

SPIRIT

BTHO Cyberthreats

How Texas A&M University is preparing students to tackle issues of cybersecurity.

Planned Gifts Impact *Lead by Example* Campaign



With under two years remaining to meet the *Lead by Example* campaign goal of \$4 billion for Texas A&M University, I am happy to report that we have raised more than \$3.4 billion as of March 1, 2019.

I couldn't be more proud of what our community of donors has accomplished. No single number or spreadsheet

can speak to the lasting impact this campaign has created for Aggie students, faculty, programs and initiatives. We should hope to not just meet but exceed the standard we've set for ourselves, especially when we serve others.

With that in mind, I would like to talk about one of the most impactful ways donors have given to this campaign: planned gifts. Planned gifts make up 56 percent of the total funds the Texas A&M Foundation has raised for *Lead by Example*, and it's easy to see why. Creating a planned gift allows donors to maximize their impact, customize their method of giving and provide for loved ones. In many cases, individuals also receive tax benefits, generate potential retirement income and hold control of their assets during their lifetimes—all while supporting Texas A&M

at the same time. If that weren't enough, our dedicated planned giving department works with donors personally to simplify the entire process.

When we started the *Lead by Example* campaign, the Foundation set a goal to raise \$1 billion in planned gifts. That's a hefty number, but we knew this method of giving would appeal to Aggies and friends of Texas A&M who want to ensure the best for our university's future.

In this issue's campaign update on page 54, we've included a few features about donors who have created planned gifts during *Lead by Example*. They represent a sampling of the hundreds of planned giving donors who have collectively given more than \$830 million to the campaign for the future benefit of Texas A&M. As you read their stories, take note of the different methods of giving and consider the change you could create.

If, by the end, you're interested in making your own planned gift, our gift planning officers will partner with you to articulate your goals and explore opportunities that deliver the greatest benefits—to you, to loved ones and to the ultimate, longtime beneficiary of your generosity: Texas A&M.

Thanks for all you do.

A handwritten signature in black ink, appearing to read 'Tyson Voelkel '96'. The signature is stylized and written in a cursive-like font.

Tyson Voelkel '96

PRESIDENT, TEXAS A&M FOUNDATION

ISSUE

Scientist-astronaut Harrison Schmitt is photographed standing next to a huge, split lunar boulder during the Apollo 17 extravehicular activity at the Taurus-Littrow landing site. The Lunar Roving Vehicle, which transported Schmitt and Eugene Cernan to this extravehicular station from their Lunar Module, is seen in the background.

TRAILBLAZERS
Shoot for the Moon

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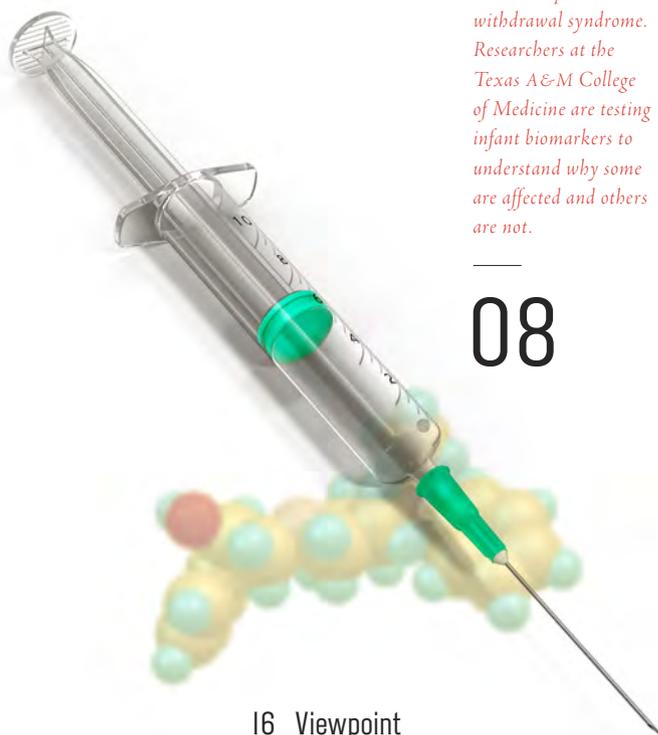
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I started the Gaddis Girls' STEM Camp in my father's name, and I can't wait to see what the girls who experience it will achieve.

By Sandy Wilkinson '86



Approximately every 25 minutes, a baby is born who suffers through neonatal opioid withdrawal syndrome. Researchers at the Texas A&M College of Medicine are testing infant biomarkers to understand why some are affected and others are not.

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

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Texas A&M University Libraries (p. 61)

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Digitized and Datafied

This issue's cover feature on how Texas A&M is addressing issues in cybersecurity is one of the most important we've ever published, in my opinion. I'll warn you in advance that it is long—the longest story we've put in print in this magazine. But the topic of cybersecurity is so complex and multifaceted that it deserves an in-depth dive.

What images does your mind conjure when you think of the word "cybersecurity"? For me, the word is inextricably linked to hacking. I think of binary code on a screen or a nefarious, hooded figure in a dark basement somewhere, rapidly typing on a keyboard. But that type of thinking is singular—constructed around how a hacker might affect me or my information. One of the key ideas I grasped from reading this article (page 18) is that issues of cybersecurity and hacking are especially dangerous today because of the possibility of attacking large-scale, interconnected systems.

That's made easier because our world and our very identities are intertwined in a deeply digital web. Consider these facts: Over the last two years alone, 90 percent of the data in the world was generated. (That's worth re-reading!) Each day, there are 2.5 quintillion bytes of data created by individuals, and that pace is only accelerating with the growth of the "internet of things"—the network of computing devices embedded in everyday objects, such as vehicles and home appliances, with which we interact.

For example, a refrigerator is now a computer that keeps things cold; a car is now a computer with four wheels and an engine. These computers sense us and our environment, and they

affect us and our environment. They talk to each other over networks, they are autonomous, and they affect the world in a direct physical manner. They drive our cars, pilot our planes, run our power plants, control traffic, administer drugs into our bodies and even dispatch emergency services. They have actual agency, not unlike humans.

As more of our world becomes digitized and datafied, we have a responsibility to secure the things and systems we create. Digitization brings with it not only challenges in the technological sphere, but also questions regarding international safety and public policy—how these things should be regulated, and by who. These challenges aren't insurmountable, but they are constantly shifting. That's why it's important for a university like Texas A&M, with its abundance of resources, to be at the forefront of innovation, safety and solutions in cybersecurity.

While you read the cover feature, recognize that although we are confronted by a plethora of unknowns in cybersecurity, we are also faced with an ever-widening array of opportunities to gain new knowledge, create new jobs and shape an unpredictable field. Take comfort in knowing that if we are destined to be digital risk takers, then at least Aggies are helping lead the way.

Dunae Reader

Dunae Reader '15

EDITOR, SPIRIT MAGAZINE

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 READER '15
Editor

During the Great Depression, students living in the Project Houses earned extra money doing campus projects, such as planting the oak trees that line the boulevard connecting Highway 6 to the Jack K. Williams Administration Building.

Remembering the Project Houses

I enjoyed the article by Greg Bailey in the fall 2018 edition of Spirit magazine about the Depression-era Project Houses on campus. My father was one of the beneficiaries of the program and was always appreciative of the people who sponsored it.

He grew up in Houston County on a farm that was managed by his father and expected to work there after graduating high school. However, the local 4-H club leader told him about the Project House program in 1934 and further encouraged Dad to raise \$75, pack a suitcase and join a group of Houston County boys he was taking to Texas A&M.

Dad went home and shared the story with anyone who would listen. Upon hearing it, one of the farm's sharecroppers told Dad he would give him a bale of his cotton

as a grubstake. This is amazing because it occurred during the depths of the Great Depression, and the donor was unrelated to Dad and living at a subsistence level. Anyway, Dad accepted the offer and sold the cotton for \$75. My grandmother tossed in a cardboard suitcase, and Dad was on his way.

The boys lived in the Houston County Project House, which was managed by a married couple who prepared meals and led the students to help with cleaning, laundry and other domestic chores. The students brought food from home to minimize costs. Dr. Dan Russell also arranged for them to earn money doing jobs on campus. One of their accomplishments was to plant the oak trees that line the boulevard connecting Highway 6 to the Jack K. Williams Administration Building. Dad was a big fan of Dr. Russell and other professors in the Agriculture School. He credited them

Main Entrance, A & M. College, College Station, Texas



OB-H918

“Back in 1969, I made the opposite trek, leaving my Long Island home for College Station. I can assure you the cultural differences were just as enormous.”

—ALAN GUREVICH '73

with creating a program that lifted poor farm boys out of poverty and produced some very effective future leaders.

Dad graduated in 1938 and resigned his military officer's commission to serve as the county agriculture agent for Madison County. When World War II started, he re-enlisted as a 2nd Lieutenant and served in the European Theatre, earning a Bronze Star for developing strategies that improved the kill ratio on German V-1 “buzz bombs.”

He passed away in 2002 at the age of 87. He left a legacy of leadership in agriculture and Christianity. But, his success was facilitated by the 4-H leader, the sharecropper and the school's agriculture department, led by Dr. Russell.

—CHARLES WEDEMEYER '63
Fort Worth, Texas

From NYC to Texas

The fall 2018 edition of Spirit had an article about Aggies going to work on Wall Street. The article states in the beginning, “It's a 1,600-mile-drive from College Station to New York City, but a chasm as wide as the Rio Grande in culture, experience and opportunities lies between the two.”

Back in 1969, I made the opposite trek, leaving my Long Island home for College Station. I can assure you the cultural differences were just as enormous.

All I knew about Texas A&M was that I liked the name, it had a marching band and ROTC—which suited my desire for a career as a U.S. Air Force pilot—and what I hoped would be an okay aerospace engineering program.

Three years later, I'd lost much of my New York accent, discovered Dr. Pepper,



Alan Gurevich '73 as head drum major during the 1972–1973 school year.

and learned to love jalapeños and barbeque. I also knew everything there was to know about Aggieland and discovered much about Texas from going home with classmates on weekends. During the 1972–1973 school year, I led the Aggie Band as head drum major—likely the first time a Yankee was in charge!

So, I imagine all those finance majors will survive New York City as well as I survived little old College Station (which really was little back then). Hopefully they will do as well, and get as much out of their new surroundings, as did I from 1969 to 1973.

—ALAN GUREVICH '73
Seattle, Washington

digitaldialogue

The article about Courtney Welch '01 in fall Spirit reminded me that rural doctors are so needed. My parents live near Round Top, and continuous health care is hard to find. They love living in the country, but it's concerning to our family that as they age, the care they need might not be available.

—KELLIE ALLEN SCHNEIDER '86
Sugar Land, Texas

As a first-generation Aggie mom, I will forever be grateful for the generous spirit of Aggies who give so that other generations can experience the joy of walking these hallowed halls and grow into men and women of integrity, passion and purpose. Our family has been enormously blessed to know our son's President's Endowed Scholarship donor, Jerry Durbin '57. Thank you for sharing stories of why Aggies give in your fall issue!

—CATHY LARSON
Taylors, South Carolina

Thank you so much for all the work you do, Mr. Duffie! As a recipient of one of your Aggie Ring Scholarships, I am forever grateful for your dedication and commitment to the Aggie family. I will work vigorously to pay it forward as well!

—MARICARMEN DEL TORO '19
Del Rio, Texas

In 2008, Andy Duffie '78 started the Aggie Century Tree Project to raise money for Aggie scholarships by selling seedlings from Texas A&M's Century Tree.





Patagonia Soil Sampling

Led by Dr. Julie Loisel, an assistant professor of geography, a group of six geography students spent three weeks studying and collecting soil from peatlands in southern Patagonia, Chile, last summer. These thick soils are home to an estimated seven billion tons of carbon that work to cool the climate on a global scale.

The value of peatlands is expected to grow as carbon trading markets develop and international laws seek to combat climate change. In addition, peatlands store decomposed plant fragments, volcanic ash and relics that can date back thousands of

Collecting peat samples from frozen land is far from the beach vacation most students imagine for their summer breaks. But, for six Aggie geography majors, a freezing summer field expedition to the far reaches of the southern hemisphere was unforgettable.

years—making the soil a perfect documentation of history and the environment.

The group traveled to six sites, where they used extensive peat core sampling and ground-penetrating radar to estimate carbon levels. “Our work will demonstrate the economic, environmental and cultural value of conserving peatlands,” Loisel said. “The information we are generating will help advance national resource management and could be used by the Chilean government to determine its soil-carbon reference level.”



Vizzers' Tour de Force

Still frame from the animated short film “Midnight Snack” made by Department of Visualization students Kelsey Grier '16, Miguel Perez '20, Gary Phelps '17 and Annie Suther '19.

During the last 18 years, Texas A&M’s Department of Visualization has hosted a 10-week summer industry workshop that strengthens the skills of graduate visualization students, nicknamed “Vizzers.”

Last summer, visiting artists and former

Aggies from Disney’s Pixar Animation Studios mentored four teams of Vizzers as they created animated shorts that addressed the provided theme: two robots in a kitchen who experience an emotional change.

The course confronts students head-

on with the competitive, fast-paced environment of the entertainment industry. Working in teams of four or five, students create a story, build a detailed digital environment, model their characters, and add special effects, details, lighting and

music, all while animating the short. Participants leave with proficient technical skills, insight into the animation industry and a network of potential employers.

“This year’s students were relentless in their pursuit of qual-

ity in these projects,” said Richard Davison, a visualization professor. “The finished films were comparable to animation shorts being produced anywhere.”



Aggie Lawyers Go Global

Each summer and spring break, the Texas A&M University School of Law offers its students the opportunity to travel abroad with their professors to experi-

ing point in bilateral peace negotiations between each party," said Brandon Schuelke. "The trip reinforced my desire to practice law, because I saw firsthand



ence global lawyering firsthand. Last summer, law students explored dispute resolution and natural resources management issues in Israel and Scotland.

The Israeli trip focused on policy surrounding water management. Students met with negotiators, lawyers, environmental activists and academics to understand the techniques used to address water scarcity and pollution affecting Israelis, Palestinians and Jordanians.

"I wanted to learn more about the laws and policy surrounding water, and possibly understand how water can be used as a start-

how laws and policy truly affect people's livelihood."

Similarly, students in Scotland studied natural resources management pertaining to oil and gas law. Students met with practitioners, attended a hearing in Edinburgh, interviewed police officers and had a private tour of one of the oldest courthouses in the world. "I learned about different legal systems and the context in which they practice," said John Thomas. "This trip allowed me to explore the possibility of practicing law globally."

What is your dream career?

"Optical hardware engineering, so I can fuse my love of photography with developing tools that photographers use."

Chase Zamulinski '19
ELECTRICAL
ENGINEERING

"Working at the United Nations, so I can participate in international political systems."

Anna Cairns '20
POLITICAL SCIENCE

"I want to be a cinematographer for commercial film, because I'm passionate about telling a story through a lens."

Anisah Khan '21
TELECOMMUNICATION
MEDIA STUDIES

Sinking the Competition

Since 1991, the Texas A&M Human-Powered Submarine Team has raced student-built submarines at events across the nation and abroad. In 2018, a team of eight Texas A&M students from the Department of Ocean Engineering competed in the European International Submarine Races against 11 university teams from the U.S., Canada, Germany and the Netherlands. The Aggies were awarded "Best Co-ed Team" and placed first in their division.

The team showcased its student-built submarine, the Hullabaloo. The two-man submarine is 12 feet long by 8 feet wide and shaped like a teardrop. "It's entirely mechanical; there's no electronics," said Hannah Toerner '18, who piloted the submarine during the race along with teammate Cody Chambers '18.

Teams compete at the Institute of Marine Engineering, Science & Technology's Ocean Basin. The course consists of submarines traveling straight toward one end of the basin, making a 180-degree turn and then traveling through four slalom poles before returning to their starting point. The team with the fastest time wins.



Texas A&M rose to **No. 24 overall among public universities** in the 2019 U.S. News and World Report Best College Rankings. President Michael K. Young noted the ranking as a sign of the university's excellence in preparing graduates for positions in leadership and service.

Texas A&M University is home to many entrepreneurial students—even **professional YouTuber Tyler Anderson '19**.

Anderson is the creator of TylersReelFishing, which began as a fun way to document his fishing adventures and quickly morphed into a full-fledged business with more than 110,000 subscribers. His videos, which range from tutorial tips and fun challenges to talks with other fishermen, have garnered 15 million views.



NASA named Holly Ridings '96 chief flight director at the Johnson Space Center in Houston, making her **the first woman to lead the Mission Control flight directors**. Ridings will supervise all 32 flight directors and flight directors-in-training, who work to ensure the safety of astronauts and the International Space Station.



The Ecoexist program seeks to foster human-elephant coexistence by empowering farmers with practical tools to deter crop-raiding and reduce conflicts with elephants.

Fostering Human-Elephant Coexistence

Through Ecoexist, an international conservation program she co-founded with elephant biologist Dr. Anna Songhurst and wetlands ecologist Dr. Graham McCulloch, Texas A&M anthropologist Amanda Stronza is working with graduate students and community leaders in Botswana to mitigate conflicts between elephants and people.

In the Okavango Delta, elephants outnumber humans, and the two species compete for the same essential resources. More than 18,000 elephants roam through their native plains to get to water, often in places where people are planting fields, herding livestock and walking their children home from school.

Through rigorous data collection and close collaboration with the citizens and government of Botswana, the Ecoexist team has designed a holistic approach to reducing human-elephant conflict. Part of that approach is economic, explained Stronza. “We call it building an elephant economy, and it includes developing

elephant-aware food and craft products, cultural events and community-based tours, which can generate benefits for people who live with elephants,” she said.

Other solutions include tracking elephants to better understand their seasonal movements, pathways and preferred habitats; working with local

farmers to develop more resilient cropping strategies; lining fences with noisy cans to alert elephants when they’re encroaching on farmland; and large-scale socioeconomic planning and land use zoning.

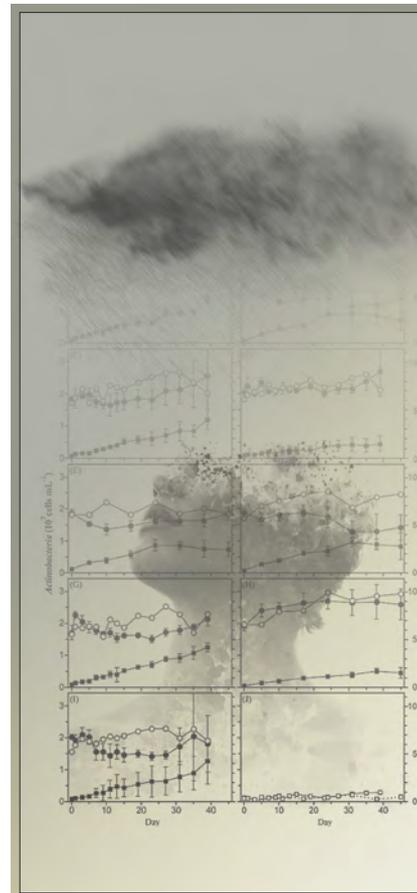
simple science

Why Can You Smell Rain?

