



# INSTITUTE REPORT

VIRGINIA MILITARY INSTITUTE

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## Second Largest Class in VMI History Matriculates

By Mary Price

On a swelteringly hot Saturday, Aug. 17, the second largest entering class in VMI's 180-year history arrived on post for Matriculation Day.

The rat mass of 2020 plus three, which will become after Breakout the Class of 2023, numbered 515, a slight decrease from last year's record number of 519. The entering rats came from 34 states and three foreign countries. Sixty-one percent are from Virginia and 39 percent from out of state. Eighty rats are female, which comes out to just over 15 percent.

*See Matriculation, page 2*



Over 500 new cadets line the floor of Cameron Hall after being called down by company Aug. 17.—VMI Photo by H. Lockwood McLaughlin.

## Summer Challenges Settle into Construction Predictability

By Mary Price

This fall, visitors to post will notice barrier fences, workers in hard hats, and caution signs as work on the \$33.2 million post infrastructure project continues. In addition, two separate projects—renovations to Preston Library and Scott Shipp Hall—are well underway.

Work on one of the most visible projects, a replacement of the underground water line encircling the Parade Ground, began just after graduation in May and continued throughout the summer. That work was substantially completed before new cadets

matriculated Aug. 17, but the Parade Ground remains fenced off so grass can have a chance to re-establish itself there.

"We've decided that the orange fence will remain in place through mid-to-late September," said Col. Keith Jarvis '82, director of construction. Foot paths through the fences have been established allowing cadets to cross the Parade Ground, and two paths for automobiles have also been put in place.

*See Summer Challenges, page 14*



The group shows a decided preference for the STEM fields of science, technology, engineering, and mathematics, with 61 percent electing to major in those disciplines, and 39 percent in the liberal arts. This year's incoming rats had a high school grade point average of 3.70.

And while much about matriculation is quite predictable and consistent from year to year, what makes the process flow so smoothly isn't always apparent. To be sure, organization and coordination by nearly every department and agency on post is key, but so is the support of an organization perhaps overlooked: the VMI Parents Council.

In existence at VMI for the past several decades, the Parents Council acts as a liaison between parents of current cadets and the Institute. The day before matriculation, the Parents Council co-presidents hosted a reception in the Hall of Valor for incoming rats and their parents, a gathering that's typically attended by approximately 1,200 people.

And while the reception is the only official Parents Council event associated with matriculation, members of the group step up and help in a big way on Matriculation Day itself.

"We'll all be wearing our red ribbons, and it just gives [new cadet parents] a chance to go up to somebody and ask questions," said Amanda Nott, co-president of this

year's Parents Council along with her husband, Chris, a few hours before the Friday afternoon reception.

Each year, a group of 60 to 70 Parents Council members volunteer to come to post

and help with matriculation, with some arriving as early as 6 a.m., explained Col. Jeff Boobar '86, VMI's inspector general and coordinator of Parents Council activities. Many are from out of state and gladly make

the long drive. Usually, the online sign-up sheet for helpers fills within hours.

"On Matriculation Day it's become a tradition where Parents Council people just volunteer to come here and help the Institute in any way they can," said Boobar, whose own parents were members of the group when he was a cadet. "It's become not mission essential, but really, really helpful for VMI."

A crucial role is helping with parking,



Parents Council members helping direct traffic were just one part of the activities during move-in on Matriculation Day.—VMI Photo by Kelly Nye.



Parents Council member Joe Nunez talks with an incoming cadet's family members on Matriculation Day.—VMI Photo by Mary Price.

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## Header photo on page 1 by Kelly Nye

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as hundreds of vehicles arrive and all must be arranged in an orderly fashion on the Parade Ground. "The VMI Police would tell you that the traffic control people are absolutely essential because we don't have enough police officers to put everybody into spots,"

Boobar noted.

In addition to helping with parking, Parents Council members station themselves around post in various locations to answer questions and help families find their way around post.

"It's basically just being there to help,"



Cadets and family members help move incoming cadets into barracks Aug. 17.—VMI  
Photo by Kelly Nye.

## Belize Study Abroad

Parrish Hall '20 finds a conch shell while scuba diving off the coast of Belize this summer. The underwater search was led by Lt. Col. Paul Moosman '98 as part of his tropical marine biology study abroad course. Each day cadets sailed to multiple sites, including Mexico Rocks Marine Preserve, to scuba dive and explore the rich biodiversity off the coast of Belize.—Photo courtesy of Capt. Deanne Moosman.





# River Swim Portion of Rat Crucible Goes on

By Mary Price

Cadets and parents returning to Lexington this August likely noticed a big change if they came in via the Veterans' Memorial bridge at East Lexington—the concrete dam spanning the Maury River is gone. Thankfully, VMI's use of the river for water training is continuing, although with some minor adjustments.

The century-old dam, which had created an impoundment stretching a mile or more upriver, was removed at the end of May, resulting in a marked drop-off in the water level upstream.

Prior to the dam's removal, new cadets participating in Rat Crucible, a series of intense physical activities held on the Sunday at the conclusion of Matriculation Week, would don life jackets before jumping into the river and then floating or swimming downstream. This year, during the Aug. 25 Crucible, new cadets largely followed the same procedure, but they waded instead of jumped into the water.

Members of the commandant's office staff had done a safety test beforehand.

In midsummer, Lt. Col. Todd Pegg '92, deputy commandant for operations, and Capt. Isaac Slone, facility director, put on the same gear that new cadets wear and then took a reconnaissance trip on the Maury. After finding a place to wade into the water, the duo then floated downstream where they could, and walked through the water when it became too shallow.

"There's one section of about 30 meters in the middle that's about knee or thigh high," Pegg reported in early August. "So when the rats get to that section, they'll stand up and wade. Then, they're go back to floating downstream."

Pegg explained that the river swim portion of Rat Crucible isn't actually about swimming per se—and many incoming rats have never learned to swim, thus the life jacket requirement.

"It's a physical, conquer-your-fears type of thing," he commented.

The plunge into the river is also meant as a very intentional cool down during August temperatures that are typically in the 80s, if not hotter.

"The river is heat stress management for us," said Pegg. "Putting them in the river for a double rotation really



Rats swim and wade in some places in the Maury River during Rat Crucible Aug. 25. The previous water line is visible on the cliffs.—VMI Photo by H. Lockwood McLaughlin.

reduces our heat casualties and heat stress. ... We're excited that the Crucible can still happen, because that's a big deal."

The water level drop-off following the dam removal has, though, put any deep-water jumps on hold, at least temporarily. Up until two years ago, Rat Challenge, a program designed by the physical education department to bolster rats' physical fitness and class unity, included a platform from which new cadets jumped or zip-lined into the Maury.

Slone explained that

while there are some spots of the river where the water is still deep enough for cadets to jump safely, there are no access points in those areas, and doing the type of work necessary to create riverbank access points may require a permit from the Army Corps of Engineers. As of early August, Slone was waiting to hear from Corps of Engineers representatives about scheduling a site visit.

