience.

Further, as clinicians with sound research experience, we are better able to understand and apply relevant research in our clinical work."

Kendrick is grateful to Elkins for his mentorship in helping her develop the skills necessary to become a licensed psychologist.

"... Dr. Elkins is greatly concerned with producing competent and professional clinicians," Kendrick says. "In supervision, he presents options to students in such a way that helps them think critically. In this vein, Dr. Elkins has helped me to become a better clinician, learn to seek out relevant literature and expert opinion when needed, make informed decisions appropriately, become more independent and confident in my skills as a clinician, and also ask for supervision in a confident manner."

Elkins emphasizes the important role of graduate students in this study. "The students are essential in conducting this research as they provide both excellent clinical care and state-of-the-art research. They develop exceptionally strong clinical and research skills necessary for professional psychologists working in health care settings."

"The mission of the Mind-Body Medicine Research Laboratory continues to be to conduct empirical research into mind-body interventions for the relief of suffering and improving health," says Elkins. "To me this is one of the greatest potentials of mind-body therapies – to help people live longer and better."



focus of attention and critical judgment is temporarily suspended," says Elkins. "Everyday examples of this state of mind would be when people become absorbed in reading a book, driving for long distances, or watching an engaging movie." This type of hypnosis is already

Women interested in participating in this research study should call 254-296-9888 or email mbmr@baylor.edu.



BY MARY LANDON DARDEN

It is a simple idea: to eliminate hunger. There is an attainable solution. There is enough food in the state of Texas to ensure no one goes hungry, yet people are still without food.

Baylor faculty and students hope to end hunger in Texas and the Texas Hunger Initiative (THI) will help them achieve this goal.

"There is enough food in Texas and enough organizations, congregations and leaders from public services, but around the state, we suffer from lack of organization to distribute the food so that everyone has access," says Dr. Jon Singletary, associate professor of social work. "Grassroots organizations and government officials, along with pastors and low-income families, are all joining hand-in-hand to consider new ways to make sure everyone in our state has access to food."

THI was created by Singletary and Dr. Diana Garland, dean of the School of Social Work, through Baylor's Center for Family and Community Ministries, but was based largely on THI director Jeremy Everett's experience and an interest from the Christian Life Commission (CLC), says Singletary.

"The initial concept developed at a gathering in the [School of Social Work] with each of us sitting around a table brainstorming about ways to involve churches in addressing hunger."

The THI study is a pilot project and Texas is the first state to develop the initiative, which currently involves 20 food banks developing food planning associations. Ultimately, the research team hopes to make THI a statewide initiative by 2015 and to encourage other states to adopt the model. Beth Kilpatrick, THI associate director, says that the United States Department of Agriculture (USDA) likes the model and the USDA Dallas regional office is working with the research team to help develop THI.

Although THI is organizing its system based on the disaster relief model, the THI study is also being developed as it unfolds. "I realized by seeing the difference in hurricane relief in San Antonio, between the less organized response to Hurricane Katrina to the more organized response to Hurricane Ike, that the lessons learned there could also be applied to hunger relief," Everett says.

The participants have a mission statement, a set of shared values, goals, and a strategic chart of how THI envisions the food system in Texas will work best. The "USDA, Texas Department of Agriculture, Health and





Human Services and the Texas Food Bank Network have all joined us and they also believe that the model will work," says Kilpatrick.

"Now we are trying to put the model into effect; we have a state operations team established, food banks are beginning to function as regional operations teams, and we have food planning associations forming to strategically plan for food security in their communities."

"Success for THI would be making every community in Texas food-secure,"

Singletary says. "That would mean having three meals per day, seven days per week, available to every citizen by 2015." In the interim they are measuring success by creating increasing numbers of food planning associations in communities around the state to narrow the hunger gap.

Everett initiates establishment of food programs in local communities by visiting and meeting with local food bank directors and other key players. He meets with local organizers who help him identify key players and conduct organizational meetings to explain THI.

Next, the organizers set up an informational meeting with local leaders and food banks to identify the hunger initiative leaders for that particular community. Key people are recruited to conduct a town hall meeting to explain the THI and what it can accomplish.

