

SPIRIT



The Big Shift

10 Ways Aggie Engineering
is Breaking New Ground

EnMed: Merging Engineering and Medicine



Thankfully the field of medicine is always advancing. I know from firsthand experience the amazing advancement of Army medical care for our soldiers in Iraq and witnessed the health care world personally just a few years later with our beautiful daughter Lily, who was diagnosed with a rare congenital condition that required 15 specialists, dozens of operations and months of hospitalization. Christi and I know that it takes research, a robust economy and purposeful philanthropy to evolve medicine. As our health care system continues to progress, it's clear that Texas A&M University means to be at the forefront of that evolution. The Texas A&M Foundation is proud to play its part.

Last summer, Aggies Invent—an intensive design experience in which student teams create prototype solutions for real-world issues in just 48 hours—took on a medical theme.

Participants were tasked by medical professionals and researchers to create devices that solve common problems faced in the industry. The winning invention was something called “The Premie Scope,” and someday, it could help doctors better recognize detached retinas in premature babies.

The minds behind the device are Texas A&M graduate students Kenneth Livingston '21 and Cannon Woodbury '21, as well as graduate students from other universities. Livingston and Woodbury are first-year medical students participating in EnMed, a program mentioned in two articles in this issue (pages 20 and 34).

Developing products like theirs is at the heart of EnMed. Announced last summer as the brainchild of Dean M. Katherine Banks and Dean Carrie Byington '85, EnMed is a partnership be-

tween the state's top-ranked Houston Methodist Hospital, the College of Engineering and the College of Medicine that seeks to educate a new type of doctor with an engineering mindset: physicianengineers.

EnMed will serve as the first program for a larger Texas A&M initiative called EnHealth led by Dr. Roderic Pettigrew, an internationally recognized leader in bioengineering and an elected member of both the National Academy of Medicine and the National Academy of Engineering. EnHealth is the nation's first comprehensive educational program to fully integrate engineering into all health-related disciplines. With Texas A&M's interdisciplinary makeup and the colleges of dentistry, medicine, nursing, pharmacy, public health and veterinary medicine, EnHealth will have a profound impact on both human and animal health.

This initiative represents a dynamic transformation in health care with a focus on the patient. It acknowledges that the way to solve and prevent challenging health care problems is to take a more integrated approach to education and treatment. With our world-class engineering program, emerging health sciences education and research, and Dr. Pettigrew's unparalleled expertise, Texas A&M is poised to lead the way in rapidly developing systems and technologies that can address significant health care problems.

And with more than 10,000 students in health-related programs across the Texas A&M System, EnHealth has the potential to impact communities across the state and nation by producing a new type of clinician who can design patient-oriented solutions wherever they practice.

Fundraising for EnMed and EnHealth will be a core focus as we continue the *Lead by Example* campaign. This convergence of science, engineering and technology is something to get excited about, and I hope it piques your interest as much as mine.

Thanks for all you do.

A handwritten signature in black ink, appearing to read 'Tyson Voelkel'.

Tyson Voelkel '96

PRESIDENT, TEXAS A&M FOUNDATION

TRAILBLAZERS

21st Century Doctor

Dr. Carrie Byington '85 has big dreams for the future of health care. They start at Texas A&M.

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By Doug Welsh '79



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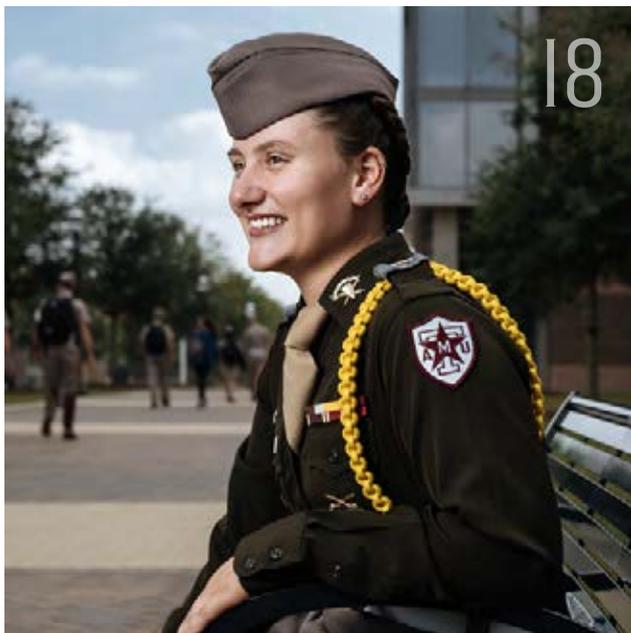
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Kais Karowadia '19, a biochemistry and genetics double major, understands that hard work leads to great things.

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The Engineering Quad will be a beautiful green space for students of all majors to meet, relax, eat and study.

Sydney Anderson '18 experienced a life-altering trip to South Africa during the Corps of Cadets' International Excursions Program.



Read *Spirit* online at spirit.txamfoundation.com.

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Aggie Engineering: Ahead of the Game

I can think of many things I wanted to be growing up, but an engineer was never one of them. The closest I ever came was assembling a model toy truck in elementary school. After a few test drives, the back wheel became loose, leaving the truck comically lopsided and signaling the end of that building endeavor.

It became a trend. In my first apartment, I tackled assembling a media cabinet. After organizing all the pieces into neat piles sorted by letter and number, I looked at the directions briefly, thought bravely, 'Ok, this all makes sense, I can do this,' and tossed them aside. When it was time to put the door knobs on, I discovered the doors were on backwards.

It's not that I don't like the idea of building something; it's the process that bores me. I've never been a patient person. And unlike what I hear a lot of engineers say, including my sister and brother-in-law, I've never had the urge to take something apart just to understand how it works. (What if I can't get it back together again? Too risky.)

Last fall, however, I saw engineering in a different light while sitting in on an interview with M. Katherine Banks, vice chancellor and dean of engineering at Texas A&M University. I left wowed, thinking, "Engineering is innovative. It's design. It's creative." And even though I've never set foot in an engineering classroom, I felt a resounding sense of admiration for those who do.

Through its 25 by 25 initiative, the College of Engineering—with Dean Banks at its helm—will enhance engineering education by increasing access to education and evolving teaching method-

ologies. Read the complete story, "The Big Shift: 10 Ways Aggie Engineering is Breaking New Ground" on page 20.

From new classroom technologies and innovative degree paths to interdisciplinary college partnerships and new programs to support students, Texas A&M is changing the face of engineering to meet the world's future needs. When Dean Banks talks about the transformation, her excitement is palpable. You can sense a shift in thinking, a desire to stay ahead of the game, and a realization that as the demands and challenges of our world evolve and new technologies emerge, engineers must be, above all, adaptable.

Who knows what our world will look like in 10 years? Or 50? It's clear we are barreling toward something that looks smarter, faster and even more technology-driven. But how fast will we travel? How will we communicate? How will developments like artificial intelligence and robots, self-driving vehicles, smart and wearable technologies, and nanotechnology create a new world? How will humans adapt? So many unknowns face us.

And yet, though we can't predict the future, Dean Banks is determined and confident the college can prepare Aggie engineers for whatever it holds.

Dinae Crenwelge

Dinae Crenwelge '15

EDITOR, SPIRIT MAGAZINE

Front cover: Roozbeh Jafari, associate professor of biomedical engineering, developed this smart device that translates sign language while being worn on the arm. The wearable technology could bridge the communications gap between the deaf and those who don't know sign language. Although still in its prototype stage, it can already recognize 40 American Sign Language words with nearly 96 percent accuracy.

letters

Share Your Comments: We always enjoy receiving our readers' reactions to Spirit. If the magazine's content moves you to write, please email us at info@txamfoundation.com or send a note.

DUNAE CRENWELGE '15
Editor

20/20 Vision

Wow! I have Charles Munnerlyn '62 to thank for my perfect vision. I had the LASIK procedure done at LasikPlus in Austin in 2007. I was so happy about how successful it was that I entered the LasikPlus essay contest and wrote about how LASIK improved my life. My prize for winning was a free procedure to give away to anyone. I gave it to my mother, Julie Grantham '83, who is the reason I chose to attend Texas A&M. Now, she has perfect vision as well!

—JENNIFER GRANTHAM '03
Dallas, Texas

The article about Charles Munnerlyn '62 in the fall 2017 issue of Spirit illuminated how he revolutionized the optics industry with a procedure that still helps millions achieve 20/20 vision: LASIK.

The Ballad of Bevo

After reading the letter from Franklin "Gus" Harris Jr. '66 in the fall issue of Spirit, I wanted to share an additional story surrounding the events of Bevo's capture.

In November 1963, a few Texas A&M students and myself were listening to a local AM radio station in a small rent house on Poplar Street when we heard a broadcast that alleged the Aggies had stolen Bevo from The University of Texas. Naturally, we became intrigued.

Inspired by the events, I quickly wrote a three-chord song in about 15 minutes. I only knew three chords: C, G7 and Dammit F. Dammit F was the hardest of the chords to play, and I usually ended up not quite playing it or almost playing it, whichever came first. The entire Poplar Street assembly was so enraptured by this song that we decided to record it.

The following day, Jesse "Clark" Coleman '61 and I went to the student center and borrowed one of those reel-to-reel tape recorders from the Singing Cadets. Returning to Poplar House, we recorded "The Ballad of Bevo" in about 30 minutes under the name "The Louis and Clark Expedition." I was strumming those three chords on my antique GWB Kalamazoo guitar, while Clark loped a Vega 5 string banjo and made a few cow bellowing noises as I called for Bevo.

After finishing, we went to Loupot's Bookstore to give Old Army Lou (Judson Loupot Sr. '32) the tape. We knew that he had helped the cadets sneak off with the longhorn mascot, and he was immediately interested in the song, fronting the funds

Farsighted
BY DENISE CRENWELGE '15
In the 1950s, Charles Munnerlyn revolutionized the optics industry with a new procedure that still helps millions achieve 20/20 vision: LASIK.

When you need something done, when there's a repair problem, or the sink's leaking, you call him," said Rhonda Munnerlyn '81 in a 2008 video about her father-in-law. "He's 'Oo, Do, Do' to us."

Charles Munnerlyn '62 is indeed best characterized as a problem solver—of both small and large proportions.

In the 1980s, Munnerlyn revolutionized the optics industry by designing and building the first excimer laser system for vision correction. He also developed the core mathematical formula—the Munnerlyn Formula—used today by ophthalmologists to dictate the amount of corneal tissue to be removed during laser vision correction.

Before his technology, corrective options for vision disorders such as myopia, hyperopia and astigmatism were unappealing and costly. But now, the procedure he fathered—more commonly known as LASIK—affords millions of people the freedom from wearing eyeglasses while achieving 20/20 vision.

Eye on the Prize
A native Texan, Munnerlyn grew up in a series of rural towns. He faltered with academics as a child and by the high school days, he and classmates studied instruments and taking photos with telephoto-mounted cameras. At Texas A&M, he enrolled in physics, where only one optics course was offered at the time.

"I still remember my astronomy and math professor, Jack Kerr. We called him 'Cube root Kerr,' because only the cube root of 8 is 2. He was a great teacher," Munnerlyn laughed. "But I learned a lot from him."

After graduating with a degree in physics in 1962, marrying his wife Judy in 1963, and serving three years in the Air Force, Munnerlyn attended the Institute of Optics at the University of Rochester—the only university in the nation at the time to offer optics studies.

With a background in optical engineering in hand in 1968, he embarked on a series of pioneering developments. As head of research and development for Topical Inc., a company that designed lenses for applications such as space cameras, Periscope cameras and satellites, Munnerlyn designed the first device to digitally cut

How LASIK Surgery Works
The final goal for people with vision disorders is to reshape the cornea so that light entering the eye is focused precisely on the retina. Since the laser doesn't generate significant heat, there was no danger of its beams penetrating the eye and damaging the retina.

Excimer refractive errors in the eye. This refractive error substantially reduces the eye's light-gathering ability to determine the amount of correction needed for a given patient. In 1979, he also developed an instrument to put pressure in the eye to best correct glaucoma.

In 1980, Munnerlyn and Tony Clapham, an electrical engineer and longtime friend, began work on an exciting new technology—the excimer laser. It was an alternative to the common but controversial radial keratotomy procedure of the time, in which the surgeon corrected vision by making an incision on the periphery of

the cornea—the clear, outermost part of the eye. The pair's proposed vision correction system instead used ultraviolet rays from an excimer laser to precisely remove tissue from the cornea. Since the laser didn't generate significant heat, there was no danger of its beams penetrating the eye and damaging the retina.

"We knew that there had to be a better, safer way to improve vision," Munnerlyn said. "We just had to prove it. I used advanced math from another of Dr. Kerr's

courses at Texas A&M to develop the core formula to calculate how much corneal tissue to remove."

Munnerlyn and Clapham had been working on the excimer technology while employed by CooperVision. In 1987, they purchased the technology and formed VISTEK Incorporated with the intention of bringing their product to market. After 10 years of scientific refinement, experimentation overseas and in the United States, millions of dollars in investment and pilot

of FDA paperwork, FDA approval for the excimer laser system was granted. Today, VISTEK—now part of Johnson & Johnson—remains the world's leading manufacturer of laser vision correction systems.

"I couldn't be happier with the worldwide success of the excimer laser method for vision correction," Munnerlyn said. "It's extremely rewarding to hear from people who credit LASIK corrective surgery with improving their lives."

True Visionary
In recognition of his achievements, Munnerlyn is both a distinguished alumnus of Texas A&M and the University of Rochester. He and Judy have given back generously to Texas A&M's astronomy and physics programs, and have also established two scholarships for the Corps of Cadets and a mechanical engineering scholarship in memory of Charles' brother, James R. Munnerlyn '68. The Charles R. '62 and Judith G. Munnerlyn Astronomical Observatory

and Space Engineering Building bears their names in acknowledgement.

"Charles A&M is one of the greatest universities in the world, and we've always been excited by the accomplishments in physics and astronomy," Munnerlyn said. "I'm proud to play a small part in that legacy."

For a man of great vision, Munnerlyn himself was not seen with 20/20 eyesight and, unfortunately, was not a candidate for LASIK treatment. Only lately has contact

surgery improved his farsightedness—a condition that seems somehow appropriate for an innovator with such foresight. @

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Charles Munnerlyn '62 (left) looks over a laser in U.S. pattern on the optics field.



Don Louis Ivey '62 recalls how he and fellow classmate Jesse Coleman '61 recorded a 45 single called "The Ballad of Bevo" in 1963.

“We took the record down to the local radio station, and the rest is history. The record took off...”

—DON LOUIS IVEY '62

to have it produced as a single-sided 45 in a recording studio in Houston.

We took the record down to the local radio station, and the rest is history. The record took off, staying at the No. 1 spot in Bryan-College Station for almost four weeks. They were playing it nonstop for the first week and by the third week, still about every hour. Every Aggie in the surrounding counties was laughing about the “Ballad of Bevo,” and many were buying it. After the madness was over, Loupot and others had sold about 1,000 records.

Clark and I enjoyed a portion of the profits—some “lunch money” for two college students, you might say. The song catapulted us to local immediate fame followed quickly by extinction.

—DON LOUIS IVEY '62
*a.k.a. Brazos Highwayman
Bryan, Texas*

digitaldialogue

It's interesting that the veterinary school is leading the way in raising planned gifts during the *Lead by Example* campaign. Puff Daddy (my Persian cat, not the rapper) will be pleased.

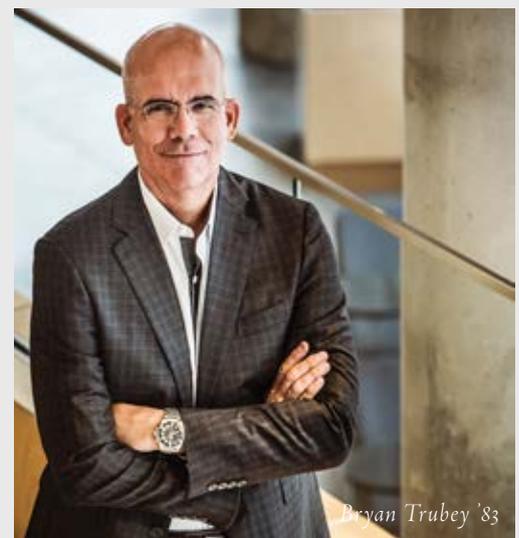
—MARK REEDER
Lewisville, Texas

So proud of Dr. Charles Munnerlyn '62 and the example he sets for all Aggies!

—SHANTI ISRANI '18
College Station, Texas

I thoroughly enjoyed having Dr. Vaughn Bryant as my anthropology elective professor.

—HUDSON HIGH '12
Waco, Texas



Bryan Trubey '83

I remember Bryan Trubey '83 being honored by Jerry Jones at the very first Texas A&M vs. Arkansas football game in “Jerry World” in 2014. Wonderful accomplishment!

—MICHAEL CLAPP '84
Kingwood, Texas

The Warrior-Scholar Project empowers military veterans by easing their transitions from the battlefield to the classroom.

Warrior-Scholar Project

Texas A&M University will serve for a second time this summer as one of 12 host campuses for the Warrior-Scholar Project, a weeklong academic boot camp designed to prepare veterans for the transition from military to college life. Enlisted veterans often enter the military directly from high school, resulting in a long absence from the classroom upon their transition out.

During the boot camp, former enlisted service members develop and rediscover the skills and confidence necessary to successfully complete a four-year undergraduate program. Participants focus on three key areas: academic writing and reading; tac-



tical and technical skills, such as notetaking, studying and time management; and confidence-building and transitional techniques.

Nineteen veterans from across the nation completed workshops at Texas A&M last summer. This summer, the same number of veterans will participate, but an additional week will be added to support students transitioning into science, technology, engineering and math (STEM) majors. According to U.S. Department of Defense data, more than 70 percent of transitioning veterans indicate an interest in STEM fields.

Full House

Live-in veterinary students at the Stevenson Companion Animal Life-Care Center support the physical, emotional and medical needs of companion animals whose owners can no longer care for them.



Texas A&M University student Melissa Pawlowski '14 '19 returns home from class every day to spend time with her 36 four-legged roommates.

As a third-year student in the College of Veterinary Medicine & Biomedical Sciences, Pawlowski lives with three other veterinary students at the Stevenson Companion Animal Life-Care Center, a unique retirement home for pets whose owners can no longer

care for them. The students assist staff members and care for the animals, many of whom are aging and suffering from medical conditions such as arthritis and diabetes.

The privately funded 11,000-square-foot center, which opened in 1993, can accommodate up to 100 dogs, cats and birds. Current residents include Angie, a cheerful 11-year-old cat who greets newcomers at the door; Happy, a

16-year-old Chihuahua who loves to be carried around the house; and Reveille VIII, Texas A&M's retired mascot.

"The center offers a unique home-like environment where I can bond with each animal," said Pawlowski. "It is a great privilege to be part of such a special mission and to ensure that each animal receives the love and attention they deserve."



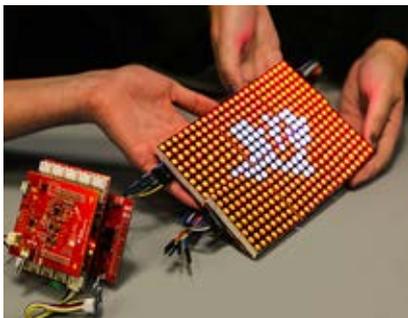
Sparks Fly at Aggies Invent

Held seven times annually, Aggies Invent is an intensive design experience offered at Texas A&M University in which students have just 48 hours to create prototypes that address real-world challenges.

This April, student participants will focus on developing technologies that could enhance the lives of individuals with disabilities—such as tools that could improve classrooms for visually impaired students or allow the physically disabled to live more independently.

Operations Command; creating new Internet of Things devices (objects that use meta-data from the internet to make decisions); and enhancing augmented and virtual reality capabilities.