Ultimately, though, he'd like to make deep water jumping an indoor sport, once VMI's aquatics center, soon to be built adjacent to the Corps Physical Training Facility, is completed. In years past, he explained, he'd be the first one in during river jumps, making sure the plunge was safe for cadets.

"With the new aquatics facility ... I'm hoping for an opportunity to move it in there, where I know exactly what's underneath them," Slone commented. ❁



Crews work to remove the Jordan's Point dam in May.—VMI File Photo by Kelly Nye.

# Math Applied to Real-World Problems

By Mary Price

Now in its eighth year, VMI's Applied and Industrial Mathematics (AIM) program has as its goal letting cadets practice their applied mathematics skills by helping a real-world business or organization.

This summer, five cadets got a chance to put their data analysis skills to use through that program. Two of them, Seth Gibson '22 and Emily Gothard '21, did their work for the Frontier Culture Museum in Staunton, Virginia, a state-supported entity that must raise 30 percent of its operating budget each year, primarily through sales of admission tickets, season passes, and merchandise in its gift shop.

Gothard explained that the first thing she and Gibson did was try to find which gift shop items were the biggest sellers so Frontier Culture Museum staff could allocate more funds towards purchasing those items.

"We looked at all of their vendors to see how much they'd spent ... so we could categorize their budget sheet," said Gothard. "We did that in order to create the budget, and then we broke it into 17 categories."

It didn't take the cadets long to figure out which items turned over quickly and which ones sat on the shelf. "They spent a lot of money on books, but they aren't big sellers," said Gibson. In the end, the cadets found that small items appealing to children, such as fudge, pencils, and stuffed animals, were the shop's biggest sellers.

"We've had some surprises as to what kinds of things are selling and what kinds of things aren't selling," confirmed Megan Newman, executive director of the Frontier Culture Museum and a former VMI employee. Already, she noted, the work of Gibson and Gothard has led her to see that an expansion of the gift shop isn't a wise fiscal move.

Newman said she's very hopeful that the relationship between VMI and the Frontier Culture Museum will continue to grow. "We have project potential for cadets galore, whether it's through AIM or [the Summer Undergraduate Research Institute]," said Newman.

While Gibson and Gothard were working in Staunton, David Carter '19 undertook an AIM project on post. His project was to analyze data on alumni donors and giving patterns for the VMI Alumni Association.

"I'm looking at ways [the Alumni Association] can be more cost effective and save money while at the same time have the same level of alumni interaction and involvement," said Carter in mid-July.

To further that goal, Carter created ZIP Code maps of where alumni are living and where chapters of the VMI Alumni Association are



Seth Gibson '22 (left) and Emily Gothard '21 discuss their summer research findings at the Frontier Culture Museum as museum staff members Lauren Egan (standing) and Megan Newman (far right) look on. —VMI Photo by Mary Price.

present. That process revealed gaps, as there are some sections of the country where alumni are living but no chapters are present to organize events. Salt Lake City, Utah, is one example of such a chapter gap.

"The next goal is to create a list of all of the areas where there are alumni and no chapters, and then rank them based on what would probably be the best place to

start building chapters," said Carter, who will graduate in December and commission into the U.S. Navy.

Carter's project will continue through the fall semester, but he's hopeful that the work he's begun will be kept going long after he's graduated.

"Ideally, I'd like to create a standing program for the Alumni Association, so whenever they get new data, they could plug it in as an Excel document and it would just calculate a new list for them," he stated.

Calling the impact of Carter's work "tremendous," Thom Brashears '95, chief operating officer of the VMI Alumni Association, said that Carter had unearthed valuable information that would help the association do its job better.

"A lot of the things he's finding we kind of expected, but there's been a few surprises," noted Brashears. "If we want to improve, if we want to have a better strategic vision, we've got to be able to point to facts rather than just guess all of the time. This was a way to do that."

Since its inception, AIM has been organized by Lt. Col. John David, associate professor of applied mathematics, who had run similar programs at three other colleges and universities before coming to VMI. Right away, he knew he wanted to make cadets aware that applied mathematics wasn't just a buzz word.

"That was my goal when I became a tenure-track professor at VMI ... I saw a huge need for getting cadets integrated with businesses," David commented. "There's a lot of great projects you can do that are very academically interesting. I want them to be able to solve concrete problems."

In addition to Gibson, Gothard, and Carter, other cadets working on AIM projects this summer were Johnny Vesterman '21 and Kaleb Tucker '20. Vesterman worked with David and Col. Atin Basuchoudhary, professor of economics and business, to develop statistical applications for predicting civil conflict, while Tucker worked with Laser Tag Source, a company that rents laser tag equipment, to help them learn more about their client base. ❁



# Passion for Research Takes Cadet to Zimbabwe

By Mary Price

It's not unusual for a highly motivated cadet to have a passion for research—or for a cadet to be willing to travel in order to do that research. But a passion so strong that it involves 44 hours on an airplane? Now that's unusual.

Cameron McNeil '20 traveled to Zimbabwe this summer, doing research for his history honors project, "A Zimbabwean society forged by war." His work, which was conducted under the auspices of the Summer Undergraduate Research Institute, will culminate this academic year with the writing of an honors thesis on that topic.

For McNeil, the interest in Zimbabwe is both professional and personal, as his father served in the Rhodesian Army in the late 1970s as Zimbabwe, then known as Rhodesia, went through a civil war in the years before that nation was granted independence from Great Britain in 1980.

McNeil's family story of involvement in Africa had begun at the dawn of the 20<sup>th</sup> century, when his great-great uncle, a British subject, fought in the Boer War in South

Africa. Afterward, he and his sister moved to Africa permanently.

Two generations later, in 1952, Cameron McNeil's father, Andrew McNeil, was born in Rhodesia, then under British rule. By the 1970s, Andrew McNeil had joined the Rhodesian police force, which was a branch of the military, and while serving in rural parts of the country, he learned some of the local languages.

In 1977, he commissioned into the Rhodesian Army and served until he emigrated to the United States in 1982. This summer, Andrew McNeil joined his son on the trip to Zimbabwe, a nation that Cameron McNeil had never visited. After 22 hours in the air, they arrived in the capital city of Harare.

Not surprisingly, Andrew McNeil's familiarity with the local languages and culture opened doors. "When we were over there, my Dad made friends with everyone," said Cameron McNeil. He explained that everyone in Zimbabwe speaks English, but a few words in Shona, one of the indigenous African languages, makes a dramatic difference in how visitors are regarded.

"They become so much more friendly," said McNeil. "You become kind of like an insider."

Insider or not, McNeil didn't have much luck at first finding the kinds of people he needed to talk to. He explained that after 37 years of rule by dictator Robert Mugabe, who was deposed in a 2017 coup, personal protection is a way of life for most Zimbabweans, and many live behind gates and fences in homes protected by security systems.

Once past those physical barriers, McNeil ran into more problems. Many of the veterans he'd hoped to interview were out of the country, or away on business, while others would only talk about the events of the 1980s in general terms, for fear of retribution. Before he'd left for Africa, McNeil had decided to focus on integration of the military in a newly independent Zimbabwe, as little research has been done on that time period.

