



# INSTITUTE REPORT

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## 180-Plus Years of Service Three Generations of Craney's Have Worked at VMI

By Mary Price

Cheryl Craney knows she's the end of the line. With no retirement date set yet, she doesn't know when the line will end, but end it will someday—and when she retires, the Craney family's 180-year-plus years of service to the Institute will come to a close.

Put simply, the collective number of years the Craney's have worked for VMI exceeds the 181 years the Institute has been in existence.

Cheryl Craney, who has worked at VMI as a member of Physical Plant staff since 2006, currently cleans in Nichols Engineering Building, where her cheerful and kindhearted nature has won her



Twin brothers Clarence Craney Jr. and Edward Craney Sr. worked in the pressing shop on post for a cumulative total of 84 years before they retired in 1995.—Photo courtesy of the *News-Gazette*.

legions of friends among the faculty. Since the retirement of her brother, Ed Craney Jr., in December 2019, she's the last Craney left on the Institute's payroll.

Cheryl Craney has been working in Nichols almost the entire time she's worked at VMI. "One time they moved me for a couple of months, but the professors requested that I come back, so I've been here ever since," she noted. "I know all of the professors in the building."

At least three generations of Craney's have worked for VMI. Cheryl and Ed Craney's grandfather, Clarence "Turk" Craney Sr., worked in Crozet Hall for 35 years.

On their mother's side of the family, Cheryl and Ed's grandmother, Mary Virginia Carter, wasn't a VMI employee, but she had a close tie to the Institute as well, as she cooked and cleaned house for Col. Herbert "Dodo" Dillard '34, a longtime and somewhat legendary member of the English department faculty.

*See Craney Family, page 2*

## Service Fair Links Cadets, Opportunities

By Mary Price

Held Monday, Feb. 17, the inaugural VMI Service Fair drew representatives of 16 organizations to the upper floor of Crozet Hall, where cadets, faculty, and staff gathered to learn more about helping others, both on and off post.

Bringing multiple organizations into one place at the same time was the brainchild of the VMI Civic Engagement Committee, formerly the VMI Service Committee. "To cast a wider net, it's become civic engagement,"

said Maj. Sara Whipple, a member of the committee.

"It's really to encourage cadets to get involved in the local community, with the

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“She played piano by ear, so she entertained at his parties,” Cheryl Craney recalled of her grandmother.

Then the next generation came along. Cheryl and Ed’s father, Edward Craney Sr., worked in the pressing shop alongside his identical twin brother, Clarence Craney Jr., until both retired in 1995. Edward Craney Sr. was so dedicated to his work that he only missed half a day in 43 years of employment. Clarence, meanwhile, completed 41 years of service—and the resemblance between the twins was so strong that cadets and faculty members often couldn’t tell them apart.

“One guy told me—‘I thought it was the same person all along,’” Cheryl Craney recalled.

The twins’ sister, Nettie Jo Carter, a longtime nurse in Lexington, worked at the VMI Infirmary for 12 years after decades spent working for a local doctor, while another sister, Willa Mae Turner, worked in the mess hall for years, although no one knows how many.

Then, of course, there’s new retiree Ed Craney Jr., known as “Cake” to his family and friends, who worked for VMI for 39 years, cleaning in just about every building on post, and often walking to work when snow made car travel hazardous.

In the late 1990s and early 2000s, Ed Craney Jr. would take a lunch break to play basketball in Cocke Hall with a group of professors, among them the late Col. Peter Hoadley, who taught civil engineering; Col. Bob Ludt, who taught chemistry; and Col. Shawn Addington, professor of electrical and computer engineering.

“It was nice getting to know him,” recalled Addington. “We had a good time.”

There’s a funny story from Ed Craney Jr.’s retirement party. For years, he had used an ancient vacuum cleaner because he thought it worked better than newer models. At the party, his supervisor, Sheila Garrett, tried to give him the vacuum as a gag gift—but he declined to take it.

“When I retired, they retired it,” Ed Craney Jr. explained.

Still hard at work, Cheryl Craney works a 5 a.m. to 1:30 p.m. shift each weekday, although she typically arrives closer to 4:30 a.m. She cherishes the relationships she’s built with everyone on post. “The

majority of the cadets are very polite and respectful,” she commented. “And the professors—they have all been good to me from the day I came here.”

Cheryl Craney recalled a time after she’d had surgery and couldn’t empty the trash from Nichols. “The cadets would come and take my trash out for me,” she remembered. “The cadets would come after breakfast, after formation.”

She recalls one particular cadet, Robert Baker ’10, with special fondness.

“We became good friends,” she stated. “If I was off, or if I wasn’t there, he would always come and ask the other custodians, ‘Is Cheryl all right?’” The two kept up for many years afterward.

When Cheryl Craney and Baker became friends, it wasn’t the first time the Craney family had deepened their ties to the Institute beyond simply earning a paycheck. Both Ed Craney Jr. and his sister recalled that when the first African-American cadets matriculated at VMI in 1968, their parents would have the young men over to their house on Maury Street for meals.

“We are still friends with most of them,” said Cheryl Craney. “They invited our whole family to their 50<sup>th</sup> reunion the year before last.”

When she retires—a day that may not be too far off—she won’t miss the extraordinarily early setting of her alarm, of course, but she’ll miss the smiling faces in Nichols.

According to Cheryl Craney, the most enjoyable part of her job is “just coming to work in the mornings and having conversations with cadets and the professors. They tell me things going on in their families, and I tell them things going on in my family.”

Faculty members likewise enjoy having Cheryl Craney around. “She’s a pleasure,” said Addington. “She always does a professional job.”

Echoing Addington’s words was Lt. Col. Matt Swenty, associate professor of civil and environmental engineering.

“She’s such a pleasure to be around, and I dread the day she decides to retire,” said Swenty. ❀



Edward “Cake” Craney Jr. retired from VMI in December 2019 after 39 years of service.—Photo courtesy of Lt. Col. Michelle Caruthers.

