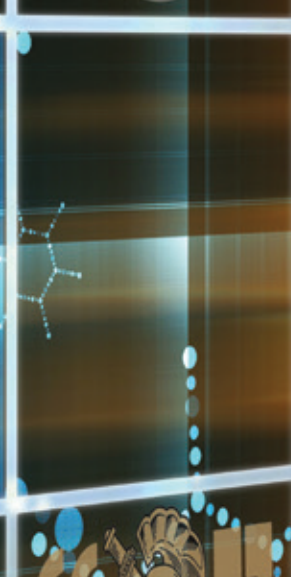
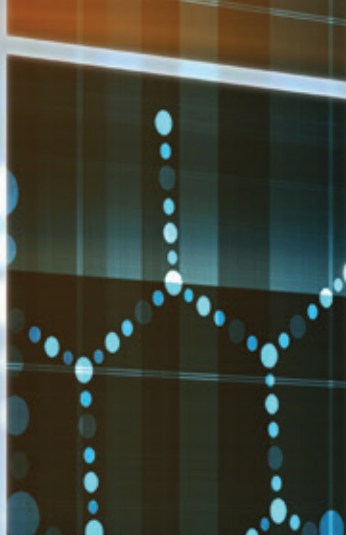
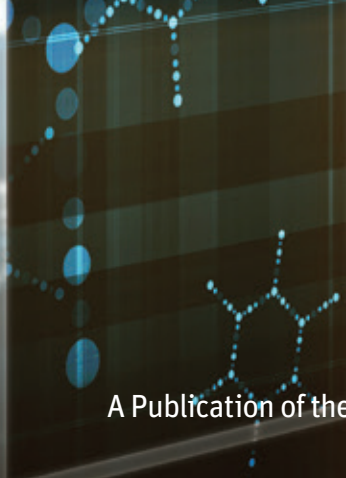


West Point

SPRING 2017



**The Legacy
of Research
and Innovation
at West Point**



A Publication of the West Point Association of Graduates

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West Point

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ON THE COVER

West Point's many research institutes and centers offer a range of educational opportunities for cadets and faculty members. Every center or institute receives support through generous donor contributions to Margin of Excellence programs.

FROM THE PRESIDENT & CEO

Dear Fellow Graduates:

In March, your West Point Association of Graduates team enjoyed visiting with many of you at Founders Day celebrations across the nation. Also on Founders Day, we were excited to launch three new WPAOG initiatives. Together, they form the foundation of our Rockbound Highland Home program, designed to welcome graduates and their family members back to our alma mater and to enhance their experience while visiting West Point. To preview the Rockbound Highland Home program, please see pages 36-37 in this issue of *West Point* magazine.

Also showcased in this issue are examples of the dynamic innovation taking place in West Point's academic research centers and institutes. From counterterrorism to cyber defense, from civilian-military operations to modern warfare, from network science to the rule of law, West Point's centers of excellence offer cadets opportunities to participate in focused academic pursuits at the undergraduate level. Their experiences are unique. They are not available in other undergraduate programs. As you will read, many cadets, guided by world-class faculty, are advancing knowledge within the Academy, within the Army, and within our nation. Many of their projects will, one day, support our Army's soldiers and further excellence in the profession of arms.

West Point's culture of in-depth practical research and problem-solving innovation is, to a great extent, made possible by the Margin of Excellence programs generously funded by West Point graduates, parents of cadets, and other friends of the U.S. Military Academy. In this regard, 2016 was a banner year. Together, more than 22,000 donors gave \$49.9 million! Consistent, annual support of our alma mater makes a positive difference in the unsurpassed quality of our cadets' experiences. Thank you!

Our service for West Point and for the Long Gray Line is governed by our superb Board of Directors. They are supported by a 54-graduate Advisory Council. Directors and Advisors-at-Large are elected by WPAOG's regular members, i.e., all West Point graduates. This is the time of year when we are actively seeking candidates for nomination and election. Please consider applying for service on the Board or Advisory Council, or consider volunteering for a leadership position with your USMA Class or your local West Point Society. Our vision for the Long Gray Line is to be the most highly connected alumni body in the world. To realize that ambitious vision, we must continue to be led by talented and dedicated volunteers. Information on WPAOG's nominating process is posted at WestPointAOG.org under Governance. Please feel free to contact me, as well, if you have questions.

