



INSTITUTE REPORT

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Professors, Cadets Bring French to Children's Museum

By Ashlie Walter

Becoming more involved in the Lexington community was the goal of one professor and her students, which was made a reality through a partnership with the newly founded Discovery Heights Children's Museum.

For three weeks in February and March, assistant professor of modern languages Maj. Abbey Carrico and three of her cadets volunteered at the nonprofit museum to host a children's introduction to French class, kicking off the effort Feb. 16.

About 14 children, ages 4 to 8, attended that first class and learned beginner-level French phrases like "bonjour" and "s'il vous plait."

Carrico was inspired to offer the class after hearing about the new museum's art history class for children.



See Children's Museum, page 13

Professor of Modern Languages Maj. Abbey Carrico and Levi Harmon '18 immerse local kids in French culture Feb. 16 at the Discovery Heights Children's Museum in Lexington.—VMI Photo by Kelly Nye.

Firefighting Club Gives Back Cadets Answer Calls, Drive Trucks, Bolster Volunteer Base

By Mary Price

More than two dozen cadets are now members of the VMI Fire Club, an organization that was revived in 2015. But since there's very seldom a fire on post—thankfully—these cadets instead give back to the Rockbridge area community by volunteering with local fire departments.

This year, seven cadets are volunteering with the South River Volunteer Fire Department, while seven are with the Lexington Fire Department and six are with the Kerrs Creek Volunteer Fire Department. All have standing permits with the commandant's office to leave post for volunteer service. First Class cadets typically drive themselves to the fire stations, while underclass cadets get rides either with 1st Class cadets or with fire department members from the community.

One of the club's newer members, Elizabeth Jackson '20, is currently enrolled in Firefighter I and II classes at the South River VFD, and she's also spending Friday nights as part of the duty crew at the Lexington Fire Department. She's found that the extra time commitments off post are challenging to manage—yet well worth the strain.

"It's hard," she said of balancing school work and firefighter training. "I try to do most of my work on Mondays, Wednesdays, and Fridays so I don't have to worry about it on Tuesdays and Thursdays." The firefighting classes are held Tuesday and Thursday evenings, and also on Sundays.

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Header photo on page 1 by Kelly Nye

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King Named Keydet Club COO

By Scott Belliveau '83

Meade King '85 assumed the role of chief operating officer of the VMI Keydet Club Feb. 1, succeeding Gregory Cavallaro '84, who retired from the position after more than 17 years and will continue as a major gift officer for the Keydet Club.

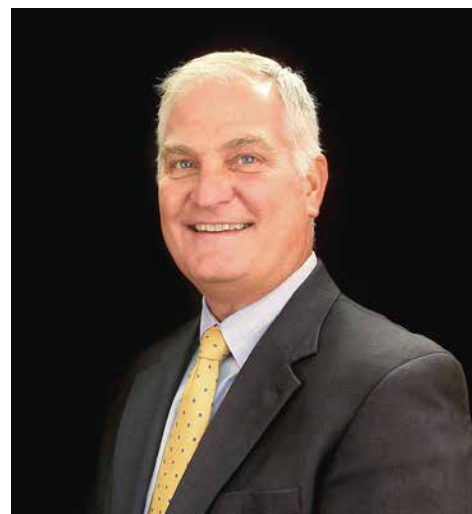
King's appointment comes at a time when more cadet-athletes are receiving scholarships through the VMI Keydet Club, thanks in no small part to the \$75 million that donors gave in support of athletics during the recently completed *An Uncommon Purpose* campaign.

According to the president of the VMI Keydet Club, U. "Buzz" Birzenieks '64, King was chosen for the position because of "his decades of experience and success in the field of development and his record as an innovative leader."

King joined the VMI Foundation as a major gifts officer in 2014, just as *An Uncommon Purpose* was about to kick off its public phase, and became the Foundation's senior major gifts officer last year when Warren J. "Buddy" Bryan '71 became its CEO in 2017.

King has clear goals in mind as he sets forth on his work.

"At VMI, scholarship support of our athletes opens the door for them to what is indisputably a profoundly transformative experience. Therefore, closing the gap between the scholarship funds we have to distribute and



Meade King '85

the amount we are allowed to distribute to athletes is job number one," said King. "To get there, the Keydet Club will continue to grow the endowments that support these scholarships and raise more in annual gifts."

Dave Diles, director of intercollegiate athletics, stated, "I'm tremendously excited to work with Meade and the Keydet Club team on our shared goal of meeting the resource requirements of competing in the Southern Conference."

Visit vmi.edu/keydet-club to learn more about how the Keydet Club supports NCAA cadet-athletes, coaches, and staff. ✪

Garth Newell Concert

The Garth Newell Piano Quartet performed in Gillis Theater March 7. The quartet, based at the Garth Newell Music Center in Warm Springs, consists of Teresa Ling playing violin, Evelyn Grau on viola, Isaac Melamed on cello, and Jeannette Fang on piano. The performance was hosted by the Department of English, Rhetoric, and Humanistic Studies.—VMI Photo by Kelly Nye.



Jackson's Desk Returns

By Kelly Nye

A mahogany secretary desk owned by Stonewall Jackson has returned to the Jackson House after a 155-year absence. On Feb. 20, Physical Plant's housing and waterproofing team moved the desk out of storage and into the Jackson House for display.

Most of the 155 years leading up to the desk's return can be accounted for. The desk comes with a letter of authenticity from Julia Jackson Christian Preston, Jackson's granddaughter.

After Jackson's death in 1863, Jackson's widow, Anna, took the desk with her to North Carolina where she lived until her death in 1915. Preston, who lived with her grandmother for many years, inherited the desk. In 1938 Preston moved from Charlotte, North Carolina, to Washington, D.C., and sold the desk to Ophelia Hartt of Charlotte.

Preston states in her letter written in 1948, "my grandmother often told me that said secretary belonged to her husband, General Stonewall Jackson, my grandfather, and had been used by him in their home in Lexington, Virginia, until the time of his death..."

The desk remained with Hartt until 1978 when it was given to the Lexington Presbyterian Church, where it was on display in their museum. In 2012 the church donated it to the Jackson House.

The desk now stands in Jackson's study once again, with other items of his including his diploma frame and inkwell. The authentic artifacts are mixed in with furniture from the time period that resemble what Jackson might have owned, as well as items owned by others living in Lexington at the time.

A recently added item to the study is a textbook owned by a cadet in Jackson's astronomy class. The book still contains notes and poems written by the cadet while in class, with phrases like, "I wish the major would leave me and Venus alone."

Grace Abele, site director for the Jackson House, explained that the timing of the move coincides with the closing of the museum while the Davidson-Tucker House is renovated to include a new orientation center and gift shop.

"The new space will add a larger exhibit area separate from the house and will permit us to display more artifacts owned by the Jacksons that have not always been able to be displayed," said Abele.

Abele hopes to bring more items out of storage from the Davidson-Tucker House once the construction is finished, including the wedding ring of Jackson's first wife, Ellie Junkin, which is inscribed with their initials.

The authenticity of the artifacts makes the Stonewall Jackson House a more viable historical experience. As Abele said, "It helps visitors connect a little more." 🌿

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Physical Plant crew members carry Jackson's disassembled desk into the Stonewall Jackson House Feb. 20.—VMI Photo by Kelly Nye.



Physical Plant crew members Andy Buchanan, Matt Cline, and Joe Fix finish assembling Jackson's desk in the study of the Stonewall Jackson House with site director Grace Abele on hand Feb. 20.—VMI Photo by Kelly Nye.

Cyber Fusion Explores Cybersecurity Challenges

By Ashlie Walter

Nearly 250 students and faculty members from colleges and universities across the state attended the second annual Commonwealth Cyber Fusion conference at VMI's Center for Leadership and Ethics, where students competed in the Virginia Cyber Cup Competition and learned from cybersecurity experts.