If rainwater has no distinct scent, how do people swear they can smell it, even before it has arrived? Texas A&M assistant atmospheric sciences professor Tim Logan has an explanation. “The smell comes from the ground becoming moist,” Logan said. “This moistening forms petrichor, an earthy scent made up of organic fragrant compounds.”

The main contributors to petrichor are actinobacteria, tiny microorganisms found in cities and rural areas alike. Actinobacteria activity creates a byproduct called geosmin, a type of alcohol with a noticeable smell even at extremely low levels.

When it hasn’t rained, the decomposition rate of actinobacteria in the soil slows down, only to speed up when the air becomes more humid before a rain event. As raindrops fall and splatter, tiny particles called aerosols are generated, which help to spread the geosmin and other petrichor compounds from the ground into the air. “A heavy rainfall can send the petrichor compounds into the wind, which can carry rapidly across land and alert surrounding areas that rain is on the way,” Logan said.



Speaking in Virtual Terms

Virtual reality and wearable devices may soon be a solution for sweaty palms and nervous stutters as a new way to practice public speaking. Theodora Chaspari, assistant professor of computer science and engineering, is collaborating with Amir Behzadan, associate professor of construction science, to study whether virtual reality scenarios have the potential to reduce public speaking anxiety.

In their yearlong study, student participants will speak to virtual audiences with varying demographic characteristics, attention levels and venue sizes while a smart wristband device records their physiological signals like heart rate, sweat levels, skin temperature and blood volume pulse.

“When we compare this data with data from the subject’s speech to a live audience, we can see how virtual reality presentations help reduce the subject’s fear of public speaking and improve his or her performance,” said Behzadan.

“Later in the study, we will train machine learning models to generate and deliver instant feedback to students talking to a live audience as their physiological data is monitored,” added Chaspari. This will enable them to make real-time improvements to their speaking skills and strategies.



Rajesh Miranda, a professor at the Texas A&M College of Medicine, is researching infant developmental neurobiology to identify biomarkers for neonatal opioid withdrawal syndrome.



Infant Opioid Addiction

Approximately every 25 minutes, a baby is born who suffers through neonatal opioid withdrawal syndrome (NOWS). However, not every infant subjected to opioids while in the womb develops an addiction—a phenomenon that Rajesh Miranda, a professor at the Texas A&M College of Medicine, wants to understand. Partnering with Ludmila Bakhireva, a professor and epidemiologist at the University of New Mexico College of Pharmacy, Miranda will study why some infants are prone to developing NOWS while others do not.

“We hope to identify biomarkers to predict which opioid-exposed infants are likely to undergo NOWS before they exhibit any symptoms,” Miranda said. “In previous research related to fetal alcohol spectrum disorders, we found that tiny epigenetic markers called micro-RNAs circulating in the mother’s blood can help predict which children will have disorders. We then started wondering if the same might be true for the effects of other drugs, like opioids, on the infant.”

Testing the blood from infants’ umbilical cords, the research team will assess for micro-RNAs in hopes of determining which ones can predict the occurrence and severity of NOWS before withdrawal symptoms begin. If successful, the team’s findings could be a step forward in fighting the nation’s current opioid crisis.

South Korea’s Animal and Plant Quarantine Agency **reached out to entomologists at Texas A&M University for help in stopping an invading pest: the red imported fire ant.** Although the fire ant is familiar to Texans, its invasion of the Korean peninsula is new. South Koreans will rely on experts at Texas A&M to learn how to monitor and manage the pests proactively before they become established.



Gardening could avert age-related cognitive problems, according to a paper co-authored by Dr. Susan Rodiek, associate professor of architecture. Conducted in Japan with researchers Masahiro Toyoda and Yuko Yokota, **the study found that the act of seeding and watering a garden activated elderly subjects’ medial frontal pole,** a part of the brain involved in cognitive processing and memory retrieval.



As black mangroves thrive across the Texas coast, a team of researchers led by Dr. Anna Armitage, associate professor of marine biology at Texas A&M Galveston, **will investigate what effect these shrub-like trees may have on the coastal wetland ecosystem.** As mangroves displace marsh plants, they could alter the value of wetlands as shelter and as a source of food for many creatures.



Beaumont mayor Jimmie P. Cokinos '40 (left) presents a key to the city at a March of Dimes telethon. Cokinos served as mayor between 1956 and 1960.



Honoring a Hometown Hero

Holmes Gwin '93 established a General Rudder Corps Scholarship in honor of his mentor, Jimmie P. Cokinos '40. Mr. Jimmie, as he was known to many, was a close family friend throughout Gwin's childhood and remained influential in Gwin's life—even inspiring him to become a Fightin' Texas Aggie.

As Gwin entered adulthood, he began

to piece together the story of Cokinos' life. Cokinos' parents were Greek immigrants and Jimmie, along with his three brothers, were first-generation college students. They all served in World War II and returned to their hometown of Beaumont along with their sister, Helen, where they became civic leaders and successful businessmen.

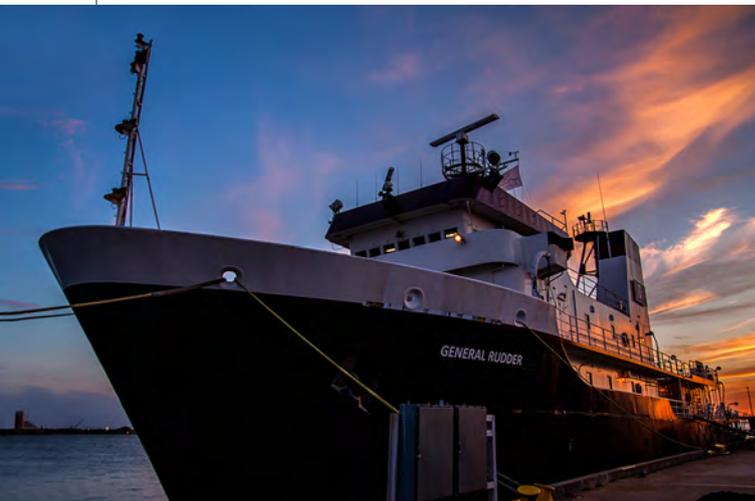
"Mr. Jimmie's life illustrated the greatest themes of the American experience," Gwin said. "He served as mayor of Beaumont and desegregated Lamar University. Mr. Jimmie and people like him built this country through tireless public and private service."

Gwin, who currently serves as the risk officer for Concord Energy, established his scholarship for cadets studying finance or engineering in hopes that Mr. Jimmie's legacy of hard work and service will continue. "My goal is that this scholarship

will enable students to contribute to their communities and maybe follow my footsteps by honoring their own heroes with an endowed scholarship one day," added Gwin.

"Mr. Jimmie's life illustrated the greatest themes of the American experience."

—HOLMES GWIN '93



The General Rudder is a training vessel based in Galveston and is part of the Texas A&M Maritime Academy.

Endowment Fuels Sea Aggies

Capt. Augusta Roth '96, department head of maritime transportation at Texas A&M Galveston, endowed a \$25,000 fund to help offset training vessel fuel costs for cadets.

Roth, a graduate of the Texas A&M Maritime Academy, knows firsthand that maritime cadets are required to spend many months at sea to enrich their learning with hands-on experience in seamanship, engineering and navigation. By offsetting fuel costs factored into each student's sea time expenses, Roth is easing the financial burden for all cadets aboard the training ship.

"Maritime academy students will become leaders in the global workforce, and they all deserve to see the world," Roth said. "These training cruises build marketable

professional and social skills that are unparalleled. Everyone that has participated will tell you that they are unique, life-changing experiences."

As one of only six such institutions in the nation, the Texas A&M Maritime Academy trains officers in both marine transportation and marine engineering to serve on oceangoing and inland waterway vessels. "I hope my fuel endowment will grow over the years to keep cruise costs low," Roth said. "I want to show maritime academy students that Texas A&M and its former students care about their quality of education." To contribute to the Sea-Term Fuel Endowment, visit give.am/TAMUSeaTermFuelEnd.

Doctor Honors Late Wife

As a tribute to his late wife, Dr. James Carrie established the Luise Elise Carrie Memorial Scholarship to support women in the College of Science. "Luise recognized that women have been chronically underrepresented in the sciences," James said. "Her preference would have been that this scholarship be awarded to female students who demonstrate a high level of performance and perseverance in pursuing their goals."

Having spent years battling cold, hunger and filthy living conditions as a war refugee, Luise understood what it meant to persevere. In 1945, at 10 years old, she found herself fleeing Germany with her family in a horse-drawn covered wagon to escape the invading Russian Army. They found safety upon reaching an area occupied by the U.S. Army, but still faced many difficulties as they tried to stabilize their lives.

After finishing high school, Luise moved to the United Kingdom and worked for a German family until she was awarded a scholarship at a nursing school near London.

As a senior, she assisted in the emergency treatment of a patient with acute cardiac symptoms, during which she met James. Luise later received her registered nurse qualification, and after spending a decade in London, the couple moved to the U.S. with



their three sons, two of whom graduated from Texas A&M.

James hopes that Luise's story inspires recipients of this scholarship to more fully appreciate the value of education and persistence. "I hope they know that graduation is not the end of the learning process," he said. "One should strive to use the special skills and knowledge acquired at university to make the world a better place, whether or not there is an immediate reward."

The late Luise Elise Carrie was ardent about supporting women in the sciences. Her husband, Dr. James Carrie, established a memorial scholarship in the College of Science in her honor.



The Sales Leadership Institute partners with industry experts to develop ethical, well-trained sales talent.

A Best-Selling Education

A recent gift to the Mays Business School Sales Leadership Institute (SLI), recently named one of the top professional sales programs of 2018 in North America by the Sales Education Foundation, will enhance the education of students pursuing careers in sales. After retiring from a career as a commercial oil and gas insurance producer, and ultimately agency partner, Jerry Crider '65 realized he wanted to give back to the university in a manner that would immediately benefit students upon graduation.

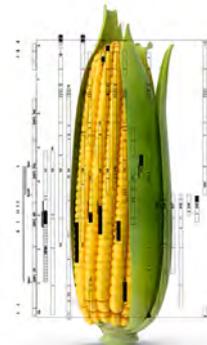
"When I became a salesman 48 years ago, I received specific field training by my insurance company employer," said Crider, "but many companies no longer offer training. I wanted to support the SLI because students will benefit from sales training throughout their lives, regardless of whether they become a sales professional, a school board member or a politician."

Statistics show that one quarter of CEOs have sales or marketing backgrounds. As part of the SLI program, students have access to state-of-the-art technology and participate in role-play exercises and high-impact experiences outside the classroom. By partnering with industry experts, the SLI creates well-rounded, ethical and talented professionals in a competitive field.

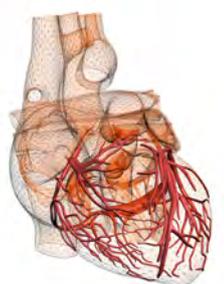
College of Architecture supporters Nancy and Don Weaver '76 gave \$250,000 to establish a scholarship for undergraduate students in the Department of Construction Science. The Weavers previously endowed another construction science scholarship, while a different gift of theirs named the main auditorium in Francis Hall in honor of beloved professor Bob Segner, who retired in 2016.



First-generation college student Larry Goertz '70 donated \$100,000 to create the John and Emma Goertz Regents' Scholars Award in honor of his parents. His award will provide scholarships to students pursuing degrees in engineering or agricultural engineering. Regents' Scholarships assist first-generation students whose total family income is less than \$40,000 per year.



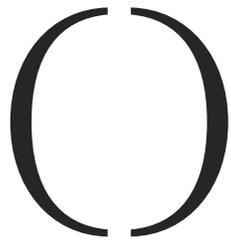
Deborah '83 and Kenneth Delano Jr. '84 established a \$100,000 endowed scholarship that will be awarded to one of the first Texas A&M students enrolled in the EnMed program. As a partnership between the College of Engineering, the College of Medicine and Houston Methodist Hospital, EnMed is an engineering-based medical degree program that will train a new type of doctor—physicianengineers.



Long-Term Plans

Millennials Chase '10 and Kalyn Georg Carroll '12 '14 prove that you're never too young for a planned gift.

BY KARA BOUNDS SOCOL



O f the many ways that Texas A&M University has impacted her life, Kalyn Georg Carroll '12 '14 will readily tell you that agricultural economics professor Ed Rister '74 '76 and the Agribusiness Entrepreneurship Program he oversees top the list.

The hands-on nature of this notoriously rigorous agricultural economics senior capstone course not only taught Kalyn the kinds of professional skills she now uses as a certified public accountant, but also further reinforced such life lessons as grasping the value of perseverance and resiliency imparted by her parents.

"The program teaches you that even if you're facing the impossible, you can get it done if you stick with it," she said.

Kalyn and her husband, Chase Carroll '10, are already giving back to this program by mentoring current students. But recently, they made a commitment to support the program after their lifetimes by designating the Texas A&M Foundation as a beneficiary of their estate in their will. With the proceeds from this gift and from the Carrolls' life insurance policies, the Foundation will establish an endowment in their name to benefit the Agribusiness Entrepreneurship Program.

Positioned squarely in the millennial age category, the Carrolls acknowledge that

most donors make significant gift commitments—especially in terms of estate planning—much later in life. But with the input of Kalyn's sister, an attorney well versed in estate planning, the couple decided the time was right to move forward with their plan.

"Chase and I wanted to make this decision sooner rather than later," Kalyn explained. "Otherwise, it could become something we never do. We decided that by making this bequest to Texas A&M, we could benefit more people than we could in any other way."

Chase and Kalyn were both significantly impacted by entrepreneurs from an early age: Chase's father started his own cattle shipping business in the early '90s, while Kalyn's parents still operate the construction company they founded in the early '80s. Knowing how fortunate they were to grow up in that environment, the couple wants to support entrepreneurial Aggies who come from different backgrounds.

While the main purpose of their gift is to benefit the Agribusiness Entrepreneurship Program, Kalyn also wants Rister to know how much the program and his mentorship meant to her. Housed within the College of Agriculture and Life Sciences, the program challenges undergraduate students

Chase '10 and Kalyn Georg Carroll '12 '14 are giving back to the Agribusiness Entrepreneurship Program after their lifetimes through a planned gift.

to move entrepreneurial ideas forward through the development of business plans and models. Rister, who serves as associate department head of agricultural economics, has overseen the entrepreneurship program since its start in 1987.

Rister said that when he was a Texas A&M agricultural economics student in the 1970s, most of his classmates were

raised on a farm or ranch. Today, he estimates that fewer than 10 percent of his students come from rural backgrounds. Instead of returning home to run the family agribusiness, most of his students embark on careers unrelated to agriculture.

Whether they're developing a real-world business plan for a feeder cattle operation or one for a bowling alley, Rister said business feasibility tools like financial statements, risk analyses, budgets and economic appraisals are the same.

By the time students in the program complete and present a detailed business plan, they can determine if their startup or continuing business is economically and financially feasible. In addition, when they cross the stage at graduation, they've already developed a vast network of seasoned professionals—like the Carrolls—on whom they rely as mentors while they build their own businesses or embark on other careers.



“After our parents and our families, we credit Texas A&M for where we are.”

—KALYN GEORG CARROLL '12 '14

“The Carrolls’ gesture is huge in terms of the signal it sends,” Rister said. “Their gift will allow us to keep this program’s momentum going, and the impact is only going to get bigger.”

Chase said he is profoundly thankful for his agricultural upbringing and his Texas A&M education. As a teacher, he gives back by sharing his love of agriculture with the next generation. It was this forward-thinking attitude that encouraged the couple to contemplate their legacy. “After our parents and our families, we credit Texas A&M for where we are,” Kalyn said. “If we can use our assets to help someone else, that’s all the better.” ©

The Carrolls found that a gift through their estate was the best option for them to fulfill their philanthropic goals. See this issue’s campaign update on page 54 to learn more about other planned giving methods.

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.

FOR MORE INFORMATION ABOUT SUPPORTING THE AGRIBUSINESS ENTREPRENEURSHIP PROGRAM, CONTACT CARA COLLINS '08 AT COLLINS@TXAMFOUNDATION.COM OR (979) 845-4740.

The Gaddis Girls' STEM Camp promotes hands-on experiences for girls who demonstrate an interest in math and science at a young age.



I didn't always appreciate my dad when I was young. Thomas Gaddis was an Army veteran—a real disciplinarian—so he gave me a hard time if I didn't live up to my full potential. It wasn't until I got older that I understood how privileged I was to have a father who encouraged me to learn and be self-sufficient. Throughout my childhood, he drilled three principles into my head:

1. Education, education, education. As you learn, you gain something that no one can take away from you.
2. Always ask questions. There's always someone in the room who has the same question but is afraid to ask.
3. Don't let anybody tell you what you can't do. If you believe it's worth doing, set your mind to it and never quit.

Mr. Gaddis is Still Teaching

I started the Gaddis Girls' STEM Camp in my father's name, and I can't wait to see what the girls who experience it will achieve.

BY SANDY WILKINSON '86

As a high school math teacher, my dad walked his talk. He wanted his class to be fun and engaging, because he thought education was a joy in itself. He didn't like teaching students how to multiply polynomials the old-fashioned way; he made it about the Dallas Cowboys. He drew these big lines across the board between terms and exponents. Instead of saying "2x2 is going to carry over to 3y...", he'd say, "Roger Staubach is going to pass the ball to Drew Pearson..." and so on. He wove numbers and players' names together until the Cowboys won the game and the problem was solved. To him, the best way to teach was with a story, and the best time to learn was always.

On January 17, 2016, my dad lost his fight with cancer. He was 76. After the funeral, we started receiving letters—more than 350 of them. Students of his whom he hadn't seen in 30 years offered their own memories of Mr. Gaddis, the best math teacher they ever had. After reading them, I was overwhelmed. I wanted to do something that would carry his work and legacy forward. That night, I sprang up in bed at 3 a.m., struck by an idea.

Now, my daddy didn't care if you were a girl or a boy; he just wanted you to be excited about math and science. He wanted every student to better themselves and be a well-rounded person, and he encouraged girls to pursue whatever career path they wanted in a time before that was the norm. That's why I had the idea to start an all-girls STEM (Science, Technology, Engineering and Math) camp. He would've wanted to give girls their own opportunities to realize that they love learning.

My husband and I funded the Gaddis Girls' STEM Camp in the College of

Education and Human Development with help from Malcolm Stewart '73 and High-Tech High Heels through the Texas A&M Foundation. It gives approximately 60 middle school girls a chance to explore STEM fields as they work together to complete hands-on projects on Texas A&M University's campus. The camp finished its second year last summer, and the girls' response to it has gone above and beyond what I hoped for.

This camp is about more than science projects. I want girls to focus on who they'll be when the pressures of grade school are behind them. Before we started this camp, my niece went to a similar Aggie STEM camp that was co-ed. She arrived a little shy and skittish, which admittedly worried me. Halfway through the week, I talked to her counselors, and they told me she had made enough friends to fill her own lunch table! All she needed was a space where she could really flourish and embrace learning, surrounded by others like her.

More girls can benefit from the same experience, and STEM industries can benefit from more qualified women entering the workforce. Unfortunately, while there are scholarships and other forms of support in place, the current cost of the camp's enrollment can be a barrier for girls from middle and lower-income households. We need outside help to get the camp where it should be in size and accessibility.

Sometimes I'll speak to the girls at the camp. I tell them about my daddy, the three principles he gave me and how happy he would be to see so many young women having fun learning math and science. Their curiosity and excitement would make him proud.