Alejandra Hernandez '18, an industrial engineering major, is a two-time participant. "Aggies Invent has been the most fulfilling personal and academic experience in my life," she said. "You never know when the right idea will take hold and change the world."



The competition, which engages 60 or more students of all majors, is held in the Engineering Innovation Center, a 20,000-square-foot rapid prototyping lab. Each event has a different theme designed in collaboration with industry and faculty. Past event objectives include designing novel products to assist the U.S. Special

As each team presents its prototype, engineering, business and communication skills intersect. The top three teams receive \$1,000, \$750 and \$500, respectively. The Engineering Innovation Center and Aggies Invent also assist students working toward commercialization or the startup of their own companies.

How do you deal with finals stress?

"Cinnabons and mini-naps."

Katie Cacy '19
AGRICULTURAL COMMUNICATIONS AND JOURNALISM

"If I'm ever burnt out, I go for a run and eat healthy."

James Aubin '18
COMPUTER ENGINEERING

"Chocolate milk is my motivation."

R.C. Hoover '20
BIOLOGY

"I drive around and play my favorite playlist."

Bianca Torres '19
ANIMAL SCIENCE

On the Air



A new radio station is sweeping the airwaves in Southeast Texas. Rudder Radio, the first student-run internet radio station at Texas A&M University at Galveston, launched last spring on KTOR—The Tornado, Ball High School's radio station. The station provides music, news and entertainment to the Galveston campus and local community.

"Not only does Rudder Radio provide entertainment, but it's beneficial for getting information across campus quickly," said producer Tyler Gillis '18. "We try to create a sense of community and encourage listeners to interact with us."

The station's all-inclusive sound integrates music from the '60s with modern jams. Its "Pre-Lunch Pump Up" show offers classic rock and pop, while the "Whatabeat Podcast" mixes hit songs with electronic dance music.

Named after Gen. Earl Rudder '32, the radio station is a collaboration between students in the Journalism and Communication Learning Community at Texas A&M Galveston and students in the media arts and digital technology department at Ball High School. University and high school students alike learn communication, editing and teamwork skills.



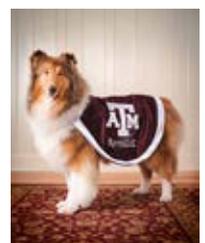
Texas A&M University placed No. 18 in a Forbes magazine national ranking of **highest-earning graduates among public schools**, showing a high return on investment for students.

Students can now bicycle and study simultaneously, thanks to the introduction of **FitDesk Bike Desks at libraries across campus**. The adjustable units include an attached desk space, a water bottle holder and a computer to track the time, distance and calories burned during each session.



As part of its mission to help South Texas communities, the Colonias Program in the College of Architecture **provided more than 1,400 students with free school supplies last fall**.

Reveille IX was named the best dog mascot in the nation by the NCAA. The ranking noted her celebrity status as the highest-ranking member of the Corps of Cadets and her unique ability to end class by barking.





Dr. Thomas McKnight, Texas A&M biology department head, is among a team of scientists studying a new way to protect crops from pathogens using genetically modified aphids to deliver plant gene therapies.

From Pest to Protector

Scientists from Texas A&M University and The University of Texas at Austin are investigating a new way to protect crops from pathogens, thanks to an agreement awarded through the Defense Advanced Research Projects Agency's (DARPA) Insect Allies Program.

The team will attempt to turn a traditional crop pest—the aphid—into a delivery vehicle for plant gene therapies. Aphids suck on the sap of plants, destroying crops and creating headaches for farmers. But through this project, scientists plan to genetically modify bacteria living inside the aphids so that when they feed on plants, they act like a syringe to deliver a kind of

genetic vaccine that enables the plant to wipe out or resist a specific pathogen.

Biocontrol measures are crucial to the translation of this experiment to real-world application. These include strategies for ensuring that modified aphids do not reproduce in the wild or release genes into nontarget plants, and that modified plants cannot pass new traits to future generations.

“While this is a high-risk project, the potential payoff is extraordinary,” said Dr. Thomas McKnight, Texas A&M biology department head. “Our success in this endeavor could solve big challenges in food security and agriculture.”

Texas A&M University doctoral candidate Grace Tsai '18



Dining on the High Seas

Seventeenth-century sailors defied the odds—and the physical limitations of the human body—by surviving off limited and unhealthy diets while at sea. Texas A&M University doctoral candidate Grace Tsai '18 is trying to find out what made this phenomenon possible with her Ship Biscuit and Salted Beef Research Project.

Using a team of Texas A&M students

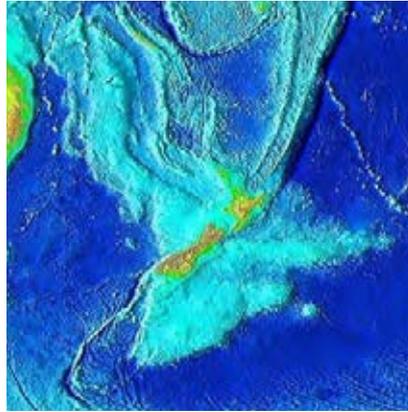
and an assortment of 17th-century recipes obtained from cookbooks of the time, Tsai prepared salted beef, pork and cod as well as ship biscuits, beer, peas and oatmeal to be placed in barrels aboard *Elissa*, a 19th-century ship docked in Galveston, to observe how the food degrades over time.

Her team analyzed the food's microbes to understand how sailors

lived under such unhealthy conditions.

“Our nutritional analysis found three entirely new species of microbes that were previously unknown,” Tsai said. “This helps us get a bigger picture of how health has changed based on peoples' diets.”

New Zealand might be Australia's smaller neighbor, but it's sitting on a massive underwater continental crust named Zealandia (pictured in aqua at right) that sank after breaking away from Australia 80 million years ago.



Electrifying Agriculture

Alfredo Costilla-Reyes '18 is revolutionizing indoor farming. The senior electrical and computer engineering major launched a startup company, Bit Grange, that is engineering a water-based plant system that can be sustained without soil or sunlight.

Growing plants using mineral nutrient solutions in water, without soil—known as hydroponics—is not a new concept, but Costilla-Reyes has designed a novel prototype that integrates electrical components and LED lights in the growing process.

His technology uses sensors to collect data from plants, including variables such as light and temperature. Meanwhile, a software system evaluates these variables in real time and notifies users through Bit-Grange's iPhone app to take necessary actions, such as adding more water or food. "This technology can not only impact indoor, urban and small-scale farming, but also has potential to solve sustainability issues in modern agricultural practices," he said.

The prototype focuses on vegetable and fruit crops, but Costilla-Reyes has begun testing varieties of flowering plants as well.



With a total area of approximately 1.9 million square miles, Zealandia is the world's largest microcontinent measuring nearly 18 times larger than New Zealand (above).

Costilla-Reyes hopes that his technology will be used as a classroom tool to educate children about agriculture, engineering and science. In recognition of his achievements, he was named recipient of the Mexico National Youth Award.



Zealandia: Earth's Underwater Continent

A team of international researchers led by Texas A&M University scientist Peter Blum returned last fall after two months at sea exploring the underwater continent of Zealandia.

The birth of Zealandia, a continent the size of India, occurred 80 million years ago when it broke off from Australia and Antarctica. Later, a tectonic shift further submerged the continent and lifted a ring of volcanoes to the surface, creating The Ring of Fire in the Pacific Ocean. Ninety-four percent of Zealandia now lies beneath the Tasman Sea, separating Australia and New Zealand.

Using the *JOIDES Resolution*, a drillship affiliated with the College of Geosciences, scientists collected 2,506 meters of sediment cores from beneath the seafloor to learn more about this mysterious land mass. "Studying these sediment layers will reveal how the geography, volcanism and climate of Zealandia have changed over the last 65 million years," said Blum. "We'll also learn more about how Earth's tectonic plates move and how the global climate system works."

Additionally, roughly 8,000 fossils were found, some from land-based animals and plant pollen spores, proving that Zealandia used to be much shallower. This will provide new clues for how plants and animals crossed between continents and migrated throughout the South Pacific.

testresults



Texas A&M University biologist Dr. Joseph Bernardo is part of a research team that **identified a new species of salamander** among what was thought to be a common population of the small amphibians located in the Louisiana-Mississippi region. The new species is named the Valentine's Southern Dusky Salamander (*Desmognathus valentinei*).

Can anti-DUI posters embedded in video games help prevent drunk driving? While it might seem like a contradiction of influences, studies conducted by social psychologists Hart Blanton and Christopher Burrows of the College of Liberal Arts showed that participants had a reduced willingness to drive under the influence of alcohol after playing video games that contained anti-DUI messages.



Even astronauts have to do laundry. In collaboration with NASA, mechanical engineering students **are working to develop a clothes dryer that astronauts can use in space.** The team of five seniors had to contend with multiple challenges: Their technology had to function in zero gravity and use only 150 watts.



new gifts



A new dental facility will allow the College of Dentistry to grow student enrollment by 25 percent and provide increased oral health care to Dallas-Fort Worth residents.

Smile Bright

To meet the needs of its expanding student population and provide increased dental care, the College of Dentistry is building a world-class Dentistry Clinic and Education Building. Joy and Ralph Ellis '52 are supporting the new facility in memory of their longtime friend, M.D. "Dee" Ogden '56, their family dentist for more than 50 years.

Known for his compassionate nature and

close rapport with patients, Ogden ran a dentistry practice in Dallas. Selfless by nature, he often volunteered to serve impoverished communities and provided free dental work to the homeless.

In recognition of the couple's gift, an operating room in the General Practice Wing of the new facility will be named in Ogden's honor. "I can't imagine a person more deserv-

ing than Dee to be remembered by the dental school," said Ralph.

The College of Dentistry is the largest single provider of oral health care in the Dallas-Fort Worth area, and many of its patients are low-income or homeless. The new 165,000-square-foot space will allow the college to increase its student enrollment by 25 percent and its patient visits from 100,000 to 150,000 annually.

The college seeks \$10 million in private funds for the facility, which is expected to open in fall 2019.

To support the facility, contact Melissa Ogden—Dee Ogden's daughter and director of development for the College of Dentistry—at (214) 828-8449 or mogden@txamfoundation.com.

Igniting Innovation

Mays Business School at Texas A&M University will establish an Innovation Research Center thanks to a \$3 million gift from the Mays Family Foundation paired with a \$2.6 million contribution from the Charles Koch Foundation.

Drawing from academic disciplines across Texas A&M, the center will examine the nature of innovation and how it advances human potential. It will provide research support to new and existing faculty across the university; fund Ph.D. fellowship and undergraduate research opportunities;



and award prizes for outstanding research that advances the mission of the center.

"Our goal is to understand the true nature of innovation and investigate how it spreads through society, including who benefits from it, barriers to it, and the corporate and government policies that can induce innovation," said Eli Jones, dean of Mays Business School. "Through their generosity, these two foundations are helping us create an ecosystem around innovation that students can plug into."

“Our goal is to understand the true nature of innovation.”

—ELI JONES, DEAN, MAYS BUSINESS SCHOOL

Paups Support Law School

To attract talented students to study law and lessen their financial burdens, Anne and Henry "Hank" Paup '70 invested in Texas A&M University's School of Law by establishing the institution's first dean's scholarship. Their \$125,000 contribution was matched by university funds to create a \$250,000 endowment.

While the law profession is financially rewarding, the couple hopes students pursue

careers in law for other reasons. "Law is a profession, not a ticket to riches," Hank said. "If you are in it for the money, don't do it. Do it to serve others."

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Anne and Hank Paup '70 hope the scholarship they established at Texas A&M University's School of Law attracts top-tier students who are motivated to help others through the law profession.



Aggie Parents Give Back



Shelly '87 and Rodney Moss '87, the 2017 Aggie Parents of the Year, gave \$25,000 to establish a scholarship for undergraduate students in the Department of Construction Science.

"Texas A&M University is a unique institution that develops leaders of character dedicated to serving the greater good," said Shelly. "We raised our four children to live by Texas A&M's values and, by the grace of God, they have been blessed with opportunities to make a difference in the world."

The Mosses have four children attending Texas A&M: Hannah '17, Ian '18, Olivia '20 and Sophie '21. Ian is a Texas A&M Yell Leader. "Ian and Sophie are both majoring in construction science, making them the fourth generation of Mosses in the construction industry," said Rodney.

Rodney's colleague at Aon Risk Solutions, Kevin White, also contributed to the scholarship in addition to the Construction Industry Advisory Council. "This scholarship is a meaningful way for our family and friends to support a deserving Aggie student each year and give back to the industry that has given so much to us," said Shelly.



After a 40-year career as an educator and administrator in the College of Architecture, **Ward Wells created a \$150,000 professorship** to support the head of the Department of Architecture. Funds will enhance the teaching, research and service activities of the faculty holder and provide discretionary funding for department initiatives.

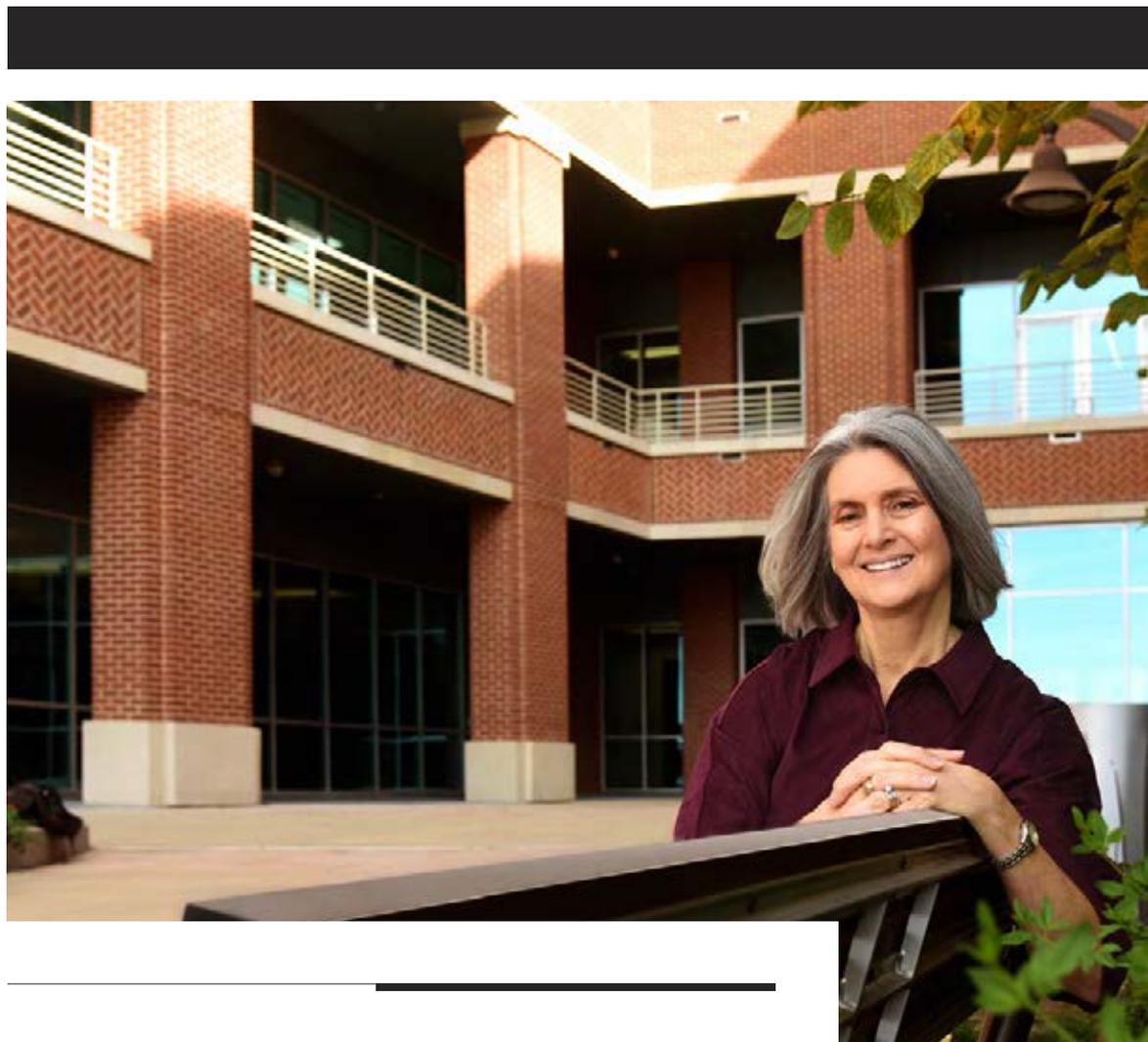
Thanks to gifts from Sandy '86 and Michael Wilkinson '86, Malcolm Stewart '73 and High-Tech High Heels, **the College of Education and Human Development hosted its first Thomas Gaddis Girls' STEM (Science, Technology, Engineering, Mathematics) Camp** for 60 girls in sixth through eighth grades last summer. A second camp will run this summer thanks to funding from Sandy's mom, Joye Gaddis. To support the camp, visit give.am/GaddisSTEM.



The Rev. William D. Nix '63, a U.S. Army veteran, cattle rancher and priest, hopes to expand the knowledge and skills he acquired as an English major **through a gift to the English department.**

He and his wife Newlyn established an endowment that will support department faculty members and provide funds for graduate assistants, research and travel.





A Policy That Provides

Hoping to draw more students to the Texas A&M College of Medicine, Beth Nauert '79 gives back through a planned gift of life insurance.

BY ASHLEY WAGNER '18

A calling to help others and a search for deeper meaning led Beth Nauert '79 to change her career path, find her purpose and invest in others. After a semester-long stint studying microbiology at Texas Tech University, Nauert transferred to Texas A&M University and found herself drawn to the people

work," Nauert said. "I wanted to know what happened to them and what their lab tests meant to them; I wanted to know their stories."

Rather than work behind-the-scenes, Nauert felt called to work front and center, as a doctor. She applied to a program in the

and stories behind the lab tests she ran as a student in the medical technology laboratory.

"I always wondered about the patients behind my



College of Medicine at the Texas A&M Health Science Center and was accepted into its 32-person charter class. She earned her bachelor's degree and medical degree in six years.

When the Rapport Society Dean's Leadership Council was created in 2009 to support the College of Medicine and its students, Nauert leapt at the opportunity to become involved. Through an advisory role and initiatives including philanthropic support, the Rapport Society assists the dean

in meeting the vision and mission of the College of Medicine.

Inspired by her responsibility as a council member, Nauert established a planned gift through the Texas A&M Foundation that will provide scholarships to students pursuing degrees from the College of Medicine. "The college's charter class is a close-knit group that strongly supports the college, and I'm happy to help," she said. "Now that my children are grown, changing the beneficiary on my existing life insurance policy was an easy way to give back."

Making a planned gift of life insurance is one of the simplest ways to support

Texas A&M's future. Life insurance gifts offer a charitable tax deduction, allow individuals to retain assets during their lives and can be revoked should an individual's personal or financial situation change. After the donor's lifetime, the gift funds an endowment that will provide permanent support to a Texas A&M area of the donor's choosing.

Nauert completed her residency at Children's Health Center and Parkland Health & Hospital System in Dallas before practicing pediatrics for more than 30 years in Austin. In 2014, she and her husband John moved to Washington State after he received a job offer from Amazon.

A board-certified pediatric doctor with an emphasis on child abuse pediatrics, Nauert now serves as a clinical doctor of pediatrics at HealthPoint Community Health Center in Auburn, Washington. HealthPoint is a federally qualified health center for low-income families focused on providing expert care to individuals, regardless of circumstances.

Nauert's three children—Richard '14, Mary '15 and Rachel '17—followed their mother's path, graduating from Texas A&M with their undergraduate degrees. Now pursuing their graduate educations in Aggeland, they plan to forge lifelong careers centered around selfless service: Richard is a fourth-year medical student; Mary is a third-year veterinary student; and Rachel is completing her master's degree in curriculum and education.