Leaders are trained in how to organize a food planning association, which evaluates the community for resources, needs, and gaps and then strategically plans how to address providing food to the hungry.

According to Kilpatrick, the data tracked in the study includes the people involved, the number and type of meetings, how many people attend the meetings, the status of community assessments, and the status of establishing a food planning

association. Notes are kept of each meeting and a detailed assessment of the challenges and what needs to be done to tweak the operation is created. THI currently has seven pilot communities across Texas that are "working out the kinks," Kilpatrick says.

Texas Food Bank Network State Policy Coordinator J.C. Dwyer, along with others, developed a gap-analysis calculator for each community to calculate their specific food needs to make them food-secure.

"We have broad-based support from a variety of foundations, not only from Texas, but from other regions as well," Singletary says. Included in the funding sources are Texas Baptists through the CLC, Baylor University, and a grant from Christ Is Our Salvation foundation. Additionally, community and national funding organizations are supporting the effort. KACV, the Amarillo, Texas PBS station, is developing a documentary on THI.

"The graduate students have made the project possible by planning key components of the project here at home, as well as by engaging leaders around the state," Singletary says.

"Enough good cannot be said about the School of Social Work and how they prepare people," Kilpatrick says. "I am living out the research in the practice setting, which has been excellent preparation for work later on." Singletary, Everett and Associate Dean Gaynor Yancy have mentored Kilpatrick through this journey.

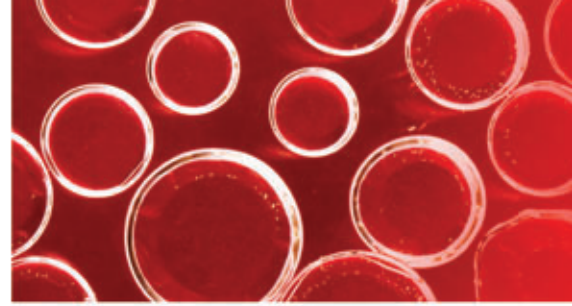
Kilpatrick believes they will meet their goal in 2015. "The system works," she says. "But, whether it works everywhere is dependent on whether people are willing to step up."

THI is important in Texas because Texas is number one in the United States in food insecure children, approximately one in four, and is number two in food insecurity for all residents, says Singletary.

"This is an exciting time among local leaders in communities all around our state," says Singletary. "They have always known it, but are coming together to live out the realization that we have enough food to go around."



For more information, visit the THI Web site at: www.TexasHunger.org



STARVING CANCER

BY KIM GORUM

The best way to run a successful research group, Dr. Kevin Pinney suggests, is to surround yourself with people smarter than yourself, then try to stay out of their way.

He laughs, but he's not kidding.

"I really believe that, and I hope it's a sign of good leadership," says the Baylor chemistry professor, whose team of about 25 Ph.D. candidates, undergrads and postdoctoral researchers creates chemical compounds that may provide the next generation of cancer-fighting drugs, as well as treatments for macular degeneration, Chagas disease and other disorders.

"With a group of our size and the different things we're doing, if I were to try to micro-manage every aspect of it we wouldn't get very far," Pinney says.

"I try to come up with some good ideas, give them to people in rough form and let them run with it - and be open to new ideas that they bring forward and want to run with."





Pinney's group collaborates with one led by Baylor biochemistry associate professor Dr. Mary Lynn Trawick, whose lab tests the compounds synthesized by Pinney's team for effectiveness against cancer cell lines. Both are funded in part by grants from OXiGENE, a small multinational biopharmaceutical firm that is on the leading edge of research into vascular disrupting agents (VDAs). The quality and significance of the research resulting from Baylor's collaboration with OXiGENE has recently been validated through Pinney and Trawick's receipt of highly competitive awards, an R01 from the National Cancer Institute and a grant from the Cancer Prevention and Research Institute of Texas. Those projects also include collaborations with researchers at the University of Texas Southwestern Medical Center.

VDAs represent a potential new cancer therapy that works by damaging the blood vessels feeding solid tumors, shutting off their supply of oxygen and nutrients, and "starving" them from within. And with perhaps only 10-15 such compounds in human clinical trials worldwide - none of them yet FDA-approved - Pinney's and Trawick's groups are in on the ground floor of the research.