In closing this letter, I ask you to note that on Saturday, May 27, the Class of 2017 will toss their white hats into the air and join the Long Gray Line. As opportunities arise, please welcome our newest Old Grads to our global community of 52,000 living West Point graduates.

Thank you for making our Association of Graduates an alumni body like no other.
BEAT NAVY!

Serving West Point and the Long Gray Line,

Todd

Todd A. Browne '85
President & CEO
West Point Association of Graduates





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It was great to see so many of you recently at Founders Day events throughout the country.



These events are important, as they allow us to pause and celebrate the proud heritage we all share of not only being soldiers in the world’s best Army but also the heritage of the shared experience that is West Point, which marks us as members of the Long Gray Line.

It’s always a pleasure to get out over Founders Day to share the excellence taking place at West Point with all of you. This

past year has been an exciting one, filled with many great accomplishments. As I’ve spoken with many of you, I know you’re impressed by the great things taking place at your alma mater, and, more importantly, I know how proud you are of the Corps of Cadets, our future leaders of character. So thank you for getting out to these events and supporting your local West Point Societies!

We recently approved the new USMA Strategic Plan: *Commitment to Character and Excellence*, a reorganized plan that sets the conditions to continually innovate and improve our world-class leader development programs. Since the publication of our previous strategic plan in 2015, we recognized there were a number of redundancies that caused confusion throughout the organization, limiting both the effective implementation of the plan as well as the full potential of the West Point team. As a result, we reorganized the plan to eliminate those redundancies and help facilitate communication and planning throughout the Academy. This plan is forward-looking, recognizing the complex, dynamic operational and fiscal environments we will face in the future, while aligning with the Army’s current strategic documents.

Led by two guiding questions that emanated from the Academy’s vision statement (“to be the preeminent leader development institution in the world”)—“What leaders will our Army need in 10, 20 and 30 years?” and “What is required to maintain preeminence in 10, 20 and 30 years?”—we organized this plan around two strategic imperatives to shape the direction of every action and activity at USMA.

The first imperative, “Develop Leaders of Character,” is how we operationalize our mission through the West Point Leader Development System (WPLDS). Within this imperative are the eight WPLDS outcomes, the “ends” of this imperative.

The second imperative, “Foster Relevance and Preeminence,” describes how we operationalize our vision. It is comprised of five goals that serve as the “ends” for planning and resourcing within this imperative:

- Build and Sustain Effective and Diverse Teams
- Promote Staff and Faculty Excellence
- Develop and Provide Institutional Intellectual Capital
- Sustain Commitment to Stewardship
- Foster a Culture of Excellence and Winning

Within each of these goals are commitments that articulate the ways we will achieve our goals.

Our graduates contribute daily to the success of West Point, and those contributions are critical to our strategy. Your efforts in helping our Admissions team identify the best candidates or to mentor our cadets are key components of building and sustaining effective and diverse teams. Your generous financial support helps to ensure we provide our cadets with a world-class educational experience, which is important to attracting, recruiting, and retaining high-quality cadets. Additionally, your support ensures we have the best infrastructure (one of the ways in which we sustain our commitment to stewardship). Alumni donations also support many of our research centers, such as the Modern War Institute, the Army Cyber Institute and the Combating Terrorism Center, which are building partnerships within academia and industry, solving problems of national significance, and providing intellectual support to the Army and the nation (all keys to developing and providing institutional intellectual capital).

You are all vital partners in our mission to develop leaders of character to fight and win our nation’s wars. Together, we will ensure that the United States Military Academy continues to be the world’s preeminent leader development institution.

On another topic, I am pleased to announce that the Department of the Army and the Army West Point Athletics Association (AWPAA) recently entered into a cooperative agreement that will allow AWPAA to provide support to our intercollegiate athletics program. Now, as a 501(c)(3) non-profit organization, AWPAA can manage its program similarly to other Division I institutions, including our sister service academies. This process will appear transparent to most but offers a level of flexibility that provides an extraordinary Division I athletics experience that will better facilitate our leader development programs. Additionally, the West Point Association of Graduates will continue to work closely with the AWPAA to collaborate and develop opportunities to promote Margin of Excellence programs.