The Institute Report, VMI's monthly newsletter, publishes eight issues during each academic year. Inquiries, suggestions, news items, and address changes should be directed to Editor, Institute Report, VMI Communications and Marketing, Lexington, VA 24450-0304; (540) 464-7207; or [VMIReport@vmi.edu](mailto:VMIReport@vmi.edu). © 2020 Virginia Military Institute.

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**Header photo on page 1 by**  
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## Strong Season for Powerlifters

By Mary Price

The VMI powerlifting team attended the 2020 USPA Collegiate Nationals held in Hickory, North Carolina, in February, with lifters from more than 30 teams competing. By the end of the meet, VMI had won the women's team national title, the men's team national title, and the co-ed team national title.

Earning the title of national champion were Annie Wilson '20, Casey Marchant '21, and Sam Moody '22. Wilson also won the award for best female lifter. Finishing in second place was Miyah Boyd '20, while finishing in third place were Cody Chapple '21, Damon Sutton '20, Tyler Cook '21, and Leslie Giron-Molina '21.



This is one of the many recognitions of the VMI powerlifting team.—VMI Photo by H. Lockwood McLaughlin.

Jocelyn Artman '22 broke the Virginia state records for squat (260) and deadlift (314). Wilson broke the state and national records for squat (374), state record for bench press (187), state record for deadlift (396) and state record for total (957). Evan Morcom '20 squatted (589).

Earlier this season, the VMI powerlifting team hosted the 2019 USPA Virginia State Powerlifting Championships. There were 14 state champions, three second-place finishers, and two third-place finishers. Cadets Wilson and

Morcom received awards for best female and male lifters in the meet.

The team is now preparing for the 2020 USAPL Collegiate Nationals that are being held at Pennsylvania State University in April. 🌟



The powerlifting team poses during a February practice.—VMI Photo by H. Lockwood McLaughlin.

# Szczepanik Selected to Lead Falcon Scholars

By Mary Price

For the third year in a row, an Air Force ROTC cadet has been selected to lead the Falcon Scholars at Randolph-Macon Academy, a co-ed, college preparatory school in Front Royal, Virginia, that has a heavy focus on Air Force preparation.

Brittany Szczepanik '20 found out over the winter furlough that she'd been selected as leader of the Falcon Scholars program, which is a program for high school students wanting to enter the U.S. Air Force Academy but not meeting all of the exacting criteria for admission.

She's next up in a line of VMI Air Force ROTC commissionees. In 2018, 2<sup>nd</sup> Lt. Michael McElroy '18 was the first VMI cadet chosen, and last year, 2<sup>nd</sup> Lt. Alexis Ivy followed in his footsteps. Ivy trained with VMI's Air Force ROTC through the Virginia Women's Institute for Leadership at Mary Baldwin University.

Thanks to the strong performances of McElroy and Ivy, Brig. Gen. David Wesley, president of Randolph-Macon, is now offering VMI's ROTC units the first chance to nominate candidates before opening the floor to nominations from ROTC units at other schools.

The Falcon Scholars program is designed to boost the physical fitness and academic proficiency of such young people, so they are more likely to be admitted to the academy when they re-apply.

"The Falcon Scholars program is basically the top 100 kids who don't make it into the Air Force Academy for whatever reason, maybe their grades or [physical training]," said Szczepanik.

"I get them every morning or afternoon for [physical training]," she commented. "We're basically just making sure they're ready to go into the Air Force Academy."

She'll work to instill a mindset of discipline and focus. Falcon Scholars, she explained, are recent high school graduates.

"They're definitely coming out of the high school environment," she noted. "Staying locked on is something we're used to here at VMI, but definitely the average kid is not."

When she arrives at Randolph-Macon, Szczepanik will bring with her the knowledge of physical conditioning she garnered as a member of VMI's NCAA cross country and track and field teams, where she was a

distance runner. She'll also bring experience as an S-2 lieutenant for academics, a position she's held this academic year.

And while some college seniors might be unsure about leading those only four years younger than they are, Szczepanik is not. "Coming from VMI, it definitely won't be too big of an adjustment be-

cause it's no different from being here," she stated. "You deal with your peers all of the time."

Szczepanik added that there are several reasons she's excited about the opportunity at Randolph-Macon. The position won't start until August, leaving her time to pursue an internship in her major field, civil engineering, over the summer. And at the end of February, she'll leave Randolph-Macon, because her slot for pilot training in the Air Force will open in March. If all goes well, she'll use Randolph-Macon's two pri-

vately owned planes to complete requirements for her private pilot's license, just as McElroy did.

"I selected Cadet Szczepanik for this program because of her superior standing in her class at VMI, in AFROTC, her fitness, and because she is headed to pilot training after commissioning," said Col. Philip Cooper, commander of VMI Air Force ROTC.

"I was confident that she would meet their expectations of strong leadership, strong character, and positive personality, and she did just that in her interview with them," he concluded. ✪



Brittany Szczepanik '20 pauses before take off on the flight simulator located in Kilbourne Hall.—VMI Photo by Kelly Nye

## McCleskey Selected for George Washington Fellowship

VMI history professor Col. Turk McCleskey was selected in February as one of the 2020-21 class of fellows at the Fred W. Smith National Library for the Study of George Washington. The fellowship consists of two months as a resident scholar in the Smith Library at Mount Vernon, Virginia, plus travel expenses, a stipend, and lodging on the grounds at Mount Vernon. McCleskey's project, entitled "Debt Litigation and Intercolonial Rivalry at Fort Pitt, 1773-1775," compares how the British colonies of Virginia and Pennsylvania used rival county courts to claim the strategic Forks of the Ohio River, in the vicinity of modern Pittsburgh, just before the American Revolution. Research for this project in the summer of 2019 was sponsored by a VMI grant in aid of research, for which McCleskey won the 2019 VMI Research Laboratories' Dr. D. Rae Carpenter Award.—VMI File Photo by Kelly Nye.