Eventually, though, Andrew McNeil's connections served them well, and through friends of friends, Cameron McNeil was able to arrange an interview with Capt. M.S.

Mavengere, who, like Andrew McNeil, is a veteran of the Rhodesian Army.

"We rented a car and drove four hours, partially at night, on a two-lane highway, because we thought he'd be worth it," McNeil explained.

Their persistence was rewarded. "He was my first breakthrough interview," said McNeil of Mavengere. "He didn't hold anything back."

In his research, McNeil is seeking to understand how the Rhodesian Army, which had been racially integrated since World War I, came together with two splinter groups made up of guerrilla fighters, both of which were backed by Communist governments, to form one cohesive military unit fighting for Zimbabwe's interests.

This integration and cohesion were vital to Zimbabwe's very survival in the 1980s, McNeil explained, because at that time Mozambique, through which nearly all imports to landlocked Zimbabwe must come, was fighting a civil war, and the Zimbabwean military had to step in to protect their nation's self-interest.

Their ability to do so had begun, McNeil believes, with the decision to racially integrate the Rhodesian Army during World War I.

"When they first formed these African units, the big thing was to break down any ethnic barriers," said McNeil. The outcome, he explained, was a military professionalism based on performance, not tribal or linguistic affiliations.

"The soldiers who were the best were those whose loyalty was to the army, to their unit, because in a sense that became their tribe," McNeil commented. "From World War I to World War II to the Rhodesian bush war, or the liberation war, the Rhodesian Army had that integration. [The splinter groups] really didn't have that."

Helping McNeil with his research and trip planning has been his adviser, Maj. Jochen Arndt, assistant professor of history, who specializes in southern African history.

"As his adviser, I can say that Cameron went the extra mile on this SURI project, and it is very rewarding for me as an Africanist ... to see VMI cadets and history majors, such as [McNeil], to have similar interests



Cameron McNeil '20 poses for a photo with Capt. S.M. Mavengere, who served in the Rhodesian and then the Zimbabwean Army.—Photo courtesy of Cameron McNeil '20.

and pursue them with such motivation and determination,” Arndt commented.

Since so many people he’d hoped to interview were away, McNeil is hoping to return

to Zimbabwe around Thanksgiving, with the goal of finding more at home. And he doesn’t plan to let his passion for Zimbabwe lapse after he commissions into the U.S.

Army and pursues a career as a military intelligence officer. Down the road, he’d like to get his doctorate and teach African history at West Point. ✱

## A Summer Studying the Grim Places of Fairy Tales: The Wicked Stepmother and Childhood Psychology

By Mary Price

Classic fairy tales such as “Snow White and the Seven Dwarfs” and “Hansel and Gretel” have long been a childhood staple, even before entertainment behemoths such as Walt Disney turned them into ongoing sources of revenue through movies, toys, games, and more.

But are the stories just stories, or do they

convey a deeper truth meant to help children deal with a sometimes overwhelming and scary world? That’s the question Maddy Moger ’20 attempted to answer in her Summer Undergraduate Research Institute project, “The Grimm Truth: What the Fairy Tale’s Wicked Stepmother Reveals about Childhood Psychology.”

Moger, an English major who hopes to commission into the Coast Guard, found her topic while taking a class with Maj. Steven Knepper, assistant professor of English, rhetoric, and humanistic studies.

In that class, she wrote an essay on “Hansel and Gretel,” a Brothers Grimm fairy tale in which a witch living deep in the forest attempts to cook and eat the brother and sister—but winds up roasting in her own oven due to the children’s cleverness. In the end, the children come home safely and the tale ends happily.

Moger wasn’t thinking about a summer research project as she began writing on the fairy tale, but the more she wrote, the more she realized she could write.

“It started out as a pretty simple essay, and I did some more research and got really excited about it,” she stated. “I could see a dream sequence within the narrative, and that got me thinking about psychology within fairy tales.”

This summer, she focused on the archetype of the wicked stepmother, as that’s a common thread found in several oral legends recorded in the early 19<sup>th</sup> century by German brothers Wilhelm and Jacob Grimm. As she researched the history of these legends, Moger



Maj. Steven Knepper and Maddy Moger '20 discuss her research on fairy tales.—VMI Photo by Mary Price.

made a discovery that might be astonishing to many: all of the stepmother characters were originally biological mothers.

When the Grimms sent their volume to be printed, she explained, editors rebelled, saying that mothers were too culturally sacred to be portrayed in this way. The wicked stepmother was thus born to work around the editors’ objections.

“That makes it interesting about the family dynamic,” said Moger. “All of these abusive stepmothers—the Brothers Grimm originally wrote them down as biological mothers.”

But why would mothers or stepmothers be portrayed in this

way? To answer this question, Moger delved into the writings of psychoanalysts Sigmund Freud and Carl Jung.

“Maddy is looking at some of these classic psychoanalytic approaches to fairy tales, like Bruno Bettelheim [a disciple of Freud’s]. ... And she’s really interested in how the fairy tales themselves seem to invite some of this,” said Knepper, who advised Moger on her summer work. “She’s also recently moving into some of the recent psychological research on fairy tales and kids.”

Moger was hoping to sit down with a faculty member in the psychology department late in the summer to learn more about child development. But she already had a theory as to why these tales have such continuous appeal to generation after generation of youngsters.

“These fairy tales, their structure and the images in them, reflect the child’s unconscious mind,” said Moger. “The wicked stepmother can be seen as the splitting of a manifestation of a parent.”

Moger is also aware that some well-intentioned people say that fairy tales only serve to feed children’s fears.

“Some parents and some critics don’t like fairy tales because they can be really scary,” Moger commented. “But a lot of the negative themes introduced in fairy tales, abandonment, fear of the dark—children already have these fears.”

She continued, “Giving them these fairy tales ... you’re not giving them the fear. You’re giving them the tool to combat the fear. It’s the sword to defeat the dragon kind of thing.” ✱



# Summer Program Cadets Explore European Union

By Mary Price

With Brexit fallout in the news daily, a summer trip to Europe gave 12 cadets a chance to study and experience daily life in the countries that make up the European Union.

"The Economics and Politics of the European Union" took place June 1-22, with cadets and faculty visiting Slovenia, Germany, and Belgium. Leading the trip were Col. Tinni Sen, professor of economics and business; Lt. Col. Valentina Dimitrova-Grajzl, associate professor of economics and business; and Col. Howard Sanborn, professor of international studies. Each professor taught a three-credit course on the trip, and cadets were required to take at least two courses, thus earning six academic credits.

"Learning and being immersed in the history of Slovenia was the biggest highlight for me during the trip," wrote Katie McCommons '21 in an email. McCommons, who plans to commission into the Army as a military intelligence officer, said she hadn't known much about that country, which was once behind the Iron Curtain, before this summer's trip.