After her lifetime, Nauert's gift will attract future leaders and innovators to the College of Medicine and support students financially. "I feel strength in knowing that my gift will help tomorrow's Aggies," she said.

"Making an easy gift like this can be a step in the right direction, one that pushes our medical school and students forward to prove just how great our university is." ©

TO DISCUSS HOW A PLANNED GIFT CAN BENEFIT YOU, YOUR FAMILY AND TEXAS A&M UNIVERSITY, CONTACT GLENN PITTSFORD '72 AT GPITTSFORD@TXAMFOUNDATION.COM OR (800) 392-3310.

How to Make a Gift of Life Insurance

To make a life insurance gift to the Texas A&M Foundation to benefit Texas A&M, an individual has three options:

1. **Transfer ownership** of an existing life insurance policy.
2. **Purchase a new life insurance policy** with the Foundation as owner and beneficiary.
3. **Retain ownership of a pre-existing** life insurance policy and change the beneficiary designation.

Each option offers a charitable tax deduction and allows you to retain assets during your lifetime. After your lifetime, the gift funds an endowment that will provide permanent support to a Texas A&M area of your choosing: students, faculty, colleges or programs. To learn more, email info@txamfoundation.com or call (800) 392-3310.

“Our involvement in The Gardens comes down to leaving a place better than we found it.”

—AMY '84 AND TIM LEACH '82
LEAD DONORS FOR THE GARDENS AT TEXAS A&M UNIVERSITY
DONORS OF THE LEACH VINEYARD

The overlook will provide a serene view of White Creek and its surrounding flora and fauna. It will be the perfect place for visitors to learn about land management, water stewardship and best practices to preserve wetland areas.

Nearly four and a half years ago, I wrote an article for Spirit magazine expressing an ambitious desire to transform a vacant, undeveloped 40-acre plot of land on West Campus into a flourishing community garden to serve as an outdoor classroom and tranquil sanctuary.

Later this year, Texas A&M will celebrate the grand opening of the Leach Teaching Gardens, a vibrant green space situated at the corner of Horticulture and Discovery Drive. The next time you're in Aggie-land, I encourage you to visit this seven-acre oasis encompassing 30 different gardens, trails, overlooks and rest areas. Come to observe its beauty, connect with nature,



learn about gardening, or sit and relax in your own private nook.

Named after lead donors Amy '84 and Tim Leach '82, the Leach Teaching Gardens represent Phase I of The Gardens project. When you enter this sanctuary, you'll be greeted first by the colorful Edna Fuchs Memorial Rose Bed and the Leach Vineyard. To your left lies the Mexican Heritage Garden given by the Meta Alice Keith Bratten Foundation; to your right, German and Czech heritage gardens are dedicated to preserving cultures that have inspired Texas and our agricultural and horticultural traditions.

As you walk through the vineyard, don't miss the Butterfly and Bee Garden, given by Elizabeth A. '79 and Gary B. Young '77, on your left and right. Continue straight until you reach an octagon-shaped pavilion with a design inspired by historic German dance halls and garden gazebos. This iconic structure will host banquets, educational seminars and demonstrations, and other events. Standing in this shady getaway, look around. You'll see fresh herbs, colorful flora and fauna, an Aggie-centric maroon and white garden, and the Century Oak II, which was planted to con-

Time to Sprout

The Gardens at Texas A&M University is ready for its debut later this year.

BY DOUG WELSH '79
FORMER PROGRAM COORDINATOR, THE GARDENS AT TEXAS A&M UNIVERSITY
PROFESSOR AND EXTENSION HORTICULTURIST EMERITUS,
TEXAS A&M AGRILIFE EXTENSION SERVICE

“An outdoor laboratory such as this is something we need in a world that is so connected to technology.”

—SARAH HLAVINKA MCCONNELL '86
EXECUTIVE VICE PRESIDENT, XEROX
DONOR OF THE PATTY AND JOE HLAVINKA, JR. '56 FARM ROAD



Springing Forward

Although Phase I construction of The Gardens will soon be complete, additional funding is still needed to support student internships, gardens programs, maintenance, watering and planting. Funds are also needed for future phases of The Gardens, which will include various educational gardens and outdoor learning laboratories, a children's garden, a feed-the-world themed plaza, and a re-creation of The Grove amphitheater to host performing arts productions, films, celebrations and social events. Endowed opportunities begin at \$25,000.

tinue the legacy of the original Century Tree on main campus.

As you meander along, be prepared to learn. This space is more than a campus beautification effort; it's a teacher's paradise. Various groves and gardens are dedicated to educating students and the local community about ecosystems, rain collection methods, drought preparation and conservation. At any given time, classes might

be observing wildlife, growing plants or testing various landscape design techniques.

The Gardens have sprouted into everything I dreamed and much more. Thanks to the vision of Dr. Mark Hussey '79, former vice chancellor and dean of agriculture and life sciences, countless Texas A&M staff and administrators, and the endless support of our private donors, our seedling has bloomed. @

TO SOW YOUR LEGACY AT THE GARDENS,
CONTACT:

KELSEY CHRISTIAN
DIRECTOR OF DEVELOPMENT
TEXAS A&M FOUNDATION
(800) 392-3310 OR (979) 458-1207
KCHRISTIAN@TXAMFOUNDATION.COM

We'd like to thank all the individuals and organizations who've made endowed-level gifts to Phase I of The Gardens project. View the complete list online and watch a video about The Gardens at give.am/TimeToSprout.

Give online at give.am/TAMUGardens.

*This metal arch
will look out into
the heart of
The Gardens.*

“I sincerely hope that there will be many first dates,
quiet epiphanies and joyful reunions here.”

—ADELAIDE LEAVENS '82
PRESIDENT, META ALICE KEITH BRATTEN FOUNDATION
DONOR OF THE MEXICAN HERITAGE GARDEN



The Dance

Darkness descends across the Andes Mountains while Texas A&M astronomer Jennifer Marshall works at the Cerro Tololo Inter-American Observatory in Chile. As her eyes roam the night sky, she has no idea that she's standing at the intersection of cosmic history.

The event she's about to witness began 11 billion years ago when two neutron stars—the extremely dense, collapsed remains of ancient stars—start to spin around each other. The orbiting pair come closer and closer, almost touching, dancing to their own astronomical tune.

On Aug. 17, she and researchers at observatories worldwide detect the stars' movement in the form of gravitational waves in space—ripples that are created when massive objects circle one another. Scientists around the world zero in on the galaxy (NGC 4993), located relatively near our own Milky Way. In Antarctica, a robotic telescope moves into position, remote-controlled by Texas A&M University astronomers Lifan Wang and Nicholas Suntzeff.

Then, an explosion: a kilonova. As the stars slam into each other, basic elements such as gold, platinum and lead emerge. Marshall witnesses firsthand the fiery aftermath of the explosion and records some of the initial images using the most powerful digital camera in the world: the 570-megapixel Dark Energy Camera.

Later, papers will be published and research conclusions made. But for a moment, she and thousands of other astronomers pause, to stare at the sky in wonder. ©

viewpoint

Although the merger of these neutron stars, depicted here, happened 130 million years ago, scientists witnessed it from Earth in August 2017 because of the galaxy's distance in light-years. The event marked the first time that scientists caught two neutron stars collide and confirms that these strange smashups are the source of heavy elements. Texas A&M astronomers are proud to have played a role in the discovery.



CADETS STUDY NATIONAL POWER THROUGH A GLOBAL LENS DURING THE CORPS OF CADETS' INTERNATIONAL EXCURSIONS PROGRAM.

Cosmopolitan

CADET



BY SAVANNA HOOVER '18

For Sydney Anderson '18, a trip to South Africa—her first time abroad—was life-altering.

“Living in the United States shelters us,” she said. “We often become so engrossed in our lives that we fail to recognize what is happening in the world. Witnessing drastic poverty and the spirituality that permeates South Africa was a significant growing point for me.”

Anderson is a D-1 cadet from Yoder, Colorado, who serves as first sergeant of the Parsons Mounted Cavalry and plans to work in land development as a civil engineer. In 2017, she participated in the Corps of Cadets' International Excursions Program, an intense international experience that takes cadets to countries of strategic importance to the U.S.

Established in 2011 with support from the Commandant, Brig. Gen. Joe Ramirez Jr. '79, the program consists of three short-term study abroad

trips annually after the spring semester. On each 10- to 12-day trip, approximately 26 cadets gain an understanding of geopolitical, economic and social forces shaping the globe. Students have traveled to countries such as Kuwait, Qatar, Oman, China, India, Chile, Korea, Poland, Germany, Israel and Armenia, to name a few. This May, cadets will travel to Brazil and Australia in addition to a combined trip to England and France.

Adapted from the U.S. Army War College's DIME model, each trip agenda focuses on educating cadets about a country's key sources of national influence and power: Diplomacy, Information, Military and Economics. The Commandant added Religion and Culture to the DIME model because of the role each plays in understanding a host country. Every activity, from visiting with peers and political leaders abroad to touring influential institutions, relates to studying national power through a global lens. This challenges cadets to think critically and develop a mature global outlook.

“We want cadets to learn how we do business with a given country, how that country uses information as influence and what type of military relationship we share,” said Meredith Simpson '03, assistant commandant for academic and international programs. “We want them to gain a global competence that manifests itself as a global confidence.”

Participants receive a 1-hour military science credit, which students may apply to a leadership certificate. Excursions are open to cadets of all majors, but selection is competitive and based on academic and extracurricular merit. There is always a long waiting list, which is why expanding the program through private support is a priority for the Corps of Cadets.

CHANGING WORLDVIEWS

Chris Hernandez '19, an El Paso native and the cadet sergeant major for the Second Regiment, traveled abroad through two different Corps programs. He first participated in a military ex-

ITINERARY: TWO DAYS IN CHINA

DAY 1

- 09:00 Briefing at U.S. Embassy
- 12:00 Lunch
- 13:00 Visit with the People's Liberation Army
- 14:30 Great Wall Tour
- 17:00 National Museum of China Tour
- 18:30 Explore Tiananmen Square Market

DAY 2

- 09:30 U.S. Embassy Visit
- 12:30 Lunch
- 14:00 Visit Fudan University
- 16:00 Visit the American Chamber of Commerce in Shanghai

Sydney Anderson '18 (left) and Chris Hernandez '19 (right) traveled to South Africa and China, respectively, on Corps excursions.



T S

change program at Helmut Schmidt University in Hamburg, Germany, before traveling to China on a Corps excursion last spring.

Like Anderson, Hernandez returned from his trip with similarly compelling insights, which he shared during one of the mandatory three-hour briefings that cadets give the Commandant following each excursion. "Traveling in China and being 'the foreigner' was transformative," he said. "It made me aware of my status as an American on the world stage. I learned that humans have the same motives and emotions across the world, but the challenge is decrypting how individuals express themselves and then bringing them together."

Approximately 14 percent of cadets participate in an international experience each year—and one in five of those participating do so through a Corps excursion—but the Commandant hopes to increase the number of cadets traveling abroad to 20 percent by 2025. To help achieve this goal, the Corps Development Office is seeking donors

to endow the current excursions and fund at least one more international trip.

The existing excursions are funded through the Commandant's office, and the cost of each trip is between \$80,000 and \$100,000. In spring 2017, the Corps added a domestic trip to Washington D.C. in which participants spend a week applying the DIME-R model to the U.S. government.

Endowed funding would secure the future of these excursions in perpetuity and ensure program growth for future generations of Texas A&M cadets. A \$1 million endowment would permanently endow the Washington D.C. excursion, while each international excursion can be endowed with a \$2.5 million gift. Gifts of \$25,000 or more can contribute to the program's overall fundraising goals.

Donors funding one or more trips will be invited to executive briefings pre- and post-trip and will be encouraged to join groups on excursions as their schedules permit. Naming rights

will be offered to donors who permanently endow one or more trips.

"The significance of ensuring that our young people understand the global marketplace cannot be understated," said Gen. Ramirez. "Having traveled to countries around the world, I know the advantages of understanding a country's environment, culture and the way people view the world. These trips are integral to developing our next generation of leaders for the U.S. military, government and the U.S. private/business sector." ©

TO SUPPORT THE CORPS OF CADETS' INTERNATIONAL EXCURSIONS PROGRAM, CONTACT:

TOM POOL '96
DIRECTOR OF DEVELOPMENT
TEXAS A&M FOUNDATION
(800) 392-3310 OR (979) 862-9154
TOMPOOL@TXAMFOUNDATION.COM



On the north end of campus, you can't miss it: a mammoth yet sleek structure of glass and steel. It's the Zachry Engineering Education Complex, the 525,000-square-foot edifice that has, even before its opening, become a symbol of the College of Engineering.

In the same part of campus, there's something in the air. Something you can feel but can't quite see—though it's every bit as real as the Zachry complex. An energy, a breathtaking sense

of progress at the College of Engineering. Student retention is increasing. Dorm space is being renovated and added. Highly sought-after professors are being hired at an astonishing rate. Students are gaining new opportunities to travel internationally, broaden their knowledge and create their own paths through "build your own" interdisciplinary majors. The college is pursuing partnerships with other colleges on campus, other learning institutions and various businesses.

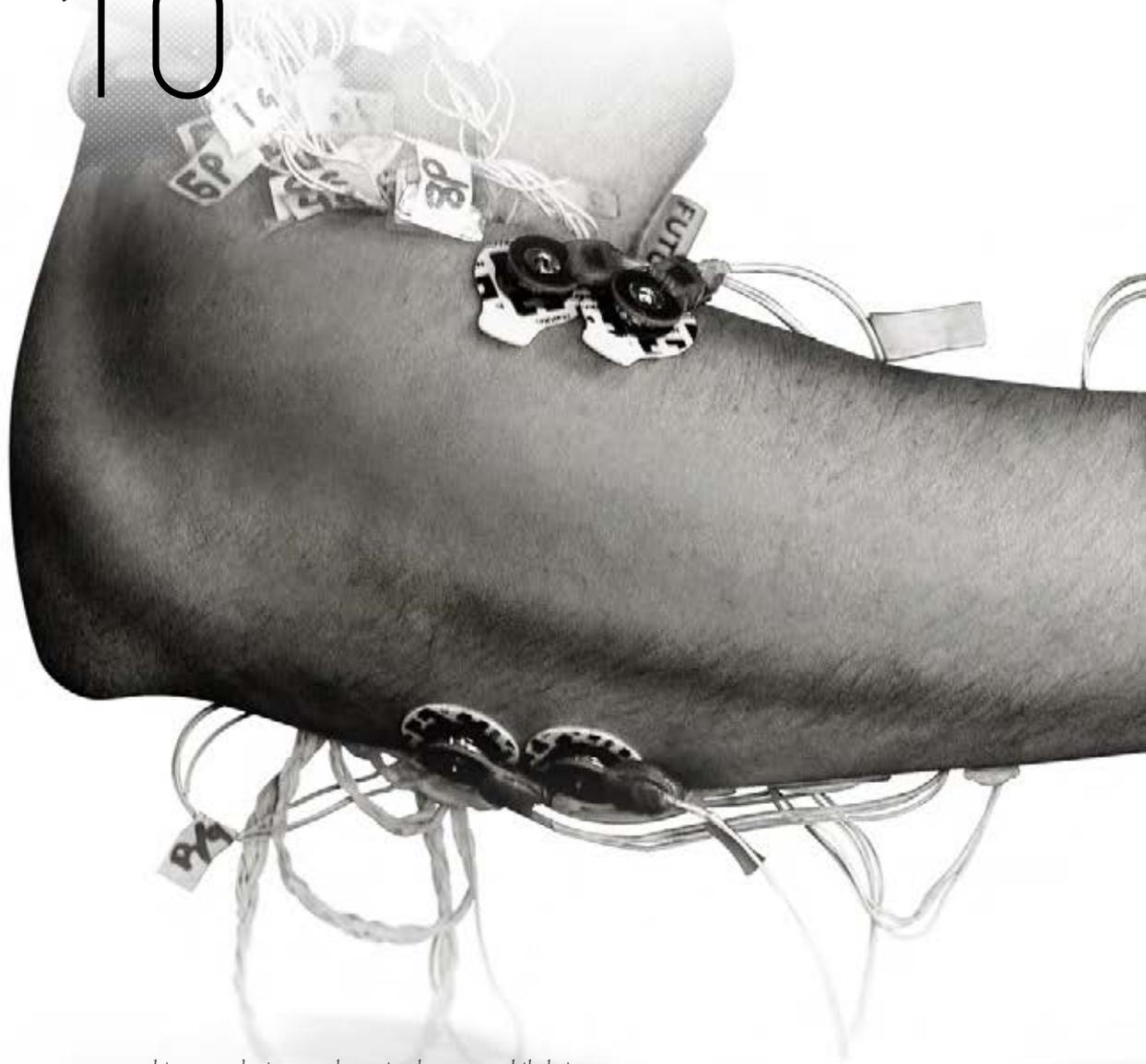
"We are at a pivotal moment in our history," said M. Katherine Banks, vice chancellor and dean of engineering. "A nationally recognized transformation in engineering education."

At the core of this transformation is an initiative called "25 by 25." The name suggests that the emphasis is on numbers, since the plan is to increase the number of engineering students from 19,400 (current enrollment) to 25,000 by 2025. But it's about much more than quantity.

THE BIG SHIFT:

10

Ways Aggie Engineering is Breaking New Ground



Although still in its prototype stage, this smart device translates sign language while being worn on the arm and can recognize 40 American Sign Language words with nearly 96 percent accuracy. The wearable technology combines motion sensors and the measurement of electrical activity generated by muscles to interpret hand gestures.

The 25 by 25 effort, which has wide support from former students and industry, is guided by three principles. One is to enhance engineering education, which will help increase retention among other benefits. "We want to produce students who are better prepared through state-of-the-art instruction from top-notch faculty," she said. The second goal is to increase access, in large part by reaching out to qualified but traditionally overlooked students.

"We can't keep growing as a state and not provide greater access to high-quality engineering education," she noted. And Banks is determined to accomplish this in an affordable and efficient way.

"We're not going to develop extensive plans for enhancing engineering education and say, 'Oh, by the way, we're going to double tuition to pay for it.' That's not going to happen. We will work within our current budget."

These principles—education enhancement, access and efficiency—underpin the 10 key advancements that follow, all of which offer opportunities for former students and businesses to participate in the groundbreaking revitalization of one of the most prestigious colleges of engineering in the country.

—
BY JEANNIE RALSTON





The new Zachry complex, which will open doors for its first class in fall 2018, will be the largest academic building on campus, big enough to fit two 747s inside, end to end. The up-to-date instructional technology in the building requires 1 million feet of data cables. Besides size, what makes this building extraordinary is the way it integrates technology and embodies the dean's core principles for engineering education.

"Right now, we have traditional classrooms with desks bolted to the floor and no way of working in teams or interacting with students in a more personal way during class time," said Dean Banks. "We need to engage students differently." To facilitate that engagement, classrooms—*a.k.a.* learning studios—will be smaller (designed for no more than 50 to 100 students) and flexible, with furniture in each that can be easily reconfigured. Students—all of whom will be undergraduates since the building is entirely devoted to them—will gather around work tables that encourage teamwork and participation. No one will sit in the back of the room because there won't be a back of the room. Each mobile table will be wired for power and Wi-Fi and feature a 32-inch pop-up screen; sophisticated, oversized electronic whiteboards will connect to laptops, cameras and web-based content. "We know that in engineering, technology is key to everything we do," Dean Banks said. "Technology is integrated into every aspect of this building."