## Service Fair *continued from page 1*

goal of almost 100 percent of our cadets engaging in some kind of community-type experience or service project,” said Whipple of the committee’s purpose.

Of course, since only 1<sup>st</sup> Class cadets are allowed to bring cars to Lexington, getting off post to volunteer has long been a problem. That’s why Lt. Col. Todd Pegg ’92, deputy commandant for operations, was in attendance at the service fair to answer questions from both cadets and community members about permits and transportation.

“The [permit] system can be a little challenging to navigate if you don’t know what it’s about,” said Whipple.

Agreeing with Whipple about the importance of letting cadets know about service opportunities was Dr. Sabrina Laroussi, chair of the Civic Engagement Committee. “We want to provide opportunities for cadets to do service projects in the community, and be like a liaison between cadets and our community organizations,” said Laroussi. “We want [cadets] to be more involved.”

Among the community organizations represented at the fair were Hoofbeats, an organization providing therapeutic horseback



The Natural Bridge State Park was among many community organizations represented at the Service Fair, held in Crozet Hall.—VMI Photo by Kelly Nye.

riding to those with disabilities; Rockbridge Area Hospice; and the Rockbridge Area Relief Organization (RARA), whose outreach efforts to low-income individuals include a food pantry.

Also there, with a plethora of animal pelts as intriguing conversation starters, were representatives of the Natural Bridge State Park—a venue where cadets already volunteer.

“They are amazing workers,” said park representative Olivia Saacke of the cadet volunteers. “We love having them as

volunteers. They get work done in a day that other volunteers would probably take longer to do.”

Community service organizations based on post that set up tables at the fair included Building BRIDGES, a community service club that has long-standing relationships with Project Horizon, an organization dedicated to combating sexual and domestic violence, Habitat for Humanity, and the Rockbridge SPCA, among others.

“We want to show cadets that there’s a way to connect with the community in Rockbridge,

and to be a liaison between these organizations and cadets,” said Elizabeth Jackson ’20, cadet in charge of Building BRIDGES.

And when it comes to community service, time—always a scarce commodity for cadets—isn’t as limiting of a factor as cadets might imagine, said Laura Payne ’20, assistant cadet in charge of Building BRIDGES.

“That’s our role here at Building BRIDGES,” said Payne. “We try to link up the cadets with all of these organizations. It doesn’t take as much time as they may think.” ❁



The VMI chapter of the American Society of Civil Engineers was on hand at the Service Fair.—VMI Photo by Kelly Nye.



Cadets speak with a representative of Rockbridge Area Hospice during the Service Fair.—VMI Photo by Kelly Nye.

# ATHLETICS

## Basketball

The Keydets ended their 2019-20 home slate with a tough 71-64 loss at home to visiting UT-Chattanooga on Wednesday, Feb. 26. VMI trailed by a score of 37-20 at the half but fought its way back into contention and pulled within six with under two minutes to play. The Mocs hit the majority of their remaining free throws, however, to keep the Keydets at bay and escape Lexington with the victory.

The loss was indicative of how many of VMI's games have fared in close losses. During the regular season, the Keydets lost seven games by three or fewer points, eight by five or fewer, and a total of 11 losses by seven or fewer points.

Some of the highlights from the season include a season sweep over rival the Citadel as VMI came out victorious in both of the matchups. The Keydets also claimed a 74-71 SoCon victory over a good Western Carolina team Feb. 19 in Cullowhee, North Carolina, which marked VMI's third conference victory of the year.

The Keydets participated in the SoCon Tournament March 6-9 in Asheville, North Carolina.

## Indoor Track

The VMI track and field teams had several signature moments over the course of the 2020 indoor season. After the SoCon Indoor Championships March 1, VMI finished the season having hosted a total of five indoor events, the most in program history and the most since the completion of the Corps Physical Training Facility.

Distance runner Jahanzib Shahbaz '21 has been a constant spotlight this season. At the season-opening Keydet Invitational, Shahbaz set a new Pakistani national record by finishing the 3,000-meter run in 8:30.93, beating the former best time of 8:46.94. He also set a new Pakistani record in the mile run with a split time of 3:50.45, which is 13 seconds faster than the previous national

best of 4:03. He was timed for the feat while running the 1,500-meter race at the VMI Indoor Classic Feb. 15.

Sarah Leckman '21 was named the SoCon women's field athlete of the week Jan. 23 after placing third in the shot put with an ECAC qualifying mark of 13.80 meters, the best throw in the SoCon at the time.

After an impressive showing at the South Carolina Indoor Meet, Keydet sprinters Jordin Poindexter '22 (men's



Jahanzib Shahbaz '21 has set Pakistani national records this year in both the 3,000-meter run and the mile run.—Photo courtesy of Chuck Steenburgh '86, VMI Athletic Communications.

track), Ahlyiah Williams '22 (women's track) and McKenna Dunn '22 (women's field) were honored as the week's SoCon athletes of the week Feb. 26.

## Rifle

The Keydets received one final tune-up for the Southern Conference Championships when they met at West Virginia University in an NCAA sectional qualifier Feb. 22 in Morgantown, West Virginia. The VMI mixed rifle team, consisting of both male and female cadet-athletes, placed third overall in the competition, facing host No. 2 WVU and North Georgia.

## Swimming and Diving

The VMI men's and women's swimming and diving teams recently finished competition at the 2020 America East Championship in Worcester, Massachusetts. The Keydets broke many school records, and the men's team snapped nine program records this season, while the women have broken two. Jack Sheehan '23 now owns the top marks in the 100- and 200-yard backstroke, the 200-yard and 400-yard individual medley and is part of two record-holding relay teams. Zach Emerson '22 holds four school records and Sophie Svoboda '22 holds or is a part of 10 school top marks.

The Keydets closed out the 2019-20 season at the ECAC Championships, hosted by the U.S. Naval Academy Feb. 27-March 1.