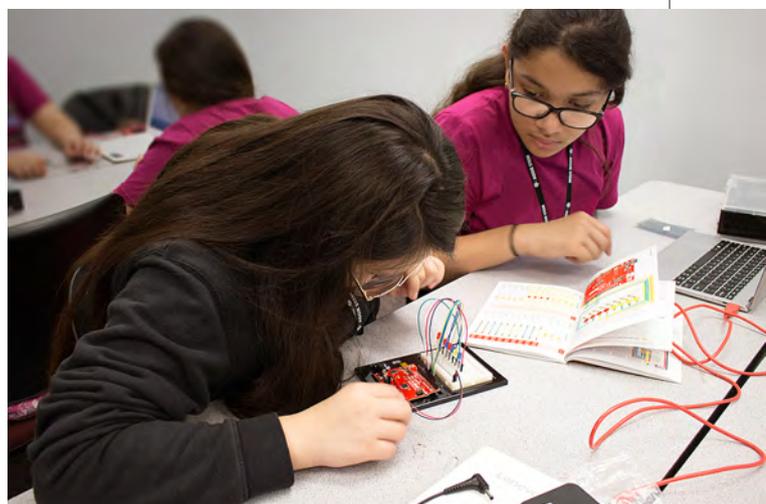
Honestly, I can't take credit for what the camp has accomplished so far or what it will achieve in the future. The door was open, and I walked through it. It all came from my dad and the lessons he passed down to me. Evidently, there's still so much left for him to teach. ©

The Gaddis Girls' STEM Camp is one of several camps offered through Aggie STEM at Texas A&M that provide middle and high school students real-world experience in the principles of STEM. These programs are a collaboration between the College of Education and Human Development and the College of Engineering, and more recently, the College of Nursing and the College of Veterinary Medicine & Biomedical Sciences.

TO SUPPORT THE GADDIS GIRLS' STEM CAMP
ENDOWED SCHOLARSHIP FUND OR OTHER
AGGIE STEM CAMP OPPORTUNITIES, CONTACT:

JODY FORD '99
SENIOR DIRECTOR OF DEVELOPMENT
TEXAS A&M FOUNDATION
(800) 392-3310 OR (979) 847-8655
JFORD@TXAMFOUNDATION.COM

Watch a video about the camp at give.am/GaddisVideo.
Give online at give.am/GaddisSTEM.





Poetry in Motion

On the second floor of the newly renovated Zachry Engineering Education Complex, two sprawling displays frame the building's central staircase. Both are chaotic and multilayered, their mix of materials and shapes flying horizontally down the hallway. Mirrored, black and iridescent acrylic lines and arrows dance over each other to convey motion and technological advancement.

The two artworks subsist under the names "Shapeshifting to Transcend Limbo" and "Transcending Realms: Chaos and Flow, Love and Fear." The artist, Lyndi Sales, who hails from



Cape Town, South Africa, was one of 10 global artists commissioned to create artwork for display in and around the state-of-the-art engineering complex.

The works were the result of meeting with and collecting data from a team of researchers within the College of Engineering who are working with sonic boom and shapeshifting materials. Sales was inspired by aircraft design, aerodynamics tests and data visualization when considering the form and aesthetics of her art. "Shapeshifting" imitates the distinctive cone of

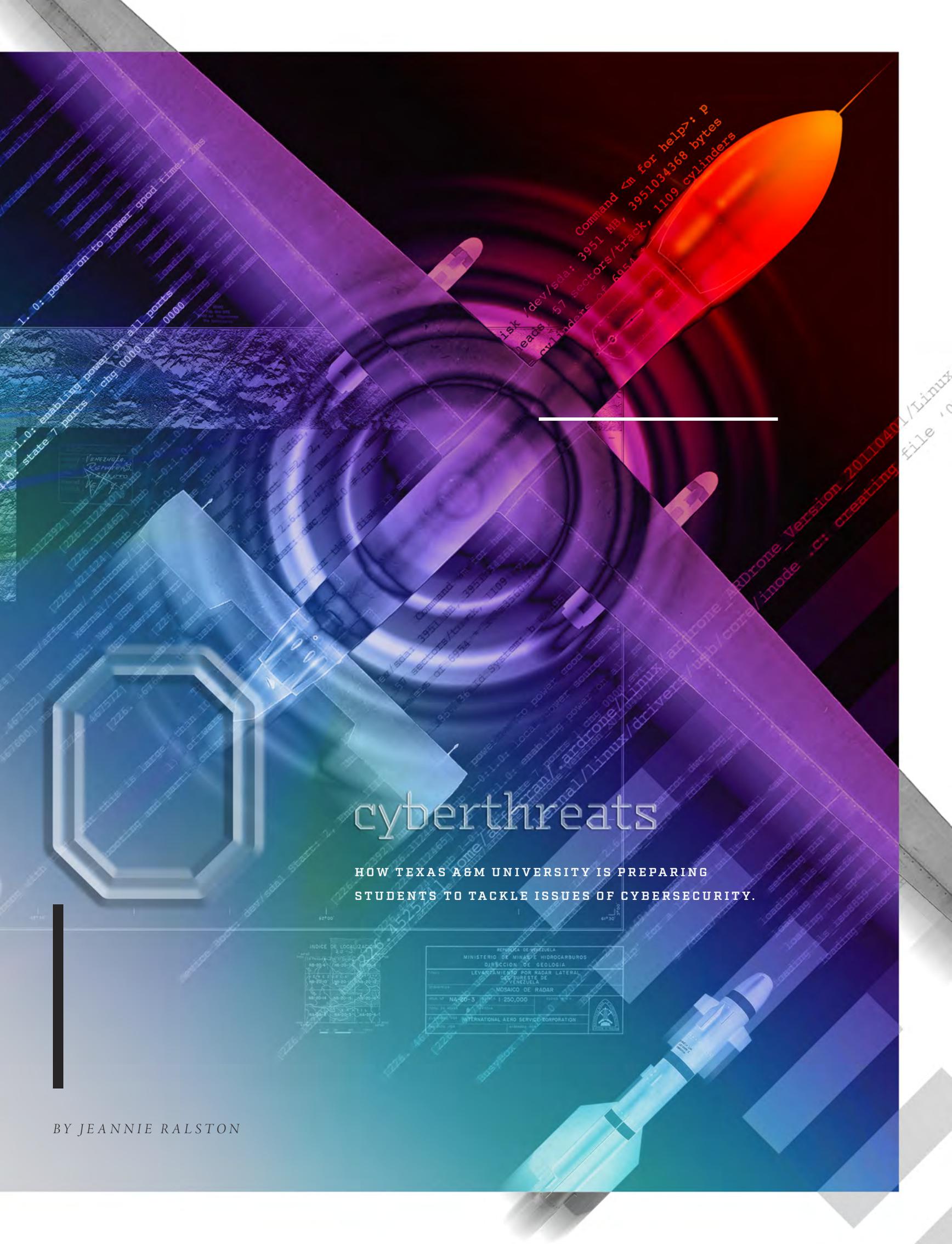
a speeding supersonic aircraft (pictured in inset), while "Transcending" evokes the sound wave of a sonic boom (above).

Sales' work debuted along with nine other dynamic pieces when the Zachry Complex opened on Aug. 25, 2018. Artists for these works were selected from a pool of more than 100 candidates, and each piece on display represents the merging of art with science, technology, engineering and mathematics to inspire creativity in students who pass by. ©



btm

In August 2018, the president of Venezuela was targeted in an assassination attempt. A month later, this attack had special relevancy to two groups of Texas A&M University students. The Venezuelan incident was the first attempt to kill a head of state using commercially available drones laden with explosives; the Aggie students were part of two teams participating in “A Hack of the Drones” in Austin, a competition organized months in advance by MD5, the U.S. Department of Defense’s national security technology accelerator. Sponsored by Army Futures Command, the hackathon was seeking cyber experts with the know-how to prevent or neutralize just such an attack on American soil.



0-1.0: enabling power on all ports
1.0: power on to power good time: 2ms
0-1.0: enabling power on all ports
1.0: power on to power good time: 2ms
0-1.0: enabling power on all ports
1.0: power on to power good time: 2ms

Command <m for help>: p
disk /dev/sda: 3951 MB, 3951034368 bytes
heads: 57 sectors/track, 1109 cylinders
cylinders of 6054



Venezuela
Rafael Ángel
VE
[226.3172485] hmb 1.0-1.0: state
[226.3172485] hmb 1.0-1.0: state
[226.3172485] hmb 1.0-1.0: state
[226.3172485] hmb 1.0-1.0: state



cyberthreats

HOW TEXAS A&M UNIVERSITY IS PREPARING STUDENTS TO TACKLE ISSUES OF CYBERSECURITY.



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|-------------------------------------|--|
| REPUBLICA DE VENEZUELA | |
| MINISTERIO DE MINAS E HIDROCARBUROS | |
| DIRECCION DE GEOLOGIA | |
| LEVANTAMIENTO POR RADAR LATERAL | |
| SUBSISTE DE | |
| VENEZUELA | |
| MOSAICO DE RADAR | |
| NO. NA-00-3 | ESCALA 1:250,000 |
| FECHA DE ELABORACION | FECHA DE IMPRESION |
| ELABORADO POR | INTERNACIONAL AERO SERVICE CORPORATION |
| APROBADO POR | |

BY JEANNIE RALSTON

Drone_version_20110401/Linux
file '0
/inode .c: creating



Dr. Steve Cambone

ASSOCIATE VICE CHANCELLOR FOR CYBERSECURITY INITIATIVES
PROFESSOR OF PRACTICE, COLLEGE OF ENGINEERING



While the drone terrorist attack is cause for concern—and may change the way we look at small, flying objects overhead—the hackathon is cause for hope and Aggie pride. Three teams out of 16 were selected by MD5 to each receive a \$15,000 award to further their work on drone security. The Texas A&M teams were awarded two of those winning slots. “These wins highlight how far the cybersecurity initiative has come since Texas A&M started formalizing it a few years ago and show how much potential the program has,” said Andrew Meserole ’17, captain of one of the teams.

Meserole isn’t the only one who sees great potential for Texas A&M to take on cyberthreats in their many different forms. It’s become a critical mission for the university, system wide, and is advocated at the highest levels.

THE ROOTS

Texas A&M’s efforts to boost its cybersecurity presence officially began in 2015 with the formation of a Cybersecurity Center and were accelerated in 2017 with the hiring of Dr. Steve Cambone, the former undersecretary for intelligence at the Department of Defense under President George W. Bush. Now, as Texas A&M associate vice chancellor for cybersecurity initiatives and a professor of practice in engineering, Cambone is steering the multidisciplinary, system-wide initiative through what’s known as the Institute for National Security and Cybersecurity Education and Research.

“We want to pull together the flagship, the system and the state agencies assigned to it into a tighter relationship with one another to gain synergies among the parts—whether it’s in cybersecurity education, research or workforce development,” said Cambone. “We also want to increase the visibility of the cyber work being done here to attract more students, faculty and research dollars.”

The university is already earning significant recognition. Texas A&M is one of only nine schools nationwide to be named a national center of academic excellence in cyber defense education, cyber defense research and cyber operations—the three cyber-related designations awarded by the National Security Administration and the Department of Homeland Security.

“This is a national concern,” Cambone said, “and we think that a public institution of our size should make a substantial contribution to meeting the national need.”

THE THREAT

Swiping a credit card. Issuing a request to Alexa or Siri or another silky-voiced artificial intelligence entity. Inputting a GPS route into a car. Posting a photo on Instagram. All of these daily actions make users vulnerable to hacking, putting their privacy—or worse—at risk. On what seems like a regular basis, the media announces data leaks, from credit ratings to bank account numbers, or ways in which personal information is being sold or manipulated.

But these are only the threats encountered on an individual level. Even more dangerous and disconcerting are those against large public and private systems. “As we increasingly see, the risks are moving beyond the realm of simple data theft and disruption,” said Dr. Daniel Ragsdale ’80, a 30-year Army veteran who until recently directed the university’s Cybersecurity Center before taking a new position at the Pentagon as assistant director for cyber in the Department of Defense, Research & Engineering Enterprise. “There are now very real and credible cyberthreats that could cause damage to physical systems or, worse still, put the health and safety of individuals at risk.”

The Department of Homeland Security has delineated 16 critical infrastructure sectors, each of which present an ever-expanding “cyberattack surface” for potential adversaries. These sectors include the power grid, our water and wastewater systems, oil and gas facilities, transportation, health care and our voting system. “We’re now interconnecting many systems that were never designed to be connected and increasingly they are being managed remotely,” said Ragsdale. “This is being done for all the right reasons, but at the same time, these architectural changes typically have significant security implications that are often neglected.”

The threat is far broader and more insidious than some shady characters in a basement trying to make easy money or wreak havoc.

Malicious nation-states and terrorist organizations by far pose the most chilling potential. “What keeps me up at night is thinking about how we ensure that our nation’s cybersecurity infrastructure is put in place effectively and how we can defend it from nefarious forces,” said Lt. Gen. Kevin McLaughlin, formerly the deputy commander of the U.S. Cyber Command, who was recently hired as the first program director for cyber policy, security and strategy in the Bush School of Government and Public Service.

“If you look in recent history, the Russians have attacked Ukraine’s infrastructure,” McLaughlin continued. “Imagine if an enemy nation or group threatened to turn the lights out across the United States if our government didn’t comply with their agenda.”

THE AGGIE ANSWER

As cyberthreats small and large have grown (the global cost of cybercrime is estimated to reach \$6 trillion by 2021), Texas A&M leaders have recognized that the university has a duty to put its vast resources to work for the good of individuals living in the digital world and, collectively, our nation.

It was Dr. M. Katherine Banks, vice chancellor and dean of the College of Engineering, who began the push in earnest. “The Texas A&M System currently has world-renowned experts, educational programs and facilities focused on cybersecurity research as well as 20,000 engineering students providing a unique opportunity to develop an elite cyber corps,” she said. Early on, university officials realized that while much of the work to counter cyberthreats could happen in the College of Engineering, the initiative had to be interdisciplinary because cybersecurity impacts so many areas of modern life. Governments at federal, state and local levels have to make policy decisions and interact with the private sector to help deter attacks and protect the public.

This is why the Bush School’s expertise is so critical in the effort. “We are preparing men and women to develop and execute policy in public administration, national security, international diplomacy and development, and governance at the community, state and federal levels,” said Mark Welsh, dean of the Bush School. “To be successful in today’s world, they must have a practical understanding of activities, opportunities and risks in the cyber arena.” Naturally, the military has a vital role to play too, and the Corps of Cadets is responding to the challenge by training a new generation of cyber-skilled officers.

Cambone believes that the land-grant mission of the university makes it imperative that Texas A&M rise to the occasion. “The fact that Texas A&M was established precisely to bring both education and practical knowledge of what it means to improve one’s security in the world really means something,” he said.

THE ENGINEERING APPROACH

With its Department of Computer Science & Engineering and Department of Electrical & Computer Engineering, the College of Engineering has long been at the forefront of digital design and technological security. But as the internet has seeped into so many areas of life, it

has become clear that other majors need training in how to protect business interests and make their designs secure in the cyber world. For example, civil engineers need to know how to build smart bridges and buildings that are secure; students in chemical and petroleum engineering and in industrial systems must be trained to incorporate cyber safety into factories and high-tech facilities.

“Both government and the private sector are starting to understand that you must design for cybersecurity from the beginning,” said Cambone. Going back to a design and retrofitting for cybersecurity is never as efficient and often not as secure. “There are requirements that are now being levied on subcontractors to deliver systems, capabilities and designs that are objectively secure before construction.”

Since 2015, the college has instituted 19 graduate and 12 undergraduate cybersecurity focused courses, including cyber ethics and risk management. In 2016, the college set up a cybersecurity minor to meet the need with more than 20 undergraduate courses from colleges across the university. The minor has three tracks—engineering, technology and interdisciplinary—and is open to any Texas A&M student.

More than 650 students have enrolled and 45 have graduated. “It’s already one of the largest engineering minors,” said Ragsdale. Two-thirds of students pursuing the minor are engineering students; the remainder come from other disciplines, such as public policy, that require an understanding of these issues.

What’s more, the college has recently developed a cybersecurity master’s program that targets engineers from non-computing disciplines. In addition, faculty from across the university have developed and proposed multiple cybersecurity graduate certificates. These certificate proposals are currently under review and, if approved by the faculty senate and the university president, will be available to students beginning this fall.

One of the initial students enrolled in the cybersecurity master’s program, Andrew Meserole, is also a recipient of one of the more than 40 cybersecurity scholarships that will be available to Aggie students over the next five years. These scholarships are funded by grants of more than \$5 million from the National Science Foundation and Department of Defense and involve an obligation to serve in the public sector upon graduation. “After considering multiple prospects, I accepted a federal government job,” Meserole said.

The U.S. government budget for fiscal year 2019 earmarks \$15 billion for cybersecurity-related activities, which represents a 4 percent increase over the previous year. Due to the sensitive nature of some activities, this amount does not represent the entire cyber budget.

\$15B

Andrew Meserole '17 (right) is one of the first students enrolled in the College of Engineering’s cybersecurity master’s program.

Indeed, graduates with cyber experience are in big demand. Cambone reported that currently about 20,000 jobs for cyber systems analysts are unfilled in the state of Texas. "We need to deliver students ready to work," he said.

To better prepare these students, the college is in search of funds to increase the number of professors of practice—practitioners who bring real-world experience to their teaching.

Gifts would also be used to increase cyber scholarships and to send students to cybersecurity competitions and events like the drone hackathon. Ragsdale sees extracurricular work—such as the several cybersecurity clubs that have recently been established—as integral to students' success. "Students learn things and have experiences in extracurricular activities that greatly extend and complement what they learn in a traditional academic setting," he said. "Most importantly, these experiences serve as a great inspiration for them, leaving them thirsty for even more knowledge."

THE BUSH SCHOOL DIVES DEEP

In the graduate-level course at the Bush School, "Internet Infrastructure: Platforms and Politics," Dr. Jesse Sowell, assistant professor in the Department of International Affairs, instructs his students on the motivations of the non-governmental forces that formed the internet and how that architecture creates a challenge for policymakers today. "The culture of the internet has been one of cooperation and information sharing," said Sowell. "Security was not a first-class priority in the internet's design."