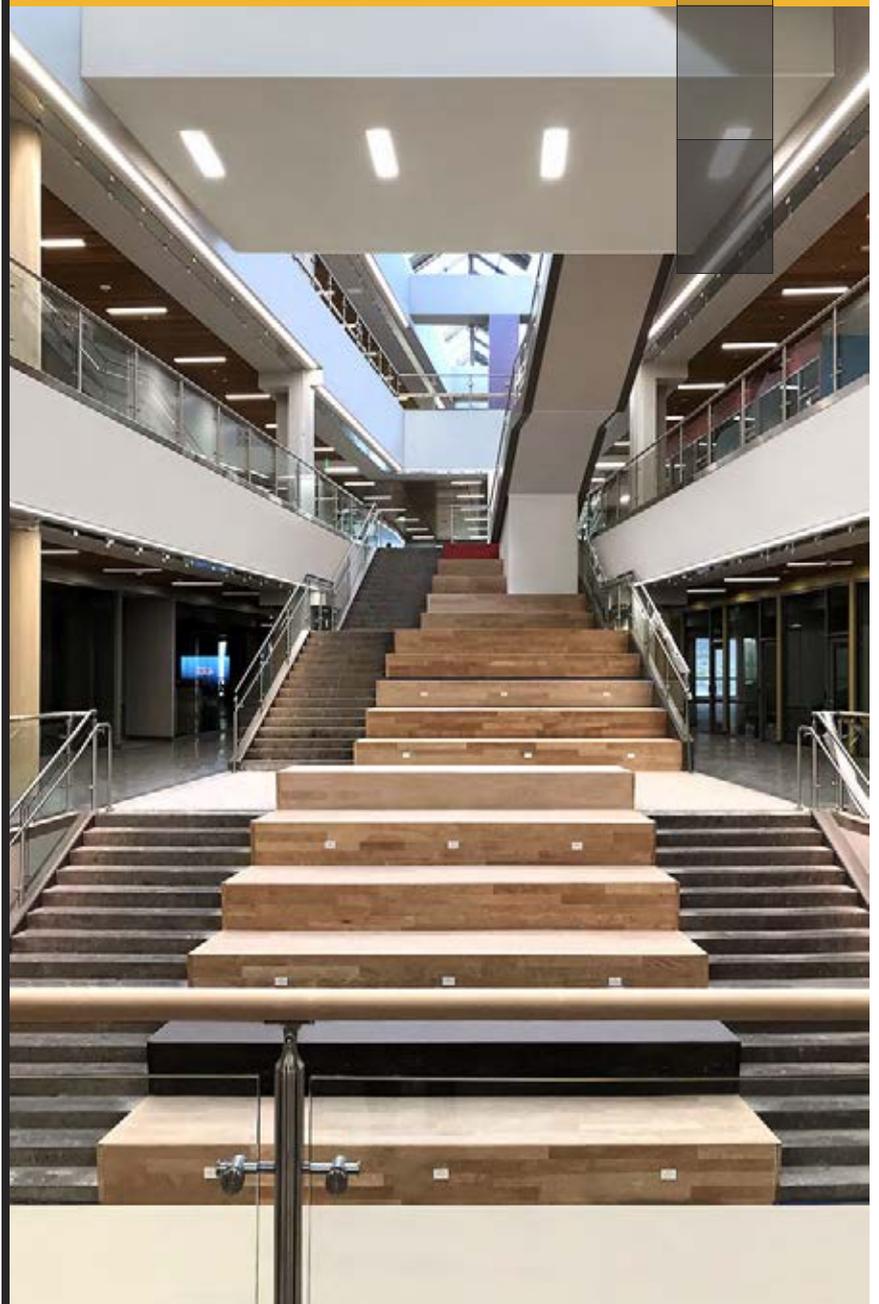
Banks has ensured the building has something else: art. Not photos of gears. Or pipes on a refinery. Or bridges. Real art. Several pieces by international artists were specifically commissioned for Zachry. Each piece, such as a four-story installation that represents fluid flow, will be accompanied by a video in which the artist talks about his or her project. "By understanding and respecting the creative process broadly, students will be better engineers and designers," Dean Banks said. "And they'll also gain an appreciation for and experience with fine arts that goes beyond the technical world."

The building, which has been constructed to LEEDS silver standards for environmental design, also features a green roof with terraces and awnings for student gatherings and laboratory instructional space that can easily and efficiently be adjusted for use by different disciplines. And there will be lots of glass—in learning studios, meeting rooms and labs—so that people can see and be inspired by the work that goes on inside.

Your Chance to Participate: **Naming opportunities are available throughout the building—from the design studios and collaboration spaces to artwork and executive suites—starting at \$25,000.**

Construct a Center for Digital Natives

01





A key factor in increasing retention is expanding support for first-generation students. To this end, the college created a mentoring program called FGEN for the fall 2017 incoming class. "Higher education literature shows that first-generation students do not have adequate information about campus life because their parents didn't attend college," said Bimal Nepal, co-director of FGEN with Bonnie Bustos-Rios. First-generation students tend to have lower retention and graduation rates, Nepal reported. "Our research reveals that providing an effective mentoring program can help boost their self-efficacy."

During the fall 2017 semester, 94 mentors—both engineering students and faculty—worked with 103 students on a one-to-one basis. Many of the mentors were first-generation students themselves who want to give back. "Being the first in my family to attend college is important because it allows me to set an example for my younger sisters," said Mercedes Lewis '21, a mechanical engineering student from Adkins, Texas. "I work with my mentor about once every two weeks to discuss next steps and my adjustment to college thus far. The program has been a big help because it promotes a good work ethic with a positive, well-rounded lifestyle."

Your Chance to Participate: **The college hopes to raise \$10 million in scholarship money for first-generation students. Funding opportunities begin at \$100,000.**

Increase Support for First-Generation Students



02



03



Recruit More Qualified Students

As society's reliance on technology grows, so does our need for engineers. The College of Engineering has developed an innovative way to enroll and retain more qualified students—especially those living in urban areas. Thanks to a \$5 million grant from Chevron Corp., Texas A&M has created partnerships with two-year colleges: Houston Community College, Alamo Colleges District in San Antonio, El Centro and Richland Colleges in Dallas, Austin Community College and Texas Southmost College in Brownsville.

Students in the Chevron-Texas A&M Engineering Academies are accepted to the College of Engineering as full-fledged Aggies, but spend the first three to four semesters at one of these two-year colleges, taking core classes through those institutions but engineering classes taught by Texas A&M faculty. In their junior year, academy students can move to the College Station campus to complete their studies. Students who

may want to stay closer to home for financial or cultural reasons can save more than \$25,000 on their education through this program. "I applied to the Engineering Academy because it was an affordable option for me and my family," said Luis Gonzales '20, who started at El Centro College in Dallas. "I was accepted at College Station, but I chose to go with the more affordable option." The Chevron Academies combined with the Engineering Academy at Blinn will enroll 1,000 students.

Your Chance to Participate: **\$150,000 endowed scholarships or \$2,000 pass-through gifts would enable Texas A&M Engineering to provide financial support to students transitioning to Texas A&M University from an engineering academy.**



04

Imagine the kind of insight that students gain from a former astronaut who is leading a program in human space and robotic systems. Or a former CEO of a distribution company teaching a management class in industrial distribution. This is exactly why, in 2013, the College of Engineering began a push to hire professionals with at least 10 years of field experience. “We realized there was a wealth of industry knowledge out there and that qualified people could really have a positive impact on our campus and our students’ development,” said Mark Johnson, director of the Professors of Practice Program. “In addition to their expertise in the classroom, professors of practice serve as mentors and advisers to students on how to secure internships, how to be successful post-graduation and how to network.”

At the same time, professors who rise through academia offer their own crucial service. “There needs to be a balance between tenure track and professional track faculty,” said Dean Banks. “The students must have fundamental knowledge that only faculty with years of experience in academia can teach. But we also need to ensure that our students understand that while you may have the best mathematical solution to a problem, it may not work in the real world.”

Currently, 65 professors of practice—many of whom have graduate degrees—with a combined total of roughly 1,000 years of industry experience are teaching more than 100 classes. When the college polled students on how to use extra funds generated by differential tuition, the top response was to hire more professors of practice.

Your Chance to Participate: **The college seeks \$1 million gifts to develop endowments for professors of practice.**

Get Out of the Classroom

Good grades. Big ideas. Strong work ethic. These are qualities that go a long way when Aggie engineering students are looking for a job. But the College of Engineering recognizes that what can really make these students stand out in a competitive job market is an “X” factor: a broader understanding of engineering practice. That’s why the ENGR^[X] program was created; for the first time, students (starting with the class of 2021), are required, rather than merely encouraged, to participate in at least one high-impact activity beyond normal classroom instruction.

The list of approved activities includes internships, study abroad, undergraduate research, design competitions or participation in the Engineering Innovation Center, among other things. “It is not enough for an engineer to receive a core education in their field of choice,” said Shayla Rivera ’83, director of ENGR^[X]. “Employers around the world demand that engineers have a comprehensive understanding of needs, whether technical or cultural, and that they bring leadership and communication skills to all projects.”

After completing an ENGR^[X] activity, each student must submit an essay, video, blog or presentation about what they gained from the experience. Though he wasn’t required to participate in the program, Bryton Praslicka ’19, an electrical engineering major from Lewisville, Texas, has taken advantage of any opportunity to go beyond the classroom. He has studied abroad and taken part in a variety of entrepreneurial programs, including Aggies Invent and Startup Aggieland.



05

“At Texas A&M, there are many free resources that help students of all backgrounds learn and become whoever they want,” said Praslicka, who is producing 10 smart bus stops on campus through the Engineering Innovation Center. These solar-powered devices will give live updates on bus arrivals and allow students to charge phones while waiting. “In my experience so far, my grades and classes have not been the main conversation at networking events such as career fairs. It’s my extracurricular activities. When I meet with recruiters or professionals, I carry on real conversations with them about energy trading, power electronics, microgrids, team design projects, horrible mistakes and great successes, which makes me stand out among the crowd.”

Your Chance to Participate: **Funding priorities for the ENGR^[X] program include scholarships for global experiences (see No. 6) and innovative entrepreneurial programs such as Aggies Invent.**

06



Get Way Outside the Classroom

director of the program. Last year, 500 engineering students received scholarships between \$500 and \$1,000 to use toward international study.

Another barrier is fitting a global experience into the demanding course load for engineers. The college has addressed this by offering exchange programs, transfer-credit trips and semesters abroad at Texas A&M at Qatar, where classes are taught by Texas A&M faculty. Plus, a full slate of faculty-led trips satisfies course requirements in many majors; for instance, a summer trip to Europe to study nuclear technology offers credit for two nuclear engineering classes.

“Living in a new environment, I utilized my problem-solving techniques all the time. I submerged myself in the culture by talking to locals and doing what they love to do,” said Brooke Roger '18, a chemical engineering major from League City, Texas, who spent the spring 2017 semester at Swansea University in Wales as part of a reciprocal education exchange program. “The engineering industry is becoming more and more global. Having experience in a foreign country gives you a leg up because it shows that you know how to work in diverse groups and changing environments.”

Your Chance to Participate: **The college aims to raise \$4 million more to fund global study scholarships. A \$50,000 gift will endow a global study scholarship and help deepen a student’s knowledge of the world.**

In 2016, Texas A&M sent more students to study abroad than any other public university in the country and ranked second among all universities—public and private. In 2017, of the 5,330 students who went overseas, almost 1,100 were engineering students. Recognizing the benefits of global experiences, the college wants to increase that number to 2,000 by the end of 2019. To help in that effort, Halliburton has created a \$5 million endowment, the Halliburton Engineering Global Programs, to fund global study scholarships. “Cost is the main barrier to studying abroad,” said Maria Alves '03,



07

Grow Engineering Leaders

Engineering students certainly get their fill of concepts like differential equations, dynamics and structural modeling. But what about communication, collaboration and creativity? With a heavy course load, most students have little time to develop in these areas. The Zachry Leadership Program, launched in January 2016, hopes to change that. Beginning in January of their sophomore year, 32 selected students take an extra three-hour class every semester for five semesters that focuses on self-awareness, self-improvement, empathy, ethics and ways in which businesses can impact communities and society. They also participate in pre-semester re-

treats where they take part in team-building and confidence-boosting activities.

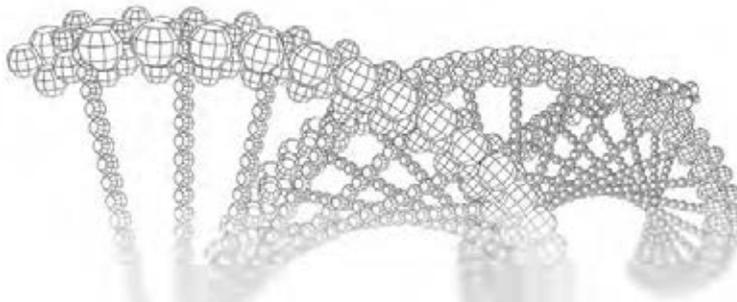
The program was launched by John Zachry, chairman and CEO of Zachry Group, after he attended an award ceremony for distinguished engineering alumni. His goal was to help young engineers impact the world earlier in their careers by giving them a foundation in service, leadership and the free enterprise system.

“Our vision is to produce leaders who are well-grounded and well-rounded,” said Seth Sullivan '01, the program’s director. Sullivan reported that the Zachry Group is very involved with students; executives mentor students, serve

as guest speakers and offer insight into issues the students will experience in the workplace.

Participants report already seeing results, from better decision making to improved collaboration skills. “This program taught me to focus on effective listening, empathizing and serving people by meeting their needs. These are skills that I will carry with me through my entire career,” said Joseph Valencia '18, a mechanical engineering major from The Woodlands.

Your Chance to Participate: **The college hopes to raise \$5 million for students to pursue leadership opportunities throughout campus.**



How will we live in 20 years? Will our grandchildren drive flying cars? How will we interact with computers? In five years, what will the hot jobs be? Dean Banks admitted she doesn't know the answers to these questions. But she does know how to prepare Texas A&M students to be at the heart of these challenges when the time comes. The college is creating and promoting opportunities for students to explore new directions and career paths. "When you talk to industry people today, they have a need for people with depth in specific areas, but they also need people who understand the cutting edge of technology more broadly," she said.

To ensure that the college stays in step with evolving industries and the latest technologies, Banks is developing more minors, such as one in cybersecurity. "My goal is to have many minors where students from different disciplines can develop expertise in emerging areas," she said. Even more innovative is an emphasis on degrees in interdisciplinary engineering or a "build your own" degree program. "Interdisciplinary degrees are strongly supported by industry that want to hire out-of-the-box thinkers," Dean Banks said. "This degree program is for the very creative student who is passionate about doing something different. Industry doesn't hire only based on your degree; they hire for potential. And if you have a unique knowledge base of need, you'll be hired immediately."

For example, Alexandria Morris '20 is busy creating a major that incorporates elements of engineering entrepreneurship, civil and mechanical engineering plus industrial distribution. "My curiosity in many fields can't be channeled into one major," said Morris, a League City, Texas, native. "With the 'build your own' degree program, I don't have to minor or double major, but I can graduate with the skill set I want. I want to gain experience in a plethora of fields so I can best serve a variety of people when I open my own business as a consultant."

Along with new degree options, the college is emphasizing the development of new technologies. This is the thought behind the Aggies Invent program, a two-day design challenge offered by the college three times per semester and once in the summer. "Aggies Invent challenges students to work in multidisciplinary, multilevel teams to solve problems that are facing industry and society today—all in 48 hours," said Rodney Boehm, director of engineering entrepreneurship. "This experience is as much like their first job as we can possibly make it. It helps students know what they are capable of and propels them into developing even more creative solutions throughout their academic and post-academic careers."

Your Chance to Participate: **The college aims to raise \$10 million to create and name the new Department of Interdisciplinary Engineering and \$5 million to create a venture fund to support student inventions in the Aggies Invent program.**

08

Create Innovative Degree Programs

Sometimes big ideas start with small moments. "I remember having a conference call with 30 people and being the only engineer. That's when I thought, 'Fluids lab isn't helping me a whole lot right now. But a finance class would have been nice.'" That was Jay Graham '92 talking about preparing to take his company, WildHorse Resources, public. The notion that engineers can benefit from business training inspired Graham and his partner in WildHorse, Anthony Bahr '91, to invest in the Petroleum Ventures Program, which launched in fall 2016. The program is a collaboration between Mays Business School and the Harold Vance Department of Petroleum Engineering that serves petroleum engineers who want to delve into private equity and new venture opportunities, as well as business majors who aspire to jobs as oil industry analysts or energy investment bankers.

10

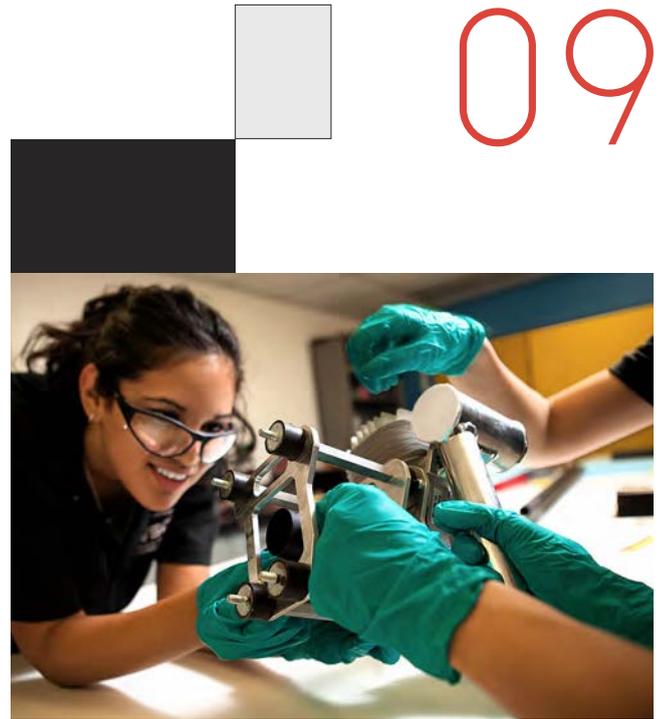


The program was groundbreaking, and it has paved the way for other such collaborations. The college has since launched a partnership with the Health Science Center and, soon, the College of Veterinary Medicine & Biomedical Sciences to advance the way medicine is practiced for humans and animals (see No. 10). Engineering is also teaming with the School of Law on a new E-Law program to allow engineering students to pursue an integrated engineering-law degree in a condensed timetable. “These students will not only be well-positioned for careers in intellectual property law, but also for any kind of transactional legal work,” said Andrew Morriss, former dean of the School of Law. “Lawyers are engineers in spirit: We build transactions the same way engineers build bridges.”

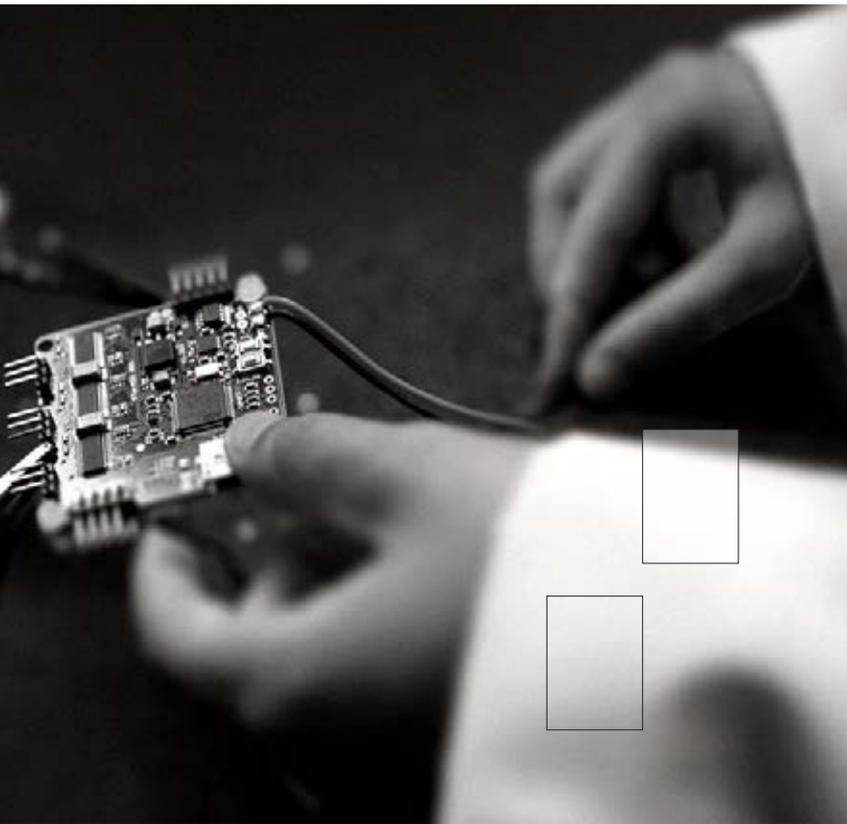
And at the Texas A&M Cybersecurity Center (and through the related cybersecurity minor), the college is working with the Bush School of Government and Public Service as well as the

colleges of business, education and agriculture. “We need to bring academic disciplines that aren’t only technically oriented into the cybersecurity community,” said Dr. Daniel Ragsdale ’80, a retired Army colonel who directs the Cybersecurity Center. “You think of computer science, information technology, computer engineering and information management. Those are the people who address the software part. But to address the conflict and competition aspect of cybersecurity, we need to engage with folks who are involved in psychology, behavioral science, sociology, ethics, law and business.”