## Wrestling

The VMI wrestling team finished the regular season with two wins in three matches Feb. 22-23. The Keydet victories were over the Citadel (20-19) and Presbyterian College (34-10). Neal Richards '20 (redshirt senior) had a 15-match winning streak broken against Appalachian State Feb. 23 and was 33-7 on the year heading into the



Neal Richards '20 was the 2019 Southern Conference regular season wrestler of the year and the tournament's most outstanding wrestler.—Photo courtesy of Chuck Steenburgh '86, VMI Athletic Communications.

Southern Conference Championship Tournament at Appalachian State. Richards was the 2019 Southern Conference regular season wrestler of the year and the tournament's most outstanding wrestler.

## Baseball

The VMI baseball squad had a tough early-season schedule but managed victories against the University of North Florida and Lafayette College. Outfielder Will Knight '21 (redshirt sophomore) has been on fire at the plate, hitting .563 in the first eight games with four doubles and a triple. He earned the Southern Conference player of the week award for the week of Feb. 24 and leads the conference in hits.

Right-hander Adam Jewell '22 started the season strong and was dominant in the win over North Florida. He allowed just four hits and no walks over eight frames with seven strikeouts for the victory.



Will Knight '21 bats against Lafayette College in Gray-Minor Stadium in late February.—Photo courtesy of Chuck Steenburgh '86, VMI Athletic Communications.



Lacrosse team member Ryan Perouty '21 was named SoCon offensive player of the week Feb. 25.—Photo courtesy of Chuck Steenburgh '86, VMI Athletic Communications.

## Lacrosse

The Keydets started 0-2 in the season, but came very close to victory against difficult teams. In the season opener at Manhattan College, the Keydets trailed 9-3 going into the fourth quarter but rallied for five goals in the final period to nearly pull off the come-from-behind victory. Despite the furious rally, VMI took a 10-8 final score loss to begin the year in Riverdale, New York.

VMI then took on No. 18 Lehigh University in a second straight road game to open the year and nearly pulled off the big upset before ultimately falling by a 14-11 score. The Keydets jumped to a 4-1 lead in the opening quarter and kept pace with the Mountain Hawks the entire game, holding an 11-11 tie until midway through the fourth quarter. Lehigh, however, caught a breath of life and scored three unanswered goals to end the game and fend off a Keydet upset.

Attack Ryan Perouty '21 leads the team with six goals on the season to go with four assists, for a total of 10 points two games into the season. He scored four against the ranked Lehigh squad to go with two assists and earned SoCon offensive player of the week accolades on Feb. 25 for the feat.

## Water Polo

The women's water polo team started the season strong, going 7-1 at the Mercyhurst University and Washington & Jefferson Invitionals, and riding a program-record nine-game winning streak. Two school records have already been snapped, as VMI broke the program's single-game goal mark in a 27-12 victory against Grove City College on Feb. 22. In that match, Zoe Salafatinos '21 had six goals, a school single-game-record nine steals, and two assists. Goalie Issi French '20 earned a Metro Atlantic Athletic Conference (MAAC) Defensive Player of the Week award, the eighth of her storied career. Emma Noble '20 received the Offensive Player of the Week award, while Catherine Ahumada '23 received the league's Rookie of the Week award, all the week of March 2.

VMI traveled to the Grove City Invitational Feb. 28-29 and had a West Coast trip over spring furlough, March 13-18. VMI has four matches scheduled for California and will finish up with one in Texas. 🍀



Emma Noble '20 scored 11 goals with 11 assists and drew seven exclusions shooting 55 percent over five matches during the Grove City College Invitational Feb. 29-March 1.—Photo courtesy of Chuck Steenburgh '86, VMI Athletic Communications.

# Trash to Treasure: Chemistry Major Searches for Clues

By Molly Rolon

Imagine an energy-independent United States. What if the country could make fuel from a waste product? The impact of changing trash to treasure—or waste to a viable fuel source—is hard to overstate. National security, the national economy, and the environment would see the effects.

Chemistry major John Dickenson '20 is conducting research with that lofty goal. For the past four years, he's been trying to turn carbon dioxide, the trash, into fuel—the treasure. It's possible to change carbon dioxide, he explained, but the process uses a lot of energy.

"We make more carbon dioxide in the process than we consume," explained Lt. Col. Dan Harrison '05, who is Dickenson's adviser. "[If] you're pumping two or three or four or 10 times more carbon dioxide out ... it's very wasteful. You can do it, but it's not economically feasible."

Harrison and Dickenson's research is looking at two specific chemicals, formaldehyde and methanol, which are "used in practically every industry you can imagine," Harrison said. Methanol is a fuel source, and formaldehyde is the building block of almost every man-made material. Looking around his office, from the bookshelves to a computer to furniture, Harrison couldn't find anything that a chemist hadn't touched—and most of it involved formaldehyde.

In his research, Dickenson is focusing on metal-centered complexes. Picture a three-dimensional sphere, surrounded by other spheres. Together, these spheres make a molecule. The sphere in the center is the metal—in this case, cobalt. The surrounding shapes are other atoms such as carbon, nitrogen, and oxygen. The way these atoms are connected to cobalt determines how the cobalt behaves.

Dickenson has made dozens of combinations of these molecules. Every time he makes a new molecule, he gains a tiny sliver of knowledge about how much energy must flow into it to start the process of converting carbon dioxide.

The process is like climbing a tree, Dickenson said. He doesn't have to start climbing from the bottom of the trunk, but he often needs to reverse course when he comes to the end of a branch—and then find a new branch to explore. Helping him in his research are several machines, including something that looks like a cross

between a smooth, shiny trash can and *Star Wars*' R2D2 droid: a nuclear magnetic resonance (NMR) spectrometer.

The quarter million-dollar machine brings Dickenson's research to a new level, allowing him to see specific structural details of his samples. The NMR also puts VMI chemistry degrees at a higher level, allowing the Institute to grant American Chemical Society-certified degrees.

Dickenson's research is complicated and is also—like much research—full of failure.