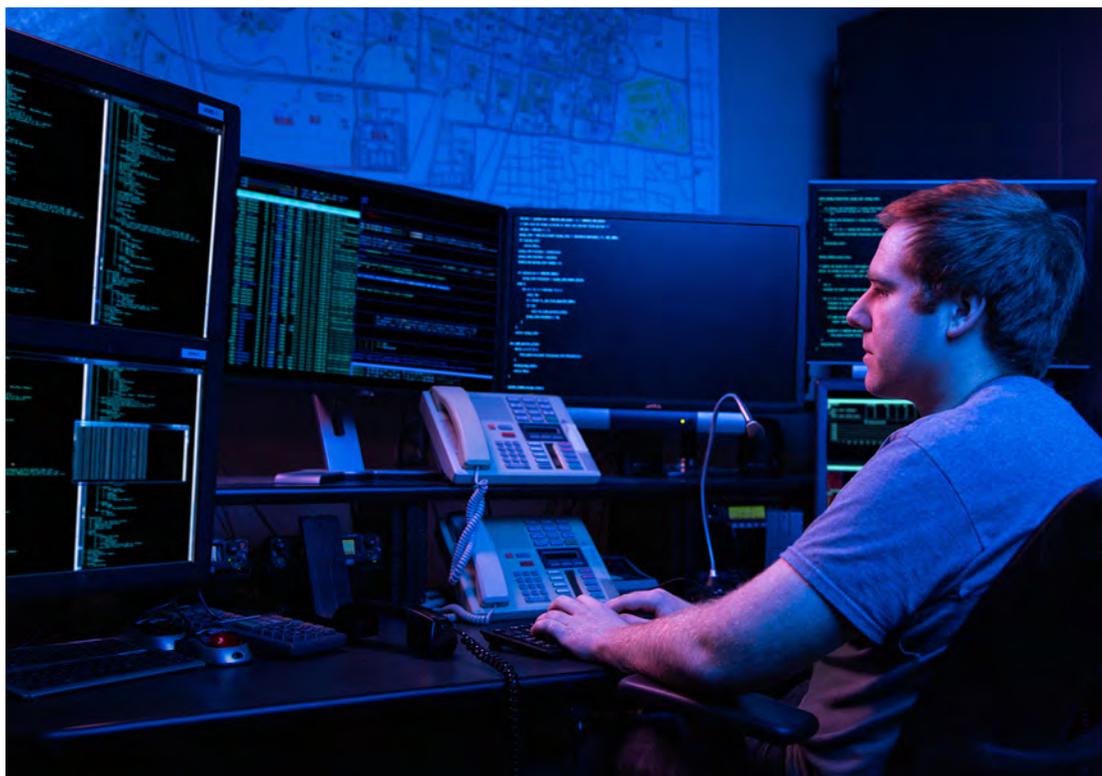
By understanding that the internet was created as an open platform and is managed by a transnational community of users that still adhere to some of the original ethos of the free exchange of ideas, students who will one day advise politicians and businesses will have a better grasp of the challenges of protecting the internet, Sowell reported.

This deep dive into the soul of the internet is one of the ways the Bush School adds important perspective in cybersecurity. And this course is just the very beginning of what the school hopes to achieve in this field; there are plans for a Cyber Law and Policy Center further down the road.

Sowell explained that one of the issues that concerns the Bush School is how the public and private sectors can work together to



TO SUPPORT CYBERSECURITY INITIATIVES IN THE COLLEGE OF ENGINEERING, CONTACT JAY ROBERTS '05 AT (979) 845-5113 OR JROBERTS@TXAMFOUNDATION.COM.



1 of 9



Texas A&M is one of only nine schools named a national center of academic excellence in cyber defense education, cyber defense research and cyber operations—the three cyber-related designations awarded by the National Security Administration and the Department of Homeland Security.

further cybersecurity. “There’s a strong public policy intersection in this area because all or most of the infrastructure is owned by the private sector,” said Sowell, “but the government has a significant interest in it being secure. There will have to be some arrangement between the public and private sectors to make progress in this space.”

Sowell and his colleague McLaughlin are eager to work with the College of Engineering and Mays Business School to ensure that Bush School students have a broad understanding of the issues businesses and government face before they pursue public service. One of the biggest challenges is that technological developments can emerge rapidly in front of laws and protective strategies.

“We’re trying to give students the tools to know who the players are, what the landscapes are, what the technology is and what types of questions to ask,” McLaughlin said. “If you do this, then as technology changes, they can get ahead of it. But if you don’t give them the tools, they might be bewildered or daunted by the technology.”

The Bush School is seeking \$10 million to establish its Cyber Law and Policy Center (two professors at \$1 million endowments each, two professors of practice at \$500,000 endowments each, plus operating budget and scholarships). The hope is that companies or sectors could donate funds, and in exchange, the cybersecurity program could undertake research to make recommendations that would help that industry protect itself. “We’re looking for development support, and the major areas will be research for entities that have a need for us to dig into their problems for them,” said McLaughlin. “We want something that’s a win for all involved.”

THE CORPS OF CADETS STEPS UP

When a group of cadets first approached the Commandant, Brig. Gen. Joe Ramirez ’79, last year about forming a cyber unit, he didn’t take them seriously. “I was skeptical about how long this would last,” he said. “I thought, ‘This will be the latest fad.’ But it’s not. It’s growing because these cadets understand that the cyberthreat is getting bigger every day.”

Ramirez now sees the unit as an essential part of the university’s—and the country’s—cybersecurity mission. Recently, the National Defense Authorization Act classified Texas A&M and the other five senior military colleges in the U.S. as “Cyber Institutes.”

“We are asking ourselves, ‘How do we take that title and turn it into something the nation can use?’” Ramirez said. “I would like Texas A&M to be the place the U.S. government, business and the Department of Defense come to say, ‘I need help in this particular area of cyber.’ And I would like the Corps of Cadets to be an essential part of developing solutions to address those cyber issues for Texas A&M.”

While Ramirez and other university officials coordinate the big picture, cadets like Nathan Powell ’19 are busy building the cyber unit, which now has 40 members. The unit meets once per week, and its primary focus is helping members earn three certificates that represent a baseline knowledge of cybersecurity measures. Cadets learn information technology skills, how a computer works down to the hardware level and basic security policy on the defensive side. “The certificates give them a leg up in getting placement in a cyber military profession or in the government or private sector,” said Powell, a computer science major. “They show that cadets have the skills and talent to go further with the proper training after college.”

Ramirez said that the military and related agencies have already begun asking him how many cadets have certifications. “When I talked to NSA representatives in San Antonio, they asked about two things,”



TO SUPPORT CYBERSECURITY INITIATIVES IN THE BUSH SCHOOL OF GOVERNMENT AND PUBLIC SERVICE, CONTACT MICHAEL BOTTIGLIERI '89 AT (979) 458-8035 OR MBOTTIGLIERI@TXAMFOUNDATION.COM.



Dr. Daniel Ragsdale '80

FORMER DIRECTOR, TEXAS A&M CYBERSECURITY CENTER
ASSISTANT DIRECTOR FOR CYBER AT THE PENTAGON—DEPARTMENT
OF DEFENSE, RESEARCH & ENGINEERING ENTERPRISE



Ramirez said. “Number one was security clearances for our cadets, and the second was those certifications. When you have cadets with both of those, they’re in high demand.”

The unit also attends cyber competitions and hears from speakers, who are brought in to discuss real-world issues and solutions. Ramirez would like to secure funding to send cadets to cyber events and to bring in more speakers. Another top priority is helping cadets pay for the three certifications, which together can run as high as \$1,000. “We help financially as much as possible, but with 40 cadets currently and a growing population interested in cyber, it adds up,” Ramirez said. “My goal is to support every cadet interested in the cyber field who wants to earn those certifications, and this is where former students can really help. It’s an investment because these are the young men and women that will be helping their companies, the government, the Department of Defense and our country in the future. These are the future ‘cyber warriors’ who will be fighting the war for us.”

BRINGING IT ALL TOGETHER

Because Texas A&M’s cybersecurity initiative is new, there is tremendous energy and opportunity surrounding it. Currently 75 faculty members from a variety of colleges with an interest in cybersecurity meet on an informal basis.

Ragsdale envisions a day when the university has a formal interdisciplinary faculty for cybersecurity. “We’re not there yet,” he acknowledged. “But this is how the university will best keep up with cyber issues and advancements—by having faculty across departments work closely together in the development of curriculum.”

With such an integrated team, the university will be set up for more research dollars as well, Ragsdale said. The National Science Foundation, an important funding agency, highly values projects in cybersecurity that include a social behavior and economic aspect.

The focus on cybersecurity has already yielded substantial research funding. Since 2010, Texas A&M faculty have secured \$22 million in external funds from public and private sector partners to support cybersecurity research and educational activities, with more than 95 percent of that awarded since 2015.

More research opportunities are in the works. The Texas A&M University System is building a facility on the RELLIS Campus where researchers and industry partners can stage and test the “internet of



TO SUPPORT CYBERSECURITY INITIATIVES IN THE CORPS OF CADETS, CONTACT TOM POOL '96 AT (979) 862-9154 OR TOMPOOL@TXAMFOUNDATION.COM.

Cybercriminals will steal an estimated 33 billion records in 2023, with more than half of all data breaches globally to occur in the United States. Records might include personal information such as your name, address, credit card information or Social Security number.

33B

Nathan Powell '19 (left), a computer science major, is obtaining cybersecurity certifications as a member of the Corps of Cadets' cyber unit.

delivering cybersecurity capabilities to those who need it," he said.

There is also a strong call for Aggie-owned businesses to offer internships to students studying cybersecurity. "They need real-world experience, so having former students offer paid internships, co-ops or part-time work is important," Cambone added. In return, these business owners will gain new insights for securing their companies—leading-edge approaches, not last year's (or last decade's) fixes.

"Technology has been advancing so rapidly that policies, statutes, the law and even cybersecurity practice are falling further behind," said Ragsdale. "We have the chance to reverse this trend and get ahead of this challenge. By building on the momentum we have generated in recent years, when new capabilities are developed and technologies fall off the assembly line, our graduates, as leaders in their respective industries, will have already envisioned and addressed many of the underlying security and privacy implications."

Ragsdale notes that Texas A&M has always aimed to produce, "leaders of character for the greater good" and sees cybersecurity savviness as firmly in the realm of the greater good. "Since we are all increasingly dependent on an ever-expanding array of interconnected systems," he said, "enhancement to the safety and security of these systems is clearly in all our best interests." ©

things"—smart products such as kitchen appliances, thermostats and doorbells—in a practical environment. "It would be an analog to an ordinary home," Cambone said. "We could use it as a base for looking at the security of various devices, such as transport networks like Bluetooth, Wi-Fi and 5G. We can see how these interact in the home environment and in the back end where all the data is being stored and acted upon." There are naming opportunities for this center.

When it comes to research, former students have a large part to play, Cambone said. He is hoping to build a program in which the university can help small- and medium-sized businesses with cybersecurity concerns and issues. To get to that point, Cambone would like Aggie alumni who own businesses that need help with protecting their systems to work with the university. "We need support from Aggies with small and medium enterprises who can be pathfinders for us, helping us develop the means and methods of

metadata defender

randon Neff '99 is just the type of professional Texas A&M hopes to produce in the future through its emphasis on cybersecurity. He's well-versed in technology, with a hands-on understanding of the multilayered issues—from economics and social engineering to international diplomacy—that play a role in eclipsing those who seek to harm or disrupt the country's digital systems.

Neff has enjoyed a wide-ranging series of successes since leaving Texas A&M, where he was in the Corps of Cadets, served as Head Yell Leader and majored in political science with an emphasis on international relations. Neff joined his Air Force special operations unit two weeks after Sept. 11, 2001, and was deployed immediately. He took part in campaigns in Afghanistan, Iraq and across Western Africa. "As a military officer, I saw first-hand how the military is a vital instrument of U.S. international policy," Neff said.

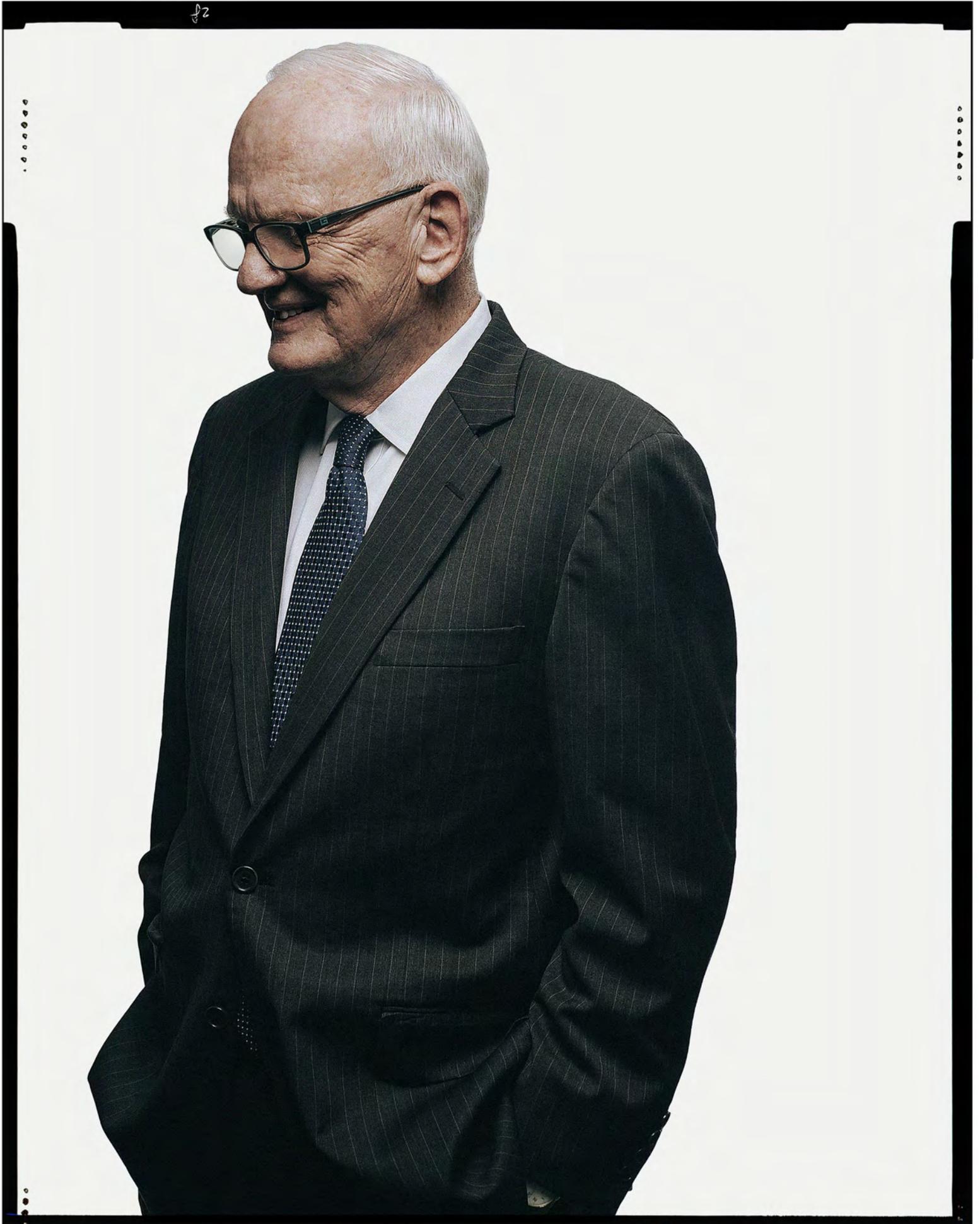
Through the GI Bill, he attended the Harvard Kennedy School, where he gained more insight into how international policy decisions are made. "There was emphasis on statistics, economics, game theory and econometrics," he reported. This prepared Neff for the next step in his career at the NSA. "Another front row seat," he said, "this time into telecommunications and hacking."

After seven years of leading a counterterrorism unit, he took a job with a Silicon Valley consulting firm that worked with global companies. A key lesson in that position was seeing that corporate executives too often consider hacking and cybersecurity an issue to be handled by their information technology departments rather than "a risk issue that required their engagement."

Now, as CEO of Scan13 (a company co-founded with his Squadron 13 buddy, Dr. Joe Tidwell '99), Neff uses his knowledge to help executives drastically reduce their firms' hacking risk.

He sees great potential for Texas A&M's cybersecurity initiative. "Our nation's security and economy will need leaders with the skills, values and knowledge to address the adversaries we face, and Texas A&M is positioning the next generation of leaders to be immensely successful," he said.





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AEBAB-GC SUBJECT: USAB SP 308-63 (U)
TO: See Distribution FROM: G3 DATE: 9 July 68 COMMENT NO. 1
/6169

1. (U) It is requested that [redacted] Special Plan 308-63 (U) attached as inclosure 1 be reviewed and that any comments or recommendations be submitted to this headquarters, ATTN: G3, not later than 16 July 1968.
2. (U) The attached document should be retained by addressees until [redacted] as disposal instructions are issued by this head-
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By Taryn Woody '19



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17 July 68
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Undercover



Regraded UNCLASSIFIED when separated from classified inclosures

Professor James Olson uses his 31-year experience as a CIA undercover operative to teach intelligence studies at the Bush School of Government and Public Service.

SECRET

James Olson

was in his final weeks of law school when he received a mysterious phone call that changed the trajectory of his career.

“Are you interested in serving your country?” asked the caller.

As a small-town Iowa boy with hopes of becoming a lawyer, Olson couldn’t have guessed that a representative from the CIA was on the other end of the line. “To this day, I don’t know how the CIA became aware of me,” he recalled while glancing at the photographs and memorabilia that fill his office. “At the time, I assumed it might have had something to do with my time in the Navy, but I was never told.”

In the days that followed the call, he was catapulted into a life he hadn’t planned to lead—one that would introduce him to his future wife, send him across the world as an undercover operative, and eventually lead him to teach at Texas A&M University’s Bush School of Government and Public Service.

The Life of a Spy

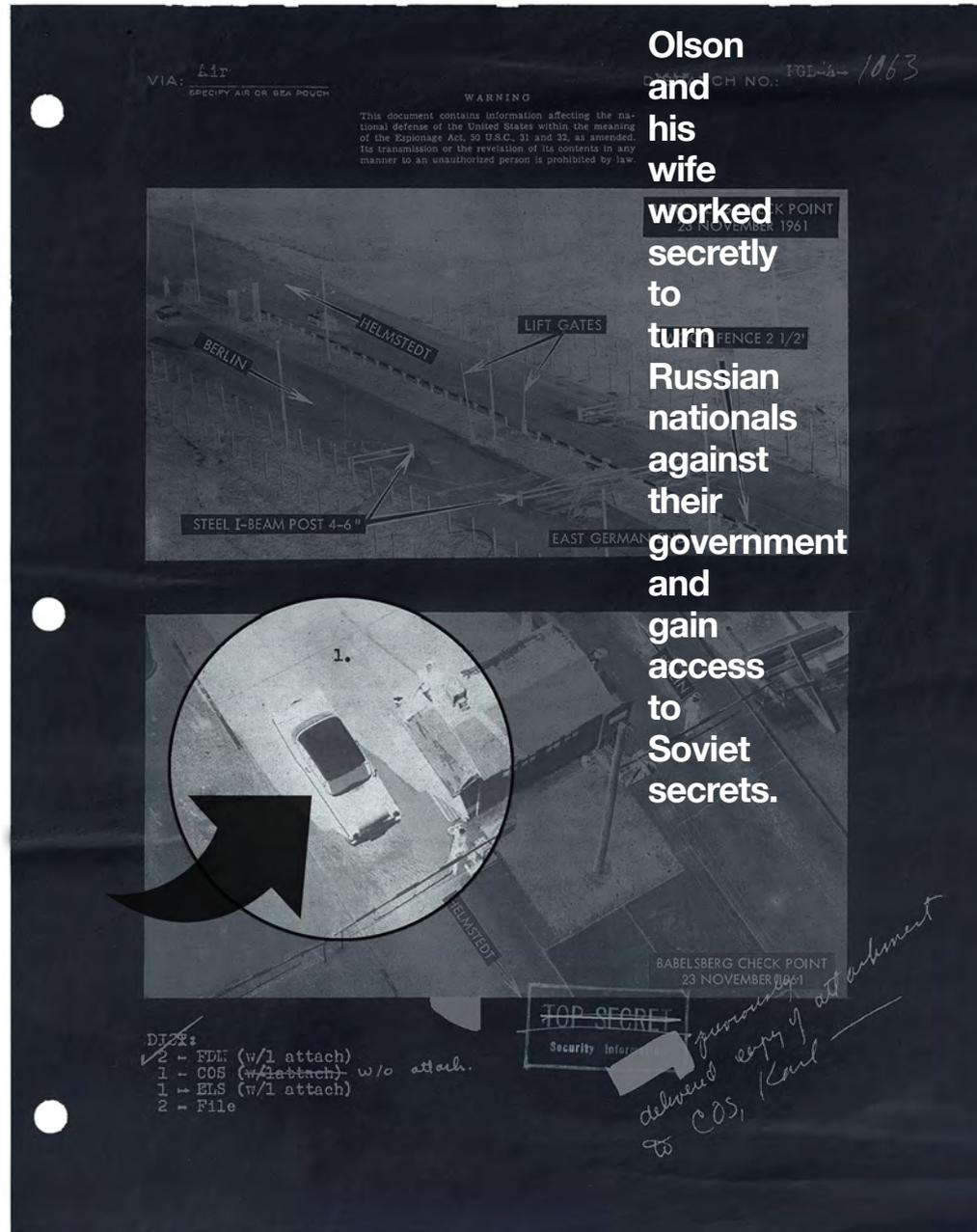
Olson was born in Le Mars, Iowa, and studied math and economics at the University of Iowa. Upon graduating, he was commissioned into the Navy, where he traveled the world. “It was a great adventure for a small-town boy,” he said.