Your Chance to Participate: **The Petroleum Ventures Program seeks additional funding to provide up to \$50,000 per year in scholarships for students in the program. Scholarships are also needed for students in other collaborative areas of study.**



Apply Cutting-Edge Engineering Technologies in Medicine



Not long ago, when Dean Banks visited her daughter at the hospital where she works as an ICU nurse, she was struck by what she saw. Her daughter was sitting in front of a bank of computer screens that were monitoring health vitals from her patients. “It looked like NASA’s mission control center,” Dean Banks reported. Realizing how integral technology has become in the practice of medicine, Banks saw the makings of an important collaboration—between the College of Engineering and the Texas A&M College of Medicine—and went about making it happen.

The new collaboration, called EnMed, will launch in 2019 in partnership with Houston Methodist Hospital. Fifty students will comprise each class of EnMed scholars and in four years, students will earn both a medical degree and a master’s degree in engineering. The goal is to produce graduates who are well-equipped to invent transformative technology in the health care field. Emphasis will be on innovation, entrepreneurship and research, and each student will be required to invent a device or application before graduation.

“I am certain the program will lead to new devices and technologies. It brings innovation to the medical school,” said Dr. Carrie Byington ’85, dean of the College of Medicine, senior vice president of the Texas A&M Health Science Center and vice chancellor for health services at The Texas A&M University System. She added that only two other universities in the nation have a curriculum like EnMed. “We believe we can be at the forefront of the field because of Texas A&M’s strengths in engineering and medicine.”

The two women leaders are starting to think even bigger. EnMed is part of a broader program called EnHealth, which is the nation’s first comprehensive educational program to fully integrate engineering education into all health-related disciplines. “An engineer who is also a physician sees things differently: a ‘physicianeer,’” Dean Banks said. “Nurses, pharmacists or even veterinarians with engineering degrees consider problems in a different way.”

Dean Banks feels certain that a similar effort at collaboration elsewhere would not be as successful as it will be at Texas A&M. She pointed to the humble tradition of service that allows the goals of the two colleges to merge harmoniously. “It will only work here. Because of the Aggie Spirit,” Dean Banks said. “The Aggie Spirit is the catalyst for everything we do. No other university would attempt to increase enrollment to our level. No other university would build a 525,000-square-foot facility just for undergraduates. Other universities have the pieces, but it’s the spirit here that makes it work. This type of commitment to transformation doesn’t work without it.”

Your Chance to Participate: **The colleges of engineering and medicine hope to raise \$50 million to support students and faculty in the EnMed program. Endowed opportunities begin at \$100,000.**



To support these initiatives in the College of Engineering, contact Jay Roberts ’05, assistant vice president for development, at (979) 862-8044 or jroberts@txamfoundation.com.



DIANA AVILES '19

HOMETOWN: HOUSTON, TEXAS
MAJOR: APPLIED MATHEMATICAL SCIENCES
SCHOLARSHIP: RICHARD "DICK" ALLEN '38 ENDOWED OPPORTUNITY AWARD
(ESTABLISHED BY THE HOUSTON A&M CLUB)



LAT. 29.7604° N / LONG. 95.3698° W

BACKGROUND: Aviles grew up watching the challenges faced by her parents and neighbors who had limited access to education before emigrating from Mexico and Latin America. "They couldn't possibly help their children with their homework. I was fortunate to have four older brothers who motivated me and were always willing to assist me with my homework or anything else I didn't understand."

HER SAVING GRACE: This scholarship. Her parents were both manual laborers who earned just enough to provide for their family. However, health issues from working these taxing jobs eventually took a toll, thus curtailing their income and making it impossible for them to pay for their daughter's college education. As a result, Aviles understands firsthand how a scholarship allows students to maintain their focus on studies. "A scholarship can determine whether a student attends a university or a local college. It's a huge relief not having to stress and worry about paying for rent or food."

HER STRENGTH: Numbers. The future actuary and Microsoft Excel wizard also believes her scholarship provides her additional incentive to succeed. "It influences me to try harder and to not let anything go to waste. It inspires me to reach for my goals and pursue my dream career."

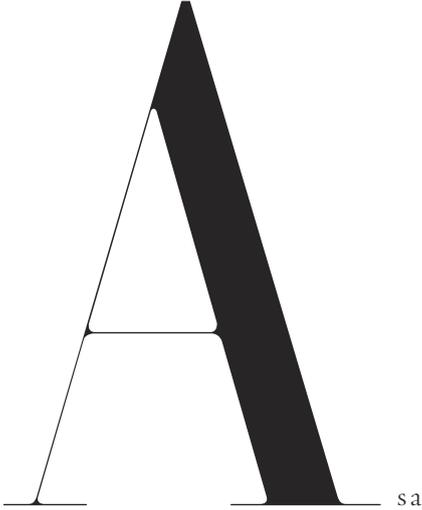
—the power of—

A&M Club scholarships support the next generation of Aggies.

and

AWARDS

by dorian martin '06



As a first-generation Aggie, Elizabeth Hamburg '07 didn't truly understand the power of Texas A&M University's alumni network until she joined the Houston A&M Club after graduating. "I really enjoyed meeting and learning from fellow Aggies who were at different stages in their careers," she said. "I also had the opportunity to see what a nonprofit looked like from the inside."

The communication graduate soon decided to donate to the club's scholarship fund but could only afford to give the minimum amount. However, her small initial donation was rolled into the club's fundraising effort and helped create a scholarship for a worthy Texas A&M student. "I've always been proud of how much the A&M Clubs prioritize creating scholarships," said Hamburg, who now serves as the Houston A&M Club executive director. "Our club traditionally hosts an event where scholarship recipients visit with our members. It's especially amazing to see the first-generation students. That's when you really get that feel-good moment of hearing how a scholarship makes a difference in their lives."

A&M Clubs, which comprise one of the largest alumni networks in the world, are an integral part of fundraising for both the Texas A&M Foundation and The Association of Former Students. "Through their fundraising efforts, A&M Clubs help many deserving students attend Texas A&M," said

Texas A&M Foundation President Tyson Voelkel '96. "The clubs' assistance in creating scholarships passes the torch to a new generation of Aggies."

—a world of support—

Each A&M Club is chartered by The Association of Former Students, which evaluates the group's sustainability. Approximately 250 A&M Clubs are in existence worldwide, and more than 90 percent of Aggies live within an A&M Club's boundaries. While 126 of these clubs are based in Texas and 89 in other parts of the United States, A&M Clubs are also established in Europe, South America, Asia, the Middle East and Australia. A true ranking doesn't exist, but officials at The Association of Former Students believe that Texas A&M ranks second nationally in the number of alumni club networks behind Notre Dame (which has 271).

Clubs are required to hold three events annually; often, one of these is a local Muster ceremony. Other activities range from dances and Mardi Gras celebrations to crawfish boils and socials with the Yell Leaders. In addition, many A&M Clubs participate in community service projects with organizations such as Habitat for Humanity and Special Olympics.

Besides offering opportunities for fellowship, A&M Clubs provide significant financial support to the university. In total, 84 A&M Clubs have given almost \$4.5 million

"A&M Clubs' assistance in creating scholarships passes the torch to a new generation of Aggies."

—TYSON VOELKEL '96, PRESIDENT, TEXAS A&M FOUNDATION

WOO PIG SOOIE: Even though he grew up in Texarkana, Arkansas, Snell regularly crossed state lines to attend Texas secondary schools. He always thought he would return to his home state to attend college. "I grew up a Razorback fan." He surprised himself by choosing Texas A&M. The reason? "I was so drawn to the university's sense of community."

WHY HE'S THANKFUL: With this scholarship, Snell reached a financial threshold that allowed his out-of-state tuition to be waived. Without that, his family couldn't have afforded Texas A&M.

CAMPUS INVOLVEMENT: Snell first joined a freshmen leadership organization, Aggies Selflessly Serving in Shaping Tomorrow, where he worked on a variety of projects involving children. Today, he's a reporter for The Battalion, serves as an ambassador for the College of Engineering and mentors students at Bryan High School as part of the Brotherhood of Aggie Mentors, a men's organization.

CAMPUS INVOLVEMENT: Snell is considering applying to medical school to focus on pediatrics. However, he is also interested in working to develop prosthetic limbs. "In high school, I was good in math and science, so engineering seemed the way to go. But I also like giving back to people. I want to have a career where I can impact others."



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TYLER SNELL '20

HOMETOWN: TEXARKANA, ARKANSAS

MAJOR: BIOMEDICAL ENGINEERING

MINOR: JOURNALISM

SCHOLARSHIP: DEEP EAST TEXAS A&M CLUB PRESIDENT'S ENDOWED SCHOLARSHIP



VICTORIA BADILLO '20

HOMETOWN: BRYAN, TEXAS

MAJOR: PUBLIC HEALTH

SCHOLARSHIP: BRAZOS COUNTY A&M CLUB
FOUNDATION EXCELLENCE AWARD



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HER UPBRINGING: “I grew up wearing maroon and white and was always surrounded by people who were passionate about belonging to the Aggie family. My oldest sister earned her bachelor’s and master’s degrees from Texas A&M.”

WHY SHE’S THANKFUL: “I take pride in knowing there’s someone who acknowledges my efforts and truly believes that I can be successful here and beyond. My scholarship donors are sustaining the spirit and traditions of the welcoming, supportive and unshakeable Aggie family.”

HER PASSION: Badillo identified her life’s calling in high school while participating in the Brazos Valley United Way Youth Leadership Cabinet. In that role, she assisted with fundraising for nonprofit organizations in the Bryan-College Station community. “The opportunities I experienced showed me how important it is to create a network of positive change.”

FUTURE PLANS: Badillo plans to pursue a second degree in nursing to become a labor and delivery nurse. “I’ve always been passionate about working with young children, and I know I can make a difference working in the health field. The relational, committed and compassionate qualities of a nurse are things that strongly connect to the person I am and the person I strive to be.”

“Scholarships represent an investment in the students who’ve grown up in our midst.”

—LISA BURTON '10, PRESIDENT, BRAZOS COUNTY A&M CLUB

to the Texas A&M Foundation to support scholarships. While some scholarships are one-time gifts, many clubs establish endowed scholarships that support Texas A&M students in perpetuity.

Not surprisingly, A&M Clubs in major Texas metropolitan areas attract the most Aggies and have a significant track record of giving back through the Foundation. For instance, the Houston A&M Club is the largest worldwide. “There are about 90,000 Aggies in Houston, and we communicate regularly with about 45,000 of those individuals via email,” said Hamburg. “Our goals are to foster the local Aggie Spirit, give back to Texas A&M and financially assist Houston-area students who attend Texas A&M.” The club, which traditionally gives 30 scholarships annually, raises most of its scholarship funds during its annual Coach’s Night and through a campaign where Houston-area Aggies pool their money.

Similarly, the Brazos County A&M Club leverages its proximity to Texas A&M’s campus to raise scholarship funds. However, many A&M Clubs in less populated areas of Texas—such as Wichita Falls A&M Club, LaSalle County A&M Club, Greater Temple Area A&M Club and Gonzales County A&M Club—have also raised funds to create endowed scholarships. Additionally, members of A&M Clubs in California, Alaska, Tennessee, Louisiana and Missouri strengthen the Aggie Spirit across the United States by contributing to scholarships.

Clubs also offer generous support to The Association of Former Students. “To date, A&M Clubs have donated nearly \$2 million dollars in gifts and scholarships to The Association through the Annual Fund, the Endowed Century Club, Aggie Ring Scholarships and Memorial Scholarships,” said Michael J. Hardy '13, the organization’s director of fundraising.

Ultimately, members of A&M Clubs around the world are dedicated to helping make Texas A&M an affordable option for students in their communities. “We all know that the cost of higher education is an important factor in a student’s decision to enroll,” said Lisa Burton '10, president of the Brazos County A&M Club. “It is imperative, now more than ever, for families to receive some financial relief. Providing scholarships to students from our respective communities gives our members a common cause to support. Scholarships represent an investment in the students who’ve grown up in our midst.” ©

A&M CLUBS OR INDIVIDUALS INTERESTED IN CREATING SCHOLARSHIPS FOR AGGIES SHOULD CONTACT:

MARCY ULLMANN '86
DIRECTOR OF SCHOLARSHIP PROGRAMS
TEXAS A&M FOUNDATION
(800) 392-3310 OR (979) 845-6383
MULLMANN@TXAMFOUNDATION.COM



21ST
CENTURY
DR

CARRIE BYINGTON '85 HAS BIG DREAMS FOR THE FUTURE OF HEALTH CARE. THEY START AT TEXAS A&M.

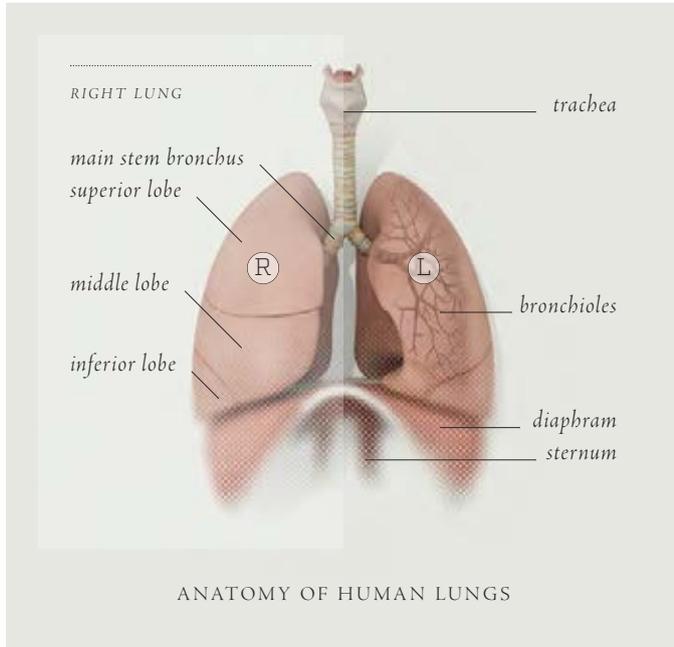
Dr. Carrie Byington '85 has one goal: to transform health care as we know it. "The current system is unsustainable," said Byington. High costs and inefficiencies mean that the people in most need of care are often the least likely to have access to it. Innovation is often limited by administrative constraints, legal issues and other challenges. A leaky pipeline of talent means there aren't enough doctors available to provide care or conduct research, and then there's the issue of a serious lack of diversity in the medical community.

Tackling these problems is no small task, but Byington, dean of the Texas A&M College of Medicine, senior vice president of the Texas A&M Health Science Center and vice chancellor for health services at The Texas A&M University System, is up for the challenge. In her first year on the job, Byington is already making strides toward transforming health care in Texas and beyond.

BY CRYSTAL HOUSTON



ENMED STUDENTS BLEND HEALTH CARE
RESEARCH AND INNOVATIVE ENGINEERING
TECHNOLOGIES IN A TRANSFORMATIVE
MEDICAL EDUCATION MODEL.

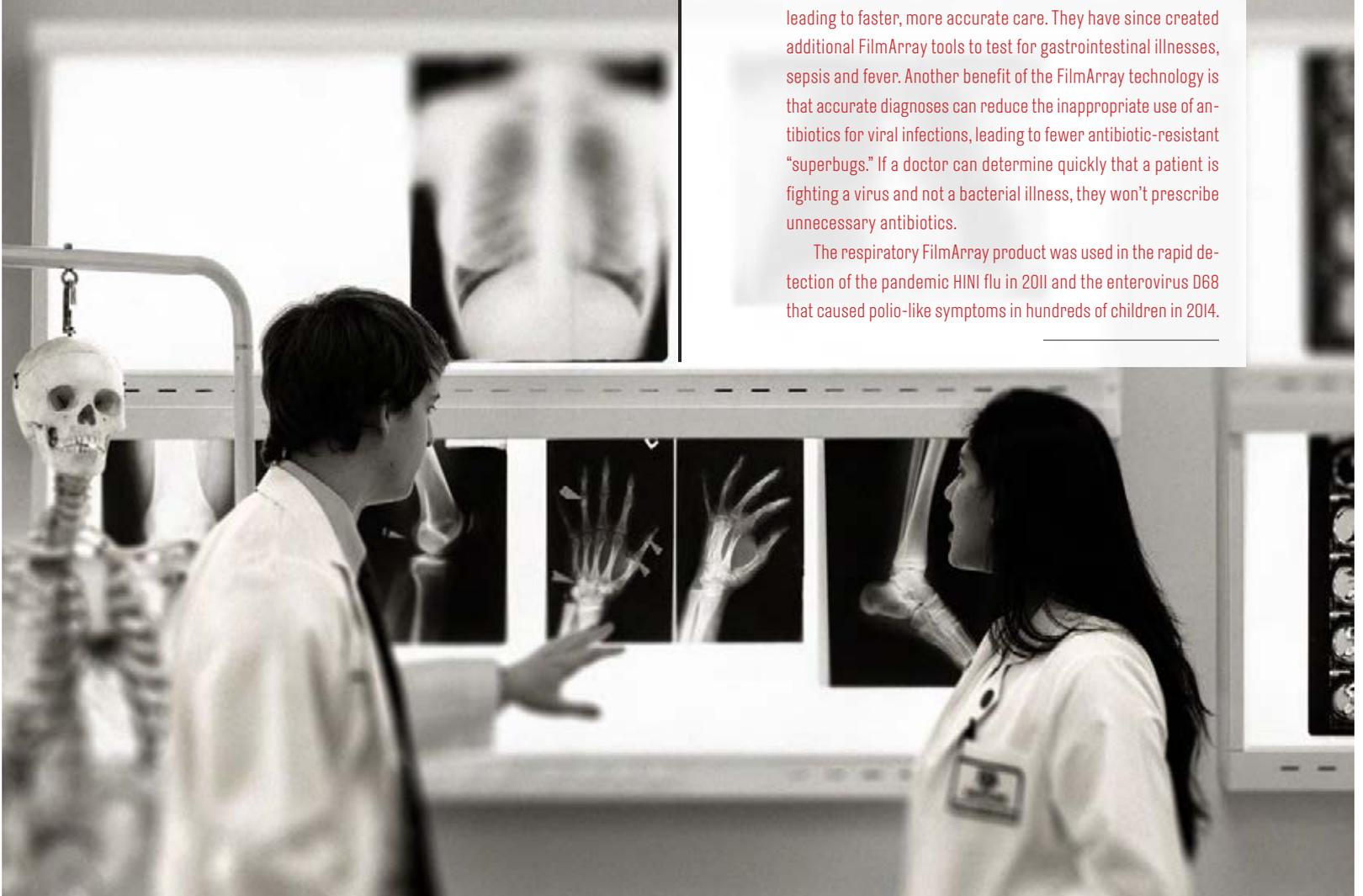


MERGING ENGINEERING AND MEDICINE: THE CASE OF FILMARRAY

Byington knows about medical innovation and translational science firsthand and is a fellow of the National Academy of Inventors. She is one of the collaborators responsible for FilmArray, a diagnostic tool used in 70 countries and in hospitals across the U.S. that has transformed our ability to diagnose infections since it was introduced in 2011. When the first version of the technology was being developed, it tested for just one type of virus: SARS (severe acute respiratory syndrome). “It was beautiful technology and chemistry and there was no doubt that it worked,” said Byington, “but there was just one problem, as I discussed with the engineers: No physician would use it. The range was too narrow. What we needed was something that would test for the majority of pathogens that cause the syndromes like respiratory distress or fever that we see all the time. We needed to test for viruses and bacteria at the same time. That had never been done before.”