Nicholas Celfo '18, a computer science major, attended the conference held Feb. 23-24 for the "sheer amount of knowledge" available. "We are fortunate to have a couple events like this for cadets," he said.

Celfo was a member of the VMI team participating in a cyber competition during the conference. The competition was hosted by the Virginia Cyber Range. Students from each participating school answered a series of cybersecurity questions to progress in a "capture the flag" type race.

George Mason University won the Virginia Cyber Cup while Virginia Tech was second and Radford University third.

Participants had the chance to meet with potential employers during two job fair sessions and an industry challenge in which students tested their skill in dealing with real-world scenarios. Employers participating in the job fair engaged with students individually and had the chance to observe their collaborative efforts throughout the conference.

Keynote speaker Thomas Rid, a professor of strategic studies at Johns Hopkins University's School of Advanced International Studies, drew on a current cybersecurity issue that dominated the news last year.



Nicholas Celfo '18, Peter Boyle '19, and Brian Maguire '18 compete in the Cyber Cup Competition Feb 25 in Marshall Hall.—VMI Photo by H. Lockwood McLaughlin.

Rid detailed the "NotPetya" ransomware attack that, in his opinion, was the "most devastating and costly cyber attack." Just last month, the U.S. and U.K. took the step of attributing that cyber attack to Russia. The attack halted Ukrainian businesses for a day or more and impacted many other global businesses.

Rid said the malware attacked a tax software exclusive to Ukraine called McDock and from there it spread to global companies like Merck Pharmaceuticals.

"This is extraordinary. We had never seen anything like it. It was not just 10 percent of Ukraine; a large number of global companies were hit," he said.

In total, the cyber attack cost billions in damage with shipping giant Maersk estimating it could cost \$300 million to replace the hardware damaged by the attack. Rid emphasized the need to consider that Russia is "playing by a different set of rules," noting that the country is known for spreading disinformation on strategic, societal, and political levels.

"There's the question of driving wedges. These active measures are designed to exacerbate existing cracks in our political system. We have seen this in 2016 [with the election]. They drive wedges between different parties, like [Bernie] Sanders versus [Hillary] Clinton," he said.

Overall, the conference brought students and faculty from Virginia community colleges and universities that are designated National Centers of Academic



Brig. Gen. Jeffrey Smith '79 stands with students from George Mason University as they hoist the trophy for winning this year's Cyber Cup. The annual Commonwealth Cyber Fusion took place Feb. 24 and 25 in Marshall Hall.—VMI Photo by H. Lockwood McLaughlin.

Excellence in Cyber Security to the Center for Leadership and Ethics.

"The feedback from the students, faculty and corporate co-hosts has been overwhelmingly positive," said Maj. Kim Connolly, assistant director for programs and conferences at the Center for Leadership and Ethics. "People praised the planning and execution of the event and the opportunities for learning plus the potential for jobs and internships for the students through the job fair."

New this year, breakout sessions were hosted by experts representing tech corporations that participated in the job fair. The sessions covered such topics as the internet of things, artificial intelligence, forensics, and smart environments.

The event was co-hosted by Sen. Mark Warner and Gov. Ralph Northam '81 with the goal of fostering excellence in the next generation of cybersecurity professionals in the state. 🌿



Keynote speaker, Thomas Rid, professor of strategic studies at Johns Hopkins University, speaks to conference attendees Feb. 24 during the Cyber Fusion conference.—VMI Photo by Kelly Nye.

Trebuchet Launch

On Feb. 21, STEM cadets got the chance to see physics in action as they launched water jugs across the Parade Ground with a trebuchet. The trebuchet was built by former professor of civil engineering Grigg Mullen '76, and the lesson was taught by Col. Dean Kershaw '68 to his engineering fundamentals class. The launch allowed cadets some time to step away from the classroom and head outside to apply their engineering and physics knowledge to a live scenario.—VMI Photo by Kelly Nye.



Sowers Selected As Corps and Institute Sergeant Major

By Mary Price

Marine Corps Sgt. Maj. William Sowers has been named Institute and Corps Sergeant Major at Virginia Military Institute. Sowers, a 30-year veteran of the Marine Corps, will assume his new position in the fall 2018 semester.



Sgt. Maj. William Sowers speaks to fellow Marines at the Marine Corps Base Camp, Pendleton, California, on June 12, 2015.—Department of Defense File Photo by William Perkins.

As Institute and Corps Sergeant Major, Sowers will assume much of the day-to-day oversight of the Corps of Cadets. He will be responsible for administering the New Cadet Military Training program and overseeing cadet leaders, among other duties.

Sowers, 47, comes to VMI after having served as 1st Marine Division Sergeant Major at Camp Pendleton, California, a position he has held since 2015. He has served five combat tours: one in Operation Desert Shield/Desert Storm, one in Operation Iraqi Freedom, and three in Operation Enduring Freedom.

His awards include the meritorious service medal, the bronze star medal with combat distinguishing device and one gold star, the Navy and Marine Corps commendation medal with combat distinguishing device and two gold stars, the Navy and Marine Corps achievement medal with three gold stars, and the combat action ribbon with two gold stars.

Sowers is a graduate of Patrick County High School. He and his wife, Yolanda, have three children: Chandler, 20, Cameron, 18, and Carson, 16.

Sowers will take the position formerly held by Sgt. Maj. John Neel, who retired Feb. 1 after serving as sergeant major to the Corps for almost 17 years. 🇺🇸

ERHS Biology Colloquium

English, rhetoric and humanistic studies majors, along with biology majors, join together in Marshall Hall to discuss the ethics of euthanasia during a colloquium between the two departments March 5. Cadets and faculty members from the two departments mixed together to bring their perspectives to the moral dilemmas surrounding the topic.—*VMI Photos by H. Lockwood McLaughlin.*



Famed Theologian Discusses the Morality of War

By Ashlie Walter

Dr. Stanley Hauerwas' views on the morality of war hit close to home during his visit to VMI March 1-2, where he spoke to associate professor of international studies Lt. Col. Ryan Holston's Morality of War class and delivered a lecture in Jackson Memorial Hall.

Hauerwas, the Gilbert T. Rowe Professor of Theological Ethics at Duke Divinity School, visited the Institute as part of the Dean's Academic Speakers Program, in collaboration with Washington and Lee University.

Cadets in Holston's class had read Hauerwas' book *War and the American Difference: Theological Reflections on Violence and National Identity* earlier this semester.

Holston said he wanted to bring Hauerwas to VMI to introduce his students to the pacifist side of thinking when it comes to judging the morality of war.

Views on the morality of war are divided into several camps. On one side is realism, which posits that moral judgments are irrelevant when it comes to war. The other side, pacifism, holds that war is rarely justified. In between, you have the just war tradition, which claims some wars are justified and some not, depending on compliance with its moral principles.

Discussing the spectrum of views on the justification of war provided lively dialogue.

"I was so proud of the cadets in the questions they asked him—really probing for justifications for some pretty extreme positions he takes," said Holston. "They were unrelenting and so was he! It was what polite but rigorous political discourse should be."

In his lecture in Jackson Memorial Hall, Hauerwas explored the ethical question of whether any war can be morally justified.

"For Americans, war is necessary for our moral well being," he said, arguing that war has become a means for Americans to justify the sacrifice paid by those in previous wars.

He used the example of how both sides of the Civil War found purpose in their fighting.

"The war had become for both sides a ritual they had come to need for meaning in their lives, these dead should not die in vain," he said, adding that pastors on both sides of that war provided supporting arguments for why each side should be fighting.

In World War I, he argued, Americans sought to heal the divisions of the Civil War by creating one nation, together, in war. Southern identity was thus transformed into American identity as new sacrifices on the battlefield consecrated this new union.