Eventually, he returned to his roots and enrolled at the University of Iowa College of Law. “My goal was to become a small-town attorney,” he said, but that all changed when he agreed to meet the unnamed man who called with the unusual question.

Days later, he found himself in the corner of a hotel lobby, sitting across from

As
Communists
ruled
Moscow
and
the
Cold
War
reigned,

Olson
and
his
wife
worked
secretly
to
turn
Russian
nationals
against
their
government
and
gain
access
to
Soviet
secrets.



a CIA recruiter. The man told Olson he was an ideal candidate for the agency and asked him to apply. Olson submitted an application on a whim and was accepted after several interviews and tests.

During his initial training, he met his future wife, Meredith, who was a German

analyst for the CIA. Once married, they were deployed around the world as a “tandem couple.” They served in international capitals like Vienna, Moscow, Mexico City and other places that cannot be named. “Our lives seemed normal to us because everyone we knew was undercover,” Olson

INFILTRATION

James Olson served 31 years in the Directorate of Operations in the Central Intelligence Agency under six presidents, mostly overseas in clandestine operations. He left his post knowing Russia inside and out. At one point, he tracked Vladimir Putin in East Berlin.



said. "As a spy, you live two lives. You go to your cover job during the day, and at night you work your true job as a CIA operative."

Olson participated in multiple missions during his time abroad, most of which are still classified, but one mission in 1979 sticks out in his memory. As Communists

ruled Moscow and the Cold War reigned, the couple worked secretly to turn Russian nationals against their government and gain access to Soviet secrets. That year, CIA satellites photographed a tunnel used to shelter communications lines that ran from Moscow to secret facilities outside the

city. These locations were high priority intelligence targets for the U.S. government, and Olson was selected to take part in a cable tapping mission known as GTTAW. He trained for the operation in the U.S. by practicing entering a replica manhole and accessing the cable lines.

On the day of the mission, Meredith helped him exploit a flaw in the KGB surveillance—allowing him to evade the surveillance team, don a disguise and make his way toward the manhole. "It was just like in training," he said, "and the operation was successful." For his part in the mission, Olson was awarded the Intelligence Medal of Merit by the CIA.

Gone to Texas

Eventually, the couple decided to return to the U.S., where Olson applied for the Officer in Residence Program, a CIA initiative to place officers in teaching positions on college campuses. He was chosen for a position in Milwaukee, but just weeks before the move, George Tenet, former director of the CIA, called with a proposition.

"He said, 'You'll never guess who just called me,'" Olson recalled of his conversation with Tenet.

Tenet had received a call from President George H.W. Bush. Texas A&M was creating a graduate school of government and public service and naming it after the 41st president, and the university was also to become the location of the George H.W. Bush Presidential Library and Museum. President Bush wanted a candidate from the Officer in Residence Program to be placed at the school, and Olson was the perfect fit. Tenet, knowing the couple was moving to Milwaukee soon, asked that

The former spy finds his purpose not only in the Bush School itself, but also in its students.

they simply visit College Station and give it a look.

Within a day, they jumped on a plane and headed for Texas. "When a former president calls on you, your answer isn't, 'Yes.' It's, 'Yes sir,'" said Olson. "We didn't know much about Texas A&M except that they played good football and had a legendary Corps of Cadets," he said, but when they arrived in Aggieland, he and Meredith instantly learned what set Texas A&M apart. "We were so impressed by the faith, honor and traditions built into the university," he added. "We went back to headquarters and said, 'We're going to Texas A&M. It was a leap of faith."

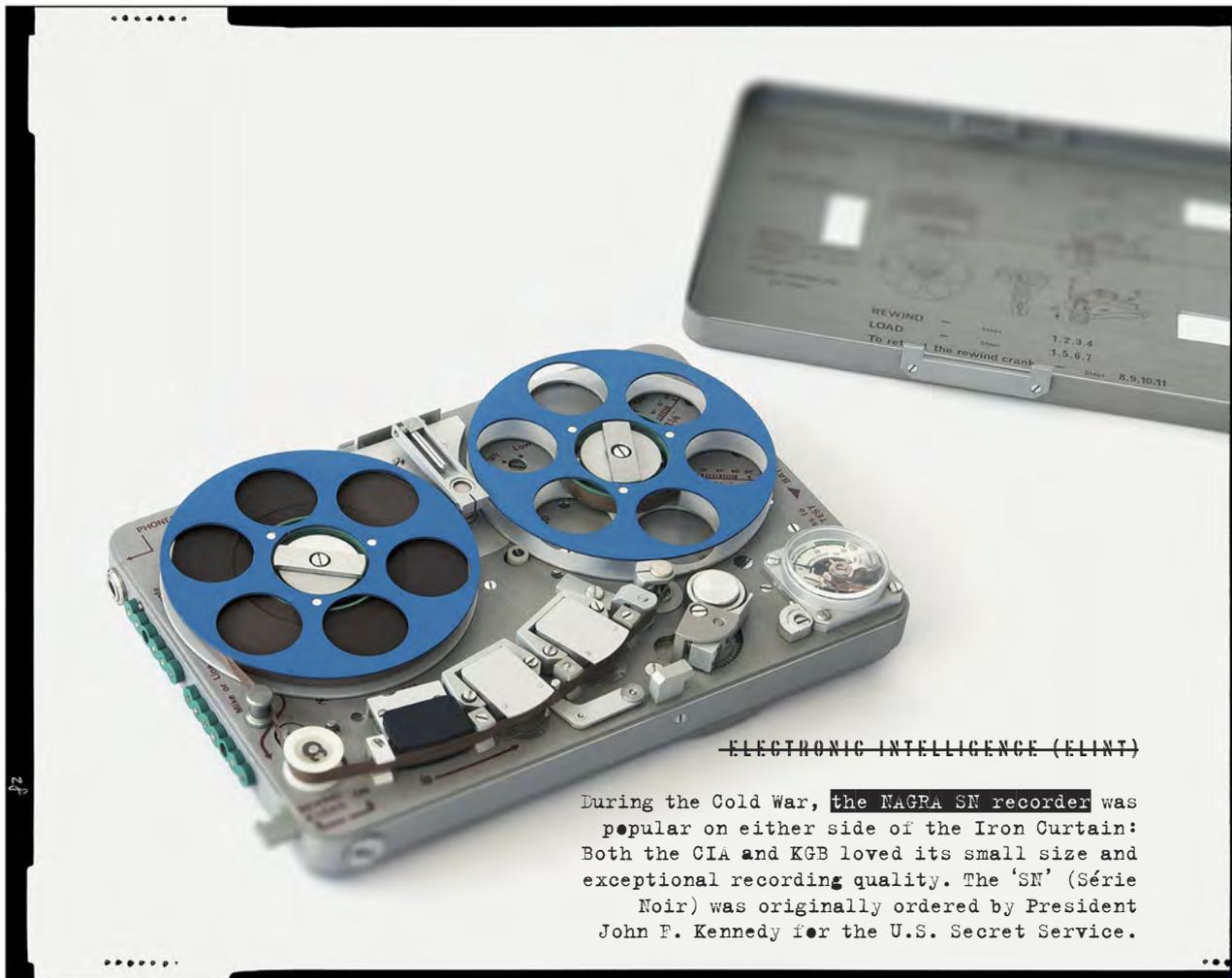
"Once we got to Texas, Meredith joked that out of all the places we had lived, coming to Texas was probably our most foreign assignment yet," he laughed, "but it didn't take long to appreciate the friendliness and courteousness of the people here."

Public Service: A Noble Calling

Now, in his 21st year of teaching at Texas A&M's Bush School, Olson leads classes on intelligence, counterintelligence, national security, counterterrorism and international crisis management.

For Olson, his teaching career has provided him with an avenue to further serve his country by sharing the calling of public service. "I am so motivated to help young men and women carry out their dream of serving our country," he said. "Public service is what we believe in—it's our mission, our code, our ethic. As President Bush said, public service is a noble calling."

Today, President Bush's belief permeates the halls of the school. In the class of 2017 alone, graduates were placed in the CIA, FBI, Department of Defense, Department of Homeland Security, and the U.S. Armed Forces and assigned to operational units around the world, as well as countless



ELECTRONIC INTELLIGENCE (ELINT)

During the Cold War, the Nagra SN recorder was popular on either side of the Iron Curtain: Both the CIA and KGB loved its small size and exceptional recording quality. The 'SN' (Série Noir) was originally ordered by President John F. Kennedy for the U.S. Secret Service.

other agencies in the public and private sector. Approximately 300 Bush School graduates have entered intelligence careers.

"Recruiters have told me several times that they've never seen better candidates than those coming out of the Bush School, because students here learn the nitty-gritty of how to get the job done," said Olson.

What sets the Bush School apart is its focus on practitioner-based teaching. From the beginning, the school set forth a professional focus for its intelligence courses, with the confidence that classes are best taught by individuals who served in intelligence careers. Other graduate programs in intelligence studies are more theoretical and emphasize an academic approach. The Bush School is different by design: It combines a balanced academic curriculum with faculty who have real-world experience.

Students pursuing intelligence studies take part in a rigorous two-year curriculum

that emphasizes hands-on skills, foreign language, intelligence, research and public service. Thanks to the programs offered and its internationally acclaimed faculty, the Bush School has gained national recognition.

The 2018 U.S. News and World Report ranked the Bush School in the top 10 percent of public affairs schools. The school was also named the "best value" in the nation by the online resource Value Colleges, but Olson isn't satisfied just yet. "Before I retire, I want to ensure that the Bush School is the unquestioned premier public affairs and intelligence program in the country," he said.

The former spy finds his purpose not only in the Bush School itself, but also in its students. "My students mean so much to me," he said, while reaching for a copy of his soon-to-be released book, "To Catch a Spy: The Art of Counterintelligence." Inside, the dedication reads: "To my students at the Bush School of Government and Public Serv-

ice of Texas A&M University, who inspire me every day with their dedication and commitment to serving our country."

"That sums up why I'm here, and it's also what President Bush hoped for when he created this school," he added. "I know he was very proud of this place and its potential." ©

Given the growing number of students interested in intelligence careers, the Bush School needs to expand the courses offered in this area taught by seasoned practitioners. Its current staff cannot meet the increasing student demand.

TO SUPPORT THE BUSH SCHOOL'S INTELLIGENCE STUDIES PROGRAM, CONTACT:

MICHAEL BOTTIGLIERI '89
SENIOR DIRECTOR OF DEVELOPMENT
TEXAS A&M FOUNDATION
(800) 392-3310 OR (979) 458-8035
MBOTTIGLIERI@TXAMFOUNDATION.COM

1) What foreign languages do you speak?

"French, Russian, German, Spanish, Latin and Swedish."

2) Coolest spy tool you used?

"Nice try, but I can't answer that one."

3) Tell us about your role in screenwriting for "The Americans" TV series.

"Joe Weisberg, the creator of the show, is a good friend from our CIA days together. When Joe was working on the screenplay, we talked

about the show and I offered him some plot ideas, which he used. Joe was nice enough to write a jacket blurb for my new counterintelligence book."

4) Did Meredith also take on a second career after retiring from the CIA?

"Meredith went back to school to become a nurse and worked as an RN. She's retired now, but she continues to volunteer in the community. She's a remarkable woman. I'm a very lucky man."

5) How did your children react when they found out you were CIA operatives?

"They couldn't believe their parents could ever do something so cool!"

6) What about your parents?

"They were thankful we hadn't told them while we were still operational! They would have worried too much if they had known."

Declassified Intel





Ben Dickerson '61 was awarded the Houston Livestock Show and Rodeo's very first scholarship during his freshman year.



THE HOUSTON LIVESTOCK SHOW
AND RODEO PROVIDES THOUSANDS
OF STUDENTS ACROSS THE
STATE WITH FINANCIAL AID,
CREATING AN EXTENSIVE IMPACT
AT TEXAS A&M UNIVERSITY.



BEN DICKERSON'S DECISION TO ATTEND TEXAS A&M UNIVERSITY WAS A FATED MOMENT OF SERENDIPITY. Up until his last-minute enrollment in the fall of 1957, Dickerson had his heart set on Baylor University. However, while working as a summer camp counselor for juvenile delinquent boys before his freshman year, he met camp director and devout Aggie, Bernie Lemmons '52, who greeted campers every morning by playing the stately sounds of the Aggie War Hymn.

Despite his plans, Dickerson agreed to visit Texas A&M with Lemmons and meet with the president of the university. He left the meeting as the newest member of the Fightin' Texas Aggie Class of 1961. That same day, Dickerson received the surprise of a lifetime: He became the very first recipient of a \$2,000 Houston Livestock Show and Rodeo scholarship, generous enough to fund his undergraduate education at Texas A&M. Everything had fallen perfectly into place.

While Dickerson had anticipated the open arms of the Aggie family, he didn't expect the extended family that came with being a Rodeo scholarship recipient. Mem-

bers of the Rodeo's scholarship committee visited him during his freshman year as he adapted to university life. When his father passed away during his senior year, Dickerson's mentors with the Rodeo became surrogate fathers to him.

"The big word is 'community,'" he said. "I see the Rodeo as an extension of the Aggie family. It teaches students about serving the nation and the community around you. The volunteers are incredible: They practice what they speak, and they lead from their heart. The Rodeo is an unbelievable asset to the entire state. I've never seen or experienced anything else like it."

Today, the Houston Livestock Show and Rodeo has awarded more than \$70 million in scholarships to students across all disciplines and backgrounds in The Texas A&M University System. The Rodeo's scholarship program reaches almost every county in Texas, but the epicenter of impact is at Texas A&M: There are more than 800 Aggies on Rodeo scholarships, while more than 6,000 Aggies have been supported all-time.

BY LAURA SIMMONS '19





Chelsea Chmiel '19, a management major in Mays Business School, was first awarded the Rodeo's Opportunity scholarship in 2015.



ENDLESS OPPORTUNITIES

Each year, approximately 750 scholarships are presented to Texas students, and the variety of awards available means there's something for everyone. The organization's Metropolitan and Opportunity scholarships (now named Houston Area scholarships) are for students from Houston and surrounding county school districts. Other scholarships are available for students in additional surrounding counties to Houston, as well as to those who participate in programs such as 4-H, FFA or the Rodeo's stock show and School Art Contest.

For Chelsea Chmiel '19, a management major in Mays Business School, being a Rodeo scholar means the opportunities are limitless. However, the road to her senior year at Texas A&M wasn't an easy one.

Chmiel knew that Aggieland was a perfect fit for her, but she worried about the cost of affording higher education. As a result, she devoted her high school career to being academically successful and volunteering in leadership and community service projects. Knowing she wanted to enter the health care field, she became a member of The Gathering Place, where she helped organize the collection of donations for a monthly social gathering for the elderly, disabled and handicapped. As a member of Young Life, she distributed food to homeless children and served as a camp counselor for students with disabilities.

Chmiel, who was awarded the Rodeo's Opportunity scholarship in 2015 and was more recently chosen as an Achievement scholar—an additional scholarship opportunity reserved for current Houston Live-

stock Show and Rodeo Scholarship recipients—could not have thrived without the support. "As a first-generation college student, I had no idea what to expect, and my first two years at Texas A&M were difficult," she explained. "But, I remembered that nothing in life comes easy and that only hard work can get you what you want."

Chmiel's dedication yielded prosperous results. She has served as a Fish Camp counselor, joined Freshman Leaders Advancing in Service and Honor, and mentored children through Sports for Kids and Aggie Miracles. Support from the Rodeo has enabled her to invest in her college experience without worrying about financial security—something that is paramount, given her career aspirations. "Many of the internships available in the health care administration field are unpaid," she added. "Receiving aid from the Rodeo will help me afford to take an unpaid internship and achieve my master's degree."

COMMUNITY & CONNECTION

Applying for a Rodeo scholarship is simple: Students have between November and February to submit an online application, which includes essay and extracurricular activity portions. Supplemental documentation, such as confirmation of academic tests and official transcripts, are required to complete the process. Applications are reviewed and judged three separate times by members of the Show's more than 34,000 volunteers. Additionally, students must be high school seniors planning to attend an accredited, not-for-profit university in Texas.

The selection process, on the other hand, is highly competitive. "We look for well-rounded students," explained Amy Moroney '03, the Rodeo's executive director of educational programs and a 1999 Rodeo scholar. "We consider students' extracurricular activities, work experience, demonstration of leadership and service, motivation, and their financial need."

Industrial distribution student Grogan Matthews '19 is a Metropolitan and Achievement scholar. "I am the first Aggie in my family," said Matthews, "and this scholarship was the main reason I chose Texas A&M."

Like Chmiel, Matthews is heavily involved in student service associations. He is currently the service director for Iron Spikes, an undergraduate men's organization that drags the baseball field during Aggie home games. In his opinion, one of the rewarding aspects of being a Rodeo scholar is the accompanying sense of community and connection. "Being a Rodeo scholar has helped me tremendously as an undergraduate," said Matthews. "It provides so many resources and network connections."

In its efforts to expand its alumni-scholar relations, the Rodeo has created its own alumni association. Over the course of two years, alumni membership has grown from 200 to more than 1,200 individuals, with four former Rodeo scholars on staff. Upon graduation, Rodeo scholars are eligible to receive a complimentary life membership to the Rodeo. The association allows for scholarship alumni to network with one another and reconnect with the organization in a new way.

"Corporate donors are always eager to meet student scholars," said Moroney. "Our annual scholarship banquet in May is a terrific opportunity for donors to meet scholars and their families and for students to express their gratitude. It's a rewarding experience all-around."