Byington worked with engineers and basic scientists to perfect the technology, eventually creating a tool that tests for 21 of the most common viral and bacterial pathogens that cause respiratory infections from influenza to pneumonia. If a patient comes in with severe respiratory symptoms, a single, relatively inexpensive test can now determine the likely cause in about an hour, leading to faster, more accurate care. They have since created additional FilmArray tools to test for gastrointestinal illnesses, sepsis and fever. Another benefit of the FilmArray technology is that accurate diagnoses can reduce the inappropriate use of antibiotics for viral infections, leading to fewer antibiotic-resistant “superbugs.” If a doctor can determine quickly that a patient is fighting a virus and not a bacterial illness, they won’t prescribe unnecessary antibiotics.

The respiratory FilmArray product was used in the rapid detection of the pandemic H1N1 flu in 2011 and the enterovirus D68 that caused polio-like symptoms in hundreds of children in 2014.



DR. CARRIE BYINGTON '85 IS TEAMING HEALTH SCIENCES WITH ENGINEERING TO CREATE A NEW KIND OF HEALTH CARE PROVIDER: A "PHYSICIANEER."



SCHOLAR, DOCTOR, LEADER

Byington has been an Aggie since her first breath. Born in Bryan while her father attended Texas A&M, she grew up all over the state; she worked for Mobil Oil (now ExxonMobil) and job-related moves were a regular occurrence. "I'm very proud to be a Texan," she said.

After her undergrad years as an Aggie, Byington attended medical school at Baylor College of Medicine and completed her residency in pediatrics at Texas Children's Hospital in Houston. It was at Baylor that she became aware of the magnitude of health disparities in her home state. "One of our primary training hospitals treated individuals without resources," she said. "Every day, I encountered patients who were unable to afford medication, unable to read the instructions given to them for follow-up care, or unable to communicate in English with the medical staff to describe their problem. I saw the toll this took on them, their families and our community."

Byington brought these lessons with her when she moved to Utah to practice medicine and teach. For the next 21 years, she dedicated her career to increasing access to care, especially for women and children living in poverty. She co-founded a clinic at the University of Utah to serve the most at-risk populations in Salt Lake City, including recent immigrants, refugees, pregnant teens and children in foster care. The clinic, which has won national awards, focuses on strengthening families by helping to address the social determinants of health, including screening for violence, ensuring food and housing security, assisting with transportation, and offering dental and legal services. To address literacy needs, Byington opened a free library within the

clinic in 1998. The children's library bearing her name became a county-supported public library 10 years later and is still going strong.

Though she had a leadership position and a successful career with a thriving practice at the University of Utah, when Byington saw the chance to return to Aggieland, the choice was easy. "I want to transform health care in this country," she said, "and there is so much capacity at Texas A&M. I believe we can achieve health care transformation here better than any other place in the United States."

ENGINEERING THE FUTURE

A key differentiator at Texas A&M is that the College of Medicine exists as part of the Health Science Center, where collaboration occurs between researchers and practitioners in all the health disciplines, from dentistry and nursing to pharmacy and public health. "Team-based medicine and working with interprofessional health teams will be incredibly important in addressing health disparities," said Byington, stressing that health care cannot be the sole responsibility of physicians. "There are not enough physicians to deliver the one-on-one care that we need to really address chronic issues in the communities we serve. We need to engage the whole team of providers and address needs in a holistic, integrated way."

This is especially true in rural Texas, where rates of chronic illness and cancer are higher, access to health care is limited, life expectancy is lower and doctor burnout is pervasive. "The College of Medicine was created through the Teague-Cranston Act to serve the rural poor and assist the veteran population of Texas," said Byington. "In this, our 40th anniversary year, we have recommitted to that mission in a big way. Our history, combined with the Aggie core values of respect, excellence, leadership, loyalty, integrity and selfless service, make Texas A&M the ideal place to transform care for rural and military populations."

Improvements in both areas require innovation, and Byington need not look further than a few miles for a promising partnership. "Texas A&M has one of the finest engineering schools in the nation," she said, "and the ability to partner health sciences with engineering gives us an opportunity to dramatically advance health through innovation."

Enter a new degree program called EnMed (Engineering Medicine), the brainchild of Byington and M. Katherine Banks, vice chancellor and dean of engineering. This interdisciplinary partnership, to launch in 2019 in collaboration with the Houston Methodist Hospital, will create a new kind of health care provider: a "physicianeer," or a scientist with the ability to see health issues in a radically different way and find technological solutions that have never been considered before.

Fifty students will comprise each class of EnMed scholars and in four years, these talented students will earn both a medical degree and a master's degree in engineering. The hope is that by combining

medical knowledge with engineering technical prowess, new technologies will arise—technologies, for example, that can connect physicians and patients remotely without losing the same quality of care as in-person treatment; technologies to help those in the military to be safer, to have fewer injuries, to recover from injuries more completely, and to give them better quality of life; and most importantly, innovative new tools for diagnosis and treatment.

A handful of students piloting the EnMed curriculum are already advancing the medical field. One fourth-year medical student, Nga Tang '18, is developing a tool to detect dehydration in infants with a smart pacifier, an invention that won a South by Southwest competition last year. Two other students, first-years Cannon Woodbury '21 and Kenneth Livingston '21, are working on a device that will help ophthalmologists examine premature babies, who are at high risk of visual impairment and have special challenges in examination.

These students are training to be translational scientists, capable of taking discoveries from one area and translating them into results in another. "This multidimensional approach will push the envelope for health care transformation," said Byington. "This is the kind of training we need to create 21st century doctors."

FIXING THE LEAKY PIPELINE

Equipping 21st century doctors in new ways is half the battle, but to truly transform health care, something more fundamental needs to change—students of any gender, race or socioeconomic background must be able to afford and attend medical school while being supported along the way. In the U.S., individuals from the top 20 percent income level of households make up most of the medical school student population. Additionally, student debt is higher now than ever before. "These demographics combined with financial pressures influence how and where physicians will practice after they complete their training," said Byington. "My goal is for all the health professions to represent the diverse demographics of the U.S., and Texas A&M is a system with remarkable, diverse undergraduates that could support the inclusive health professions workforce we're trying to create."

Byington has recently signed agreements with six schools in the Texas A&M System to bring students into the medical school faster. If they reach certain milestones, they can shave one year off their undergraduate training. "It can take 15 years or more of college, medical school, residency and fellowship to become a fully-trained physician. For physician scientists, it is longer. For many students, it is just too long," said Byington. "Talented students have many career options. We need to make health professions more attractive to the best students."

Persisting through that period of training is difficult, especially for non-white, non-male students, due to a lack of mentorship. "What

FORT HOOD AND TEXAS A&M UNIVERSITY
HAVE PARTNERED TO PLACE TEXAS A&M
HEALTH SCIENCE STUDENTS AT THE
FRONT LINE OF ARMY MEDICINE.



we have across the nation is a leaky talent pipeline. Mentorship is essential to retaining the best minds in medical research," said Byington. Particularly for women and minorities in this field, it can be hard to find a mentor because of a lack of diversity in leadership roles in medicine.

As the first Mexican-American woman to hold this level of leadership for an academic medical center in the U.S. and as a new member of the National Academy of Medicine, Byington uniquely understands the need to make the health professions more inclusive and representative. In this spirit, she has mentored more than 100 medical students, fellows and junior faculty members herself.

"For me, it's all about helping people reach their potential," she said. "Mentorship is the single most important factor in helping people to persist in the profession. It is an investment that pays off over time. We need this investment if we are to have the workforce to develop the new treatments, technologies and innovations necessary to have the best health care in the world and to eliminate health disparities."

It's just one more way that Byington is addressing the many health challenges facing Texas and the nation; one more way that she's striving to transform health care, one student at a time. ©

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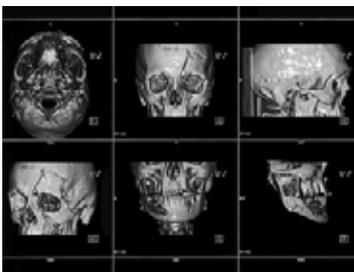
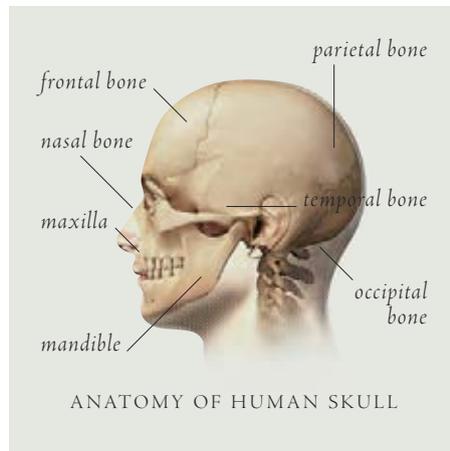
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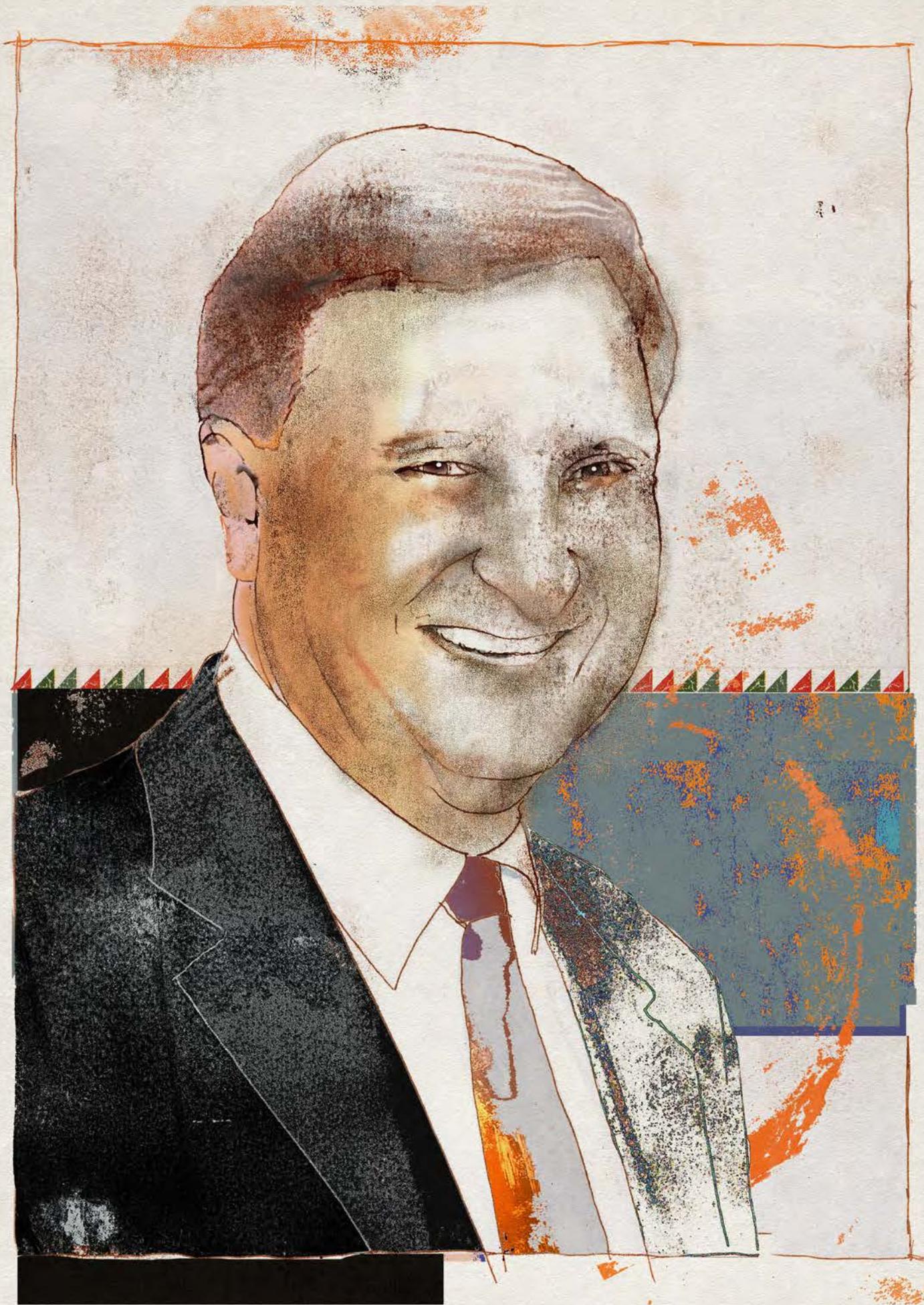


OPPORTUNITIES FOR
VISIONARY INVESTORS

Byington has big dreams for the future of the Health Science Center, but health care transformation can't happen without the strategic investment of visionary partners. Funding priorities include:

- Naming the Texas A&M College of Medicine. A naming gift of \$75 million will address Byington's priorities: improved health in rural populations, elimination of health disparities, development of new technologies, and partnerships with the military in care and service.
- Supporting physician engineers through the EnMed program. The colleges of engineering and medicine hope to raise \$50 million to support students and faculty in the EnMed program. Endowed opportunities begin at \$100,000.
- Providing scholarships for veteran medical students and medical students seeking to serve rural populations. Endowed gifts of \$125,000 support Dean's Excellence Scholarships.
- Retaining and recruiting world-class faculty. Endowed chairs (\$1.5 million), professorships (\$1 million) and career development professorships (\$500,000) reward career achievement and retain exceptional scholars.





《 HONOREE:
Charles “Chaz” Neely ’62
Founder and retired chief executive
officer of San Antonio Steel Company

- **Gifts through the Texas A&M Foundation:** *The Neelys’ philanthropy spans Texas A&M’s campus. They have strong ties to Mays Business School, including the commitment of the Trisha and L.C. “Chaz” Neely ’62 Chair in Marketing and the creation of the Trisha and L.C. “Chaz” Neely ’62—Hagler Institute for Advanced Study Chair, a graduate fellowship and endowed business honors scholarships that can support up to 12 students. Chaz’s dedication to the Corps of Cadets is highlighted through the creation of numerous Corps 21, General Rudder and Sul Ross scholarships. The Neelys were also major donors to the Memorial Student Center renovation and contributed a substantial gift to the new John D. White ’70 – Robert L. Walker ’58 Music Activities Center. They were also major contributors to the Slocum Nutrition Center as well as to the Kyle Field and Blue Bell Park renovations.*

Legacies of Service

THE TEXAS A&M FOUNDATION ANNOUNCES ITS 2018 STERLING C. EVANS MEDAL HONOREES.

The 2018 recipients of the Texas A&M Foundation’s prestigious Sterling C. Evans Medal are well known for their generosity across Texas A&M’s campus. The honorees—Patricia “Trisha” and Charles “Chaz” Neely ’62 and Rhonda and Forrest “Frosty” Gilliam Jr. ’80—have distinguished themselves through offering visionary leadership and significant financial support to the university. ● “Over the years, these honorees have contributed their time and expertise to help Texas A&M remain at the forefront of higher education,” said Texas A&M Foundation President Tyson Voelkel ’96. “Their financial support has been instrumental in transforming the university’s classrooms and athletic complexes. The generosity of these recipients is emblematic of the legendary Aggie Spirit and the university’s core values.” ● This esteemed honor, created in 1998, is named for Sterling C. Evans ’21, a founding trustee of the Texas A&M Foundation in 1953 and president of Texas A&M’s Board of Trustees in 1963. Evans committed almost \$10 million to Texas A&M and actively encouraged others to give of their time and resources to the university.

by Dorian Martin ’06

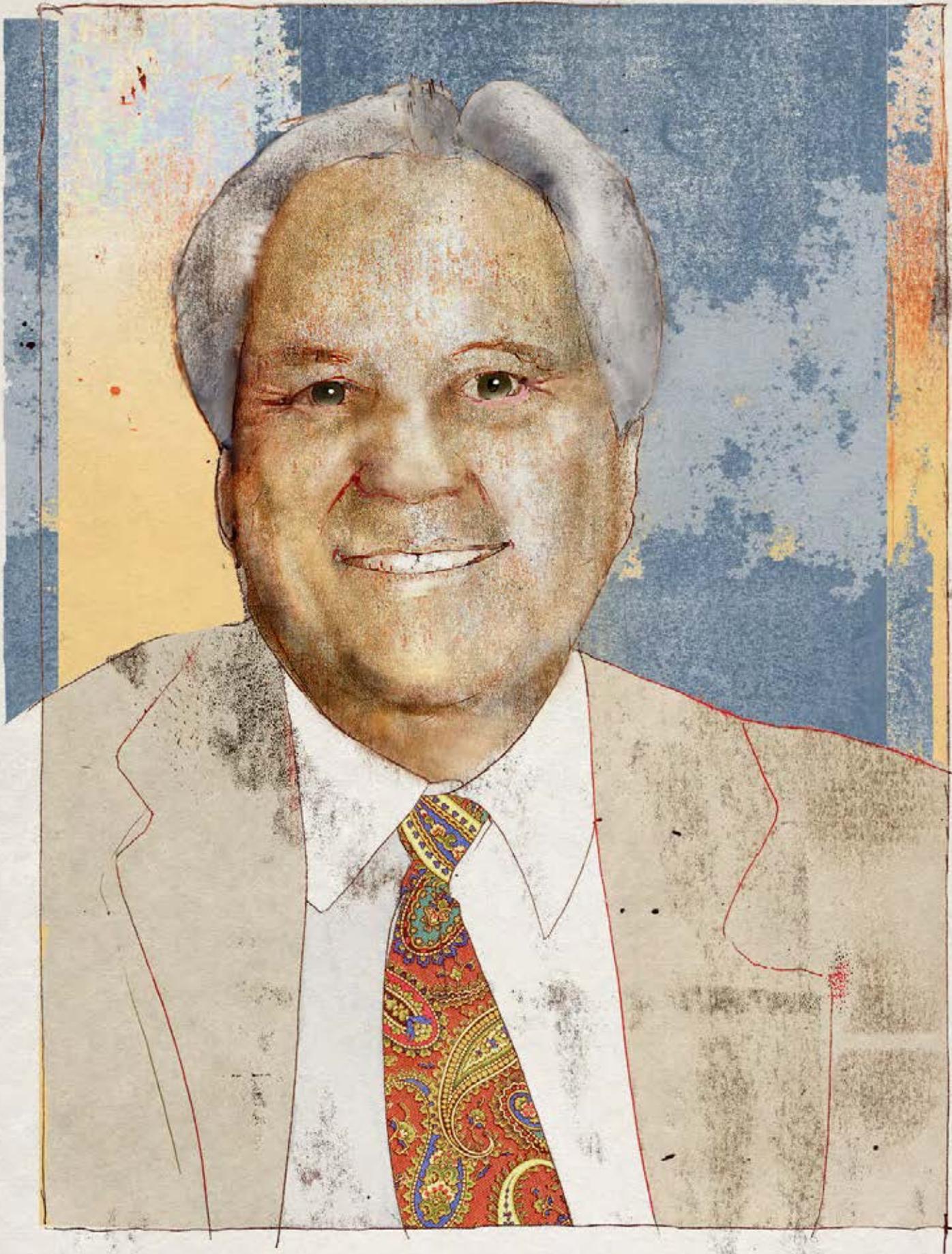
- **Time well spent:** The Neelys have devoted significant time to Texas A&M, having served on several Texas A&M Foundation capital campaign committees, including the current *Lead by Example* executive cabinet. Chaz also held leadership roles with Mays Business School, The Association of Former Students, the 12th Man Foundation and the President’s Board of Visitors for the Corps of Cadets. “I want to leave things better than I found them,” he said. “I believe so much in Texas A&M. It’s an outstanding institution and maintaining that is important to me.” In recognition of his professional and personal achievements and his service to Texas A&M, Chaz was inducted into the Corps Hall of Honor and received The Association of Former Students’ Distinguished Alumnus Award and Mays Business School’s Outstanding Alumnus Award.