Against those in the just war tradition, Hauerwas argues that Americans fight in wars not because they are just, but because of the "liturgical" import they have for our civil religion. He thus objects to those who see World War II as America's ideal of a just war. "Think about the dropping of nuclear

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Dr. Stanley Hauerwas speaks to cadets in Lt. Col. Ryan Holston's Morality of War class during his visit March 2.—VMI Photo by Kelly Nye.

weapons on Hiroshima and Nagasaki. That was clearly killing non-combatants directly," he said.

He went on to argue that the great sacrifice paid when soldiers are sent to war is not that those soldiers are killed. It is instead that soldiers give up their normal unwillingness to kill, sacrificing part of their humanity.

Hauerwas voiced a need for American Christians to adopt a stance of nonviolence.

"Christians no longer believe Christ's sacrifice is sufficient for the world. They confuse sacrifices of war with sacrifices of Christ," he said. ✠



Dr. Stanley Hauerwas delivers a lecture titled "Why War is a Moral Necessity for Americans" in Jackson Memorial Hall March 1.—VMI Photo by Maj. John Robertson IV.

Gifts Support Economics and Business Department

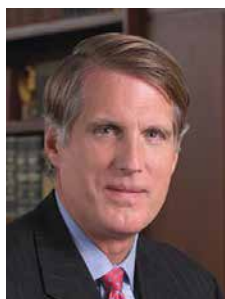
By Scott Belliveau '83

Nanette and Thomas Watjen '76 and David Miller '70 have made major gifts in support of the Department of Economics and Business faculty. Miller's gift will fund the Col. Alexander H. Morrison 1939 Institute Professorship in Economics and Business, and the Watjens' gift establishes the Nanette and Thomas Watjen 1976 Chair in Economics and Business. Both Miller and Thomas Watjen are members of the VMI Board of Visitors.

The gifts will recognize members of ECBU faculty who have strong records of achievement as teachers, researchers, and mentors and who have demonstrated an unwavering commitment to serving the Corps of Cadets and advancing the Institute.

For Miller, establishing this professorship is a way to pay respect to Morrison, a long-time professor and the first head of the ECBU department. "He was confident, but never arrogant," Miller said when asked to describe Morrison's qualities. "He was patient. He pushed every cadet to do his best in everything, not just academics. He was determined that the department and its cadets would be the best they could be. Above all, he was genuinely concerned about his cadets."

"In addition to developing military leadership, the Institute has a long history of developing business leadership," said Watjen, describing the reasons he and his wife made this particular gift. "The business world, though, is changing rapidly, and there is a significant need for leaders who can operate in this more fast-paced, complex



Thomas Watjen '76

world. Our commitment is designed to help assure VMI can attract and retain the best faculty possible to engage our cadets and prepare them for future leadership roles in business."

Col. Robert Morsechi, ECBU department head, praised Miller and Watjen for their generosity in support of the department's faculty.

"Col. Morrison is renowned in VMI lore for his teaching, scholarship, mentorship, and leadership," he said. "That Dave Miller, who had Col. Morrison as a teacher, would honor him by allowing the department to recognize a faculty member who practices Col. Morrison's many virtues is a wonderful way to connect the past with the present."

"The Watjen Chair," continued Moreschi, "recognizes a faculty member not only for outstanding teaching and scholarship, but also outstanding program leadership and stewardship. This is particularly significant because Tom Watjen exhibited outstanding leadership and stewardship in his very successful business career."

"Having additional chairs and professorships in the department is helpful because it demonstrates to the faculty that their many contributions to VMI, the department, and its cadets are appreciated by alumni. They also serve as a recognition of the department's status as an Association to Advance Collegiate Schools of Business accredited program—and the hard work necessary to maintain that status," Moreschi concluded. ✱



David Miller '70

Rex Tillerson to Speak at Graduation

Former U.S. Secretary of State Rex Tillerson will speak at graduation exercises for the Virginia Military Institute Class of 2018, to be held at 11 a.m. Wednesday, May 16, in VMI's Cameron Hall.

"Secretary Tillerson has had a remarkable career on the international scene, managing an international energy company and more recently as Secretary of State," said Gen. J.H. Binford Peay III '62, superintendent. "We educate our cadets to serve their nation and their community, whether in uniform or in civilian life. Secretary Tillerson's success and his long and deep record of service will resonate especially well with our graduates."

Tillerson, who had served as Secretary of State since Feb. 1, 2017, concluded a career of more than 40 years in the petroleum industry just before being sworn in as Secretary of State, retiring as chairman and chief executive officer of ExxonMobil at the end of 2016.

Tillerson spent the entirety of his career with ExxonMobil, going to work for the corporation in 1975 after graduating that same year from the University of Texas at Austin with a bachelor of science degree in civil engineering. He rose through the company's ranks to become chairman and chief executive officer in 2006.

In addition to his duties for ExxonMobil, Tillerson has had a longstanding involvement with the Boy Scouts of America, earning its highest rank of eagle scout as a youth and as an adult receiving

the distinguished eagle scout award. He is a former member of the Boy Scouts of America's executive committee and served as the national president of the Boy Scouts from 2010 to 2012.

Tillerson is a former member of the American Petroleum Institute and the National Petroleum Council and was elected to the National Academy of Engineering in 2013. He formerly served as a trustee of the Center for Strategic and International Studies. He was also a member of the Business Roundtable and the Business Council, as well as an honorary trustee of the Business Council for International Understanding, and a member of the Emergency Committee for American Trade. He is a former director of the United Negro College Fund and a former vice chairman of the Ford's Theatre Society. ✱



Rex Tillerson

Daniels Ceremony Offers Cadets a Chance to Reflect

By Ben Outland '19

On March 7, 4th Class cadets met in the Daniels Courtyard for the annual Jonathan Daniels Ceremony.

The ceremony featured laying a wreath in front of the 3-by-4-foot bronze plaque dedicated to Daniels. With the commandant of cadets and the superintendent in attendance, the VMI pipe band played “Amazing Grace” as cadets and faculty stood somberly.

Liam Kelly '21, a member of the newest class in barracks, was in attendance at the ceremony. Afterwards, he got the feeling that “they wanted us to know this courtyard meant something.” And that “anyone can make a difference in the world whether you commission or not.”

It was an important lesson for new 4th Class cadets, who are used to military training, but are now beginning to more deeply understand the importance of the citizen-soldier concept at VMI.



Gen. J.H. Binford Peay III '62 speaks to 1st Class president Joey Brown '18 and regimental commander Finn Swenson '18 after the Jonathan Daniels ceremony in Daniels Courtyard March 7.—VMI Photo by H. Lockwood McLaughlin.



Joey Brown '18, Col. William Wanovich '87, and Finn Swenson '18 salute after placing a wreath in Daniels Courtyard.—VMI Photo by H. Lockwood McLaughlin.

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Daniels' story is of the utmost importance to the VMI spirit, and at the beginning of the Rat Line, all rats must attend a lecture and view a film hosted by Col. Keith Gibson '77, executive director of the VMI museum, about Daniels' sacrifice.

Rats held that lesson with them as they endured the Rat Line. Now the newly minted 4th Class cadets paid their respects to Daniels once more.

Daniels was born and raised in Keene, New Hampshire, and matriculated to VMI with the class of 1961. After graduating as the valedictorian of his class, he attended Harvard to pursue a graduate degree in English, but soon found his calling in ministry and began to pursue his divinity degree at Episcopal Theological School in Cambridge, Massachusetts.

In 1965, while working on behalf of voter registration for the Civil Rights movement in Alabama, Daniels was killed by a shotgun blast as he protected 17-year-old African American Ruby Sales. Dr. Martin Luther King called Daniels' selfless act “one of the most heroic Christian deeds of which I have heard in my entire ministry.”