The type of VDAs that Pinney and Trawick work with disrupt the blood vessels feeding the tumor by interacting with a protein called tubulin. This in turn disrupts the formation of microtubules, interfering with the blood supply and causing a collapse of the tumor. "This sets in motion a cascade of cell signaling events that ultimately lead to changes in the endothelial cells lining the tumor blood vessels. These shape changes - smooth and flat to rounded up - effectively block the microvessels, thus starving the tumor of necessary nutrients and oxygen," says Pinney.

"It's a kind of engineering where you can't see the parts," says group member Dr. Rajendra Tanpure. "You just have to achieve it and make it work."

"A key strength in the collaboration between the Pinney and Trawick groups centers on the ability to carry out molecular design, chemical synthesis, and initial biochemical and biological studies under the same roof of the Baylor Sciences Building, and, in fact, on the same hallway on the third floor," says Pinney.



OXiGENE's support provides the students with stipends, lab supplies and a chance to collaborate with some of the brightest minds in cancer research worldwide, including Dr. David Chaplin, OXiGENE's chief scientific officer and former head of oncology at Aventis Pharma in Paris, and Dr. George R. (Bob) Pettit, a pioneer in the discovery and development of VDAs and founder of the Cancer Research Institute at Arizona State University.

Perhaps just as valuable, says graduate student Matt MacDonough, is the chance for a side-by-side comparison between careers in the pharmaceutical industry and academia.

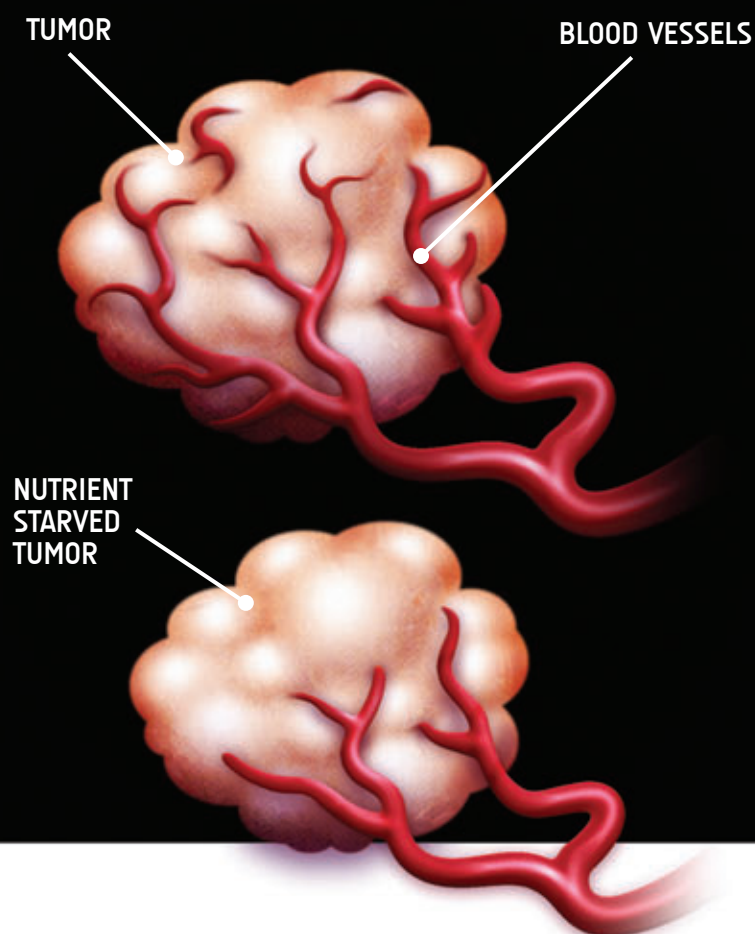
"There are two routes you can go here, and we get the gist of both," says MacDonough, who began working in Pinney's lab as an undergraduate. "The work in our groups allows us to feel out both sides before making a permanent decision."