As always, thank you for all you do in supporting the Corps of Cadets and West Point.

Beat Navy (again)!

Robert L. Caslen Jr. '75
Lieutenant General, U.S. Army
59th Superintendent, U.S. Military Academy



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West Point
ASSOCIATION OF GRADUATES



West Point's Research Centers and Institutes: A Legacy of Innovation

By Keith J. Hamel, WPAOG staff

Last December, a number of West Point graduates and faculty members from the Department of Electrical Engineering and Computer Science at the United States Military Academy pulled off a “trifecta,” attending three conferences over the course of five weeks and receiving “Best Paper” awards at each. Second Lieutenants Justin Dalme, Michael Emana, Luke Jenkins, and Johnathan Robison, all from the Class of 2016, earned top honors at the Special Interest Group for Information Technology Education (SIGITE) Conference for a paper they had written as cadets. Similarly, Second Lieutenants Jessie Lass and Ryan Johnson, both of the Class of 2016, along with Major Michael Petullo, won best paper at the 8th Association for Computing Machinery Conference on Computer and Communication Security’s International Workshop on Managing Insider Security Threats for a paper they had written while they were cadets. And Lieutenant Colonel David Harvie ’96 was recognized for the paper he presented at the American Society for Engineering Education (ASEE) Midwest Section Conference. According to Colonel John Graham ’87, West Point’s Associate Dean for Research and Chief Scientist, such accomplishments among the Corps of Cadets and West Point faculty have become the norm. “If someone from West Point presents at a conference, there’s probably a 50 percent chance we are going to win the best paper at that conference—the research they are doing at the Academy is simply that good.”

Embracing Research Early

Some may wonder just when West Point, America’s first college of engineering, became an institution that engages in cutting-edge research. It turns out that it happened just three months after the United States Military Academy opened its doors in 1802. That year, Major Jonathan Williams, USMA’s first Superintendent, made a personal gift of \$10,000 to establish the United States Military Philosophical Society at West Point in order to gather data and classroom research material for the Academy. Modeled after the American Philosophical Society, which was founded in 1743 by Benjamin Franklin, Williams’ granduncle, the Military Philosophical Society became the first organization to conduct research on behalf of the United States military.

According to Sidney Forman, in a July 1945 article in the *William and Mary Quarterly*: “The [Military Philosophical] Society’s archives reveal West Point as an international center of scientific study, at which the most diverse subjects were eagerly explored...No branch of scientific study was beyond their interest...(and)...Military science embraced all the branches.” In one of their experiments, the Society proved that it was possible to shorten a musket barrel by two feet, six inches and still penetrate a two-inch oak plank at 180 yards. In another experiment, cadets accompanied Captain Alden Partridge, Class of 1806 (who later became USMA’s fourth Superintendent), to Windham, New York, to determine the number of rounds of artillery an advancing line of infantry marching over a given distance was likely to face. Forman also notes that by 1807, the Society gave

cadets and the Corps of Engineers faculty members access to the largest collection of technical books and scientific works in the country, including ones from Williams’ private library (much of which had been inherited from Franklin).

Some argue that since the United States Military Philosophical Society became inactive after Williams tendered his resignation as Superintendent in 1812, research subsequently became a distraction to the Academy’s “true” mission to impart knowledge to future Army officers. Graham, however, asserts that the legacy and influence of the Military Philosophical Society live on today in the research operations of West Point’s Institute for Innovation and Development.

USMA Research Today

The Institute for Innovation and Development is the culmination of decades of research development at West Point. While USMA has always had a research component, as evidenced by the historical Military Philosophical Society, its curriculum has traditionally followed an “information-imparting” model. Cadets would be assigned a problem set and work out the correct answer, which was already known by the professor (and by every cadet who came before and was assigned this problem set). Then, in the 1960s, several innovative changes occurred that slowly put USMA on the path of a new model emphasizing information-development and research-based learning. First, in academic year 1960-61, the Academy introduced electives to the curriculum. Then, as noted by Lance Betros ’77 in his book *Carved From Granite*, in 1963 the Army coded 15 faculty slots at West Point for extended tours of duty in a move to promote faculty scholarship (the officers filling the positions were expected to have—or soon receive—a doctorate degree). Finally, in 1967, Brigadier General John Jannarone ’38, USMA’s 6th Dean of the Academic Board, devoted 12 faculty spaces exclusively to research and, two years later, formally moved these spaces to the newly established Science Research Laboratory (SRL) to be supervised by a Director of Research. The principal objective of the SRL was sponsoring faculty research activities at West Point, with the ultimate goal that USMA’s academic departments would eventually conduct their own research.