Daniels, who died wearing his class ring and represents the VMI citizen-soldier service concept, is honored by the Institute with the courtyard and the archway that joins the courtyard to Old Barracks. Daniels Arch bears the quote “I wish you the decency and nobility of which you are capable,” which originates from Daniels' valedictory address.

The ceremony offers 4th Class cadets, who only recently broke out of the Rat Line, a chance to reflect on the sacrifices inherent to the concept of the citizen-soldier.

“His commitment to a greater cause is an important lesson that we take from his story,” said Kelly. “You can leave from this place and make a major impact on society.” 🌿

Terra Cotta Army Offers Glimpse into Ancient China

By Mary Price

Nearly 50 cadets and faculty members took an unusual field trip on Saturday, Feb. 10, when they traveled to the Virginia Museum of Fine Arts in Richmond to view figures from the Terra Cotta Army, a vast collection of life-size soldiery created to accompany Qin Shi Huang, the first emperor of a unified China, into the afterlife.

Plans for the trip began in the fall when Maj. Catharine Ingersoll, assistant professor of English, rhetoric, and humanistic studies, heard that a handful of the 8,000 standing infantry figures making up the Terra Cotta Army were to be displayed at the museum. At the time, Ingersoll, an art historian, was unaware that Lt. Col. Howard Sanborn, associate professor of international studies and a China specialist, was also planning to take cadets to the exhibit.

Just one week before their scheduled departures, Ingersoll and Sanborn learned of each other's plans and decided to combine forces, with the international studies department funding cadet admission to the

museum and cadet lunches, while the English department paid for a charter bus. Faculty and staff on the trip got into the museum for free, thanks to a special dispensation for all state employees.

Sanborn noted that learning about ancient Chinese history is invaluable for cadets seeking to understand modern China because today's Communist leaders use the Chinese emperors of long ago to legitimize their own authority.

"The claims the Communist Party makes in China are about unity and unification," Sanborn explained. "Part of the story of the emperor that created the Terra Cotta Army, or with whom the Terra Cotta Army is buried, was bringing the country together. There's a lot of claims of legitimacy in the Communist Party today that touch on issues relating to the reign of the first emperor of China."

Sanborn also said that while he's taken cadets to see the actual excavation site in Xi'an, China, in years past, where thousands of the figures have remained since their discovery in a farmer's field in 1974, seeing the figures at close range is just as valuable because each figure is uniquely crafted.

Ingersoll noted that from an art historian's perspective, the scope of the Terra Cotta Army is "absurd." She added that the figures making up the Terra Cotta Army were buried with real, functional Bronze Age



One of the 8,000 terra cotta figures from the Qin Shi Huang Chinese empire on display at the Virginia Museum of Fine Arts in Richmond.—VMI Photo by Mary Price.



The terra cotta figures on display in the Virginia Museum of Fine Arts are over 2,000 years old.—VMI Photo by Mary Price.

weapons. “Any kind of metal is a valuable commodity and expensive to produce,” she said.

Ingersoll also said that excavations are still ongoing at Xi’an and have been since the 1970s. “There’s still lots to be discovered there,” she commented.

Cadets on the trip said they were glad to have had the opportunity to view not only the Terra Cotta Army, but also the museum’s entire collection, which features works of art from every continent except Antarctica.

Rebecca Serrano ’18 has been missing out on field trips such as this for years because

she’s a member of the NCAA water polo team. This time, she was more than happy to board the bus for Richmond.

“The Terra Cotta [Army] is a collection I’ve watched documentaries on and imagined seeing in person, but doubted that I ever would,” she said.

Venturing out to view the rest of the museum’s collection, Serrano found pieces she didn’t know were housed there. “I was amazed to see there was a Picasso and a Dali, both of whom I am tremendous fans,” she said. “I never thought in a million years that I would see these artists’ works.”

Travis Arnold ’18 said he’d signed up for the trip because he’s in Sanborn’s Politics in China class.

“When I walked into the Terra Cotta Army exhibit, I was fascinated by the craftsmanship and skill that was required not only to build these very detailed warriors, but all of their armor, weapons, and other objects,” he said. “The exhibit was very well done, informational, and allowed us to really get up close and personal with the warriors, something I thought to be extremely cool considering their age and condition.” 🐼

Future Naval Officers Select Their Ships

Naval ROTC Staff

Nine midshipmen of the VMI Navy ROTC Battalion recently undertook the first step of their post-graduation lives by selecting their sea duty assignments. Eight of the nine were VMI cadets, while the other is a member of the Virginia Women’s Institute for Leadership Corps of Cadets at Mary Baldwin University.

Connor Robertson ’18 selected the USS *Porter*, a guided missile destroyer based in Rota, Spain, where he will serve as a surface warfare officer before undergoing intense training in the Naval Nuclear Propulsion Program leading to service on a nuclear-powered aircraft carrier.

Timothy Wenholz ’18 selected the USS *Omaha*, a littoral combat ship based in San Diego, California. Matthew Heinrich ’18 selected the USS *San Jacinto*,

a guided missile cruiser based in Norfolk, Virginia. Heinrich also received a congratulatory phone call from the ship’s commanding officer and was able to have a conversation with the officers he will be serving alongside in the near future.



Matthew Heinrich ’18 selects the USS *San Jacinto* for his first duty assignment with Col. David Coggins and Cmdr. Daniel Turbeville in Kilbourne Hall.—Photo courtesy of Naval ROTC staff.

Also selecting a ship based in Norfolk was Nathan Dugie ’18, who chose the USS *McFaul*, a guided missile destroyer. Bryson Kelly ’18 selected the USS *Philippine Sea*, a guided missile cruiser based in Mayport, Florida. Anthony Garcia ’18 selected the USS *Sentry*, a mine countermeasures ship based in Manama, Kingdom of Bahrain.

Selecting the USS *Carney*, a guided missile destroyer based in Rota, Spain, was Angelah Haseltine ’18. Regimental commander Finn Swenson ’18 selected the USS *Anchorage*, a dock landing ship based in San Diego, California, where he will serve as a surface warfare officer before training to become an engineering duty officer focused on upkeep of the fleet. 🐼



Appellate Judge Speaks in Gillis Theater

Judge J. Harvie Wilkinson III hands cadet Nicholas Wainwright ’20 a signed copy of his new book *All Falling Faiths: Reflections on the Promise and Failure of the 1960s*. During his visit to post Feb. 21, Wilkinson, who has served on the U.S. Court of Appeals for the Fourth Circuit since he was appointed by President Ronald Reagan in 1984, discussed his recent book in a talk titled “The 1960s: The Decade We Shall Never Forget” and explored how the trends set in motion during that decade affect public life today.—VMI Photo by H. Lockwood McLaughlin.

Rank Selection

Cadets congratulate one another as the rank selections for the 2018-19 academic year are announced in Jackson Memorial Hall March 7. Cadet captains are Ben Dixon, regimental commander; John Forehand, regimental executive officer; Scott Hayes, 1st Battalion commander; Ryan Edsall, 1st Battalion executive officer; Tyler Brock, 2nd Battalion commander; Patrick Murphy, 2nd Battalion executive officer; John O'Donnell, S-1 captain; William Reeves, S-2 captain; Mark Green, S-3 captain; Thomas Mitchell, S-4 captain; Jessica Slakman, S-5 captain; John Keefe, S-6 captain; Merit Patterson, S-7 captain; Adam Josephson, Company A commander; Nicholas Williams, Company B commander; Anthony Sposato, Company C commander; Dillon Sirbaugh, Company D commander; Oladokun Ekundayo, Band Company commander; Seamus O'Connell, Company E commander; Brigitta Hendren, Company F commander; Nathan Kirk, Company G commander; Calvin Lawson, Company H commander; and Jack Casey, Company I commander.—VMI Photos by Kelly Nye.