- **If at first you don’t succeed, try, try again:** *As a young man, Chaz spent his free time working at his father’s gas station and courting Trisha. However, his underdeveloped study skills became a problem in college, and he had to leave Texas A&M twice due to a shortage of money and grade points. Chaz re-enrolled after each absence, determined to earn his degree and return to his Corps unit. “If I had gone to another school, I wouldn’t have finished,” the San Antonio native said. “I missed my cadet family, and I credit them with me returning to graduate.” His resolve was unwavering by his third trip back to Aggieland. Chaz was married to Trisha at that point and with her help, finished his remaining three semesters. These challenges helped him develop persistence, an important trait that allowed the businessman to weather life’s storms. “Your plan doesn’t always work out,” he said. “You think, ‘What do I need to change to make this work?’ I just continued to figure out how to make things work for me.”*

Chaz was the first in his family to attend college. He realized that earning a college degree would significantly increase his options personally and professionally.

- **Bleeding maroon:** Many other family members have followed Chaz, including his three children—Alison Neely Stone ’90, Leonard C. “Trey” Neely III ’97 and Bradford K. Neely ’94. Their granddaughter, Neely Stone ’21, is currently a freshman. “We hope the same values will be taught to my granddaughter as were taught to my husband,” Trisha said. In addition, Chaz’s brother, John ’73, and many nieces and nephews attended Texas A&M.





HONOREE:

Forrest “Frosty” Gilliam Jr. ’80

Owner of Aghorn Energy Inc. and numerous other entities

- **Gifts through the Texas A&M Foundation:** Rhonda and Frosty have provided significant financial support to the College of Engineering through the creation of a petroleum engineering professorship in memory of Frosty’s father and two petroleum engineering scholarships. The couple also made the lead gift to the Stephen A. Holditch ’69 Department Head Chair in Petroleum Engineering and funded the Brenda Bridges and Dr. Bill McCain Scholarship in Petroleum Engineering in their honor. They also made a significant contribution to the remodeling of the Clayton W. Williams, Jr. Alumni Center, home of The Association of Former Students.

Frosty grew up in a family that had split loyalties to the University of Arkansas and the University of Tennessee. “I grew up a Razorback fan,” he recalled.

“My best friend in high school and his older brother went to Texas A&M, and they sparked my interest in attending.”

- **Engineering his path:** Frosty’s father started an oil field service company right as Frosty was graduating from high school, so he enrolled in a junior college to help his father’s business. “I was initially going to major in bioengineering, but after working in the oil field with my dad, I switched to petroleum engineering,” he said. “Texas A&M had then—and continues to have now—the best petroleum engineering program, and fortunately, my timing was exceptional because it was right before the next big oil boom.” In 2009, Frosty was named to the Harold Vance Department of Petroleum Engineering’s Academy of Distinguished Graduates and in 2012, he was recognized as a Distinguished Alumnus of the College of Engineering.

- **Gig’em:** Frosty started Aghorn Energy with his brother, who attended The University of Texas. “Fortunately, I was the older brother and the engineer, so ‘Ag’ got to go first in our company name,” he explained with a chuckle.

- **A regular presence in Aggieland:**

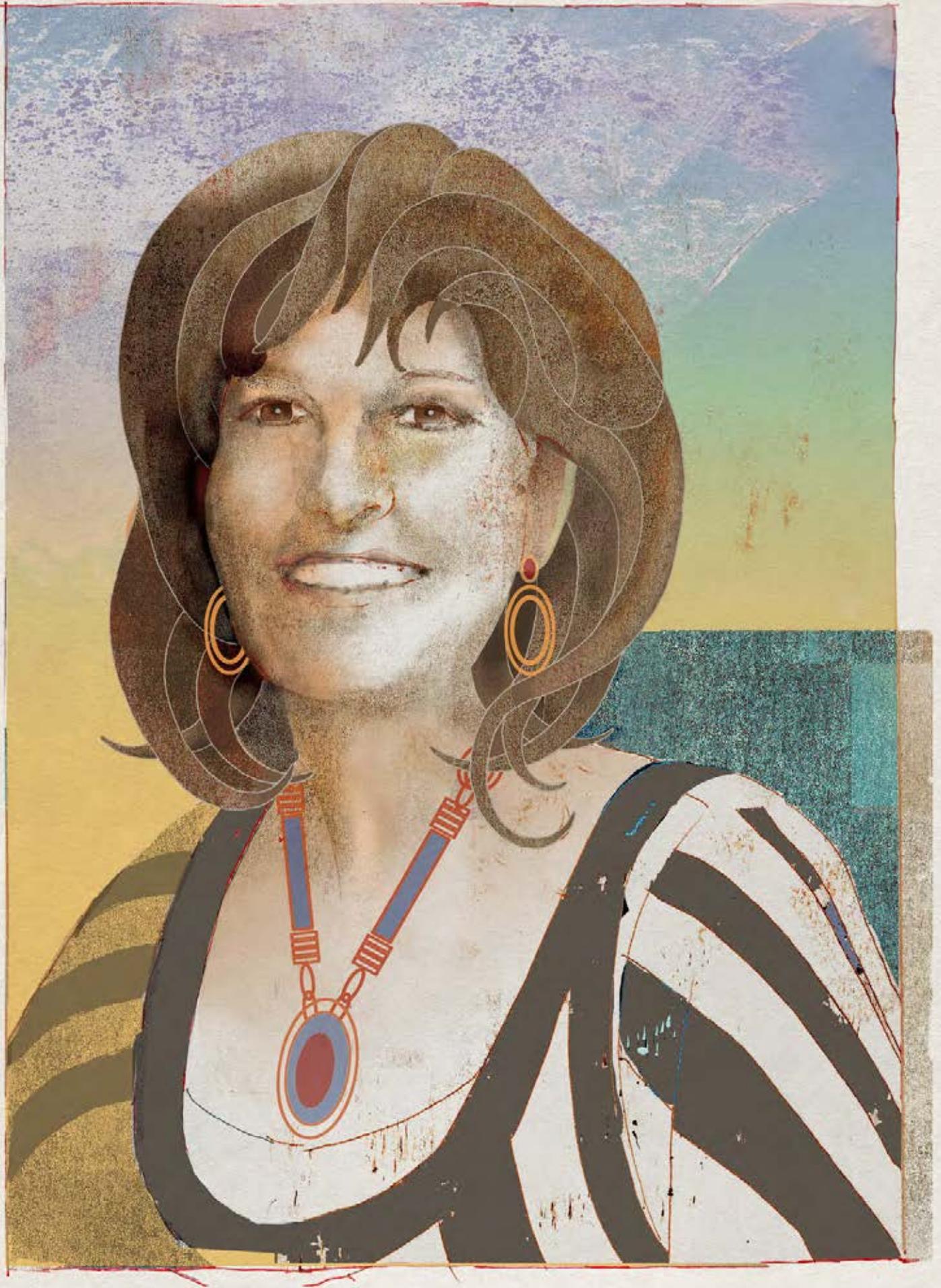
The Gilliams frequently travel from their home in Odessa to support Texas A&M and attend numerous activities and sports functions. The couple serves on the *Lead by Example* campaign's executive cabinet, and Frosty has served on the 12th Man Foundation Board as trustee, chair and now as immediate past chair. Rhonda and Frosty are both members of the Chancellor's Century Council, while Frosty is a member of the Harold Vance Department of Petroleum Engineering Industry Board.

- **A sporting attitude:** To Rhonda and Frosty, being a good steward of God's provisions is foremost in their charitable giving; to that end, their local church and other ministries receive most of their resources. After that, the Gilliams dedicated much of their giving to Texas A&M's athletic programs. They provided the lead gifts for the Rhonda and Frosty Gilliam Jr. '80 Indoor Track Stadium and substantial gifts for the Rhonda and Frosty Gilliam Jr. '80 Plaza in the Cox-McFerrin Center for Aggie Basketball, the Olsen Field at Blue Bell Park baseball stadium renovation and the Rhonda and Frosty Gilliam Jr. '80 Football Student Athlete Center in the Bright Football Complex. In addition, the couple made a significant donation to the Kyle Field renovation project as Founders.

"To us, Texas A&M is about family.

Most of the events we attend are with our family and our extended family—our Aggie friends," the couple said. "When we give back to Texas A&M, it's like helping our family. We wouldn't have it any other way."

- **Getting re-engaged with Texas A&M:** *"I'm the classic case of the 20-year disconnected Aggie," Frosty said. "After graduation, I worked on my career. We didn't go back to Texas A&M until my son was exploring colleges." When Forrest "Matt" Gilliam III '09 enrolled in 2005, the Gilliams renewed their involvement with Texas A&M. Frosty reconnected with the petroleum engineering department, and the couple bought their first season football tickets. Rhonda, a graduate of Sam Houston State, fully immersed herself in Aggie life and became active in the Sandstorm Aggie Mom's Club in Odessa. Their daughter, Laura—a graduate of Oregon State University—is also 100 percent Aggie when it comes to yelling for the Aggies at all Texas A&M sporting events. Rhonda and Frosty have two granddaughters, 10-year-old Jaden (Class of 2029), who loves her "Gig 'em, Aggies," and five-month-old Faylynn (Class of 2039).*



askprof.



Research Interests: Improving service in health care for patients and families, particularly in cancer care.

What prompted your research in health care?

I've devoted my career to the study of services: service marketing, service management and service quality. I realized that I knew very little about one of the most important services: health care. After recognizing that gap, I decided to study health care service at one of the world's most recognized brands in the field: the Mayo Clinic.

Tell us about your experience there.

It wasn't easy to get access. It took three separate trips and dozens of interviews before I was accepted as a visiting scientist in 2001. For three months, I literally lived at the Mayo Clinic in Rochester, Minnesota. I then moved to the Phoenix campus for another 2.5 months. During my studies, I observed hundreds of patient-physician interactions, witnessed surgeries and flew with the clinic's helicopter emergency team. My in-depth study of health care service became the basis of my book, "Management Lessons from Mayo Clinic," published in 2008.

You're most passionate about the patient experience in cancer care.

Yes. In 2017, 1.7 million Americans were diagnosed with cancer. I've lost colleagues to cancer, and one of my best friends was diagnosed with cancer 12 years ago. Fortunately, he has survived. We've made tremendous progress clinically with cancer care, but much less progress in improving the service experience of patients and their families. When you are diagnosed with cancer, it

turns your whole life upside down. Physicians must understand how to manage the emotional aspects of treatment in addition to the medical aspects of treatment or they do their patients a disservice.

You've written extensively on something called HBS.

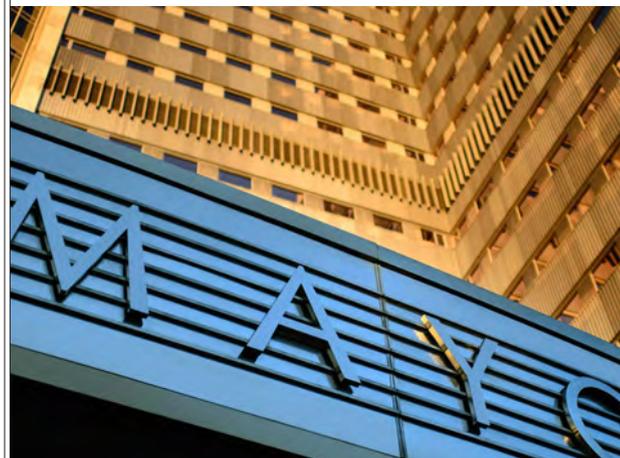
Hostage bargaining syndrome (HBS) is a phenomenon that many patients experience, particularly those with a serious disease or in a state of vulnerability. When my colleagues and I read about hostages from kidnappings or prisoners of war, we saw a similar pattern of behavior with patients. They show reluctance to question a physician about their treatment plan or understate their concerns about their disease or treatment. Some patients ask for less than what they really want, such as pain medication, to avoid being a perceived nuisance to the physician. When I wrote about this phenomenon for the Mayo Clinic Proceedings, it represented the first time the word "hostage" was used in a medical journal.

Why is awareness of HBS important?

Creating awareness of HBS can diffuse it early on. It is crucial to stop HBS before it leads to a "learned helplessness" in patients, where they believe they have no authority or say over their treatment. ©

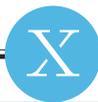
The Mae Berry Award

Berry has received numerous awards and accolades during his career, including the Mays Business School Lifetime Achievement Award in 2015. However, he's most proud of an award he created. To thank the Mayo Clinic for hosting him, Berry created the Mae Berry Award for Service Excellence, named after his late mother. Eight exceptional Mayo Clinic employees who are nominated and selected by their peers are awarded the Mae Berry Award each year.



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FACTORS

1

PENNING PATIENT STUDIES

Berry has written 10 books and published more than 190 articles and papers in publications such as the Harvard Business Review, Journal of Clinical Oncology, Journal of Oncology Practice and the Mayo Clinic Proceedings. His book, "Management Lessons from Mayo Clinic," has been translated into eight languages and was the No. 1 selling book in the health care administration category on Amazon for its first two years after publishing. The Chinese edition, which alone has sold 140,000 copies, is in its 40th printing.

2

PALLIATIVE CARE ADVOCATE

Berry is a strong believer in palliative care, a type of treatment option unknown to approximately nine of 10 U.S. adults. Palliative care, which can be provided along with curative treatments, focuses on providing relief from the symptoms and stress of a serious illness to improve patients' quality of life.

3

MARKETING MASTER

At a 1983 American Marketing Association Conference, Berry coined the term "relationship marketing" and wrote the first paper on this concept. The phrase revolutionized the marketing world and emphasizes the need for organizations to market to existing customers in addition to acquiring new ones.

5

RETAIL READY

Berry established Mays Business School's Center for Retailing Studies and served as its founding director until 2000. Today, the center offers coursework, internships, career fairs, an annual retailing summit and leadership activities for students interested in retail.

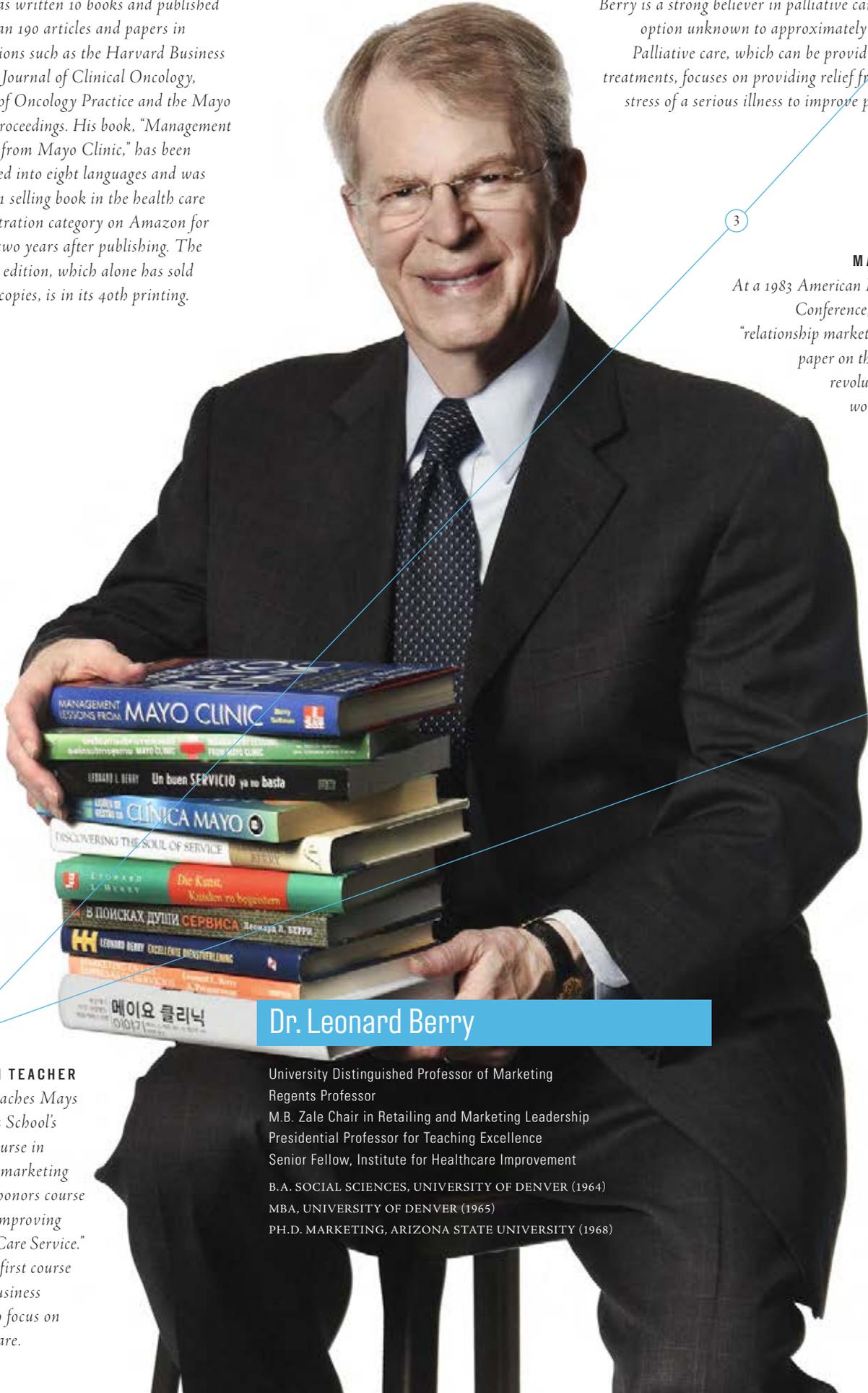
4

HEALTH TEACHER

Berry teaches Mays Business School's MBA course in services marketing and an honors course called "Improving Health Care Service." It is the first course in the business school to focus on health care.

Dr. Leonard Berry

University Distinguished Professor of Marketing
Regents Professor
M.B. Zale Chair in Retailing and Marketing Leadership
Presidential Professor for Teaching Excellence
Senior Fellow, Institute for Healthcare Improvement
B.A. SOCIAL SCIENCES, UNIVERSITY OF DENVER (1964)
MBA, UNIVERSITY OF DENVER (1965)
PH.D. MARKETING, ARIZONA STATE UNIVERSITY (1968)



Ruff Tough, Real Stuff

BY LAURA SIMMONS '19

How Ranger I became a campus legend and left his paw prints on Aggieland.

During the late 1950s and early 1960s, a familiar four-legged friend trotted around Aggieland sporting a big, slobbery—but nonetheless adorable—grin. Ranger I, the first of three English bulldogs that belonged to the family of Gen. James Earl Rudder '32, was famous for his disposition and ability to befriend anyone he met.

Named for the U.S. Army's 2nd Ranger Battalion that Gen. Rudder led onto the banks of Normandy during World War II, Ranger I's popularity was second only to Reveille. The nomadic dog roamed at will, frequently visiting lectures and the dining halls, hoping for a morsel.