A guest lecture by a former Slovenian finance minister helped her understand how the nation had transitioned from a centrally planned economy to a market economy. She



Cadets pose for a photo near Garmisch, Germany, during a study abroad trip that took them through Slovenia, Germany, and Belgium.—Photo courtesy of Lt. Col. Valentina Dimitrova-Grajzl.

also noted that Slovenia's economic priorities might seem askew to some: the country had electricity in its caves at Postojna Jama before electricity came to the capital city of Ljubljana.

"The decision was made to provide electricity to these caves before the capital because these caves were the major

tourist attraction in Slovenia and generated a lot of revenue," McCommons explained.

Once they'd left Slovenia and traveled to Germany, the cadets visited the European Central Bank in Frankfurt, as well as the Bavarian city of Munich, the Dachau concentration camp, and the George C. Marshall European Center for Security Studies. In Belgium, the cadets and faculty visited NATO headquarters before flying home to the United States.

Sen pointed out that while cadets seemed to learn much both in

terms of academics and culture, there was another benefit to the three-week excursion: a deepening of friendships and strengthening of bonds among cadets of different classes and majors.

"There was a lot of community building," she noted. "[Cadets] took care of each other and watched out for each other, in the VMI way. It was a very good trip—so much fun and so much learning."

Agreeing with this statement was Willson Tuck '21, an economics and business major who plans to attend law school after VMI.

"Everyone who has been to VMI shares common bonds of brotherhood; however, this can become separated because of what class you are in," Tuck wrote in an email. "Each of us was so invested in soaking up as much of the culture as possible and learning what was



Cadets visited Slovenia's Predjama Castle during a three-week trip that took them not only to Slovenia, but also Germany and Belgium.—Photo courtesy of Lt. Col. Valentina Dimitrova-Grajzl.



being taught that class segregation could not have been an option ... We needed each other."

Tuck found that group unity was especially critical when navigating unfamiliar areas. "Streets can be winding, the language to navigate is different, normal cell reception can be unreliable," he wrote. "You're just not in the same conditions as when you are in the States. Each time this could have been a stressor, however, everyone in our group was collected and ultimately we would make it back safely."

The three faculty members who led the trip would all like to plan another European excursion, but the timing of that is uncertain. Other opportunities for summer study abroad, though, are already in the works.

Dr. Dekuwmini Mornah, associate professor of economics and business, is planning to take cadets to Ghana in the summer of 2020 as part of a partnership that VMI is developing with that nation's Ashesi University.

Meanwhile, Sanborn, the international studies professor, has another goal in mind.

The recipient of a Fulbright award, Sanborn is spending the fall 2019 semester in Hong Kong, where he will study the Legislative Council, which is Hong Kong's governing body, and also strengthen connections he's made at the Hong Kong America Center, which promotes educational and cultural exchanges between Hong Kong and the United States.

"I want to look at how to bring cadets to Hong Kong," said Sanborn. "It would be great to build a sustainable program to Asia." 🇭🇰

## Press Box Renovations Allow Instant Replay

By Mary Price

This spring and summer, the press box overlooking Foster Stadium underwent its first major renovation and expansion since it was built in 1988.

The \$1.7 million project allows the Keydets to have instant replay capability, a Southern Conference requirement for the 2019 season and beyond. With this goal in mind, much of the work focused on the roof, as that's a prime spot for mounting video cameras. The roof of the renovated press box contains built-in camera platforms accessible by a back stairwell.

"Previously, they set up the cameras on a combination of cinder blocks, tripods, and other things, but now we're going to have a dedicated platform that sets the cameras above the parapets," explained Lt. Col. Daren Payne '90, construction project manager.

The stairwell, he added, allows camera crews to access the roof in a much safer manner—previously, they had to climb up a set of narrow drop-down stairs and through a trap door.

The addition of two goal-line cameras trained on the end zones supports instant replay capabilities as well. One of the cameras is mounted on the concession stand in the east end zone, while the other is mounted on a pole near the end zone closer to Cameron Hall.

Radio announcers, meanwhile, who once braved the elements to report from the roof now have their own space inside the press box. The addition of 950 square feet allows more space for coaches, who oversee the game and make calls from the high vantage point.



Scaffolding encases the press box above Foster Stadium this summer.—VMI Photo by Kelly Nye.

"The number of coaches they put in there today is probably double what they put in there in 1995," said Payne. The space was built for four people, he explained, but a typical game day will see six or seven individuals vying for a spot.

Visitors to the Ferebee Lounge, located the floor below the press box, will likely notice new paint, carpet, and furniture in that area—and workers preparing food for the VIP area now have a dedicated place to do that.

"Previously, [workers] were doing the food prep in the hallways, and had their equipment out in the hall," said Payne.

But even those who simply drive by on Main Street will notice changes to the press box.

"It's going to have the same kind of crenellations and stucco material and finish and color as the buildings directly across the street

from it," Payne commented in mid-July. "It's going to make a whole different look as you drive in." 🇺🇸



A worker from Harrisonburg Construction uses a lift to work on the addition to the press box.—VMI Photo by Kelly Nye.





## Matriculation Day

Over 500 new cadets matriculated into VMI on Saturday, Aug. 17. During the morning, cadets registered for classes, received parts of their uniforms, and signed the matriculation book in Cameron Hall. Later that afternoon, they were called down to the floor of Cameron Hall by company and marched to barracks, where the Rat Line began. The rats trained and received their first haircuts during the rest of the afternoon and evening.—VMI Photos by H. Lockwood McLaughlin, Kelly Nye, and Mary Price.

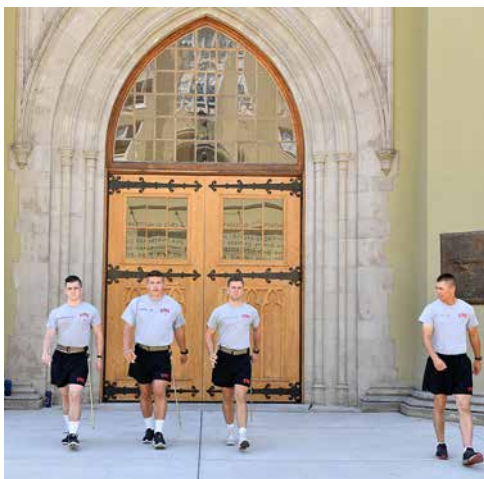






## Cadre Week

Members of cadre return to post a week before Matriculation Day to prepare for training the incoming rats. Activities included a brief from superintendent Gen. J.H. Binford Peay III '62, saber manual training, and march-in practice. The group also took a 6.8 mile run from VMI into Rockbridge County on Jacobs Ladder Road and back to Lexington.—VMI Photos by Kelly Nye and H. Lockwood McLaughlin.





# 'The Common Thread is the *Iliad*'

By Mary Price

This summer, Krystal Graves '20 studied the ancient past with the goal of learning more about modern attitudes toward war and the morality of war.

Graves examined the *Iliad*, an ancient Greek epic poem about the Trojan War, in conjunction with the writings of Simone Weil and Rachel Bespaloff, two Jewish women writing on the eve of World War II. In 1939, both women published essays about the *Iliad* and its lessons for 20<sup>th</sup> century humanity.