Taps—Col. James J. Hentz

Col. James J. Hentz, head of the Virginia Military Institute Department of International Studies and Political Science, died Feb. 17 at the age of 62 following a stroke.

A longtime member of the VMI faculty, Hentz had taught at VMI since 1997 and served as department head since 2006. At a

memorial service held in Jackson Memorial Hall Friday, Feb. 23, Hentz's colleagues, friends, and family praised his dedication to the Institute, his sense of justice, and his devotion to his family.

A native of Philadelphia, Hentz earned his bachelor's degree from St. Joseph's College. He worked in American Samoa with the Marist Volunteer Teaching Program and later taught secondary school in Zambia before returning to the United States to earn a master's degree at Georgetown University and a Ph.D. at the University of Pennsylvania. At VMI, Hentz's scholarship and teaching were recognized

with many honors. He served as a visiting fellow at Stanford University's Hoover Institute and at Wolfson College at Cambridge University, and he taught at Rand Afrikaans University in Johannesburg, South Africa, and Saint Charles Lwanga Seminary in Zambia, as well as the Miklós Zrínyi National Defense University in Budapest, Hungary, where he was a Fulbright Scholar in 2003.

Hentz was a scholar of sub-Saharan Africa, with an emphasis on security issues. He was the author of numerous scholarly articles and books and editor of the journal *African Security*. At the time of his death, Hentz was revising his manuscript, *The Nature of War in Africa*, for publication.

Hentz is survived by his wife, Michele, and two daughters. 🕯️



Col. James J. Hentz

VMI Institute Report



Col. Dennis Foster, professor of international studies, delivers a eulogy during Hentz's memorial service in Jackson Memorial Hall Feb. 23.—VMI Photo by H. Lockwood McLaughlin.

"I had taught children before in France and I've been wanting to do something with local children; not just language, but also culture. I wanted to get cadets and fellow teachers involved," she said.

While teaching French to young children shares many of the same principles as teaching cadets, Carrico tried to make the lessons age appropriate and more kinesthetic for the classes at Discovery Heights by incorporating art projects.

She read a French children's book about Paris and Morocco and asked the children to repeat phrases from it. They also created flags out of construction paper from French-speaking countries and participated in a scavenger hunt.

To help teach the class, Carrico selected cadets who had shown interest in becoming more involved in the community and who were members of the French Honor Society.

Levi Harmon '18, a French major, volunteered for the class because he likes working with children and seeing them learn.

"I have two little sisters, and I liked teach-

"Working with kids... was difficult at first. They don't know who you are. Some were hesitant and aloof, but once we started the flag exercise, it went a lot more smoothly," he said.

Annika Tice '18 has experience working with older children as part of her volunteer work with the leadership program at Maury River Middle School.

"I've never had an opportunity like this, working with younger kids," Tice said.

Carrico also encouraged other French speakers she knew to participate in the class to expose children to other cultures that speak the language.

Dr. Sabrina Laroussi, assistant professor of modern languages and cultures, is a native French and Arabic speaker from Algeria. Laroussi teaches Spanish at VMI and brought her multilingual perspective to the class.

"I've taught French and Spanish to younger children, and I love children. It was a great opportunity to teach the language and francophone culture," said Laroussi, who also cooked crêpes, classic French fare, for the children to try at

the first class.

Carrico sees the value of bringing in French speakers from different countries and cultures, noting that another francophone community member from Senegal, Tida Dramé, participated.



Cadet Levi Harmon '18 practices French phrases with Vivienne King Feb. 16 at the nascent Discovery Heights Children's Museum on Lexington's Main Street.—VMI Photo by Kelly Nye.

"The goal of that first class was to expose children to the whole world of French, not just France," Carrico said.

Carrico hopes to teach another class with the museum in the future.

"I had several parents come up and say they weren't able to sign up because the timing didn't work," she said, "I would really like to see something done in the summer for kids around here."

The museum, still in the fundraising stage, was founded by Mollie Fox in January 2017, in response to the lack of educational opportunities for young children in the area. The closest children's museums are Amazement Square in Lynchburg and Explore More Discovery Museum in Harrisonburg.

"We envision a physically and intellectually stimulating atmosphere where children are encouraged to learn and explore the world around them through hands-on exhibits that foster creativity, experimentation, teamwork, problem solving, and invention," Fox said.

Fox also wants to involve the whole higher education community in Lexington by tapping its talent of qualified professionals of faculty and students for classes and ideas. ✱



Tida Dramé, Sabrina Laroussi, and Kyle Hesse '18 read from a French children's book.—VMI Photo by Kelly Nye.

ing something they can relate to, to get out in front of people," he said.

Carrico's daughter, Vivian, joined her for the class, which helped encourage the other children to participate.

"She kind of brought the other kids out of their shell because she knew [the language]," Harmon said.

Kyle Hesse '18 said that as a French major he had "fallen in love with the language" and appreciated teaching it to children. He considered the class a good experience for them but also a way to expose the community to other facets of the VMI experience.

The Discovery Heights Children's Museum

is located at 312 S. Main Street. For more information about the museum, visit discoveryheights.org and at facebook.com/playlexington.

ATHLETICS

By Chris Floyd

Baseball

With a 6-3 win over UMass-Lowell Saturday, March 10, VMI salvaged one win in a three-game weekend series and improved to 8-6 overall in 2018. Included among those victories are a pair of early-season upsets of nationally-ranked teams.

The Keydets opened the season Friday, Feb. 16, with a 7-6 victory over No. 19 South Carolina in Columbia, scoring four runs in the fourth inning and holding on to top the Gamecocks. Nathan

Eaton '19 and Matt Pita '19 belted back-to-back home runs in the frame, with Eaton's three-run shot tying the game and Pita's solo home run putting VMI on top. Eaton finished the contest with four RBIs from the leadoff spot, while Pita, the Southern Conference Player of the



Kyle Staats '18 pitches for the Keydets during the Feb. 25 game against Lafayette. —VMI Photo by H. Lockwood McLaughlin.

Week for the week of March 5, had a pair of hits and scored two runs. Derek Tremblay '20 pitched two innings of scoreless relief to earn the victory on the mound, and Matthew Eagle '18 struck out two to pick up the save.

Just four days later, the Keydets scored another upset, knocking off No. 15 Virginia, 9-4, in Charlottesville. VMI got all of the runs it needed in the first inning, scoring six times in the frame. Pita and Will

Malbon '18 both picked up three hits for VMI, with Malbon driving in two runs. Jake Huggins '19 went 2-for-4 with a pair of RBIs. Starting pitcher Brandon Barbery '18 gave up just one earned run over five innings to get the win.

Track and Field

Paced by a number of All-Southern Conference performances, VMI wrapped up the indoor portion of the season by playing host to the Southern Conference Championships in late February. The Keydet women placed sixth in the event held at the Corps Physical Training Facility, while the VMI men took seventh.

Leading the way for the VMI women were Kerisha Goode '18 and Julia Logan '18, who both earned all-conference honors in two events. Goode broke her own school record and took second place in the 200-meter dash; she also placed third in the 60 dash. Meanwhile Logan, who took second place in the high jump, set a new school record to place third in the pentathlon.



Julia Logan '18 soars over the high jump during the SoCon Championships in the Corps Physical Training Facility Feb. 24. —VMI Photo by H. Lockwood McLaughlin.

On the men's side, VMI was paced by Josh Willard '18, who finished as the runner-up in the 800-meter run. Lee Warren '18 placed third in the 60-meter hurdles, and James Granderson '20 took third in the long jump. The distance medley relay team of Willard, Kevin Bishop '19, Jahanzib Shahbaz '20 and Micah Ellington '18 also finished third.