It also exposes them to issues of intellectual property and patents, a minefield even for experienced scientists. How, for instance, can you be confidential about your proprietary research and still be able to present it in a scientific forum?

"It's very challenging," says Pinney. "And our friends at OXiGENE have been great to work with in that regard."

While the networking opportunities are a big plus, Tanpure and fellow postdoctoral assistant Dr. Kishore Kumar Gaddale Devanna say the freedom Pinney affords them to use their own methods in pursuing the team's goals is one of the most rewarding aspects of the experience.

VDAS REPRESENT A POTENTIAL NEW CANCER THERAPY THAT WORKS BY DAMAGING THE BLOOD VESSELS FEEDING SOLID TUMORS, SHUTTING OFF THEIR SUPPLY OF OXYGEN AND NUTRIENTS, AND "STARVING" THEM FROM WITHIN.



Tanpure, who received his Ph.D. from Baylor in 2003 before accepting fellowships at The Scripps Research Institute and UCLA, is back for his second tour with Pinney's group. He enjoys working in Pinney's lab because creativity is encouraged. He says Pinney sets targets but how they are achieved is up to the individual researcher.

Pinney himself credits much of his teaching philosophy and management style to the influence of Dr. John Katzenellenbogen, a medicinal chemistry scholar at the University of Illinois, where Pinney got his Ph.D., and to Pettit, who offered advice and resources when Pinney arrived at Baylor in 1993 and began setting up his own research group.

"The times I visited Bob's lab in those early years and saw the tremendous loyalty that his students and staff had to him was really inspirational to me," Pinney says. "And he built that by being very involved in their lives, being a steady presence of support, and also a tremendous scientist. I think all of us take different experiences we've had and bring them into how we relate to students."

Justin Tidmore, a Ph.D. candidate who is mentored by Pinney and Trawick, cited their partnership as a big advantage, allowing him to pursue his interest in organic chemistry as well as to mine Trawick's expertise in biochemistry, cell biology, molecular modeling and drug design.

"It's allowed me to expand my horizons and help make myself more marketable," says Tidmore. "Sort of a dual experience. That's the number one reason I chose Baylor."

The program also has given many of the graduate students an opportunity to publish their work for the first time. "[Writing is] a time-consuming process. You could do a month of research and you're going to spend six months writing a paper on it. But it is rewarding when it finally gets published," says MacDonough.

"I think everyone has a history with cancer," says Chavarria, who last year lost a 15-year-old cousin to brain cancer and has other relatives with breast and pancreatic cancers. "I think it's better to help find a cure than to just sit and wait. Nothing's going to come magically. It's a slow process because it's not easy. It takes hours, days, years to come out with any specific single thing. But at least we're trying to do something."

"Even if nothing works," MacDonough adds, "we're still building a platform from which others can continue the search. It does make you feel better about what you're doing with your life, knowing that you could potentially change someone else's."

"Even if nothing works, we're still building a platform from which others can continue the search. It does make you feel better about what you're doing with your life, knowing that you could potentially change someone else's," says Matt MacDonough.





Dr. Alex Beaujean is fascinated by connections.

Specifically, he has devoted his academic career to the field of cognitive epidemiology, which explores the connection between cognitive ability, personality traits and health outcomes. Now Beaujean, an assistant professor in Baylor's Department of Psychology and Neuroscience, is knee-deep in a research study that aims to identify the causes of known correlations and provide insights that could shape public health policy in the years to come.