While no one enjoys failure, Harrison said he'd much rather let cadets make their mistakes at VMI, where he can work with them and help them learn from their missteps. Then, he's able to send well-prepared graduates to their real-world jobs.

"The value of failure is you gain experience. Having experience and having context and knowing how to solve problems is what makes really strong leaders in our world," Harrison said.

Failure also teaches perseverance, and Dickenson has continued pushing forward through hundreds of reactions—and 90 percent of them have failed.

Through these failures, Dickenson and Harrison now understand very subtle changes in the electronic structure of compounds. These "little clues" Dickenson

uncovered through his years of undergraduate research built a foundation for the next 20 years of research, Harrison said.

Extending far beyond the tan walls of VMI's academic buildings, undergraduate research not only solidly prepares cadets for their futures, but also builds something more intangible—the relationship between a professor and a cadet. Working closely with cadets daily builds lifelong connections, Harrison said. He keeps in touch with many former students and has attended many of their weddings. One of Harrison's own mentors, Col. Steve Riethmiller '63, still teaches in the department and was at Harrison's own wedding.

Undergraduate research at VMI is largely possible through the Jackson-Hope fund, which was established in the late 1990s to promote academic excellence at VMI. Research like Dickenson's would "absolutely not be possible without the backing of the Jackson-Hope board," Harrison said. The Jackson-Hope fund has helped pay for lab equipment, chemicals, faculty professional development, and cadets' conference attendance.



John Dickenson '20 works on a renewable energy project in the chemistry lab in Maury-Brooke Hall.—Photo Courtesy of Molly Rolon, VMI Alumni Agencies.



“My personal success with scholarly engagement success and contribution to science would not be possible without Jackson-Hope,” Harrison said. “Basically, we’d be living in a subpar environment that I can’t even imagine working in.”

Following his graduation in May, Dickenson will attend graduate school to pursue a doctorate in chemistry. He’s been accepted to Northwestern University, which Harrison pointed out is one of the country’s top schools for chemistry. He’s also been accepted to the University of North Carolina at Chapel Hill and is waiting to hear from three other schools.

“I want to end up either in a government lab or a corporate lab, doing ... cutting-edge research,” Dickenson said. “I don’t want to go mess around in a dusty corner of science that no one’s going to look at for the next 40 years.” ❄

## NMR Upgrade Boosts Data Quality

A new attachment, the JEOL Auto Sample Changer, was added to VMI’s nuclear magnetic resonance (NMR) spectrometer in Maury-Brooke Hall Feb. 19. The attachment will automate multiple data collection samples overnight, eliminating time constraints for cadets, and producing publication-quality data.

“It is common at upper-level research schools for students to analyze their own NMR samples as part of their regular course and laboratory work,” said Lt. Col. Dan Harrison, associate professor of chemistry. “It used to be unfeasible at VMI for cadets to incorporate NMR analysis directly into their coursework due to inherent delays in instrument accessibility, individual data collection time.”

The Auto Sample Changer will be used by many upper-level chemistry courses including General Chemistry Lab for Majors, Organic Chemistry Lab I and II, Instrumental Analysis, and Advanced Inorganic Synthesis Lab, as well as undergraduate research programs. The new attachment could also facilitate additional advanced courses.

— Kelly Nye



Lt. Col. Dan Harrison '05 inspects the Auto Sample Changer, an addition to the nuclear magnetic resonance spectrometer, in Maury-Brooke Hall.—VMI Photo by Kelly Nye.



## First Parade of 2020

Cadets march in a retreat parade Feb. 21, the first of 2020. During a retreat parade, cadets lower the garrison flags for the evening, and the Cadet Battery fires the evening gun.—VMI Photos by Kelly Nye.



# Women's Group Focuses on Cadet Health

By Leeann Gibson and Mary Price

When it comes to the health of the Corps, there are few advocates quite like Jenny Crance.

As the Institute nurse practitioner, Crance provides all women's health care services on post and cares for male cadets as well. For the last five years, Crance has gone above and beyond by giving female cadets a chance to provide feedback through a women's focus group. The dialogue fostered by Crance has helped ensure that female cadets have the resources they need to be comfortable and confident as part of the Corps.

"One of my passions is women's health, and I wanted to do some outreach to women on post to learn what they wanted from health care services here," Crance explained.

The group has convened once a semester since 2015. About 20 people meet for discussion, including cadets from each class as well as VMI faculty and staff invited based on the focus of the particular meeting.

"I don't want [the focus group] to get too much bigger because then you lose some of the intimacy. Some people bring out some very personal stories," Crance reflected. "We want it to be judgment free."

Those who attend have found it a valuable venue for sharing common challenges encountered by female cadets.

"Having everyone in the same place to talk about [these issues] gives validation to our concerns," said Aubrey Butto '20.

At the most recent women's focus group meeting on Feb. 26, members learned about the Building BRIDGES service club, which seeks to unify VMI cadets, faculty, staff, and community through volunteerism. Col. Valentina Dimitrova-Grajzl, faculty adviser of Building BRIDGES, let members know about women's issues the club focuses on and asked for input on what programs and events female cadets might find helpful.

Past discussions have included training exercises, cadet health, and Title IX requirements. The group has evaluated ways to improve the dissemination of information regarding health care services available on post. The working group has also explored concerns regarding female rats, who must overcome unique challenges in their transition to VMI.

The forum provides an "opportunity to discuss changes that will be beneficial to the whole Corps," said Lauren Dost '20. Concerns

## Jenny Crance Adds to Her Expertise

"There were a lot of 5 a.m.'s in my life."

That's what Jenny Crance, nurse practitioner at the VMI Infirmary, had to say about earning her doctor of nursing practice (DNP) degree from James Madison University, an accomplishment she completed in December 2019.

Crance explained that a doctor of nursing practice is one of two terminal degrees in the field of nursing, and of the two, the one which is more associated with clinical practice. The other, a doctor of philosophy degree, is more associated with teaching and research.