Near right: 1802 letter from President Thomas Jefferson to first USMA Superintendent Jonathan Williams. In it, Jefferson approves of the proposal to organize the U.S. Military Philosophical Society as a repository of knowledge of Military Science by the “Gentleman of the Corps of Engineers,” and agrees to become its perpetual patron (Collection of the New-York Historical Society).
Far right: 1815 Portrait of Colonel Jonathan Williams by Thomas Sully. Williams, for whom Williamsburg, Brooklyn is named, was the first USMA Superintendent and founder of the U.S. Military Philosophical Society, the first research organization at West Point (courtesy of the Philadelphia Museum of Art, gift of Alexander Biddle).





President Thomas Jefferson's (see inset of signature) personal membership certificate in the U.S. Military Philosophical Society, 1805 (courtesy of the Massachusetts Historical Society).

For the next three decades, research progressed slowly at West Point. While SRL was overseeing nearly a dozen research projects each year, and while the Department of Social Sciences established the Office of Economic and Manpower Analysis and the Department of Geography and Computer Science stood up the Office of Artificial Intelligence Analysis and Evaluation, research remained low on the Academy's overall priorities. "What we needed was an innovative shift to take advantage of all the intellectual capital we had at West Point," says Graham. Specifically addressing that intellectual capital, Brigadier General Roy K. Flint, USMA's 9th Dean of the Academic Board (1985-90), once said: "The military faculty at West Point represents the largest single pool of multidisciplinary academic expertise in the U.S. Army."

The first significant progress in shifting the emphasis on research was passage of the Defense Authorization Act in 1992, which changed the military-to-civilian ratio of the faculty from approximately 96-to-4 percent to about 75-to-25 percent over the course of the next decade. "When the civilian faculty got here, it changed our model because they asked, 'Why aren't we doing research?'" Graham says. "Furthermore, faculty interested in research had to find their own sources of funding in order to collect data and travel to conferences to report their findings, and a good grant was well under \$10,000." Compounding the situation at that time were funding delays: even when the faculty did receive grant funds, it took up to three months to convert it into money they could use for research.

Funding Innovation at USMA

The next significant shift occurred in 2005, when the Academy received feedback from brigade commanders downrange indicating that they needed second lieutenants who were "innovative, critical

thinkers who could understand data and determine what it really means in order to solve complex problems," says Graham. Realizing the need for project-based education and knowing that the best undergraduate schools were implementing that model, the Academy approached the West Point Association of Graduates (WPAOG) for resourcing assistance to achieve a new level of research excellence.

Through the generosity of graduates and other donors, WPAOG became the funding partner that allowed USMA to establish new **Margin of Excellence** research centers, to staff these centers with top fellows in their field, and to pursue and win the grant money needed to implement the projects model needed to maintain excellence in cadet learning. In short, WPAOG provided the missing "fuel" that the West Point research "machine" needed to run effectively and efficiently. Take the Soldier Design Competition, for example, an annual competition between cadets and engineering students at the Massachusetts Institute of Technology: donors to WPAOG support the administration that helps the Academy apply for the grants needed for the cadets to conduct the research.

With the supporting "machine" fully in place, cadet research has become a constant, cumulative activity at West Point. According to the latest Dean's Policy and Operating Memorandum on Academic Research (2015), "The engagement of cadets and faculty in academic research activities and scholarship is essential for maintaining the status of USMA as a premier undergraduate educational institution." The centers exist to sustain and promote this research, including 350-plus cadet capstone projects, 1,000-plus summer internships, and 200-plus faculty research publications annually across USMA's 13 academic departments. These research centers provide the infrastructure and support necessary to tackle the nation's and the world's most challenging problems. They bring context to the classroom, and allow cadets to work on "real-life" problems impacting today's Army, while at the same time developing the skills needed for the next generation of Army officers. The rigorous demands of producing high-quality research amongst all the other demands on their time at West Point help cadets develop the skills and character they will need as Army officers.