BY LESLIE J. THOMPSON

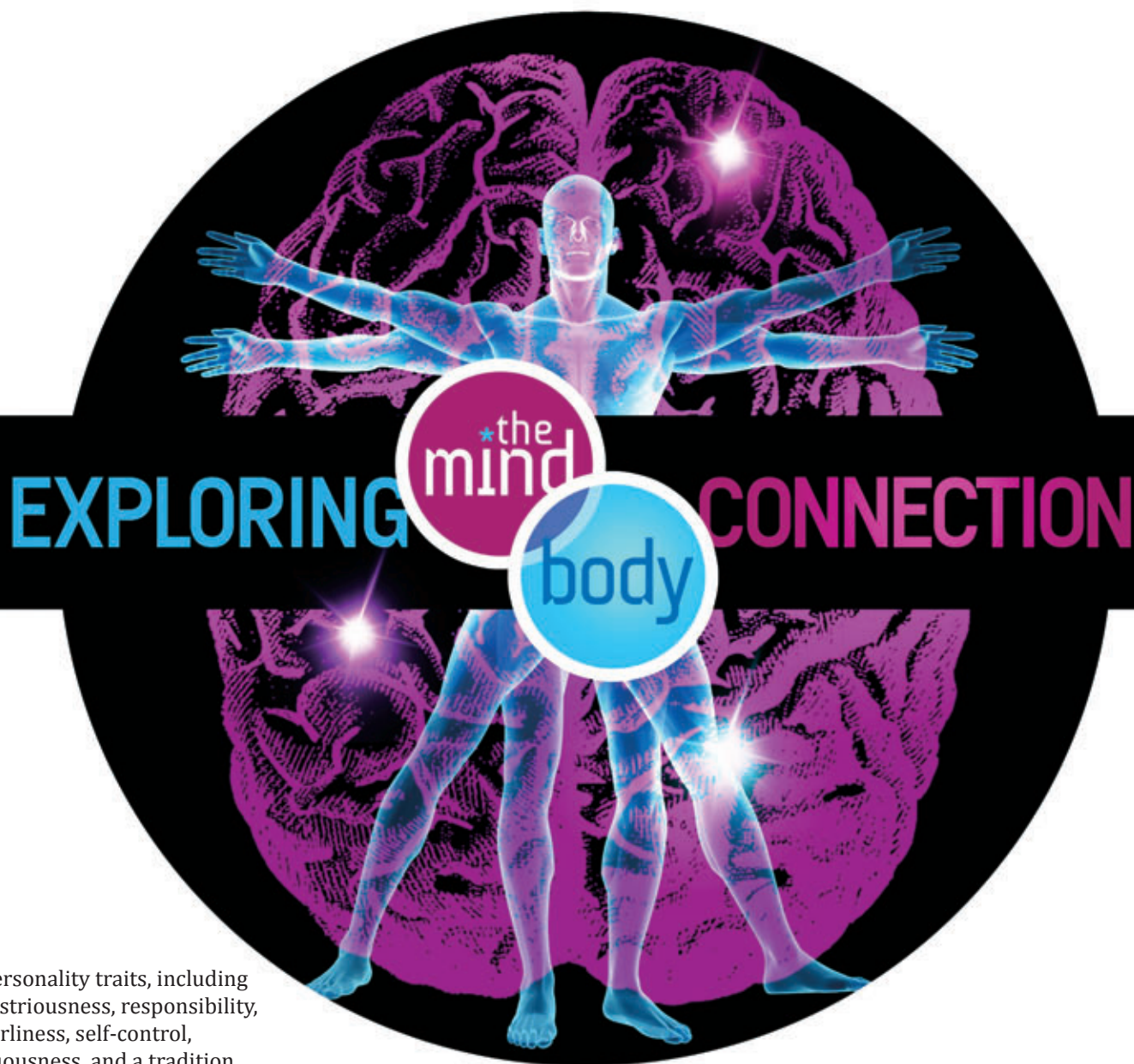
"MY GRADUATE STUDENTS AND I ARE LOOKING AT DIFFERENT POSSIBLE MODELS OF WHY PSYCHOLOGICAL VARIABLES MEASURED WHEN THE PARTICIPANTS WERE IN EARLY ADOLESCENCE WOULD BE RELATED TO ANY HEALTH OUTCOMES IN EARLY ADULTHOOD," SAYS DR. ALEX BEAUJEAN.



"We know that there is a relationship between psychological measures and [certain] health outcomes, but we really don't know why," explains Beaujean, who is also the educational psychology director of the Baylor Psychometric Laboratory. Thanks to a grant from the National Institutes of Health, Beaujean is taking existing research to the next level.

"My graduate students and I are looking at different possible models of why psychological variables measured when the participants were in early adolescence would be related to any health outcomes in early adulthood," he explains.