Spurred by an interest she'd developed while studying in Greece during the spring 2018 semester, Graves had hoped to write about the *Iliad* for her summer project, which was conducted under the auspices of the Summer Undergraduate Research Institute.

However, when she approached Maj. Steven Knepper, assistant professor of English, rhetoric, and humanistic studies, with that idea, he suggested that she narrow her topic considerably. It was Knepper who introduced Graves to *War and the Iliad*, a 2005 book that brought the essays of Weil and Bespaloff together in one volume for the first time ever.

"When I was reading it, I discovered that they're almost in conversation with each other," said Graves. "They're both writing on a very similar topic at a similar time, right before World War II."

Incredibly, Graves and Knepper both noted, the two women did not know they were both writing about the *Iliad*. By coincidence alone, they were inspired to write on the same topic at roughly the same time.

"For me, it was interesting because Weil and Bespaloff are two Jewish women writing in the context of World War II as they escape Paris and, eventually, Europe," said Graves. "They are living through the greatest conflict in the history of the world. And so, the fact they're both philosophers

who choose to study the *Iliad*'s messages about war and the human condition, at the same time and in such a unique context, was really intriguing."

For Graves, the study of warfare and humanity's responses to being surrounded by war are far from a purely academic interest. After growing up in Ruidoso, New Mexico, and graduating from New Mexico Military Institute—a school that has counted many VMI alumni among its superintendents—Graves came to VMI for Marine Corps ROTC.



Maj. Steven Knepper and Krystal Graves '20 discuss her summer research project on the *Iliad*.—VMI Photo by Mary Price.

As she prepares to commission, Graves finds the writings of those who've seen a world at war speaking to her.

"There's this continued modern significance of something that's over 2,500 years old, and there's these two French philosophers who are able to say things about the *Iliad* that resonate with me, who's a 21-year-old college student going into the Marine Corps," she stated. "The common thread is the *Iliad* through all of it."

Graves explained that while Weil focuses on the concept of force, calling the *Iliad* "a poem of force," Bespaloff focuses on resistance to that force.

"The Trojan prince Hector is a key figure for a resistance hero in the sense of this force that's acting on him in the form of the Greeks," she stated. "He understands that

he's fated to die and that his city is going to be destroyed, but he still chooses to fight against that, his fears, and to resist that force that's imposing on him."

Set against the backdrop of World War II, the writings of the two women can be seen as a commentary on current events.

"Weil's essay is a classic study," said Knepper. "Since she sort of flattens war into force, though, it makes it hard to judge just and unjust conflict. Bespaloff, with her resistance hero, has French resistance to the Nazis in mind. During the war, Weil would

actually revise her earlier pacifism and begin working for de Gaulle's Free France."

Graves hopes that her summer work will inform her honors thesis, which she plans to write on how we as a modern society lack a complete definition of honor. She explained that she'll be working with Dr. Duncan Richter, professor of English, rhetoric, and humanistic studies, to explore how the word "honor" has been used since ancient times, but its meaning has changed over the centuries.

Graves came to VMI as a biology major, but switched to English as she felt it would help her understand people better and thus be a better Marine Corps officer. As she explored both ancient and modern conflict, and human responses to that conflict, she came to an interesting conclusion.

"The conclusion I'd like to come to in this paper ... is that we as a human race should have outgrown war by now, but we haven't," she stated in early June.

"What I've learned at VMI, and from doing projects like this specifically is ... how we as war-fighters understand the most moral and ethical route you can take, and also that conflict should be transient," Graves continued. "It shouldn't be something I aspire to do for my entire life, and that's the VMI ideal of the citizen-soldier." ❧



# POST BRIEFS

## New BOV Member Named



Michael  
Lawrence Hamlar

Gov. Ralph Northam appointed Michael Lawrence Hamlar to a four-year term on the VMI Board of Visitors. Hamlar is a resident of Roanoke and third-generation owner of Hamlar-Curtis Funeral Home. In addition, his Hamlar Enterprises LLC provides financial M & A consulting services for small businesses and Hamlar Properties LLC provides real estate development services. Hamlar is a member of numerous community organizations in Roanoke and is also involved in many ways with supporting his alma mater, Wake Forest University.

Reappointed to the board for a second four-year term this summer were Lara Tyler Chambers '03, David L. Miller '70, and Gene Scott '80. Leaving the board after four years of service is Brian R. Detter.

## Frein Named Director of Undergrad Research

Col. Scott T. Frein, professor of psychology, has been appointed as director of undergraduate research. Frein joined the VMI faculty in 2007 and has been an active supporter of VMI Center for Undergraduate Research programming, especially the Undergraduate Research Symposium, and has mentored dozens of cadets in capstone and other undergraduate research projects. He has been recognized with the VMI Distinguished Teaching

Award. With former cadet Kevin Ponsler '13, he was awarded the Wilbur S. Hinman Award for Excellence in Undergraduate Research.

## New Marshall Foundation President Named

Dr. Paul A. Levensgood has been selected as president of the George C. Marshall Foundation. He previously was the vice president for development at the Virginia War Memorial Foundation in Richmond, and formerly the president and CEO of the Virginia Historical Society. Levensgood began his assignment in Lexington on Sept. 9. Levensgood succeeds Dr. Rob Havers, who moved to Chicago in January.

## BOV president to speak at December graduation

John William "Bill" Boland '73, president of the Virginia Military Institute Board of Visitors, will speak at the Institute's December graduation ceremony, to be held Wednesday, Dec. 18, at 11 a.m. in Jackson Memorial Hall. Boland graduated from VMI with a bachelor of arts degree in history. Afterward, he earned a law degree from the University of Richmond and began private law practice with McGuireWoods LLP in 1984. He recently retired from the chairmanship of that firm's business and securities litigation department. ❁



John William "Bill"  
Boland '73

## Lemuel Shepherd Donation

Sallie G. Shepherd, granddaughter of Gen. Lemuel Shepherd Jr., VMI Class of 1917, scans her grandfather's diary from 1943-44 with Col. Keith Gibson '77. Shepherd and her mother, Lola, are donating the Marine Corps general's diary, his Korean War-era leather Navy flight jacket, and a painting of him by Philadelphia artist Joseph Capolino. Shepherd commanded the 6<sup>th</sup> Marine Division during the Battle of Okinawa in World War II, and served as commandant of the Marine Corps from 1952 to 1956. His portrait will hang in the VMI Admissions office. —VMI Photos by Kelly Nye.







Preston Library staff and VMI administrators pose with representatives from W.M. Jordan Company and RRMM/Lukmire Architects in front of Preston Library during a groundbreaking ceremony Aug. 8.—VMI Photo by Kelly Nye.



VMI faculty and administrators break ground on the Scott Shipp Hall renovation project with representatives from Whiting-Turner and Glavé & Holmes Architecture.—VMI Photo by Kelly Nye.