Crance knew from an early age that she wanted to work in health care. After earning a bachelor of science in nursing from JMU, she worked in emergency medicine for a year before returning to school at the University of Virginia to earn her nurse practitioner degree.

After a period of time working in family practice in Buena Vista, Crance came to work at VMI eight years ago, where she works under Dr. David Copeland, Institute physician.

"About three years ago, I got the itch to get the terminal degree associated with nurse practitioner," she commented. Through JMU, Crance was able to do a good chunk of the work required for the DNP



Jenny Crance celebrates with her husband Matt as she receives her doctor of nursing practice degree at James Madison University in December.—Photo courtesy of Jenny Crance.

online. That saved her a lot of money in gasoline, but it required numerous early morning sessions before her two young children awoke.

Some of her work for the degree could even be done on post. Because the DNP is clinically oriented, it requires the completion of a research project rather than the writing of a dissertation. Crance did hers on VMI's concussion policy for rats.

"I learned a lot," she noted. "As you get older and do more school work, you're more appreciative of it because you actually use it. I learned a lot about translating research into practice."

Crance said she'd like to thank VMI as a whole and Copeland specifically for their roles in helping her achieve this milestone.

Going forward, having additional letters after her name won't change what Crance does on a daily basis to help cadets maximize their health.

"This just adds some professionalism," she said. "It's just an expertise thing, really. It doesn't change what I can do clinically."

One thing she can do now is rest. "I didn't want my doctorate to interfere with my children," she stated. "Now, I'm just getting an extra hour of sleep."

— Mary Price

raised during past meetings resulted in improved living conditions benefiting all cadets.

Katie McCommons '21, who has participated in the focus group since her 4<sup>th</sup> Class year, appreciates the “comfortable environment” Crance has created and always looks forward to group meetings. McCommons praised Crance’s efforts to be an effective voice on behalf of female cadets.

“With [Crance], I’m always confident there will be follow-up,” she said.

Crance returns the admiration of the cadets. “It’s a really interesting dynamic with the conversations we have and the things they bring up,” Crance said. “There are some impressive, observant, and influential women out there.”

More than addressing a narrow set of issues, members of the focus group desire to pass on a legacy for conversation that will continue improving the health of the Corps.

“I hope we’ve created a place where [women] who think of new issues can share those and have them addressed,” said McCommons. 🌟

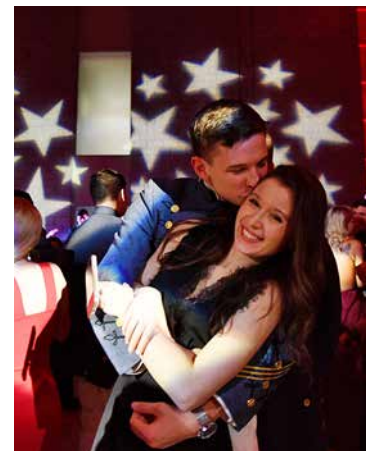


The women’s focus group meets for a meal and to learn more about the Building BRIDGES community service group Feb. 26 in Crozet Hall.—VMI Photo by H. Lockwood McLaughlin.



## Midwinter Formals

Cadets and their dates dance in Marshall Hall during Midwinter Formals Feb. 14 and 15. Friday night, 1<sup>st</sup> and 2<sup>nd</sup> Class cadets attended, with 3<sup>rd</sup> and 4<sup>th</sup> Class cadets attending Saturday.—VMI Photos by Kelly Nye and H. Lockwood McLaughlin.



# Real-World Problem Solving

By Mary Price

It's easy to think that for a math major, the capstone or senior year project might involve solving a very complex equation. But in VMI's applied mathematics department, the capstone course is designed to prepare cadets for a world in which finding the right answers isn't easy—nor can those answers necessarily be proved mathematically.

In mid-February, all 13 of the 1<sup>st</sup> Class cadets majoring in applied mathematics competed in the COMAP ICM/MCM competition, which offers students from all over the world the chance to use their mathematical skills to solve a real-world problem. COMAP, which stands for Consortium for Mathematics and its Applications, sponsors the International Competition in Modeling/Mathematical Competition in Modeling each year, and VMI has participated since 2015.

"The students take this competition and they create, in theory, up to a 20-page report in 100 hours," explained Col. Troy Siemers, chair of the applied mathematics department. "They learn how to tackle an open-ended problem and find good resources."

It's stiff competition: nearly 15,000 teams worldwide compete each year, said Siemers, with only about 10 to 15 percent of those teams advancing to the national competition. So far, no team from VMI has ever made it to the national level, but there have been a few honorable mention winners.

"Getting even to that level means you're in the top half," Siemers noted.

Normally, the COMAP competition offers entrants a choice of six questions, but this year, the coronavirus outbreak made organizers split the competition into two weekends, with three questions each, and VMI chose to compete in the February event.

One of the February questions had to do with managing a fishery when global warming is encouraging fish to migrate to colder waters, while another involved setting global limits for single-use plastics,



Kelia Aardema '20 and Kaleb Francisco '20 try to mathematically determine where herring will be found in the North Sea when ocean temperatures rise.—VMI Photo by Kelly Nye

and the last was coming up with strategies for improvement for a fictional soccer team.

It was the last question that intrigued Max Stuart '20, along with teammates Zach Shaffer '20 and Zeac Harris '20. Stuart explained that he and the others were given a year's worth of statistics for the fictional team and asked to make recommendations on how to improve

their game—"what advice you can give them for better teamwork, what advice you can give for what not to do, what to do," he noted.

Stuart came into the competition having played fantasy football, and Harris had some knowledge of soccer. Putting their heads together, they were able to come up with a plan for the fictional soccer team.

"We had some really cool findings actually," he said. "We started off by using this network science kind of thing—kind of a hierarchal passing scheme, seeing who's getting the ball the most, who's passing it the most."