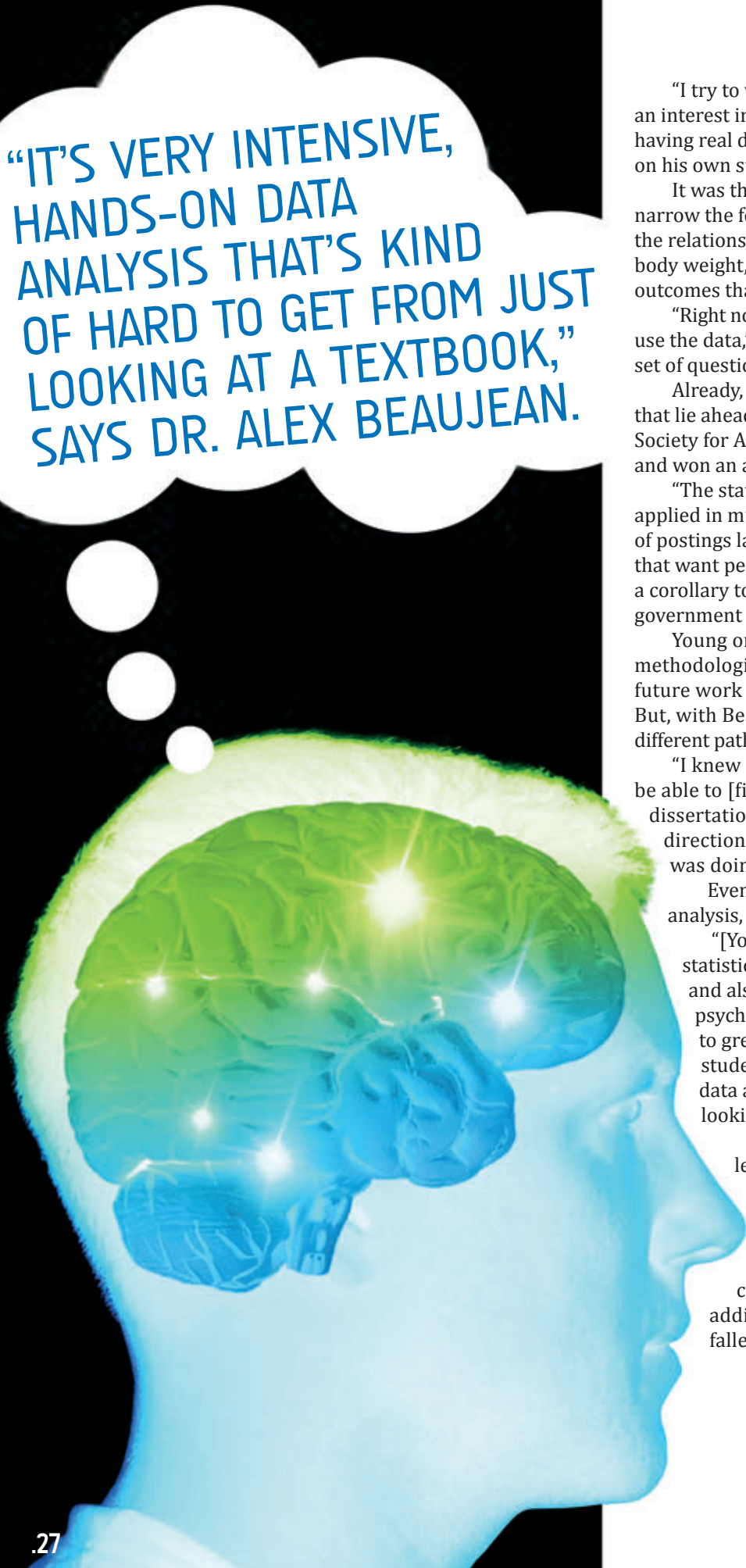
Specifically, the project, entitled, "Individual Differences and Health Outcomes: A Secondary Data Analysis in Cognitive Epidemiology," looks at data from the National Longitudinal Study of Adolescent Health (Add Health) on the cognitive ability and conscientiousness of participants in early adolescence - around age 15½ - and their health outcomes in early adulthood - around age 22. (Conscientiousness refers to a group



of personality traits, including industriousness, responsibility, orderliness, self-control, virtuousness, and a tradition orientation.) Numerous previous studies indicate that individual differences have a direct impact on a person's future health and mortality. But, the bulk of the research has looked at the relationship over a long time span, such as between childhood and middle-to-late adulthood. Beaujean hopes that by

choosing more proximal time points, he and his students will be able to pinpoint what is causing the different health outcomes, including diabetes, depression, hypertension and high cholesterol.