Water Polo

The women's water polo team reeled off six straight wins to start the season and stood 9-4 overall after splitting four Metro

Atlantic Athletic Conference games in Loudonville, New York, March 10-11. The Keydets won handily over La Salle (14-2) and St.

VMI Institute Report

Francis-Brooklyn (14-9) while dropping a pair of 8-6 decisions to Iona and 17th-ranked Wagner.

Against La Salle, the Keydets rolled to a 7-0 halftime lead and did not allow a goal until the fourth quarter to cruise to the victory. Sarah Dolitsky '19 notched a career-high five goals to lead VMI, while Shelby Barkley '18 and Zoe Salafatinos '21 scored two goals each.

Lacrosse

VMI won just two games all of last year, but the Keydets were able to pick up their first victory of 2018 just two games into the season, knocking off New Jersey Institute of Technology, 11-9, Feb. 24 in Madison, New Jersey. Trailing 2-1 after the first period, the Keydets (1-3) exploded for six goals in the second quarter to earn the win.

Rifle

The VMI mixed rifle team finished third, and the women's squad placed sixth out of the eight teams competing in the Southern Conference Championships in Charleston, South Carolina. The mixed team tallied 4,510 aggregate points, 2,228 smallbore and 2,282

Goalie Isabel French '20 tallied 10 saves. French had a big day in the victory over St. Francis, stopping 22 Terrier shots to earn the victory.

Her effort marked a career-high in saves and tied VMI's record for saves in a single game. Offensively, the Keydets were led by Barkley, who notched six goals, including three in the third quarter. Natalie Rivas '18 chipped in with three goals.

Ryan Perouty '21 and Wesley Sanders '18 paced VMI with four goals each, while Bill Osteen '21 recorded 10 saves in goal. John Daniel '20 was named SoCon offensive player of the week March 13, after scoring seven goals in the team's hard-fought loss 18-12 to the Richmond Spiders March 10.

air rifle, to finish behind champion North Georgia and the Citadel. Hunter Jacob '20 finished seventh in the individual smallbore competition and joined teammate John Pitman '19 on the All-Southern Conference second team.

Basketball

VMI held a 10-point lead late in the first half, but the Citadel used a 23-7 run to take the lead and bounce the Keydets, 78-70, from the Southern Conference tournament March 2 in Asheville, North Carolina. The Keydets cut their deficit to three points with 2:45

remaining but went scoreless the rest of the way. Keith Smith '20 led VMI with 15 points, while Jordan Ratliffe '21 chipped in with 13 markers. With the loss, the Keydets finished the season 9-21 overall, 4-14 against SoCon competition.

Wrestling

A pair of VMI wrestlers—Cade Kiely '20 and Chris Beck '20—placed fourth in their respective weight classes as the Keydets placed

seventh as a team at the Southern Conference Championships March 3 in Charleston, South Carolina. 🍷

Midwinter Formal

Cadets celebrate in a decked-out Marshall Hall during the Midwinter Formal held Feb. 16 and 17, with 1st and 2nd Class cadets attending Friday and 3rd and 4th Class cadets attending Saturday evening. The event featured live music, food, ice sculptures, and dancing.—VMI Photos by H. Lockwood McLaughlin.



"It's a hassle when you're getting back at 9:30 at night and you have something due in the morning," she added. "The class definitely pushes you to handle your time better."

Jackson said that her decision to join the Fire Club was driven by a desire to give back to the community and counter the sometimes negative stereotypes of cadets.

"I felt that this was a nice way to give back to Lexington, and I've always been someone who wanted to do service to others, so to have the opportunity to save lives and property is something that really entices me," she stated.

Jackson is one of only two females in the Firefighter I and II classes, and she's the only female cadet. She doesn't give gender much thought, though. "You could say it's the same as coming [to VMI]—you don't see many females," she remarked.

She has, though, had to deal with comments relating to her stature. At 5'1", Jackson doesn't fit the mold of what some people think of when the word "firefighter" is mentioned.

"I've had people say, 'Aren't you too tiny?' and I say, 'I'll cross that bridge when I get there,'" she noted.

Ian Morris '19, the assistant cadet in charge of the Fire Club, has been running calls, cleaning trucks, and assisting with fundraisers at the South River VFD for over a year now. He joined the fire club after Breakout his rat year.

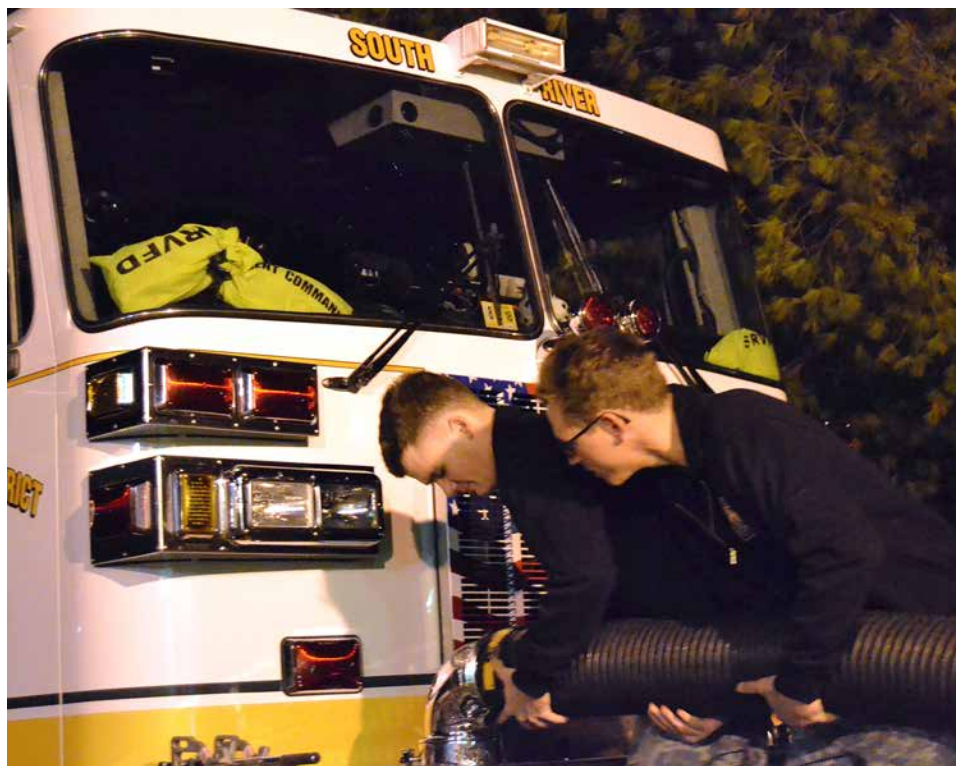
"To me, that seemed to be the best way to give back," he commented. "I enjoy interacting and giving back to the community."

Growing up in Buckingham County, Morris found himself drawn to the community spirit that rural fire departments often engender, so the Fairfield community that's home to South River was an easy fit.

This January, at the fire department's annual banquet, Morris was recognized for taking the second-highest number of training hours in 2017—a whopping 283 hours, and that on top of a full class load at VMI. His number of hours was topped only by that of his longtime friend and roommate Zach Thoele '19, who completed 299 hours.

Morris explained, though, that it wasn't as hard as it seems. "A lot of the fire classes are catered toward volunteers," he stated. "The idea is that you're going to work a 9-to-5 job."

Thoele agreed, saying, "It's worth sacrificing some sleep over."



Ian Morris '19 and Zach Thoele '19 adjust a coupling on a tanker truck during an evening shift at the South River Volunteer Fire Department.—VMI Photo by Mary Price.

Working as a firefighter does require extensive training. But some things that Morris and Thoele do for the fire department don't require much training at all, but are equally beneficial, such as helping with the chicken barbecues that are a staple of the department's fundraising efforts. Last summer, Morris and Thoele even came back to help at the department's annual carnival, held in late July.