IMMEASURABLE IMPACT

There are two main monetary sources that sustain the Rodeo's scholarship funds. The Rodeo's Corporate Development Committee is responsible for securing financial support to fund the organization's four-year, \$20,000 scholarships, while other committees also contribute to scholarship-specific funds.

The second source is the Rodeo's auctions and sales program. Junior market auctions reward young Texas 4-H and FFA students for their hard work year-round by ensuring that all exhibitors who qualify for the auction receive above-market prices for their animals. Based upon placing, the Rodeo establishes a guaranteed minimum premium for each auction lot. After these minimums are met, a portion of the excess auction funds are paid as additional premiums to the exhibitors, while the remaining funds support the Rodeo's Educational Fund to be used for scholarships and grants.

In turn, these scholarships provide thousands of Texas students with financial aid that enables them to pursue their dreams and establish careers free from university debt. "As I often tell our volunteers, we can easily quantify the total number of scholar-

ships and dollar amounts that have been awarded," said Joel Cowley '95, president and CEO of the Houston Livestock Show and Rodeo. "But it is impossible to quantify the impact. Whether we're supporting a first-generation college student or someone who can obtain a degree without working multiple jobs to make ends meet, there's no doubt that we're supporting amazing individuals who will change the world. The impact of even one scholarship is absolutely immeasurable." ©

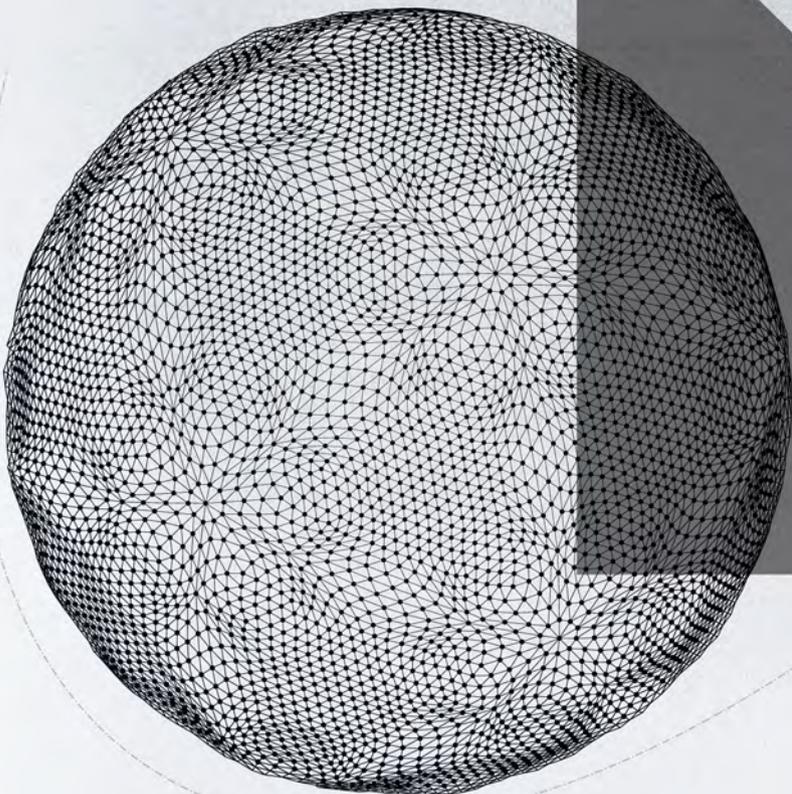
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BY BAILEY PAYNE '19

shoot for the



Former NASA flight director Gerry Griffin '56 recounts his role in taking mankind to the stars.





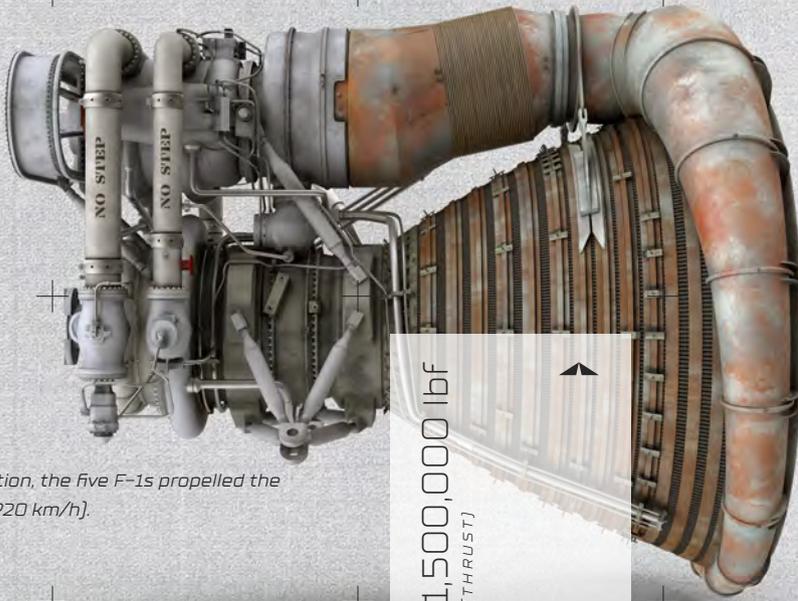
SA-1 was the first flight of the Saturn I heavy launch vehicle, the first in the Saturn Family and the first mission of the Apollo space program. The rocket flew a 215-mile suborbital trajectory into the Atlantic after launching on October 27, 1961, from Launch Complex 34 at Cape Canaveral, Florida. The 162-foot-tall rocket measured three times taller, required six times more fuel and produced 10 times more thrust than the Jupiter-C rocket that had launched the first American satellite, Explorer 1, into orbit in 1958.



Less than two minutes into his

first mission as lead flight director at NASA, Gerry Griffin '56 was forced to consider aborting mission. It was an overcast day at Kennedy Space Center on Merritt Island, Florida, on November 13, 1969, and Apollo 12—mankind's second endeavor to the moon—was underway. The Saturn V rocket had successfully lifted off in full view of President Richard Nixon, a crowd of onlookers and national television cameras.

Exactly 36.5 seconds after launch, crewmen on board noticed a bright flash outside. Their warning panel lit up like Times Square. Unbeknownst to the crewmen and mission control, lightning had struck the rocket. Three electrical power-producing fuel cells went offline immediately, and the flight controllers' computer displays turned to gibberish. Griffin and his men needed to act soon and decisively to avoid aborting the mission and halting the space program in its tracks.



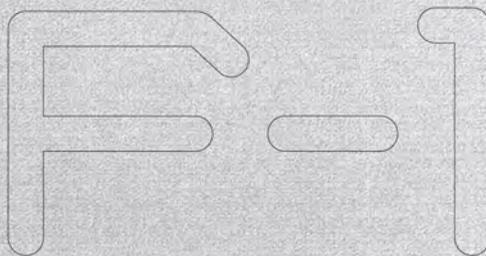
During their two and a half minutes of operation, the five F-1s propelled the Saturn V vehicle to a speed of 6,164 mph (9,920 km/h).

1,500,000 lbf
(THRUST)

The F-1 is a gas-generator cycle rocket engine that was developed for use in the Saturn V rocket. Five F-1 engines were used to power the first stage of each Saturn V, which served as the primary launch vehicle of the Apollo program. The F-1 remains the most powerful single combustion chamber liquid-propellant rocket engine ever developed.



Apollo 14 was the eighth manned mission in the Apollo program and the third to land on the moon. Beginning with Apollo 13, the second stage of the Saturn V rockets were deliberately crashed into the moon's surface to record the impact by seismic monitors left on the lunar surface by previous flight crews. Facing the camera, flight director Gerry Griffin '56 discusses the readings with Gene Kranz [right], chief of the MSC Flight Control Division.



SMOKING





Griffin turned to John Aaron, his electrical, environmental and communications specialist, to make the split-second call. Aaron's suggestion was unfamiliar: "Tell him to flip SCE [Signal Conditioning Equipment] to auxiliary," Griffin recalls Aaron saying.

"That's exactly what he said: 'try,'" Griffin said. Aaron wasn't sure if flipping the switch would fix the problem, but it was his only idea based on something he'd seen months before during a ground test. "Through hours and hours of simulations with guys throwing failures at us and seeing how we handled them, we never touched the SCE switch," Griffin said.

Regardless, Griffin trusted his controllers and told the capsule communicator to relay the information to the Apollo 12 crewmen. After some confusion from astronaut Pete Conrad, fellow astronaut Alan Bean found the switch among hundreds of identical others.

The gamble paid off. As soon as Bean flipped the mystery switch, mission control received the correct data, allowing flight controllers to quickly resolve the problem and avert disaster. Griffin's team barely had time to let out a sigh of relief before they were focused and back to work. It was just another day at the office.

STAR GAZING

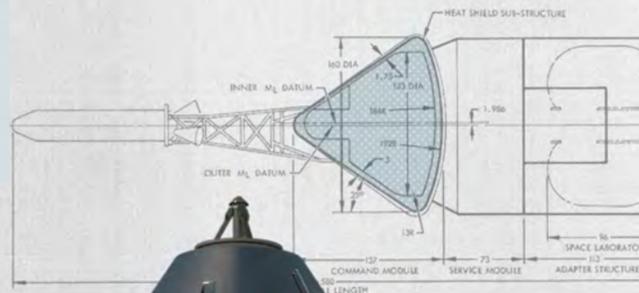
Griffin knew he wanted to serve his country from an early age. At 16, he was an Eagle Scout in the Junior Reserve Officer Training Corps. Upon graduating from high school in Fort Worth, he enrolled at Texas A&M, then named the Agricultural & Mechanical College of Texas. "I wanted to be in the Corps of Cadets," he said, "and that was one of the key reasons I was attracted to the school. I liked the military, and I wanted to pursue a career in aviation."

As he began his studies in 1952, a bigger conflict loomed over College Station and indeed the world. "We were in the middle of the Korean War," he said. "When it ended, everybody shifted focus to the Soviets, and that's when the specter of the Cold War really kicked into gear."

In 1957, the Soviet Union launched Sputnik, the first man-made satellite to orbit the Earth. The launch rocked the American public's perception of the U.S. as an undisputed technological superpower. "That little 184-pound

◀ **Project LOLA (Lunar Orbit and Landing Approach) was a simulator built in 1961 at Langley Air Force Base in Virginia to study problems related to landing on the lunar surface. It was a complex project that provided pilots with a detailed visual encounter with the lunar surface. The machine consisted of a pilot perched on a gantry, peeking out the cockpit at a closed-circuit TV system that tracked along four large-scale, detailed lunar models representing portions of the lunar surface as seen from various altitudes. Not long after the end of Apollo, the expensive machine was dismantled.**

(LAUNCH MASS)
32,390 lbs



The Apollo Command and Service Module (CSM) was one of two principal components of the Apollo spacecraft. The CSM served as the mothership that carried a crew of three astronauts and the second Apollo spacecraft, the Lunar Module, to lunar orbit and back to Earth. It was comprised of two parts: the Conical Command Module, a cabin that housed the crew and carried equipment needed for atmospheric re-entry and splashdown; and the Cylindrical Service Module, which provided propulsion, electrical power and storage for a variety of consumables required during a mission.



◀ Apollo 13, NASA's third manned mission to the moon, launched on April 11, 1970. Two days into the mission, an electrical system flaw in one of the Service Module's oxygen tanks produced an explosion that caused both tanks to fail and led to a loss of electrical power. Griffin was scheduled to lead the lunar landing team. When the landing was canceled after the explosion, he led one of the teams of flight controllers responsible for the safe return of the astronauts.



ball going around saying, 'beep, beep, beep' shocked the United States," Griffin said. "I knew deep-down, right then that I was going into the space business."

ROCKET MAN

In the summer of 1964, he and his wife Sandy moved to Houston, where Griffin began his storied career at NASA. He joined hundreds of other engineers and scientists in conducting the Apollo program, an iconic series of missions with the primary goal of achieving the safe passage of men to the moon and back, with subsequent missions further exploring the lunar surface. During the next eight years, Griffin was a flight director on every manned Apollo mission and was lead flight director on three lunar explorations: Apollo 12, 15 and 17. After the Apollo missions, he took on executive positions at NASA (including, eventually, the director of Johnson Space Center), but he maintains that the best place he's ever worked was the control room, a smoky, fluorescent-lit space that sent national heroes to places no man had ever been.

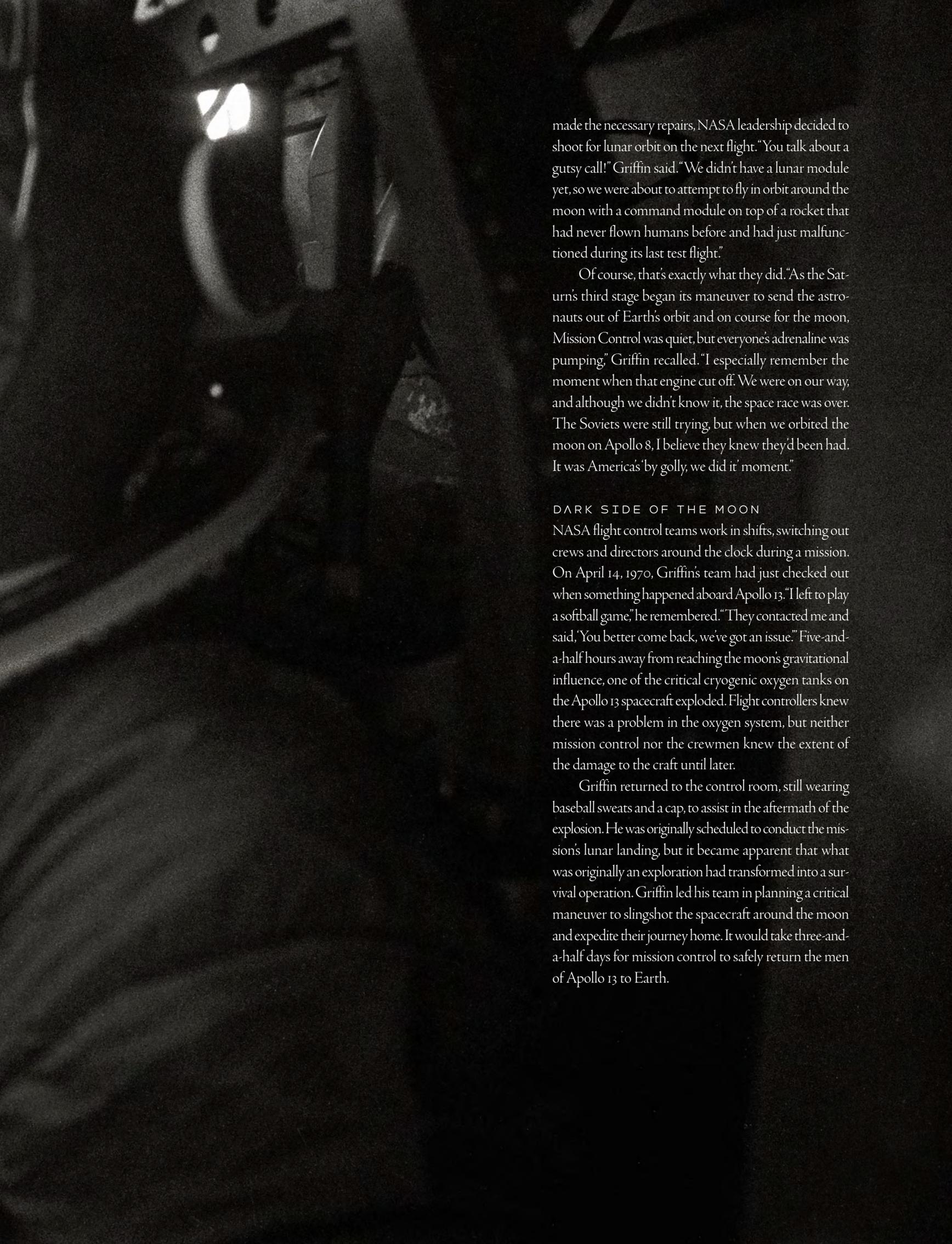
"The control room was fun," Griffin said. "We were all very young; I was one of the older guys and I was in my mid-30s. In pictures back then, you see us looking serious, but it was a hoot. It was an environment filled with people who weren't afraid to make decisions."

In the decade after the Sputnik launch, NASA built a program capable of manned orbit and extravehicular activity ("spacewalking") while remaining hyperaware of their principal challenge from President John F. Kennedy: getting an American to the moon and back. Griffin took a primary role in meeting the challenge during Apollo 11. However, in his eyes, the lunar mission that preceded it, Apollo 8, stands out more. In the fall of 1968, NASA scientists were steadily overtaking the Soviets in the space race but still hadn't left Earth's orbit, a bridge they would need to cross to reach the moon. Apollo 8 set out to send its crew out of Earth's orbit, 238,900 miles across space, into orbit around the moon (without landing) and back to prove they could perform the journey.

On the last test flight before Apollo 8, the Saturn V rocket trusted to complete the mission sustained a serious failure during launch. After engineers at the NASA Marshall Space Flight Center in Huntsville, Alabama,



▲
Apollo 8 was the second manned spaceflight mission flown in the Apollo space program and the first mission to take humans to the moon. An important prelude to landing on the moon was testing the flight trajectory and operations for getting there and back. The crew—William Anders, James Lovell and Frank Borman (left to right)—achieved this and many other firsts after launching on Dec. 21, 1968. During that historic mission, Americans sat spellbound on Christmas Eve watching a live broadcast as the astronauts flew the first lunar orbital mission around the moon and witnessed historic, never-before-seen images of an Earthrise over the lunar surface.



made the necessary repairs, NASA leadership decided to shoot for lunar orbit on the next flight. "You talk about a gutsy call!" Griffin said. "We didn't have a lunar module yet, so we were about to attempt to fly in orbit around the moon with a command module on top of a rocket that had never flown humans before and had just malfunctioned during its last test flight."

Of course, that's exactly what they did. "As the Saturn's third stage began its maneuver to send the astronauts out of Earth's orbit and on course for the moon, Mission Control was quiet, but everyone's adrenaline was pumping," Griffin recalled. "I especially remember the moment when that engine cut off. We were on our way, and although we didn't know it, the space race was over. The Soviets were still trying, but when we orbited the moon on Apollo 8, I believe they knew they'd been had. It was America's 'by golly, we did it' moment."

DARK SIDE OF THE MOON

NASA flight control teams work in shifts, switching out crews and directors around the clock during a mission. On April 14, 1970, Griffin's team had just checked out when something happened aboard Apollo 13. "I left to play a softball game," he remembered. "They contacted me and said, 'You better come back, we've got an issue.'" Five-and-a-half hours away from reaching the moon's gravitational influence, one of the critical cryogenic oxygen tanks on the Apollo 13 spacecraft exploded. Flight controllers knew there was a problem in the oxygen system, but neither mission control nor the crewmen knew the extent of the damage to the craft until later.

Griffin returned to the control room, still wearing baseball sweats and a cap, to assist in the aftermath of the explosion. He was originally scheduled to conduct the mission's lunar landing, but it became apparent that what was originally an exploration had transformed into a survival operation. Griffin led his team in planning a critical maneuver to slingshot the spacecraft around the moon and expedite their journey home. It would take three-and-a-half days for mission control to safely return the men of Apollo 13 to Earth.