Beaujean is currently working with two graduate students, Gregory Ryan and Siao Qui. A former student, Dr. Ken Young, completed his dissertation shortly after the project began.



“IT’S VERY INTENSIVE,
HANDS-ON DATA
ANALYSIS THAT’S KIND
OF HARD TO GET FROM JUST
LOOKING AT A TEXTBOOK,”
SAYS DR. ALEX BEAUJEAN.

“I try to work very closely with students who have an interest in this field,” says Beaujean, who notes that having real data to manipulate made a profound impact on his own studies and later career goals.

It was the access to real data that also helped Ryan narrow the focus of his dissertation, which will explore the relationship between individual differences and body weight, as well as related comorbidities – health outcomes that lead to earlier mortality.

“Right now, I’m in the preliminary parts of learning to use the data,” says Ryan, who is working on developing a set of questions to ask in his dissertation.

Already, he is aware of the myriad opportunities that lie ahead. Ryan and Qiu recently presented at the Society for Applied Multivariate Research conference and won an award for their work.

“The statistical analysis that I’m using can be applied in multiple fields,” he notes. “I have seen a lot of postings lately from different health organizations that want people who can do the kind of analysis that’s a corollary to the research I’m doing, and also some government postings.”

Young originally planned to use qualitative methodologies for his dissertation in preparation for future work in adult learning and faith development. But, with Beaujean’s guidance, he found himself on a different path, with new doors opening to him as a result.

“I knew the topic that I wanted to do, I wouldn’t be able to [finish] on my timeline,” says Young of his dissertation. “He started nudging me in another direction and incorporating me into research he was doing.”

Eventually, Young delved into the Add Health analysis, and discovered a new passion.

“[Young] got a lot of training developing the statistical models and doing the data analysis, and also learning about the relationship between psychology and health,” says Beaujean, who went to great lengths to help guide his first doctoral student at Baylor. “It’s very intensive, hands-on data analysis that’s kind of hard to get from just looking at a textbook.”

It was Beaujean’s hands-on approach that led Young to embrace quantitative analysis – and led to a lasting bond between the two researchers.

“I definitely respect the man as my mentor, but we had a great friendship come out of this, as well,” says Young, adding, “He introduced me to a field I’ve really fallen in love with.”

GRADUATE DEGREES at BAYLOR

Accounting — MAcc, MAcc/BBA
 American Studies — MA
 Air Science and Environment — IMES
 Biology — MA, MS, PhD
 Biomedical Engineering — BSE/MSBME,
 BSECE/MSBME, BSME/MSBME, MSBME
 Biomedical Studies — MS, PhD
 Business Administration — MBA, MBA/JD,
 MBA/ME, MBA/MSCS
 Business Administration, Dallas, Austin — EMBA
 Business Administration in Informational
 Systems Management — MBA/ISM
 Business Administration in International
 Management — MBA/INTM
 Business Administration/Information
 Systems — MBA/MSIS
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 Church Music — MM, MM/MDiv
 Church-State Studies — MA, PhD
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 Collaborative Piano — MM
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 Communication Studies — MA
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 Sciences — PhD
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 Educational Psychology — EdS, MA, MSED, PhD
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 Center — DScPT
 Physical Therapy, Fort Sam Houston — DPT
 Physical Therapy, West Point — DScPT
 Physician Assistant Studies, Brooke,
 Madigan, Darnell and William Beaumont
 Army Medical Centers — DScPAS
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 Piano Pedagogy and Performance — MM
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 Transition Doctor of Physical Therapy Program
 — MPT to DPT

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 Center for Community Research
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