This year, Morris, Thoele, and Jon Kaiser '18 are spending Thursday nights at the department, from 7 p.m. Thursday

to 7 a.m. Friday, as its overnight crew.

"It's my little short reprieve from this place," said Morris. "It motivates me to do homework. It's quieter, unless something happens."

Because of the quiet, and the fact that all of the fire departments have internet access, Morris said it's not hard to keep up with his studies. As a history major, he does a lot of writing papers—and once he and the others have completed their chores for the department, there's plenty of time for hitting the books and the laptop.

"We get settled for the night, and it's quieter than post ... we'll usually work until the same time as VMI because our internal clock won't make us go to sleep until 11:30 anyway," said Morris.

Many of the calls that the South River department responds to are for automobile wrecks, and the majority of those are on Interstate 81, which is less than a mile from the department's headquarters.

And while most wreck calls end with a sense of resolution—the injured go to a hospital, recover, and move on with their lives—some do not.

Morris and Thoele each recounted that their toughest call involved a wreck in which the driver involved had already died at the scene. The first responders could do nothing but wait for the coroner to arrive.

"It didn't affect me on a personal level," said Morris. "I didn't know the gentleman [who died]. But sometimes you realize you can't help everybody. ... That's just the way the world is sometimes."

Thoele offered similar sentiments, saying, "That was definitely an eye-opener. ... You realize how short life is."

Printmaking at W&L

Cadets in Conquest Visiting Chair Claudia Smigrod's visual arts class take a lesson in printmaking Feb. 15 from Leigh Ann Beavers, instructor of art at Washington and Lee University. The cadets inked the windows of the printmaking studio in Washington and Lee's Wilson Hall and pressed paper over their work to create a relief print. Cadets in the class, offered in the department of English, rhetoric, and humanistic studies, are studying the conventions of printmaking with hands-on opportunities to explore the medium.—VMI Photos by Kelly Nye.



New Employees Join Alumni Agencies

By Scott Belliveau '83

The VMI Alumni Agencies have welcomed several new employees in recent months. Amy Goetz joins as the agencies' chief communications officer. In this position, she is responsible for leading a team of communications professionals, including the staff of the VMI Alumni Review, who support all of the agencies in their important work and closely coordinate their communications efforts with those of the Institute.

Goetz joins the agencies' senior management team, which consists of CEO Stephen Maconi and chief financial officer David Prasnicki in addition to the chief operating officers of the three component agencies.

From 2005 to 2015, Goetz was the Institute's marketing director and associate director for the Office of Communications & Marketing. She was involved in the communications effort for *An Uncommon Purpose*, including production of the campaign's "Got a Minute?" video series. From 2015 to early 2018, she served as the director of marketing and public relations for the West Virginia School of Osteopathic Medicine.

Joining the communications team as an assistant editor of the *VMI Alumni Review* is Molly Rolon. She was a reporter, editor and photographer for several news publications and production assistant for the *Fort Lee Traveller*. She served in the Army from 1998 to 2003 as a logistics officer. Molly holds a bachelor of arts and science degree in journalism from South Dakota State University and a master

March 2018



Work done by the Alumni Agencies supports every aspect of life on post.—Photo courtesy of Maj. John Robertson IV.

of arts degree in computer resources and information management from Webster University.

Joining the staff of the VMI Foundation as major gift officers are two alumni, J. Addison Hagan '97 and Joseph Irby '85. Hagan comes to the Foundation after spending many years in the financial services industry providing a wide range of services to varied clients including numerous industry start-ups. Hagan is a fourth-generation alumnus and a

fourth-generation officer in the Marine Corps.

Irby served in the U.S. Army as an artillery officer until 2007. That year, he joined the VMI Foundation as a major gift officer. In 2010, he became the vice president for business development for TeraDact Solutions, holding that position for five years, and worked as a fishing guide in Hot Springs, Virginia, from 2015 to 2017.

According to Maconi, these employees "have the experience and the background that will allow them to make many substantial contributions to the work of the VMI Alumni Agencies. They will strengthen the agencies' ability to promote greater unity within the VMI family and raise, steward, and manage the private financial support that is critical to the Institute's continued progress." ❧

Biomechanics Study Explores Functional Movement

By Mary Price

Research currently underway in VMI's biomechanics laboratory could someday be used as part of a program designed to prevent falls among the elderly.

This academic year, Lt. Col. Joyce Blandino, associate professor of mechanical engineering, and Col. Mike Krackow, professor of physical education, are working together to study how people use their bodies when confronted with asymmetrical loading—a situation in which they are carrying much more weight on one side of their body than the other.

Krackow explained that he and Blandino decided to investigate asymmetrical loading because there's not much research on it—and because it's a common part of real life, as people develop patterns of movement that can include carrying a purse or bag only on one side of their bodies.

"Everything now is functional training, functional movements," said Krackow, noting that focusing on functional movement in the lab has greater real-world application.

To test this, subjects are hooked up to eight electromyography sensors on their legs and hips, which record the electrical activity used by muscles, plus an additional sensor on the upper chest, which records any lateral sway of the body. They then give them dumbbells of varying weights to hold as they step onto a force plate, which measures the force exerted. Lastly, the subjects are asked to do the same test as they hold only one dumbbell.

"If we go asymmetrical with one dumbbell, we should either see more sway and/

or increased muscle activity on the opposite side," said Krackow, who has a background in physical therapy and athletic training.

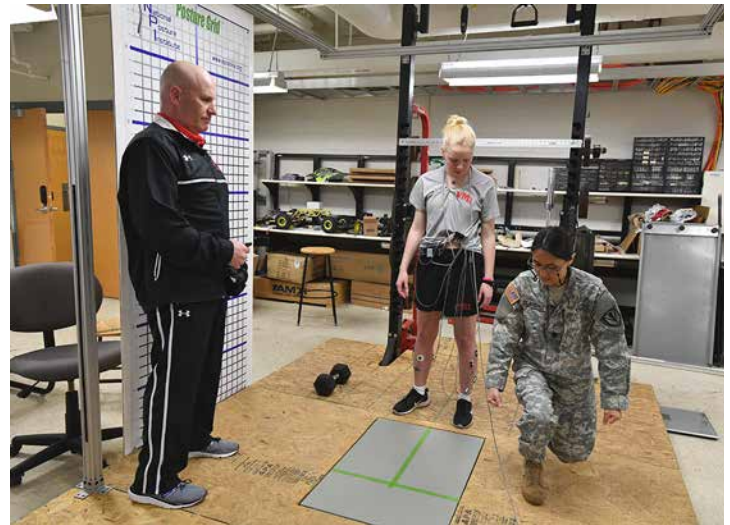
Ultimately, Krackow explained, the data they are collecting could be used to develop programs, perhaps implemented by health care providers, that would increase the efficiency and safety of movement.

"As people age, how does the body change?" asked Blandino. "How can you train your body to reduce the prospect of falling?"

Both Blandino and Krackow are excited to be working on a project that could someday reach well beyond the Institute.

"Out of the three [studies] we've done, this one has the most potential for direct application well beyond VMI," said Krackow. "Everything we do, we try to disseminate beyond VMI."

The researchers are keenly aware that with more equipment, they could do more. Funding for the equipment currently in use was provided by a Jackson-Hope grant approximately three years ago. Now, they'd like to apply for a major research



Col. Mike Krackow and Lt. Col. Joyce Blandino show Jamie Foster '20 how to lunge forward onto the force plate to measure her muscular electrical impulses in Nichols Engineering Building March 6.—VMI Photo by Kelly Nye.

instrumentation grant from the National Science Foundation.