John Choate '67 recalls his friendship with Ranger, nicknamed "Earl," and how he made campus his home. "After the president's house burned down in the early 1960s, Ranger became a frequent wanderer," Choate said.

But Ranger didn't always travel by foot. One of his favorite pastimes was hitchhiking, and he frequently blocked traffic while trying to bum a ride.

"He would wait in the middle of the road by the Northside post office as cars entered campus," Choate recalled. "If the driver was unfamiliar with his tactics, they honked and attempted to pass him on the left, usually unsuccessfully. If that car escaped him, he would start on the next one in line. All he wanted was a ride. I had a motorcycle at the time, and Ranger loved riding on the gas tank with his front legs on the handlebars and his ears flapping in the wind."

Once back on campus, Ranger would either return to the post office for his next ride or make his way to Sbisa for dinner. "Students loved to take care of him," said Choate. "He was every Aggie's buddy."

Indeed, Ranger uniquely united the student body. While Reveille was the official university mascot, tended to by the Corps of Cadets, Ranger stood as a symbol for the civilian students. In the 1960s, at Choate's suggestion, he served as the

unofficial civilian mascot during the annual Corps vs. Civilian football game held between Thanksgiving and Christmas.

With the help of his mother, Choate created a cape for Ranger with the university letters "TAM" emblazoned on one side and the words "Non-Regs" on the other. Although the civilian team lost the game, Ranger got his 15 minutes of fame. The next day, a photo of Choate and Ranger circulated in the local newspaper.

A similar anecdote describes an incident where Ranger filled in for Reveille during the first football game of the 1965 season against the University of Houston. The substitution was far from a success. By the end of the game, Ranger had attacked the Houston mascot and tripped a handful of Texas A&M marching band members after trotting on field during the performance.

When he wasn't wreaking havoc, Ranger could be found operating candy machines and acting as the campus bulletin board. Students were fond of painting their Corps outfit emblems on him or writing popular slogans such as "Beat The Hell Outta TU." The Battalion's editorial staff periodically wrote about him and even went so far as to jokingly endorse the canine companion for the U.S. presidency. A list of qualifying factors included his "bulldog tenacity" and "unquestionable moral integrity."

On Dec. 9, 1965, the lovable bulldog passed away following surgery for a kidney infection. He was buried on campus outside the president's house, where he remains today. A tombstone that reads "Every Aggie's Friend" marks his grave, while a collar, dog bowl and bone rest nearby. ©

Two more bulldogs—Ranger II and III—followed the original Ranger. Several documents state that Ranger II was a gift to the Rudder family from the Class of 1966, while Ranger III technically belonged to Bob Rudder, son of Earl and Margaret. In university historical records, it is particularly difficult to distinguish between accounts of Ranger II and III, but by all reports, the pups were similarly mischievous and well loved by the Aggie student body.





Gen. James Earl Rudder's English bulldog, Ranger I, had full run of campus during the late 1950s and early 1960s. At the suggestion of John Choate '67 (above), the dog once served as the unofficial mascot for civilian students during the annual Corps v. Civilian football game.

opportunity.



It was 1985 when Jayar Daily first met the late Dr. Red Duke '50 at Houston's Memorial Hermann Hospital. Within five minutes, Red discerned that Jayar hailed from outside the Lone Star State. "I told him I was from Colorado," Jayar said. "Then he asked if I liked to hunt and fish, and there was hope for me yet."

The two, introduced by a mutual connection, met to discuss marketing the 100th anniversary of Boone and Crockett, North America's oldest wildlife and habitat con-

servation organization, of which Red was about to become president. "I'd only ever seen him on television, but it was nothing compared to the real-life version," Jayar said. "That day began our 30-year friendship."

With his signature twang and bushy red mustache, Red was larger than life to most he encountered: a trauma surgeon with the presence of an old-time cowboy movie star. His achievements were many and notable. He treated former Texas Gov. John Connally after he was shot by Lee

Harvey Oswald in 1963, and he was instrumental in bringing Level I trauma care and LifeFlight air ambulance services to Houston in 1976. Red also wrote topic scripts and hosted the Texas Health Reports television program, while his classmates may remember that he served as Head Yell Leader and began a tradition as the first Aggie to recite "The Last Corps Trip" poem at bonfire.

"What a lot of people don't know is that Red was also an enthusiastic conservationist," said Jayar, who is now a 25-year member of Boone and Crockett. "He loved wild spaces. He loved the land and he loved to hunt. As president of Boone and Crockett in the 1980s, he invigorated our club by reigniting Teddy Roosevelt's founding vision and refocusing the national importance of conservation and wildlife management."

It is for these reasons that, in 2017, Boone and Crockett decided to honor Red in a lasting way: The club is raising a \$4 million endowment that will expand Texas A&M's existing Boone and Crockett Wild-

While a core focus of the current program is wildlife and conservation research, translating these findings to conservation public policy is paramount. With the help of the club's pledged funds, the elevated and renamed Boone and Crockett Dr. Red Duke Wildlife Conservation and Policy Program will better develop future policymakers who will need to make informed decisions about ensuring the safe future of our nation's wildlife populations and their habitats.

In addition to supporting more graduate researchers, the program will enter into an interdisciplinary partnership with the Bush School of Government and Public Service to include capstone courses that connect wildlife science with policy—an advantage that no other conservation education program in the nation can claim.

"The Texas A&M program will use a novel approach to fill the demand for leaders in wildlife policy by preparing more wildlife biologists to work on policy issues while also recruiting policy oriented students to

Why Texas A&M?

"Red is part of the reason we chose to invest our resources at Texas A&M, but our members are also impressed with the Aggie culture," Jayar said, "which produces students with a strong sense of responsibility, leadership and public service."

Also notable is Texas A&M's record for the highest-quality Ph.D. education in conservation, biodiversity and wildlife management through its Applied Biodiversity Science program. This factor, paired with expert faculty in these fields, Texas A&M's land-grant and Top 10 research institution status, and its extensive network to communicate conservation issues through the AgriLife Extension service, the Texas A&M Forest Service and the Bush School, will help ensure the program's success.

"Texas A&M is the perfect place for my father's vision to be realized, and associating his name with the program will be a reminder of his leadership legacy in conservation and science," said Red's daughter Sara Duke, an adjunct faculty member in the Texas A&M Department of Ecosystem Science and Management and a civil servant for the Agriculture Research Service of the USDA. "He didn't like being boasted about, but I suspect that if he knew about the renaming of this program, he would probably grumble with a little smile sneaking through his big mustache." ©

You can support the club's efforts to grow the Boone and Crockett Dr. Red Duke Wildlife Conservation and Policy Program with a gift of \$25 or more online at give.am/RedDukeEndowment.

TO MAKE AN ENDOWED GIFT OF \$25,000 OR MORE, PAYABLE OVER A FIVE-YEAR PERIOD, THAT WILL SUPPORT THE PROGRAM'S CONSERVATION EFFORTS IN PERPETUITY, CONTACT:

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Surgeon. Pioneer. Conservationist.

The Boone and Crockett Club campaigns to name a Texas A&M University conservation program after the late Dr. Red Duke '50.

BY DUNAE CRENWELGE '15

life Conservation and Policy Program and rename the program after Red, with permission from the Duke family.

Connecting Research with Public Policy

The existing Texas A&M conservation program was established through gifts amounting to \$1 million from Boone and Crockett. The program provides graduate fellowships to support research conducted under the Boone & Crockett Professor of Wildlife Conservation and Policy, a position held by Dr. Perry Barboza, who was recruited to Texas A&M in 2015.

wildlife," said Jayar. "The intent is to ensure that science remains the foundation of conservation and to produce students who better understand how public policies impact wildlife and their habitats."

With the right educational foundation, graduates of this program can address conservation issues such as the breakdown in federal public land management; how to educate homeowners of large and small land holdings on private land conservation; how to manage wildlife in a state of drought; and how wildlife and their habitats can rebound to change.

Faces of Philanthropy

Seven donors who have supported areas of their choosing during the Lead by Example campaign.

BY MOLLY KULPA '15

philanthropist

noun | phi·lan·thro·pist | \ fə -'lan(t)-thrə-pist \

Definition: One who makes an active effort to promote human welfare; a person who practices philanthropy.

When you imagine a philanthropist, who do you picture? Perhaps one of the early 20th century captains of industry come to mind, like John D. Rockefeller or Andrew Carnegie. Or maybe you envision mega-rich, modern-day innovators, like Warren Buffet or Bill Gates.

Mary Maxwell '04

HOUSTON, TEXAS

Support to Texas A&M: Mary G. Maxwell Crew Team Endowment



Mary created a bequest in her will to support a cause connected to her favorite memories in Aggieland: rowing with the crew team. Her \$40,000 bequest will establish the Mary G. Maxwell Crew Team Endowment after her lifetime. She hopes her gift will fund any pressing need for the team, whether that means better equipment, a stipend for the team's coach, or even the construction of a boathouse.

"I always wanted to give back to Texas A&M, so I chose to support the Crew Team because it was a big part of my college life," Mary said. "Rowing has positively impacted me, and I hope that my contribution impacts Texas A&M's rowing team in a positive manner."

While Mary and her husband Clark are still in their 30s, Mary realized there was no reason to wait to start giving back. "I'm a bit of a planner," she confessed. "I like having this sorted out now, while my husband and I are still young."

Her parents always instilled in her the importance of serving others. "My par-

ents are probably the best role models I could ask for. They helped neighbors following Hurricane Harvey by raising money, picking up debris, tearing out sheetrock and housing a neighbor until her home was repaired. I can only hope to be as generous and loving as they are when I get to be their age."

Cheryl Mellenthin

CAT SPRING, TEXAS

Support to Texas A&M: Mark A. Chapman Endowed Chair in Shelter Medicine



In 1979, Cheryl Mellenthin rescued her first abandoned dog. She has since dedicated her life to helping animals, even establishing the nonprofit Prevent Unwanted Pets to defray the costs of spaying and neutering animals. During the last 14 years, the organization has assisted more than 22,000 spay and neuter operations for dogs and cats. In 2017, Cheryl turned her focus to Texas A&M with a \$1.1 million gift through her family foundation to support the shelter medicine program at the College of Veterinary Medicine & Biomedical Sciences.

Cheryl graduated from the University of Wisconsin-Oshkosh, while her late hus-

band Mark graduated from Kansas State University before attending law school at The University of Texas. "Anyone who has graduated from a university is extremely blessed," she said. "It seems only right to pass those blessings on to others."

"Mark wasn't rich," Cheryl added. "He put more than \$100,000 on his credit cards at 18 percent interest to enter the oil and gas business in 1987. But as he made money, he gave large amounts of it away." In 2002, Mark established the Mark A. Chapman Foundation to benefit charitable causes. Using their foundation's funds, the couple supported a mobile veterinary surgical unit at Kansas State University, among many other causes. After Mark passed away in 2014, Cheryl began managing his companies to continue funding the foundation.

"Because I wanted to help animals closer to home, I decided to help fund the spay and neuter mobile unit at Aggieland Humane Society and later, the shelter medicine position at the Texas A&M veterinary school," she said. The Shelter Medicine Program is a partnership between the College of Veterinary Medicine & Biomedical Sciences and the Houston Society for the Prevention of Cruelty to Animals (SPCA) in which all fourth-year veterinary students must complete a two-week rotation at the Houston SPCA animal shelter. Through this real-world experience, students care for animals with various conditions and injuries and gain exposure to shelter medicine. Mellenthin's gift will support the program's faculty director.

Sharon Almaguer '84

MCALLEN, TEXAS

Support to Texas A&M: Sharon Almaguer Library Endowment



When Sharon Almaguer '84 was attending law school at the University of Houston, she received a scholarship from an anonymous donor. She was struggling financially at the time, so the gift gave her a boost and allowed her to focus on finishing her education. "I always thought to myself, 'When I get to a place where I can afford to give back and help others, I will do the same to pay it forward,'" she said.

When Sharon was ready to give back, she decided that creating a planned gift using her retirement account was the right method for her. A gift of retirement assets is an excellent way to make a planned gift to Texas A&M, since most people don't use all their retirement assets during their lifetimes and gifts of retirement assets can be costly to inherit. Fortunately, gifts of retirement accounts passed to the Texas A&M Foundation are not taxed.

"As a lawyer, I was already familiar with the idea of making charitable contributions through your estate, but I was still surprised by the simplicity of the pro-

In 1994, a social science study by Russ Alan Prince and Karen Maru File actually identified seven faces of philanthropy—seven types of givers. Researchers analyzed the motivations of individuals relative to their interests and support of nonprofit organizations and categorized them into these groups, defined by their attitudes, beliefs and decision-making toward giving:

- ◆ **RePAYers:** Believe they must do good in return
- ◆ **Investors:** Believe doing good is good business
- ◆ **Socialites:** Believe doing good is fun
- ◆ **Communitarians:** Believe doing good makes sense

- ◆ **Devouts:** Believe doing good is a moral obligation
- ◆ **Altruists:** Believe doing good feels right
- ◆ **Dynasts:** Believe doing good is a family tradition

Even though individual motivations for giving vary, a common desire of wanting to help people or a cause unites all philanthropists, regardless of personal wealth. In this campaign update, we interviewed seven donors from all walks of life who have supported areas of their choosing during the *Lead by Example* campaign.

These are a few faces of philanthropy, right here at Texas A&M.

cess,” Sharon said. Her \$91,000 planned gift will benefit the Texas A&M University Libraries.

“I spent a lot of time in the libraries with friends as an undergrad at Texas A&M,” said Sharon, who studied in the business school. “I decided to support the libraries specifically because I wanted Aggie students from any major to benefit from my gift.”

In addition to paying it forward for the scholarship support she received as a law student, Sharon ultimately wanted to give back to Texas A&M simply because she’s an Aggie. “I credit a lot of who I have become to the university,” she said.

Alicia and Edelmiro “Ed” Muniz ’67

SEABROOK, TEXAS

Support to Texas A&M: Alicia and Ed ’67 Muniz Foundation Excellence Award; Alicia and Ed Muniz ’67 Aggie Sat Lab Scholarship



Alicia and Edelmiro “Ed” Muniz ’67 reside just outside of Houston, but they grew up in the Rio Grande valley. “We shared everything in our household growing up, even

our tortillas!” Alicia laughed. The two both come from large families, so they learned the values of sharing and practicing gratitude from a young age.

Education allowed the couple to achieve success in their respective fields. Ed received his bachelor’s and master’s degrees in aerospace engineering from Texas A&M and later started his own company, Muniz Engineering (now MEI Technologies Inc.) to provide engineering and technical-related services to the U.S. government and the private sector in Houston. Alicia earned a bachelor’s degree in elementary education and a master’s degree in multidisciplinary education before enjoying an 18-year teaching career.

Compelled by their strong value for higher education, the Munizes decided to give back in 2016 in the form of two scholarships: an Aggie Sat Lab Scholarship and a Foundation Excellence Award.

The Aggie Sat Scholarship supports students involved with AggieSat Lab, an aerospace engineering program that aims to develop modern technologies using a small-satellite platform. The Munizes like the idea of hands-on work, as they believe it leads to stronger graduates.

Foundation Excellence Awards recruit and retain outstanding undergraduates from historically disadvantaged groups often underrepresented in the student body. To give back to their community, the couple specified that their Foundation Excellence Award be awarded to Hispanic students who are pursuing aerospace engineering degrees and who graduated from high school in one of four Rio Grande

Valley counties: Cameron, Hidalgo, Starr or Willacy. “With our gifts, we hope to encourage more minorities, especially first-generation students, to enter the aerospace engineering field,” Ed said. The Munizes have also made previous gifts to the Texas A&M Libraries for the advancement of collecting and preserving the history and literature of South Texas.

Jacqueline and Alan Mitchell ’85

NEW YORK, NEW YORK

Support to Texas A&M: Jacqueline and Alan Mitchell ’85 Aggies on Wall Street Endowed Excellence Fund



The Mitchells established an endowment to permanently provide funding for Mays Business School’s Aggies on Wall Street Program, which provides opportunities to students interested in investment banking, including internship placement and a two-week trip to New York where they meet Wall Street professionals at leading firms. Students who successfully complete the Aggies on Wall Street program are awarded a Certificate in Investment Banking upon graduation. In addition to

giving his financial resources, Alan also spends time with Mays Business Honors students to share career advice and serves on the Wall Street Advisory Board for the Department of Finance.

“Investment banking firms in New York often recruit from East Coast schools, and primarily Ivy League graduates,” Alan said. “Schools in the South just don’t carry the same name recognition when it comes to recruiting in New York, but we hope this endowed fund will expand the Aggies on Wall Street Program and boost the number of Aggie graduates working on Wall Street over time.”

Alan’s career in investment banking led the couple to New York City, while Jackie’s work as a natural gas trader translated well to the Wall Street atmosphere.

In addition to their support of Aggies on Wall Street, Jackie also serves on the Board of Trustees at The Convent of the Sacred Heart, an all-girls school that their children attend in New York City. They also support the Children’s Museum of the East End on Long Island, the East Hampton Historical Society, The Thomas Moran Trust and the Sigma Chi Fraternity. The Mitchells have also established a family foundation to be more focused with their giving and to provide a family tradition for future giving. ☺



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FOUR WAYS TO **LEAD** *by* EXAMPLE

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The 12th Man Foundation funds scholarships, programs and facilities in support of championship athletics.

12THMANFOUNDATION.COM



The Association raises the university's Annual Fund, which supports both current and former student activities, academics and traditions.

AGGIENETWORK.COM

The most important lesson my parents instilled in me? Work hard. I was born in India, but my family now lives in Houston. The day we arrived, my dad began working at a Marble Slab Creamery owned by my great uncle. Both of my parents have always demonstrated the value of hard work.

My younger brother inadvertently taught me responsibility. Most summers were spent babysitting him. Even in high school, I helped my parents by picking him up from school and bringing him to orchestra rehearsals with me, where I played the viola. Now, I mentor children and teens at my place of worship. Being of service to others has become part of who I am. It's part of the Aggie Spirit.

I never imagined receiving so much support for my education. During my senior year in high school, I qualified for the Robert and Shelia Templeton Endowed Opportunity Award at Texas A&M. Deep down, I knew that my parents hadn't saved enough money for my college education, so I'd be faced with many loans. After thinking it over, I made the decision: I was going to Texas A&M. It was the best choice I could have made.

Aggieland was foreign to me, but after interacting with the people here and learning all the university's nuances and traditions, I was blown away. Now in my junior year, I'm the treasurer of the Texas A&M Biochemistry & Genetics Society and hold a research lab position, where I study how a specific family of proteins has evolved and catalog protein reactions. It's the ideal research opportunity for my future career in medicine.

The crazy part about the field of medicine is that it's always changing. Many technologies and developments happening right now will be extremely outdated 50 to 100 years in the future, if not sooner, as our body of knowledge expands. Even so, our achievements thus far in the medical field are remarkable. Think about it: We as a human race have solved problems that occur by chance, such as genetic mutations, which provides the path to longevity. The idea of helping people by learning more about how we "tick" fascinates me. I'm keeping my career options open, but I am considering an ophthalmology specialization. ©

Future Leaders

A SERIES ABOUT AGGIES WHO WILL IMPACT THE WORLD

Meet Kais Karowadia '19, a biochemistry and genetics double major who understands that hard work leads to great things.

INTERVIEW BY MOLLY KULPA '15



ELECTRONIC SERVICE REQUESTED



Set to open in fall 2018, the Zachry Engineering Education Complex will be a modern, technology-integrated facility dedicated to undergraduate engineering education. The Engineering Quad (E-Quad) will be a beautiful green space outside the building for students of all majors to meet, relax, eat and study. It will be conveniently located between the Zachry Complex, the Wisenbaker Engineering Building, the Dwight Look Engineering Building and the Haynes Civil Engineering Building. Features include covered areas, beautiful landscaping, Wi-Fi and food trucks with park-like seating.

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