Years later, when Griffin and other flight controllers were invited to the Johnson Space Center to meet with director Ron Howard and actor Tom Hanks about making a film based on the troubled mission, Howard showed astonishment at the men's resolve. "Ron kept asking us, 'Were you scared? Were you afraid you wouldn't get them back?' We said, 'No, we never talked about it. You put your head down and made it happen,'" said Griffin.

When Apollo 13 re-entered the atmosphere, the control room exploded in applause. In a now-famous image (right), Griffin is depicted clenching an unlit cigar in his mouth and holding a book of matches in his left hand, his right hand bearing an outstretched thumb and his gold Aggie ring pointed proudly toward the sky.

ACROSS THE UNIVERSE

Griffin recently donated that Aggie ring to be displayed in the renovated and expanded Zachry Engineering Education Complex on Texas A&M's campus. During Apollo 12, the ring was carried to the moon by the astronauts as a favor to Griffin. It is the only Aggie ring that has traveled to the moon (so far). The text above the display asks a daring question: "Where will your Aggie ring take you?"

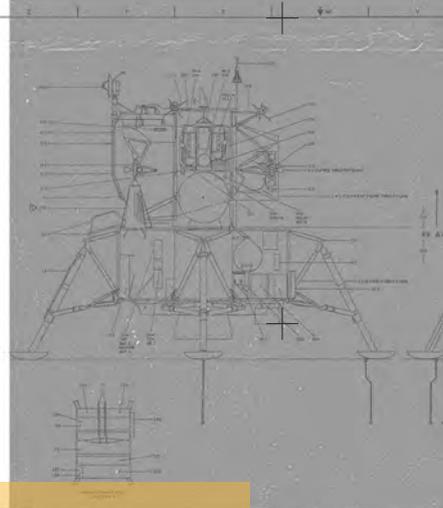
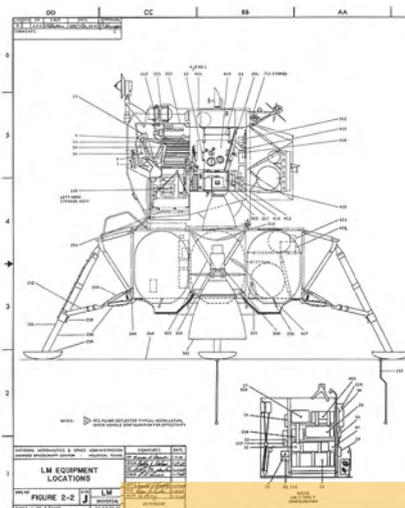
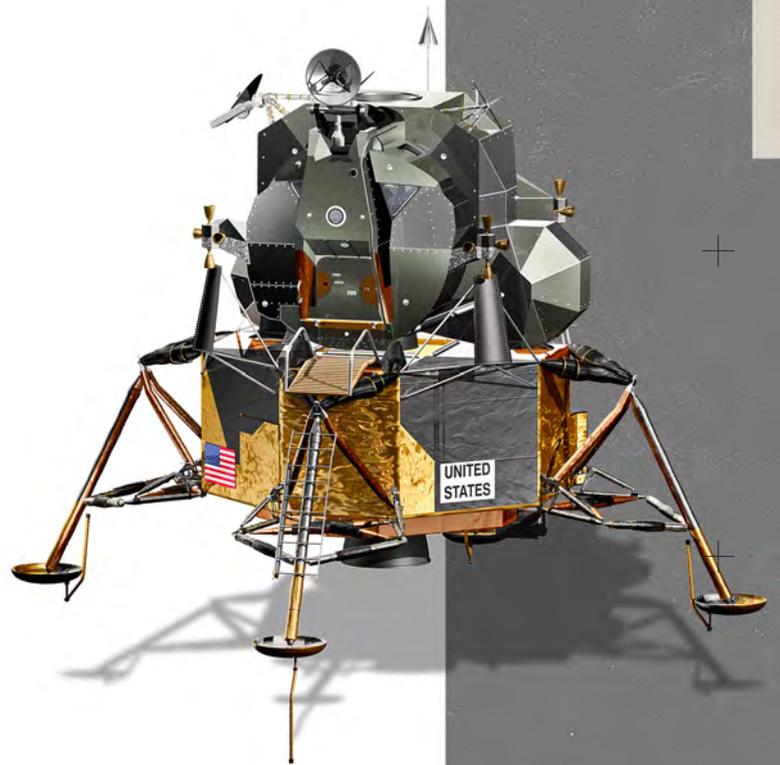
Griffin often thinks about where that ring took him and remembers the enthusiastic young cadet who arrived on campus still eager to earn it. "My advice to Fish Griffin would have been to prepare himself, watch out for opportunities and go for it," he said. "Texas A&M gave me the foundation for what I needed when the space program came along.

"I didn't know what an orbit was, how you made a maneuver to go to the moon and back, or how you landed on the moon, but I felt confident I could figure it out. That, to me, is the secret of Texas A&M: It prepares people to do what has never been done before." ©

TO SUPPORT TEXAS A&M AEROSPACE ENGINEERING STUDENTS, CONTACT:

STEPHANIE LAMPE '06
 ASSISTANT DIRECTOR OF DEVELOPMENT
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 SLAMPE@TXAMFOUNDATION.COM

The Apollo Lunar Module (LM) was the spacecraft that was flown to and landed on the moon. The LM, consisting of a descent and ascent stage, was ferried from the Earth to the moon fixed to the Apollo Command Service Module (CSM). At launch, the lunar module sat directly beneath the CSM with legs folded.



33,500 lbs
 [LAUNCH MASS]



The Lunar Roving Vehicle (LRV) was a battery-powered, four-wheeled vehicle designed to operate in the low-gravity vacuum of the moon. It allowed the Apollo astronauts to traverse the lunar surface and extend the range of their extravehicular activities. It was used during the last three Apollo missions (15, 16 and 17, pictured) during 1971 and 1972.



Lunar Reveille

On December 13, 1971, the seventh day of Apollo 17, Griffin woke the astronauts on the lunar surface to the tune of the Aggie War Hymn as performed by the Singing Cadets. Astronaut and Purdue graduate Eugene Cernan was less than receptive.

[War Hymn plays]

Eugene Cernan: I want you to say it first.

[pause]

Mission Control: Hello there, Challenger. The Gold Team Flight Director [Griffin] picked out the morning's selection, and he said that if you can find some maroon dirt today instead of orange, you'll probably get a lot more cooperation out of him. [The astronauts had found some orange lunar soil the day before.]

Cernan: I figured the Gold Team might do that. You know, I've woke up to a lot of pleasant thoughts, but never to an Aggie before.

Griffin remembers having some difficulty acquiring a recording of the War Hymn to give to NASA's communication team. "It wasn't like you could look it up on your cell phone and send an .mp3," he said. "We had to find a reel-to-reel recording."



Gathering at the Grove

Remembering Aggieland's original outdoor venue.

BY MORGAN KNOBLOCH '20

From its construction in 1942 through the 1970s, the Grove was the place to be on summer nights in Aggieland. Before the late 1980s, the amphitheater—nestled between a group of oak trees where Cain Garage presently sits—was a campus mecca for Aggies to watch movies, attend concerts, have a date, or play a pick-up game of basketball or baseball.

Known as the “concrete slab at A&M College” after its initial construction, by 1945 the Grove offered students and community members a different activity each night of the week. Mondays were designated for dancing and roller skating. On Tuesdays and Thursdays, people could catch the latest movie. Wednesdays were

reserved for special entertainers. Fridays and Saturdays hosted live music for dancing, and by the time Sunday rolled around, Grove-goers were skating once again as their favorite tunes played in the background.

By 1949, the Grove's popularity had grown so much that the university decided to double the size of its dance floor and add a band shell for performances. On the cinder block stage, Aggies saw the likes of Bear Bryant and entertainers such as Bob Hope. During the 1940s and '50s, the 12th Man packed the amphitheater for Yell Practices until they moved to Kyle Field in 1960.

Sven Knudson '78, a student manager at the Grove, recalled playing an eclectic mix of films at the venue. “I remember that 1976 was the first year we charged people who came to the shows,” he said. “I think the cost was about a quarter or so, and we played all kinds of films, from old classics and comedies to science fic-

tion and recent movies.” Screenings of “The Rocky Horror Picture Show” were particularly popular over the years.

In addition to the persistent smell of popcorn and bubbling sound of soda, Knudson also remembers struggling to keep track of the Grove's iconic green benches. “People would take the benches home, and the employees were charged with finding them,” he laughed. “It was mostly a fun joke, but it got a little old.”

By the late 1980s, activities held at the Grove slowed down as many campus events moved elsewhere, and the venue was finally torn down in 2003. However, plans to re-create the Grove in The Gardens at Texas A&M on West Campus are in the works. “When I was a student, I remember gathering at the Grove for midnight movies and seeing other students play basketball or skate on the grounds,” said Joseph Johnson '88, manager of The Gardens. “As Aggieland's original outdoor venue, the Grove was a celebrated Aggie

hangout. We are eager to bring the Grove's tradition as a place for fun and community to future construction phases of The Gardens.”

The planned design for the new Grove features seating and a stage for films and performances. Surrounded by trees and offering a place to gather for all kinds of celebrations and social events, the new Grove will uphold its namesake and carry on the legacy of the old Aggie stomping ground. ©

Share your memories of the Grove with us at info@txamfoundation.com.

TO SUPPORT CONSTRUCTION OF THE NEW GROVE AT THE GARDENS, CONTACT:

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Texas A&M Head Football Coach Ray George (1951 to 1953) speaks to the Aggie student body at The Grove.

Preparing Texas Teachers

How the aggieTEACH program is helping fill the need for quality math and science teachers in Texas and the nation.

BY MOLLY KULPA '15

Growing up, Texas Railroad Commissioner Ryan Sitton '97 watched his parents inspire young people to unlock the mysteries of the universe through science education. Although they're now retired, Jim and Betty Sitton taught science subjects to thousands of students for a combined total of 82 years.

Not only were they exceptional educators and mentors, but they were also deeply passionate about their subject matter. "My father holds bachelor's and master's degrees

in physics while my mother holds bachelor's and master's degrees in chemistry, so they knew their stuff," Ryan said. "Many of their former students have shared how inspired they were in their classrooms."

To honor his parents' teaching legacy, Ryan and his wife Jennifer '97 established the Jim and Betty Sitton Award for Aggie Science Teachers to support Texas A&M undergraduates engaged in the aggieTEACH program.

Mary Kate Wilkin '19 is a recipient of one of the Sittons' aggieTEACH awards. She will graduate this year with a certification to teach science in grades seven through 12.



“You simply cannot downplay the contribution to society that teachers offer.”

—RYAN SITTON '97, TEXAS RAILROAD COMMISSIONER



Bolstering the Education Pipeline

The aggieTEACH program began in 2001 as a collaboration between the College of Science and the College of Education and Human Development to meet the rising demand for highly-qualified secondary mathematics and science teachers in Texas and across the nation. Through this unique program, students can obtain a Texas Secondary Teaching Certificate in math or science while earning a bachelor's degree in their STEM-field major.

“Many future teachers are currently pursuing STEM majors,” said Dr. Timothy Scott '89, Texas A&M assistant provost for academic affairs and professor of biology and science education policy. “We must do everything possible to fit teaching courses into their schedules along with their discipline's coursework to ensure timely graduation, excellent preparation and the support needed to retain them in the classroom.”

Since its inception, aggieTEACH has produced more than 400 mathematics and science teachers certified to teach in Texas high schools—a significant number given that Texas is experiencing a shortage of people entering the teaching profession.

Dr. Jennifer Whitfield '00, director of aggieTEACH, notes that even though the program is housed within the College of Science, many of the 80 to 90 students served annually are enrolled in the colleges of geosciences, engineering, agriculture and veterinary medicine. Students participate in preparatory services, including seminars and hearing from guest speakers, and have regular advising appointments. The mentoring support provided by aggieTEACH is critical because the attrition rate of middle and high school STEM teachers is high.

“Fortunately, aggieTEACH teachers are committed—approximately 88 percent of our graduates who enter the teaching profession stay in the profession,” Dr. Whitfield noted. “This is higher than national rates, and we attribute our retention success to the work we do in helping our graduates transition into the profession.”

After graduating, aggieTEACH students are connected with regional coaches—retired teachers and others who stepped out of the profession for personal reasons, but who are still invested in education. Located in the Houston, Dallas and San Antonio areas, these coaches offer aggieTEACH graduates insight and support during their first five years of teaching.

A Ripple Effect

A key way to attract STEM majors to the aggieTEACH program is to make the teacher certification process an affordable and attractive option. Several aggieTEACH scholarship opportunities exist, like the award created by the Sittons, but additional funding is needed. Scholarships for students enrolled in aggieTEACH can be established with a \$25,000 endowed gift, payable over a five-year period.

“My parents made a huge impact during their careers,” Ryan said. “You simply cannot downplay the contribution to society that teachers offer; it is immeasurable.”

Mary Kate Wilkin '19, a chemistry major from Flower Mound, Texas, currently receives support from one of the Sittons' aggieTEACH awards. “I wanted to become a teacher from a young age,” she said. “When I was little, my aunt even gave me an overhead projector and her old lesson plan books so I could play pretend!”

When Wilkin graduates this year, she will have a science composite certification that will allow her to teach biology, physics, chemistry and any other science in grades seven through 12. “The Sittons are serious about producing quality teachers in the STEM fields, and I appreciate that,” Wilkin said. “They recognize the sacrifices made by someone who pursues teaching, and they took action to support future STEM teachers through aggieTEACH.”

The couple hopes their aggieTEACH gift will inspire a ripple effect: First, it will influence a future STEM teacher, like Wilkin, by aiding in their education and preparation. Then, that teacher can use their experiences in aggieTEACH to pass on a passion for STEM to their students. And one day, those students may grow up to contribute amazing things to society through the study of science. ©

To invest in aggieTEACH is to invest in the future of education. The need for quality STEM teaching is at an all-time high, and the only way to increase the number and quality of STEM teachers is to provide rigorous and motivational programs. Offering aggieTEACH students financial aid, summer internships with STEM companies, and support from their aggieTEACH peers and mentors are all ways to support the next generation of STEM educators.

TO LEARN MORE, CONTACT:

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Give online at give.am/aggieTEACH.

Future Focused

Showcasing the impact of planned gifts during the *Lead by Example* campaign.

During the last seven years of the university's \$4 billion *Lead by Example* campaign, the Texas A&M Foundation has received 999 planned gifts totaling more than \$830 million. Each of these gifts, which range from the relatively straightforward bequest to the more advanced charitable remainder trust, is unique to the donor and, importantly, suited to their specific financial needs and personal interests.

Simply put, the impact of planned gifts to the campaign—and to Texas A&M's future—cannot be understated. The current campaign total stands at \$3.42 billion as of March 1, 2019, with planned gifts accounting for 24 percent of that total. By committing planned gifts, donors are creating ways to provide for loved ones, receive tax benefits, generate potential retirement income and support Texas A&M, all at the same time.

These seven donor testimonials and the accompanying information are intended to showcase the power of planned giving along with the many ways you can give after-lifetime gifts. As you read the following stories, the message that we hope resonates is that gift planning is an easy and deeply rewarding way to act on the part of Texas A&M that is part of you. You can direct your generosity with a sense of joy and achievement, secure in the knowledge that generations of Aggies will benefit and that your generosity will last forever. You can use your gift to sustain certain programs or facilities, establish endowments or launch major new initiatives.

2012 Millers' Gift Benefits Petroleum Engineering

GIFT TYPE: LIFE INSURANCE

METHOD: DESIGNATE THE FOUNDATION AS OWNER AND BENEFICIARY OF A NEW OR EXISTING LIFE INSURANCE POLICY.

BENEFITS: SUPPORT TEXAS A&M WITHOUT USING TODAY'S DOLLARS.

For Marilyn and Steve Miller '79, a gift of life insurance provided a simple method to give back to Texas A&M. The couple bought a new life insurance policy at a fraction of the cost of its future \$1 million payout and named the Texas A&M Foundation as owner and beneficiary, laying the groundwork for an endowment that will be created after their lifetimes.

"We want to help students who are hard-working and deserving," Steve said. Their en-

dowment will support educational programs within the petroleum engineering department and establish a memorial scholarship for petroleum majors to honor Steve's mentor: the late William D. Von Gonten, former petroleum engineering department head. During his undergraduate years, while struggling academically, Von Gonten encouraged Steve. "He told me to buckle down, apply myself and live up to my potential," Steve said. "My grades weren't great, but he believed I could do better. And I did!

"If gifts like these are appropriate for your budget, it's a unique and easy way to give back," he added. "We hope the gift provides support and encouragement for students down the road."



2013 “Aggie Bob” Gives Back to the Corps of Cadets

GIFT TYPE: CHARITABLE GIFT ANNUITY

METHOD: MAKE A GIFT OF CASH OR SECURITIES AND RECEIVE A FIXED ANNUAL PAYMENT IN RETURN.

BENEFITS: RECEIVE FIXED PAYMENTS FOR LIFE AND AN IMMEDIATE CHARITABLE DEDUCTION; A PORTION OF YOUR PAYMENTS WILL BE TAX-FREE.

After graduating from Texas A&M University, the late Bob English '46 started a business selling car batteries before eventually transitioning into automotive paints. When his business encountered trouble during the 1970s, he began offering \$1 to any customer who could share a new Aggie joke as a way to attract folks to the store. The ploy earned him the nickname “Aggie Bob,” which stuck with him until his passing in 2011.

English Color and Supply Inc. eventually expanded to 39 locations and provided Bob and his late wife Marijo with a way to give

back to Texas A&M. The couple had already supported programs through scholarships and other gifts but decided to make a planned gift to expand their impact further.

In 2006, they created a charitable gift annuity to support the Corps of Cadets, an organization that deeply impacted Bob's life. Since Marijo passed away in 2012, their gift has created several Corps of Cadets 21st Century Scholarships, which are reserved for cadets who demonstrate outstanding leadership skills. Nick Farrell '22, a current recipient and engineering major, said, “This scholarship allows me to worry less about finding ways to pay for college and gives me more time to develop as a student and give back to the community.”

A charitable gift annuity is ideal for individuals looking for a secure source of fixed payments both now and into the future. In



exchange for cash or publicly traded securities, the Texas A&M Foundation agrees to pay one or two designated people a fixed amount annually for life. When the gift annuity terminates, the Foundation uses the remainder for the purposes designated by the donor.

Honorary Aggie Salutes Aerospace Engineer Husband 2014

GIFT TYPE: INDIVIDUAL RETIREMENT ACCOUNT (IRA) BENEFICIARY DESIGNATION GIFT

METHOD: DESIGNATE THE FOUNDATION AS BENEFICIARY OF YOUR RETIREMENT ACCOUNT.

BENEFITS: CONTINUE TO USE YOUR ACCOUNT; GIFT IS REVOCABLE.



Elizabeth Bradford didn't receive a degree from Texas A&M University, but she's as devoted to the school as anyone. “I've been around Aggies all my life, and I firmly believe Texas A&M is the most wonderful place in the world,” she said.

Bradford grew up 78 miles from Aggie-land in Temple, Texas, where in the early 1960s, she attended Aggie football games and Bonfire with friends. She continued her involvement with the university after marrying her husband, Lewis Bradford, and gained a deep appreciation for the school's culture.