VMI administrators, including superintendent Gen. J.H. Binford Peay III '62 and Board of Visitors president Bill Boland, pose with representatives from Branch Builds and Wiley Wilson, as well as members of VMI Police and Physical Plant, on the construction site for the new VMI Police Headquarters.—VMI Photo by Kelly Nye.

Once football and reunion seasons have concluded, at the end of November or the beginning of December, another component of the post infrastructure project will kick off: a widening of Anderson Drive, the road that provides a secondary entrance to VMI through Jordan's Point. That project will necessitate the closing of Anderson Drive for approximately eight to nine months.

"The scope of that work is to build a retaining wall on the down-slope side, the Gray-Minor side of Anderson Drive, and that will serve to widen the road, to make it a true two-lane road," said Jarvis. In addition, he noted, the one-lane bridge over Wood's Creek will be replaced by a two-lane bridge, and a sidewalk will be added, making it easier for baseball fans to reach Gray-Minor stadium on foot.

Not part of the post infrastructure project, but very much affecting life on post this fall, are renovations to Preston Library and Scott Shipp Hall. The \$19.2 million library renovation began this spring, and is set for completion in September or October 2020. Renovation is proceeding from the top down, with staff and collection items moving as needs dictate.

Like Preston Library, Scott Shipp Hall will remain in use as it's renovated. This fall, the 1955 portion of the building has been temporarily vacated in order for work to proceed, and classes are being held in the original, 1918 part of the structure. Faculty offices can be found there as well.

When the work on the 1955 portion of Scott Shipp has been completed, and a new addition built, cadets and faculty will vacate the 1918 portion of the building so it can be renovated. That switchover is tentatively scheduled to take place in December 2020, with completion of the \$43.2 million Scott Shipp Hall renovation project set for August or September 2021.

And while work on all of those projects is ongoing, another, smaller project is just getting underway. An architect has been hired to draw up plans for renovation of the Turman House, also known as Stono, one of the most historic structures on the VMI post, and one that predates the Institute itself.

Built in 1818 by prominent Lexingtonian John Jordan, for whom Jordan's Point is named, the house is one of the earliest examples of classical revival architecture in western Virginia. Today it's used primarily to house visitors to post. Jarvis estimated that the design phase for the renovations would take eight to 10 months, and construction would take another year beyond that. 🌿



# Heat Plant Upgrade Makes Precise Control Possible

Tucked away on Burma Road behind barracks, the VMI Heat Plant is easy to miss. But the work performed there literally makes life on post livable. Without the three employees who keep the heat plant going, there would be no hot meals in Crozet Hall, no hot water for showers, and no heat in barracks.

The heat plant is there to provide for all of those needs—and this year, it's undergone its first major renovation in about 30 years as part of the \$33.2 million post infrastructure project.

"We're kind of getting more '2019,'" said Scottie Swisher, heat plant supervisor. "Everything in here is getting upgraded. There's a lot more stuff that can help us be more energy efficient today."

As part of the renovation, one boiler is being replaced entirely and the other two are getting new controls. Those new controls will include a web-based platform allowing heat plant staff to access and fine-tune the system remotely.

"We can go to any computer on [post] or pull out our cellphones, and go through VMI's [virtual private network] and be able to access all of this equipment from anywhere," explained Todd Willey, who was recently hired as VMI's postwide energy manager.

"It's a huge step for us, really," added Swisher. "I'm really excited about the controls."

Willey added that the new controls will allow staff to set different temperatures in different zones of a building on demand. For example, if the superintendent and his staff come in to work on a weekend, the temperature in the portion of Smith Hall they're occupying can be adjusted independently of the rest of the building.

Concurrent with this will be the ability to measure energy usage more precisely.

"Our goal is to have an overall health summary of the [post] that shows operating costs per building on a per square foot basis," Willey commented.

Having a new boiler should also help with energy efficiency. "Now we're getting a boiler that better meets our needs," said Willey. "Prior to now, what we had to do was either run a large boiler and throttle it back, or run a smaller boiler and push it really, really hard."

This summer, with the new boiler not yet arrived on post and the other two taken out of service to have new controls installed, steam power has been provided by three temporary boilers



Crews remove one of the boilers from the heat plant on Burma Road earlier this summer.—Photo courtesy of Scottie Swisher.

mounted on trailers. Once the new boiler is installed and the new controls installed, the temporary boilers will be removed, probably by the end of October.

But perhaps the best feature of the heat plant upgrade is one that Willey hopes will be used very little—a massive generator. He explained that a 250-kilowatt backup generator will be added in late September or early October, adding another layer to ensure reliability for the provision of steam heat and electricity to barracks and Crozet Hall in an emergency.

"That'll allow us to continue to run the heat plant, continue to generate steam, and provide electricity to those buildings," said Willey. In the past, he and Swisher noted, the only way to keep cadets warm and fed in an extended wintertime power outage would have been to bring

them all into Crozet Hall, as the heat plant's one small generator could only produce enough steam for one building.

"Now, we'll be able to keep running," said Swisher. "It's a really big step."

— Mary Price



Construction crews fill the trenches created on the Parade Ground earlier this summer to replace water and steam lines.—VMI Photo by Mary Price.

# High-Flying Soybean Research for Cadet This Summer

By Mary Price

For the past several years, Lt. Col. Anne Alerding has been taking cadets into soybean fields with the goal of learning why some fields produce bountiful crops while others perform poorly. This year, though, Alerding's research has gone airborne, even as she and others stay on the ground.

Thanks to an interdisciplinary project involving the biology department and the computer and information science department, Andrew Broecker '22 flew a drone over a 150-acre soybean field near Glasgow in southern Rockbridge County this summer. The images captured by the drone's three cameras provided insight into how well the plants are growing—in a fraction of the time it used to take Alerding and her cadet assistants to walk through a field and visually inspect the plants.

"The best way to detect branching [of a plant] is to go underneath the plant and stare at the stems, but that takes a lot of time," said Alerding, associate professor of biology.



Dr. Hongbo Zhang and Lt. Col. Anne Alerding monitor a drone's flight path over a soybean field in Glasgow.—VMI Photo by Kelly Nye.

Alerding, though, hadn't really thought about other options for checking on plants until Dr. Hongbo Zhang, assistant professor of computer and information science, visited the biology department earlier this year and brought several VMI-owned drones along, with the goal of encouraging collaborative projects.

The next step was to recruit a cadet, and when Alerding met Broecker this spring, he joined up eagerly, well aware that drone experience would go well with his goal of commissioning into the Army and serving in the aviation branch. He conducted his summer work with Alerding and Zhang under the auspices of the

Summer Undergraduate Research Institute.

Broecker quickly learned that research often goes slowly and requires a steep learning curve. "Being a biology major, I wasn't used to computers and the different types of software and uploading and image analysis," he commented. "The number one thing [I've learned] is patience—not everything goes as planned," Broecker added. "But it's definitely been a great experience."

Broecker explained that the drone's three cameras capture three kinds of images: RGB (red, green, blue), infrared, and near infrared. The RGB camera takes standard aerial photos, while the other two cameras use heat sensors to measure chlorophyll, a green pigment that helps plants absorb light.