Now that the competition is over, and their paper has been submitted to COMAP, Stuart and his teammates are busy polishing their work, as they plan to present it at a meeting of the Mathematical Association of America in late April in Salisbury, Maryland.

"It's kind of the oral competency part of their grade," Siemers explained. "The judges give them scores and feedback."



Kaleb Tucker '20 and John Daniel '20 work on their research for the COMAP ICM/MCM competition in Lt. Col. Jessica Libertini's capstone applied mathematics class.—VMI Photo by Kelly Nye.

Stuart, who hopes to use his applied math major and physics minor to work in the space industry, said he'd learned a lot from the COMAP competition.

"I really think this project showed me how I could apply my skills in a short time period," he stated.

"Most of the problems they gave us—if they could be solved, they would have been solved," he continued.

"Not all of the problems are easy.... But it's more about working with what you have, putting your effort in, and who knows? You may be able to find a breakthrough down the road." ❁

## Civil Engineering Cadets Seek Concrete Applications

By Mary Price

Now in its second academic year of operation, the newly renovated structures lab in the civil and environmental engineering department has provided greatly needed space for cadet projects. This year, in addition to the concrete canoe, a longtime civil engineering staple, there's a project to test ultra-high performance concrete (UHPC), a building material that includes metallic fibers mixed into the concrete.

Two years ago, cadets began experimenting with the substance in the structures lab, but they were mixing their own UHPC. This year, thanks to a grant from a French company, LafargeHolcim, Jim Tulsiek '20 and Garret Shultz '20 are working with that company's proprietary mix. And while it may sound easy to use an off-the-shelf product, Lt. Col. Matt Swenty, associate professor of civil engineering, and the cadets working with him would be the first to say it's not.

"You have to have a knowledge base to use this material," explained Swenty. "You can't just go out there and start working with it."

Because of the metal fibers embedded in the concrete, it's also somewhat hazardous, making gloves a must-have for anyone handling it. It even proved too challenging for VMI's concrete mixer.

"The first week back from winter furlough we had some setbacks," Tulsiek noted. "The material is difficult to work with, and the mixer wasn't powerful enough to turn it." Thankfully, Swenty was able to borrow an industrial-strength mixer from the University of Virginia so the cadets could continue with their research.

Tulsiek, who will commission into the Army Corps of Engineers in May, is conducting the UHPC research as part of an Institute Honors thesis. He's trying to determine if it's possible to apply UHPC as a laminate onto reinforced concrete beams to see if that might be a solution for aging bridge decks and other structures.

He's also looking into the reinforcement ratio of the concrete, which Swenty explained is a measure of how much steel

is in a reinforced concrete beam. "Placing more rebar in a beam makes it stronger up to a point, but it has negative side effects," Swenty commented.

With that knowledge in mind, Tulsiek is trying to answer a question: "Is there a Goldilocks zone, a perfect area, where we could have a little bit of steel to make it cost-effective and still be able to use this new material to maybe give it more strength?"

As with most research, there are a lot more questions than answers.

"A lot's been published about UHPC and what its properties are," said Tulsiek. "There hasn't been a lot about real-life applications and how to use it."

Shultz, meanwhile, is undertaking an independent study to determine how smooth or rough the reinforced concrete needs to be before the UHPC is applied.

"Ultimately, that roughness coefficient determines a lot of strength," explained Shultz, who will commission into the National Guard and attend Virginia Tech for graduate study. "The ideal is that the laminate should act as one, and it should work as one."

Swenty added that this time, the cadets

are using beams that are of the same scale, dimensions, and ratios as the beams used on construction sites.

"Everything done before has been conceptual," he stated. "This is more of a proof test."

And once the cadets are done with their research, they'll be ready to share their newfound knowledge with the wider engineering community.

"The end goal would be that we finish writing the independent research paper, and we get [Lt.] Col. Swenty to advise us on it, and we submit that to [the American Society of Civil Engineers] for publication," said Shultz. ❁



Garret Shultz '20 watches while Jim Tulsiek '20 drills into a wooden form prior to pouring concrete in the civil engineering lab.—VMI Photo by Kelly Nye.

# Visiting Professor Brings Firsthand View of Russia, Iran

By Mary Price

This semester, a visiting professor with an unusual background is sharing her experiences and knowledge with cadets via two courses she designed herself.

Dr. Svetlana Ravandi-Fadai grew up in Azerbaijan, a former Soviet socialist republic bordering the Caspian Sea, as the daughter of an Iranian father and Russian mother. After visiting relatives in Iran, she developed an interest in Iranian culture and went on to earn bachelor's and master's degrees in Middle Eastern studies from Baku State University in Azerbaijan.

After she'd added another master's degree, this time in international relations from Moscow State University, she sought a position as a diplomat in Iran, only to be told she wouldn't be considered because she had too many close relatives in that nation.

"They wanted me to go to Afghanistan," she explained. "But Afghanistan—it was 1997. It was too dangerous for women."

At that point, Ravandi-Fadai decided to go into academia and earned her doctorate in Iranian studies from the Institute of Oriental Studies of the Russian Academy of Sciences in Moscow, where she currently teaches.

As a scholar, Ravandi-Fadai traveled regularly to conferences—and it was at a conference in Istanbul, Turkey, about 10 years ago that she met Col. Elena Andreeva, a Middle Eastern scholar who is an associate professor of history at VMI.

"We started to be friends after this conference," Ravandi-Fadai noted. As their friendship deepened, Ravandi-Fadai would visit Andreeva as often as she could whenever she was in the United States. In 2013, during her first trip to VMI, Ravandi-Fadai gave a speech in Marshall Hall on the political system in Iran. It was an experience she'll never forget.

"I expected maybe 20 people," she recalled. "I thought it would be a small group."

But Gillis Theater was far fuller than she'd anticipated. "It was a huge crowd—it was 300 people," she continued. "The whole crowd was in a white uniform.... I was close to a heart attack. I



Visiting professor Dr. Svetlana Ravandi-Fadai teaches a class on foreign policy of Russia in the Middle East.—VMI Photo by Kelly Nye.