West Point's Research "Machine"

Over the last 10 years, the West Point research machine has been humming. In addition to standing up many of the research and support centers featured in this issue, West Point has experienced significant growth in the number of research documents produced each year, nearly quadrupling the number in that time span. Furthermore, there has been a rise in high-impact research and researchers at West Point. Three publications have passed the 500 mark in the number of times they have been referenced in other researchers' work, and eight faculty members have crossed the three-dozen threshold in the number of research works they have produced. Even more impressive, research at West Point has led to a number of U.S. patents, including one for biologically-engineered molecules that have broad applications in the development of new cancer drugs, chemotherapy protection, and regenerative medicine; and one for a suppressor that can reduce the auditory and visual signature of the M249 Squad Automatic Weapon. "We don't solve any 'toy-problems' here," says Graham. "Our cadets and faculty are working on solutions to real problems and that will make a real impact." With an infrastructure in place that allows West Point researchers to produce so many important products, it ramps up the motivation for other cadets and faculty members to continue on the path to further research. The best evidence of this is West Point's annual Projects Day

event, which has grown from 238 projects in 2011 to 437 projects in 2016, nearly double the number in just five years, many of which are funded by gift funds through WPAOG. Margin of Excellence dollars, in fact, significantly support 12 research centers—including the Modern War Institute, the Center for the Study of Civil-Military Operations, the Cyber Research Center, the Army Cyber Institute, and the Combating Terrorism Center—and several others receive gifts to support their operations. Many other USMA research centers support core programs that are funded by appropriated dollars.

And the research machine continues to grow. One of the developments that is particularly exciting is the establishment of Department of Defense (DoD) offices at West Point. For example, the Defense Threat Reduction Agency has established the Nuclear Science and Engineering Research Center on the first floor of Bartlett Hall. Such a development demonstrates that USMA is now becoming a competitive environment when it comes to research. Now, in addition to providing funding to support cadet projects, these DoD and Army agencies—such as the Army Research Lab, the Defense Advanced Research Projects Agency (DARPA), and others—provide subject matter experts who come to West Point to assist cadets and faculty with their research and ultimately make USMA a vibrant hub of intellectual capital. As Dr. Elizabeth Velilla, Assistant Dean and Director of Research Operations for the Institute for Innovation and Development notes, these relationships allow USMA researchers to get DoD funding in ways that researchers at other civilian institutions cannot. “An Ivy League university might see DARPA dollars once every six years, whereas our faculty get pulled to serve at DARPA every semester,” she says. Of course, the sponsoring agencies get something out of the arrangement too, namely high-quality research produced at a relatively low cost.

21st Century Learning

The research machine and the innovation it has spawned has transformed West Point as a liberal arts college. Rather than just

being receivers of facts and information, cadets have become experimenters, discoverers, and producers of data through project-based learning, finding new answers and solutions to problems and forming partnerships in the research process—with other cadets, between cadets and faculty members, between USMA and external research agencies, etc.—that take learning to a new level. According to the Association of American Colleges and Universities, this type of learning is essential in the 21st century because it enables students to make interdisciplinary connections across the curriculum and to become informed, responsible, self-directed learners.

Graham believes in project-based learning because it means West Point will graduate second lieutenants who will have a sense of agency and efficacy for the Army, knowing that they can make a real difference for the Army’s operational needs in theater. It helps, of course, that many of research projects aim to make a difference for the warfighter. Cadets have a stake in the game knowing that their research work might benefit them or one of their classmates in the future, and faculty researchers are driven to make a difference for the company command they have recently left to come to West Point.

“In 2005, we were a peripheral player in terms of what we were doing for the Army; now the Army looks to us for our research,” says Graham. “Our cadets, faculty, and centers have turned into viable entities producing valuable research for the warfighter, which makes USMA a vibrant hub of intellectual capital for the Army and the nation.” With much of the research at USMA done for the benefit of the Army, the legacy of innovation, a West Point tradition, can be said to have returned to its Military Philosophical Society roots, and when team members from partner research organizations, such as DARPA, come to West Point to assist cadets, Graham has them sign the archival Military Philosophical Society register book, making them new Society “members,” thus continuing one of West Point’s oldest traditions. ★

For more than 200 years,

West Point, America’s first college of engineering, has been a hub for cutting-edge research and intellectual capital for the Army. The Academy currently houses more than two dozen Research Centers, Support Centers, and Institutes, continuing the legacy of innovation established by the first USMA Superintendent in 1802.