"We need more equipment to do more study," said Blandino. "Right now, it's really limited to one foot. With two force plates, [subjects] could run. They could jump."

She added that with more equipment, including a sophisticated camera system, they could also study joints such as the knee and ankle in isolation.

For now, Blandino and Krackow's study is ongoing—and they are seeking more subjects of all ages and both genders. Subjects do not have to come from the VMI community.

Said Krackow, "All data are good data." 🦾



Lt. Col. Joyce Blandino attaches a sensor to Jamie Foster '20 to measure her lateral sway while lunging with weights.—VMI Photo by Kelly Nye.



Lt. Col. Joyce Blandino shows Jamie Foster '20 her muscle activity results after the electromyography test.—VMI Photo by Kelly Nye.

Colleague Couple Authors Books on Machine Learning

By Mary Price

Anyone who's ever written a book knows that writing is hard work. Writing a book with one or more co-authors demands collaboration, diplomacy, and patience, and often much of all three. But what about writing a book with your spouse, when you still have children living at home?

That's the situation Col. Tinni Sen and Col. Atin Basuchoudhary have found themselves

in recently as they celebrate the successful publication of one book and near completion on another. The couple, both professors of economics and business, have been writing together for the past few years—and this on top of a full teaching load at VMI, plus departmental obligations and the needs of their two daughters, one now a freshman in college and the other in middle school.

The couple's first book was published earlier this spring. *Machine Learning Techniques in Economics: New Tools for Predicting Economic Growth* discusses the use of machine learning, which is a form of artificial intelligence, to break down big data sets and use this information to predict economic growth and the likelihood of recessions. Former VMI faculty member Jim Bang, who now teaches at St. Ambrose University in Davenport, Iowa, is a third co-author on the book.

Basuchoudhary explained that he and Bang talked about the possibilities of applying machine learning to economic analysis while Bang was teaching at VMI. The idea for the book was born, though, when a publisher's representative came up to Basuchoudhary at a conference in 2015 and offered him a contract.

The soft-cover booklet format of 90 pages seemed ideal for the topic. Sen explained that economists typically don't write books, but rather share their new ideas and insights via journal articles. The subject of using



Col. Tinni Sen and Col. Atin Basuchoudhary review the book they co-authored, *Machine-learning Techniques in Economics New Tools for Predicting Economic Growth*.—VMI Photo by Kelly Nye.

machine learning to predict economic growth was too complex for a journal article, but didn't necessarily need to fill an entire book running hundreds of pages.

With three authors, and one of them in another state, progress was slow but steady. "We worked on it together in the sense that we had a few conference calls with Jim over time and we talked about it at home, too, but when we were writing, we did it separately," said Sen.

Sen only wrote one chapter of the book herself, but she performed the first round of editing, doing what she termed a "hard read" for unification, with the goal of eliminating repetitious material.

"I would read a section and I would have questions," said Sen. "I would email both Atin and Jim and they would reply to me. We couldn't work on it together because we had kids at home."

Sen recalled one summer in particular as challenging. The couple's older daughter was away at a summer camp, but her sister was home. "We would divvy it up and have to stop at a certain time because we have to hang out with her and do something with her," explained Sen. Parts of the book were written in the library at Randolph College in Lynchburg when the younger child, now a 7th grader, was at a summer camp there.

"You have to be very focused on separating your professional obligations from your family obligations, because they tend to get

intertwined," said Sen of balancing her roles as a wife, mother, and academic.

Basuchoudhary noted that as a writer, it's relatively easy to accept comments from an outside editor—but it's not so easy when the editor is your life partner.

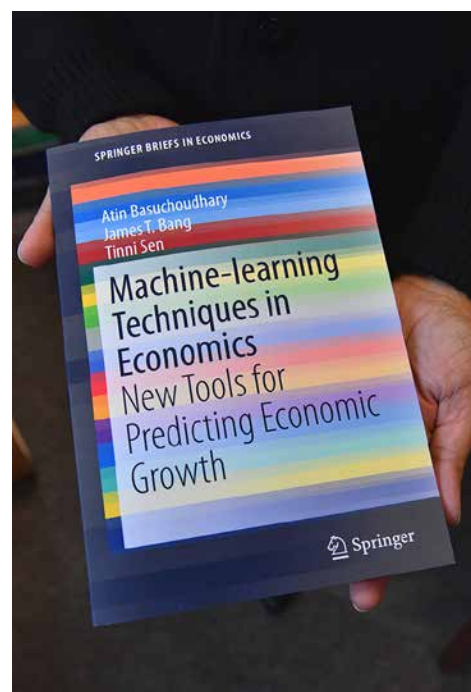
"When it's a spouse doing that, there's this added baggage," he said.

Sen added that it's also important to set a realistic timeline. The book that was just published was expected to be completed a year ago—but life happened, as it often does.

As for now, both Sen and Basuchoudhary are happy to have added to the body of knowledge on which factors are most crucial for economic growth.

"There are many mathematical models that say that they explain growth," Basuchoudhary explained. "The problem is, we don't know which of these mathematical models explains growth the best, until this book."

The couple's second book, which is due to be published this summer, likewise deals with the application of machine learning to economics. *Predicting Hotspots: Using Machine Learning to Understand Civil Conflict*, is the work of four authors: Sen, Basuchoudhary, Bang, and Lt. Col. John David, associate professor of applied mathematics. ❧



Basuchoudhary and Sen's book applies machine learning to economic growth.—VMI Photo by Kelly Nye.

Firefighters *continued from page 16*

“All of the cadet members are fantastic,” said club adviser Maj. Tim Burrows, who serves as assistant director of assessment in the Office of Institutional Research and also volunteers with the Lexington Fire Department. “We take a lot of pride in having really cream-of-the-crop cadets.”

That good outcome starts with a rigorous self-selection process. Any cadet with a grade point average of 2.3 or higher can join the Fire Club, but Burrows is very open with prospective members about the high level of responsibility demanded—and what they might see.

“We are very up front with the cadets,” he said. “This job does ask a lot of these young folks. Whether you’re career or volunteer, college student or not, you’re very rapidly thrown into high-stress situations. You see a lot of things that perhaps 22-year-olds necessarily shouldn’t see, but it’s part of the job.”

The cadets said they see South River as a sanctuary from VMI—and a place that offers a new perspective. “It’s my safe haven out

there,” said Thoele. “It allows me to breathe, and shows me that at the end of the day, there’s something greater than myself out there. No matter what happens, no matter how bad school is, I can always go out there and rely on possibly being able to help someone on their worst day.”

Community appreciation for the cadets runs deep. “[The cadets] complement the volunteer base and are invaluable to the service we provide here,” said Lexington Fire Chief Ty Dickerson.

“We can’t say enough good things about [the cadets],” said Ben Wilmer, chief of the South River Volunteer Fire Department.

Wilmer explained that cadets have been volunteering at South River for three years now. Out of 25 total volunteers, seven are cadets. All but one are certified firefighters, and most are certified to drive the fire engines. Typically, cadets staff the overnight crews at South River three or four nights a week.

“They’re a tremendous amount of help,” said Wilmer. “Without them, everybody would have to do more.” 🍀



Leader in Residence

This year’s leader in residence, retired ambassador David C. Litt, visited post March 4-10. His interactions with cadets and faculty during his first week on post included addressing a Naval ROTC leadership lab in Kilbourne Hall and touring barracks with commandant Col. Bill Wanovich ’87. Litt served as a career U.S. diplomat specializing in the Middle East and Southwest Asia for 34 years, including as U.S. Ambassador to the United Arab Emirates from 1995 to 1998. Until February 2008 he was executive director for the Center for Stabilization and Reconstruction at the Institute for Defense and Business. Litt will return to VMI in April to offer cadets more insights into his career as a leader on the international stage.—VMI Photos by Kelly Nye.