Richmond native Kevin McNeer, and she'd already become familiar with the culture and people here.

This semester, she's teaching History of the Caucasus and Foreign

Policy of Russia in the Middle East. Ravandi-Fadai had high praise for the "most polite" cadets she's encountered at VMI.

"I see their questions. I see their reactions. They're very active," she commented.

The Caucasus class, she admitted, is challenging for some cadets, not only because it's taught at 8 a.m. but also because the Caucasus, a region between the Black Sea and Caspian Sea, is a blank slate to most Americans.

"The Caucasus is unknown," Ravandi-Fadai commented. "There's a lot of ethnic minorities—a lot of unknown names of these minorities. There's a lot of conflicts.... The longest war in the history of wars was the Caucasian War, which lasted 60 years."



Dr. Svetlana Ravandi-Fadai hands back papers during her foreign policy class in Scott Shipp Hall.—VMI Photo by Kelly Nye.

But despite the challenges, Ravandi-Fadai has seen cadets' understanding of her homeland grow. "Maybe I will gather all of my lectures, make a book in the English language, and dedicate the book to cadets," she commented.

Unlike many American visitors to post, who sometimes have negative reactions to VMI's stark Gothic Revival architecture, Ravandi-Fadai has found herself at home surrounded by stucco walls and crenellations.

"I like very much the architecture of VMI," she commented. "It reminds me of a fortress. You feel safe inside a fortress."

Cadet uniforms, too, bring a smile to her face—even if her first sight of so many of them together in Gillis Theater years ago nearly elicited panic. In Russian culture, she explained, the military is exalted and veterans are nearly sacred.

"It's very impressive," she said of the uniforms. "It makes people very special, very honorable."

As a visiting professor from another culture, Ravandi-Fadai also strives to help cadets understand that culture at a deeper level. "We are in history," she stated. "We study history, and its deeper reasons for things. I hope they will think, and they will have their own view." ❁

## Wyatt Named Director of C&M

By Mary Price

Col. William "Bill" Wyatt has been named director of communications and marketing at Virginia Military Institute effective Feb. 10. Wyatt replaces Col. Stewart MacInnis, who retired March 1 after nearly 17 years at VMI.

Wyatt was previously director of communications and spokesperson at James Madison University, where he was responsible for the university's media relations, social media, crisis communications, and issues management efforts. Prior to his employment with JMU, Wyatt worked for the National Conference of State Legislatures in Washington, D.C.



Col. William "Bill" Wyatt

Wyatt and his wife, Carey, are the parents of six children.

MacInnis came to VMI in November 2003 as associate director for communications and marketing. Prior to coming to VMI, he was public relations coordinator at Virginia Tech, and before that, he served for eight years as public affairs officer for the Virginia National Guard. He served on active duty with the U.S. Army from 1973 to 1976 and joined the National Guard after that. In addition to his military experience, he was a newspaper reporter and editor for 10 years. ❁



### 6<sup>th</sup> Floor Opens

Cadets study on the 6<sup>th</sup> floor of Preston Library. The renovated floor, located one floor up from the main level, opened Feb. 28 and includes a wide variety of study seating options, new furnishings, upgraded Wi-Fi, and many other enhancements. The VMI Center for Undergraduate Research, Math Resource Center, and Sponsored Programs are also now located on this floor.—VMI Photos by Kelly Nye.



### Black History Month

The Rev. Reginald A. Early, president of the Rockbridge NAACP, told listeners to "get involved, stand up, and speak out" during remarks given Feb. 13 as part of VMI's Black History Month celebration sponsored by the Promaji Club. Early, who is now a semi-retired minister, also called upon the community to address issues such as the lack of teachers of color in local schools. The VMI Jazz Band, the Commanders, performed prior to Early's speech.—VMI Photos by Mary Price.





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## TAPS—Bill Badgett '53

Col. William “Bill” D. Badgett '53, professor emeritus of English and Fine Arts and the longest-serving faculty member in the history of VMI, passed away at the age of 88 on Feb. 24.

Col. Badgett graduated from VMI with a degree in English with a desire to teach. After a tour of duty in the U.S. Air Force, he joined the faculty as an instructor in 1955. Although he retired from the full-time faculty in 2010 after 55 years of service, he continued to teach until 2016 as the Edwin P. Conquest '14 Chair in the Humanities. Col. Badgett’s only time away from VMI was when he earned a master’s degree in the history of art from Harvard in the late 1950s. Including his cadetship, he served under eight of VMI’s 14 superintendents. In 2011, he was quoted as saying “I plan to teach as long as sight, hearing, and memory allow.”

Gen. J.H. Binford Peay III '62, superintendent, said, “His dedication to VMI to bringing the love and knowledge of fine arts to cadets was remarkable. He opened the eyes of cadets to the world of art, music, architecture, and literature, and was a strong supporter of the VMI system. Bill was an icon in VMI’s long and



Col. William “Bill” D. Badgett '53

remarkable history, and will be missed.”

Col. Emily Miller, department head of English, rhetoric, and humanistic studies, echoed this sentiment. “An outstanding teacher, both in and out of the classroom, he immeasurably enriched the cultural knowledge and experience of many generations of cadets, faculty, and local residents.”

For more than 20 years, Badgett arranged all aspects of an annual classical concert series offered to VMI, W&L, and the entire Lexington and Rockbridge community. He was the recipient of three VMI Distinguished Teaching Awards, a VMI Distinguished Service Award, and two VMI Achievement Medals. ❁



## Cyber Fusion

The Center for Leadership and Ethics, along with the Virginia Cyber Range, hosted the fourth annual Commonwealth Cyber Fusion Feb. 21-22 in Marshall Hall. The event brought students from across the state to meet with potential employers and hear from experts in the field. On Saturday the schools competed on the Cyber Range, with George Mason University finishing first.—VMI Photos by H. Lockwood McLaughlin.