Lewis earned aerospace engineering degrees at Abilene Christian University and

Pepperdine University, but upon his passing, Elizabeth felt it was most appropriate to give to Texas A&M in his name. “We always felt this school stood for so much and achieved so much good,” Bradford said. “Plus, its aerospace program is one of the nation's best.”

In 2014, Bradford created an IRA beneficiary designation gift to establish an aerospace engineering scholarship. She can continue to use her account while knowing that after her lifetime, her gift will give back to the university that has inspired her throughout her life.

2015 Family Inheritance Creates Aggie Legacy

GIFT TYPE: CHARITABLE REMAINDER UNITRUST

METHOD: FUND A TRUST USING CASH OR APPRECIATED PROPERTY.

BENEFITS: RECEIVE PAYMENTS FOR LIFE OR A TERM OF YEARS AND CAPITAL GAINS TAX DEDUCTIONS.

Upon inheriting his family's ranch, Mack Skinner '79 had to make a choice. Though he treasured memories of hunting, fishing and ranching on the old property in Abilene, he knew improvements to the land would involve significant time and costs. After discussing the decision with family, Mack and his wife Debbie '79 created a charitable remainder unitrust so that proceeds from the sale of the land could support future Aggies.

"This gift allowed us to get the most value out of the land while preserving its legacy," Skinner said. "We're keeping our family legacy alive through the scholarships our gift will create for future students and

the payments it will provide for my family, even through my daughter's lifetime."

A charitable remainder unitrust can be funded with real estate, stock or cash. Once established, the trust provides its owners and their designated beneficiaries payments for a specified term of years. After that period is over, the Foundation uses the remainder to fulfill the owner's intentions. In the Skinners' case, the gift will create scholarships for students in the College of Agriculture and Life Sciences as well as a high-impact learning endowment to support lectures, internships, study abroad and similar experiences for Aggies in the college.

"The gift planning officers at the Foundation were very helpful during this process," Skinner said. "Everyone has their own way of giving back, but we believe in education as the key to success and in Texas A&M's ability to provide success for students."



Couple Supports First-Generation Students, Lecture Series 2016

Though neither of them attended Texas A&M University, Jane and Jerry Kingsley consider themselves Aggies. After experiencing Aggieland through their daughters, Marlee '07 '14 and Tara '10, the Kingsleys decided to support future students by establishing a planned gift using their investment accounts.

The couple's gift will fund two Regents' Scholarships for first-generation college students and support the Memorial Student Center Wiley Lecture Series. "Regents' Scholarships help worthy individuals advance themselves without accruing crippling debt and can help low-income families break the cycle of poverty," Jerry said. "The Wiley Lecture Series benefits Texas A&M students and the Bryan-College Station community by exposing residents to influential speakers. Since we moved to Aggieland after retirement, we have enjoyed attending Wiley events and learning from thought-provoking topics on national and foreign policy issues."

GIFT TYPE: INVESTMENT ACCOUNTS

METHOD: NAME THE FOUNDATION AS BENEFICIARY OF YOUR INVESTMENT ACCOUNT.

BENEFITS: CONTROL ASSETS DURING YOUR LIFETIME; GIFT IS REVOCABLE.

To create a gift using investment accounts, the donor simply names the Texas A&M Foundation as beneficiary of the account(s) on the investment firm's transfer-on-death form. After the holder's lifetime, the funds are transferred to the Foundation and used to the donor's specification.

"Texas A&M gave our daughters a strong education, taught them how to be servant leaders and pushed them to be better people," Jane said. "Even though Jerry and I didn't attend Texas A&M, we're proud to support a university that promotes those values."

2017 Cushing Library Receives Boost for Texas History Collections

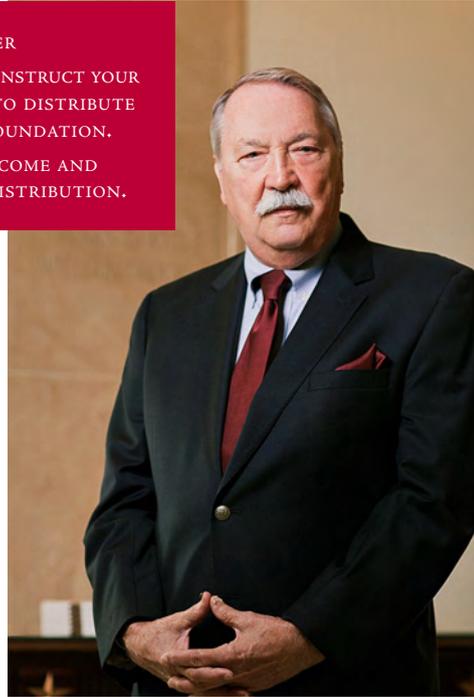
GIFT TYPE: IRA CHARITABLE ROLLOVER

METHOD: IF YOU ARE 70½ OR OLDER, INSTRUCT YOUR RETIREMENT ACCOUNT CUSTODIAN TO DISTRIBUTE UP TO \$100,000 PER YEAR TO THE FOUNDATION.

BENEFITS: REDUCE YOUR TAXABLE INCOME AND SATISFY YOUR REQUIRED MINIMUM DISTRIBUTION.

Ken Kellar '65 (right) has enjoyed a 15-year career at Corpus Christi Electric Company, a family-owned and operated business that—thanks to its success and reputation—has provided him and his wife Amanda many blessings over the years.

In the spirit of giving back, the Kellars set up an IRA charitable rollover to honor the family behind Corpus Christi Electric. Their gift supports the Chapman Texas History Endowment, which was established by the company's late former president Floyd Chapman and his wife Louise to support the



acquisition of Texas history materials for Cushing Memorial Library and Archives.

For individuals 70½ or older, an IRA charitable rollover can help lower the income and taxes from IRA withdrawals. Benefits include the ability to avoid taxes on transfers of up to \$100,000 from your IRA; satisfy your required minimum distribution for the year; reduce your taxable income, even if you do not itemize deductions; and make a gift that is not subject to the deduction limits on charitable gifts.

"Texas A&M gave me the skills to work and compete and reinforced in me the value of sharing my good fortune with others," Kellar said. "With the IRA rollover, gifts became tax neutral in our estate plan. Without the IRA rollover, future payments would have taxable consequences."



Kauths Back Stevenson Center 2018

GIFT TYPE: BEQUEST

METHOD: TRANSFER PROPERTY OR CASH TO AN INDIVIDUAL OR ORGANIZATION UNDER A WILL.

BENEFITS: CONTROL ASSETS DURING YOUR LIFETIME; GIFT IS REVOCABLE.

When Melissa and John Kauth '77 met with an attorney to discuss their wills, they struggled to decide how to settle their assets. They were given an insightful piece of advice that ultimately benefited the university and a cause they cherished: "Give to something you love."

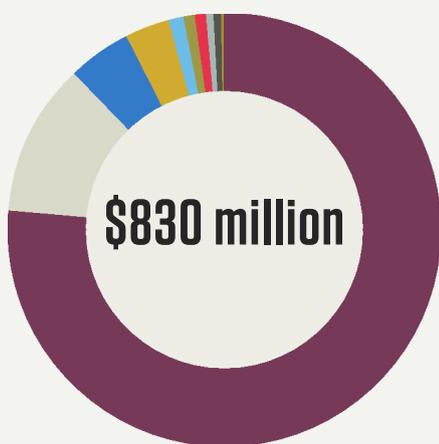
"We both adore dogs, and I immediately thought of Texas A&M and the Stevenson Companion Animal Life-Care Center," said Melissa. "The animals at the Stevenson Center are cared for with professional expertise and profound love." The Stevenson Center is a unique retirement home for pets whose owners can no longer care for them.

It also provides veterinary students with invaluable hands-on experience, but will need funding for expansions, upgrades and new equipment in the future.

A charitable bequest is one of the easiest ways to leave a lasting impact at Texas A&M. A bequest allows you to retain assets during your lifetime and lessen the burden of taxes on your family. Because the Kauths don't have children, they won't have a taxable estate. "Bequests have the potential for financial benefits," added John, "but our gift to the Stevenson Center benefits us emotionally."



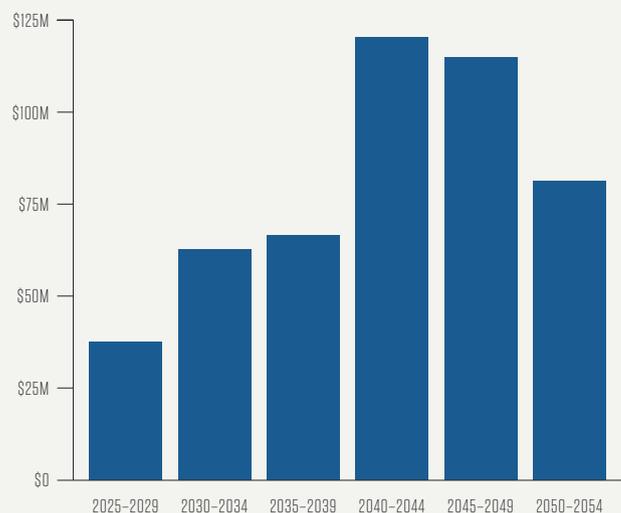
Planned Gift Breakdown by Type



- Bequest
- Beneficiary Gift of IRA/IRD/Investment Account
- Give It Twice Trusts
- Charitable Remainder Trust
- Revocable Charitable Remainder Trusts
- Life Estate
- Revocable Insurance
- Gift Annuity
- Irrevocable Life Insurance
- Lead Trust

Projected Funds from Realized Planned Gifts

(Funds for Texas A&M made from planned gifts during the *Lead by Example* campaign)



999 planned gifts totaling more than **\$830 million** during the *Lead by Example* campaign

Foundational Facts

of Planned Giving

Glenn Pittsford '72, vice president for gift planning, answers some frequently asked questions about planned gifts.

What is a planned gift?

"Forbes Magazine defines it as, 'the process of making a significant charitable gift during a donor's life or at death that is part of his or her financial or estate plan.' Planned giving combines what you have with who you love and want to support. Utilizing this method of giving, you can leverage the value of your estate to help the people, charities and organizations most important to you."

Is creating a planned gift difficult?

"Not at all! Simply request information from us to discuss possible estate gift plans that might be right for you. Visit our website at txamfoundation.com/plan to see an overview of the types of gifts available. As you narrow your choices for the type of planned gift you want to create, your advisers will ensure you are making the best decision for your personal and financial needs."

Who will benefit from making a planned gift?

"Planned gifts are beneficial on multiple levels. We believe that the givers greatly benefit, and family members often do as well, depending on the plan type utilized. Ultimately, Texas A&M University benefits from the endowment left by the givers."

Will I be recognized for my gift?

"Certainly! In fact, as a planned giving donor, we welcome you to become a Heritage Member of the A&M Legacy Society. As I tell people when we celebrate, 'You have a lifetime of respect and appreciation from the Foundation for your generosity.' We love to build lifetime relationships with our planned giving friends.

When your gift is in place, be sure to alert one of the Foundation's gift planning officers. It is important for us to have information on the intended gift, where it will be coming from and under what circumstances it is to be received. We also need to ensure that we know what you want the gift to be used for when received in the future."

If you're interested in making a planned gift, the Foundation's gift planning officers will partner with you to explore opportunities, articulate your goals and deliver the greatest benefits—to you, to loved ones and to the ultimate beneficiary of your generosity: Texas A&M. Contact the Office of Gift Planning at (800) 392-3310 or giftplanning@txamfoundation.com.

Leaders are made here.



Four ways to give. Four ways to lead.



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

aggienetwork.com



The Texas A&M Foundation builds a brighter future for Texas A&M University, one relationship at a time, by uniting generosity and vision to raise and manage endowed gifts.

txamfoundation.com



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

12thmanfoundation.com



The George H.W. Bush Presidential Library Foundation is dedicated to preserving the historic legacy of President George H.W. Bush by supporting education and scholarship programs.

bush41.org

LEAD *by* EXAMPLE

The Lead by Example campaign is a \$4 billion fundraising effort for Texas A&M University. | leadbyexample.tamu.edu

The Texas A&M University Libraries added a new crown jewel to its Floyd and Louise Chapman Texas and Borderlands Collection: a rare map of Texas created by the “Father of Texas,” Stephen F. Austin.

Produced in 1830, Stephen F. Austin’s *Map of Texas* is only one of perhaps 10 known to still exist. It has been described as “the first meaningful map of Texas” and represents one of the most important maps of the American West.

Texas A&M University System Chancellor John Sharp ’72 provided the lead gift for the \$335,000 map, while each of Texas A&M’s Regents also contributed to its acquisition: Chairman Charles Schwartz, Vice-Chairman Elaine Mendoza ’87 and members Phil Adams ’70, Robert Albritton ’71, Anthony Buzbee ’90, Morris Foster ’65, Tim Leach ’82, Bill Mahomes ’69 and Cliff Thomas ’72. Longtime University Libraries supporters Bonnie and Otway Denny ’71 also donated.

“Bonnie and I both wanted to support the acquisition because of the map’s tremendous historic and educational value,” said Otway, a member of the Texas A&M Foundation’s Board of Trustees. “This map will provide many engaging learning opportunities related to Texas history, cartography and printmaking for Aggie students and faculty researchers.”

It took Austin more than five years to compile and draw the map using surveys conducted around the state. Produced as part of a land-grant agreement with the Mexican government, it illustrates many early Texas settlements including Brazoria, Gonzales, Harrisburg, Matagorda, Victoria and Waco Village. Used as a marketing tool to entice people from the East Coast to travel west and settle in Texas, it was also the first map to accurately depict the state’s rivers, boundaries and waterways.

“As the first public university in Texas, we are proud to bring this significant piece

of our state’s history to campus,” said Board of Regents Chairman Charles Schwartz. “We’re honored to care for Stephen F. Austin’s 1830 *Map of Texas* for years to come. As a Texan who owns a parcel of land between the Brazos and Colorado Rivers, it is exciting for me to see the first depiction of my land as a part of a place called Texas.”

Austin’s *Map of Texas* will be housed and displayed in the Cushing Memorial Library and Archives. View the map online at give.am/AustinsMap. ©

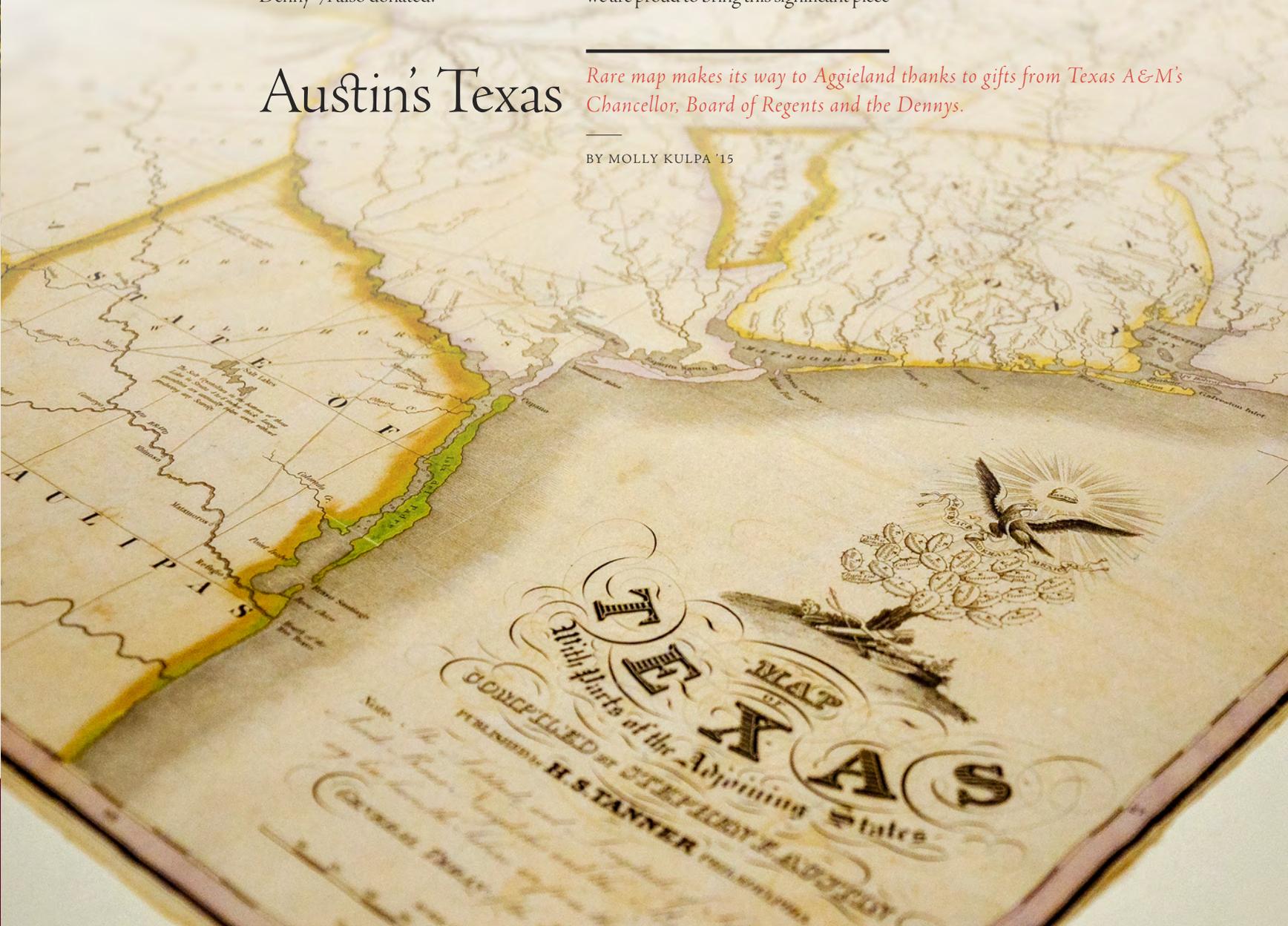
TO SUPPORT THE TEXAS A&M UNIVERSITY LIBRARIES, CONTACT:

ADELLE HEDLESTON ’88
DEVELOPMENT MANAGER
TEXAS A&M UNIVERSITY LIBRARIES
(800) 392-3310 OR (979) 862-4574
ADELLE-H@LIBRARY.TAMU.EDU

Austin’s Texas

Rare map makes its way to Aggieland thanks to gifts from Texas A&M’s Chancellor, Board of Regents and the Dennys.

BY MOLLY KULPA ’15



finalreview

It's been 125 years since the Texas A&M Singing Cadets started as an all-male glee club in 1893. Pictured here is the first known photo of the group, taken for the 1895 Olio yearbook. Today, the Singing Cadets are the most-performing collegiate chorus in the nation with more than 70 members who travel nationally and internationally to spread the Aggie Spirit through the gift of music. Notable concerts over the years have included singing for U.S.

presidents at the White House and performing at the Kennebunkport home of former President George H.W. Bush. The Singing Cadets have also performed in Carnegie Hall, at St. Paul's Cathedral in London, on various national news programs and in professional sporting venues.

Internationally known as "The Voice of Aggieland," the group can execute everything from revered classics and songs of the Old West to Aggie favorites and Broad-

way selections. They celebrated their 125th anniversary with a reunion concert this spring, in which more than 250 current and former members performed together.

To give to the Singing Cadets, visit give.am/125SingingCadetsLegEnd.