"[The cameras] use red light wavelength to reflect the levels of chlorophyll off the plants," said Broecker. A higher level of chlorophyll, he explained, means a healthier and more productive plant.

"Soybeans ... show tremendous variation in the number of branches they produce, and since each branch increases to the total yield of soybeans, we want to figure out how canopy [leaf] conditions affect branching," said Alerding. "Drone images will increase the accuracy and volume of our measurements and will help us identify the optimal field conditions to promote high-branching soybeans."

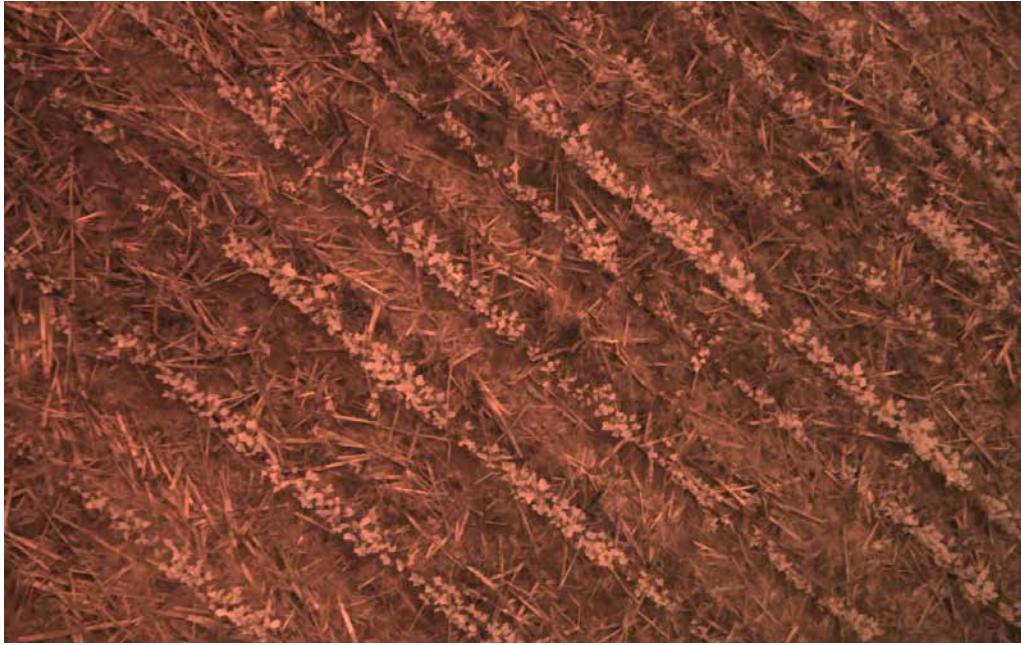
After each trip to the field, Broecker and Zhang upload the images from the drone's cameras to a computer running a program that analyzes agricultural data. By the end of the summer, the trio of researchers hoped to provide farmer Mack Smith with a research report on their findings so he could use their data to inform future plantings.



Andrew Broecker '22 flies a drone over a soybean field in Glasgow as part of his Summer Undergraduate Research Institute project in June.—VMI Photo by Kelly Nye.



Alerding noted that using a drone to monitor crops is part of precision agriculture, which is becoming more common at farms nationwide.



A near-infrared drone photo reveals the health of the soybean plants.—Photo courtesy of Dr. Hongbo Zhang.

“If you are in the know, and working with [Virginia Cooperative] Extension agents, a farmer could call in a fly-by where a drone would fly over their crops and monitor them,” said Alerding.

Zhang, whose trip to the biology department with drones in tow began it all, sees this summer’s work as an example of the kind of interdisciplinary collaboration a small school like VMI can easily produce.

“VMI has a culture to encourage interdisciplinary collaboration through different departments,” said Zhang. He added that another cadet, Kevin Andres ’20, also conducted drone research this summer, and that he and Broecker flew drones together and compared notes.

Likewise, Zhang and Alerding stayed in close touch—and Zhang didn’t mind getting hot and dusty when he joined Alerding and Broecker for field work.

“Such close collaborations are making this project successful,” Zhang concluded. ❁

## Alumnus Assists in Rescue along U.S.-Mexico Border

By Mary Price

An alumnus is credited with helping to save two lives during an incident that took place along the U.S.-Mexico border in June.

The *El Paso Times* reported that Army 1<sup>st</sup> Lt. Samuel



U.S. Army 1<sup>st</sup> Lt. Samuel Mueller ’17 and Staff Sgt. Michael Matthews worked together to rescue a woman and her child from an El Paso, Texas, canal in June.—Photo courtesy of the Department of Defense.

Mueller ’17 and Staff Sgt. Michael Matthews, both assigned to a mobile surveillance team assisting U.S. Border Patrol Agents, were watching over a canal in downtown El Paso, Texas, June 20 when they saw a migrant woman and her child enter the canal, struggle in the fast-moving currents, and then go under completely.

The newspaper reported that Matthews jumped in the water to rescue the mother and child while Mueller used his shirt as a

makeshift lifeline until U.S. Border Patrol agents arrived with a lifeline. The mother and child, reported to be from Guatemala, were uninjured in the rescue.

“My team leader reacted decisively and without hesitation,” Mueller said in a statement. “He jumped into the canal in full uniform and boots to help a woman and her child in need.”

Both Mueller and Matthews are assigned to the 3<sup>rd</sup> Squadron, 89<sup>th</sup> Cavalry Regiment, 3<sup>rd</sup> Brigade Combat Team, 10<sup>th</sup> Mountain Division.

Lt. Col. William Canda, squadron commander, praised the actions of Mueller and Matthews.

“Though we have very specific instructions to ensure [Customs and Border Protection] forces are in the lead to interact with immigrants crossing the border, I made it clear to my soldiers that they are authorized in every case to help when they feel human life is at stake,” said Canda in a statement. ❁



# Summer Project Evaluates CPTF Green Roof

By Mary Price

VMI's newest building, the Corps Physical Training Facility, was designed with 21<sup>st</sup> century needs in mind, among them energy efficiency and environmental awareness.

Among the many "green" features of the 205,000-square-foot building is a green roof, which uses soil and plants to soak up rain water that would otherwise have to be diverted into a storm water retention pond. The roof is supposed to help with temperature control, too, and thus decrease heating and cooling costs.

But is it actually doing any of those things?

That's what Maria Vargas '22 tried to find out through her Summer Undergraduate Research Institute project, which involved an economic analysis of the CPTF green roof.

"Basically, the green roof is supposed to help improve energy efficiency because it's supposed to hold the cooler air in and keep the hotter air from escaping," said Vargas, a civil and environmental engineering major. "It's supposed to all around keep the temperature more even without affecting your heating and cooling costs."

To determine the Institute's actual energy costs for the CPTF versus a building with no green roof, Vargas used Mallory Hall as her control, as that building has a traditional black EPDM (rubber) roof.

"We're going to use the difference in temperature in both buildings to figure out how much power is being used to determine if it's actually saving energy like it's supposed to be," Vargas noted.

She spent the first few weeks of June poring over utility bills provided to her by Physical Plant staff, and getting information from the VMI Construction Office about the cost savings and expected lifespan of the roof that were projected when the green roof was installed at the CPTF in 2016.

An evaluation of storm water management, too, was part of Vargas's project. Had the green roof not been built, explained Maj. Paul Ackerman '93, assistant professor of civil and environmental engineering, the Institute would have needed larger retention ponds to hold storm water.

"There's a construction cost that the green roof is saving," said Ackerman, who brings an extensive knowledge of roofing to Vargas's project. Vargas's other faculty adviser, Dr. Tanjina Afrin,



Maj. Paul Ackerman '93 explains the watering system on the CPTF green roof to Maria Vargas '22 and Dr. Tanjina Afrin.—VMI Photo by Kelly Nye.

assistant professor of civil and environmental engineering, has a background in storm water management.

Ackerman also noted that while the green roof is supposed to pay for itself, no one knows just how many years that will take. "We don't know that magic number, so that's what Maria's working on," he commented in early June.

Vargas said that if she can reach definitive conclusions, her work might help the Institute make wise decisions about future construction.

"In the long run it would help VMI because it would help them determine whether it's actually worth putting the extra money in initially for the green roof to see if it's providing the economic benefits ... because they're going to build the new swimming facility too," she stated.

"If it's worth it, maybe they can consider putting a green roof on there."

Because she's already thinking about graduate school in environmental engineering, Vargas is hopeful that she and Afrin may present the results of her research at the American Society of Civil Engineers (ASCE) International Low Impact Development Conference, to be held in Bethesda, Maryland, next year. ❁



The green roof, which spans the lower two sides of the CPTF, slows storm water runoff and helps insulate the facility.—VMI File Photo by Kelly Nye.



# SURI Projects Explore Healthcare Savings, Security

By Mary Price

This summer, two cadets worked on projects that have the potential to save money for healthcare systems.

Both Tristan Howard '20, an economics and business major, and Alex Feldner '21, a computer and information science major, conducted their research under the auspices of the Summer Undergraduate Research Institute (SURI), which is supported by the VMI Center for Undergraduate Research.

With a longstanding interest in healthcare, plus service as an EMT for Company C, Howard knew that he'd like to write an honors thesis on a health-care-related topic, and he also knew that a SURI project would be the ideal springboard for a thesis.

In the spring of 2019, Howard undertook an independent study under the guidance of Col. Barry Cobb, professor of economics and business, and that's where he found his topic: predicting the patient load, plus the nursing staff needed to take care of those patients, at the University of Virginia Healthcare Center's 17-bed pediatric intensive care unit.

The first part of Howard's work involved much number crunching and statistical analysis. "I put together 10 different forecasting models to see which ones were the most accurate, and I used three different error measurements," he explained.

In the end, Howard found good guidance from a paper that he'd read during the independent study. The paper said that the best way to utilize forecasting models is to average them all.

"We went through, did our 10 [forecasting models], took the top four most accurate ones, averaged them, and that was more accurate than any of them," Howard stated.

"It's not a lot different than forecasting the demand for some other consumer product," noted Cobb. "We don't know, exactly, of course ... we try to estimate what the error might be in the forecast."

The next step for Howard will be estimating how many nurses will be needed to take care of patients. But it's a much more complex calculation than just estimating "one nurse for every three beds."

Nurses, Howard explained, do much more than provide hands-on patient care. They ensure that medications are ordered and ready when needed, confer with physicians, and document each patient's care with meticulous accuracy. And when planning for staffing, it's

also vital to take into account that a 12-hour shift doesn't translate into 12 hours of work. There are breaks for meals, plus the interruptions that come with every job.

"That's the level of stuff we're trying to get into these models," said Howard. "The nurses do a ton of work, but we need to see how much work they actually do."

This summer, whenever he wasn't working on his SURI project, Howard could be found at the Lexington Fire Department, where he serves as a firefighter/EMT. After VMI, he hopes to work in Chesterfield, Virginia, as an EMT.

Feldner, meanwhile, worked to enhance the security of mobile healthcare applications for smartphones. These applications, which allow patients to request medication refills and interact with physicians, can save money and time, but privacy concerns keep many people from using them.

"People know that using such a system is pretty easy, convenient, and cheaper," said Dr. Youna Jung, assistant professor of computer and information science, who oversaw Feldner's research. "The reason they keep hesitating to use it is because of privacy."

Feldner explained that there are three issues related to healthcare applications in general: authenticity, or making sure users

are who they say they are; data security; and network security.

There are existing solutions, though, for these challenges. The use of strong passwords and two-factor authentication is meant to ensure authenticity. Encrypting data can enhance data security, and the use of firewalls can likewise boost network security.

There are two problems specific to mobile applications, though—data retention and the usage of personal identifying information. Feldner's task for the summer was to find solutions to those.

He envisions being able to make suggestions to software developers. "What kinds of things must they consider to protect the privacy of patients?" he asked.

It's easy to think that solutions that work for desktop and laptop computers could work for phones, noted Jung, but since computers and phones use different operating systems, that won't work.

"A mobile system has a different framework," said Jung. "We cannot apply existing methods to mobile healthcare applications."

If the security and privacy challenges can be addressed, Feldner sees great possibilities for their use by mental health patients, who are often reluctant to seek care in the first place.

In an ideal world, he said, "any mental health patient can access these mobile apps and be able get treatment and diagnosis without feeling like their information or privacy is being misused." ❧



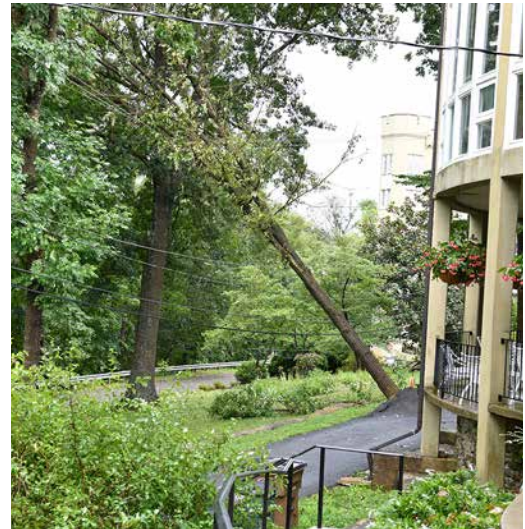
Tristan Howard '20 and Col. Barry Cobb discuss Howard's research on staffing needs for healthcare. —VMI Photo by Mary Price.





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## Microburst

Crews from Physical Plant remove downed trees after a microburst July 17. Power was lost in some buildings, and as many as 50 to 60 trees fell at VMI and Washington and Lee. The localized damage did not affect cadets on post, and no one was injured. After surveying the damage, the National Weather Service determined the localized storm was a microburst.—VMI Photos by Kelly Nye.