Each Center or Institute offers opportunities for faculty and cadets to develop academic, military, leadership and character excellence. Some centers are externally funded applied research centers, others are partnered centers with the U.S. Army or other outside support, and some centers focus on supporting the USMA mission by developing specialized cadet and faculty skills in writing, teaching, leadership, negotiation and enhanced performance.

Research at West Point is highlighted each year on Projects Day, as hundreds of cadets across all academic departments, the Department of Military Instruction and the Department of Physical Education present capstone research projects. Individually or in teams, cadets demonstrate their ability to integrate academic and military knowledge and skills, as well as demonstrate presentation and communications skills.

For this issue, *West Point* magazine invited selected centers to contribute a short summary of their mission and work. Although the specific areas of research evolve over time in response to a changing global environment, the tradition of agile thinking and problem solving remains constant at West Point.

West Point magazine gratefully acknowledges the USMA faculty and staff guest writers who have contributed so richly to this issue. Thanks also to COL Kraig Sheetz, Ph.D., Director of the Dean’s Staff; LTC Chris Mayer ’93, Associate Dean for Strategy, Policy and Assessment, and Dr. Elizabeth Velilla, incoming Associate Dean/Director of Research Operations, Institute for Innovation and Development for their assistance with this issue.

Top right: Seal of the U.S. Military Philosophy Society commissioned by its founder Jonathan Williams, USMA’s first Superintendent. Engraved by noted artist John Reich, it depicts a helmeted Athena with the motto *Scientia in Bello Pax* which Williams translated as “Science in war is the guarantee of peace” (Collection of the New-York Historical Society).
Bottom right: Seal of the Institute for Innovation and Development, established in 2014, which oversees USMA research operations today.





West Point's Modern War Institute: Research, Educate, & Integrate New Knowledge for the Profession of Arms

By John Amble, Guest Writer

West Point's Modern War Institute (MWI) was formally established in 2015, as a Margin of Excellence institute, to fill a specific need—to study the range of new and dynamic threats on the modern battlefield. Prior to its formation, there was no single institution in the nation whose sole mandate was the study of contemporary war. As Colonel Liam Collins '92, MWI Director, notes, "As warfare changes, it is imperative that our military's efforts to think critically and prepare for it keep pace." This is the mission of MWI, to research, educate, and integrate the issues, future leaders, and skills needed to win wars in a complex world.

"When I graduated from West Point, being technically and tactically proficient was all one needed to succeed," Collins says. "We knew the [Russian] enemy fairly well, and orders and intelligence trickled down from the division to the platoon." Today, the enemy has diversified to include non-state actors such as Al Qaeda and ISIS, cyber warfare, and the proliferation of weapons of mass destruction, all in addition to traditional threats. "Young platoon leaders and company commanders are being asked to operate independently and make increasingly complex decisions," Collins says, "and MWI aims to help the cadets who will soon fill these roles understand the enemy and the complex and fluid environment of warfare today." In practice, MWI's activities involve several types of initiatives—including research, events, and publishing—all geared toward serving three customers: the Corps of Cadets, the Army, and the nation.

Research: Developing Thought Leadership

MWI produces scholarly research reports authored by non-resident fellows, a pool of adjunct scholars, and USMA faculty. Last fall, for instance, MWI published a report titled "Adding Rigor to Stability and Reconstruction Operations," authored by Major Jonathan Bate '06, which examined how economic interventions, a key component of stability operations, have proven to be a challenge to both implement and evaluate under conditions of state fragility and conflict. As both an infantry officer with three deployments to Afghanistan, and an instructor of economics in the Department of Social Sciences, Bate has a unique perspective from which to examine what he calls "tactical economics" to shape security environments and consolidate gains in pursuit of sustainable outcomes. This is just one example of how MWI leverages and integrates the unique intellectual capital available at West Point.

In addition to publishing original research, MWI works to advance strategic thinking about modern war by publishing new content daily on its website. In 2016, MWI published approximately 275 pieces of original content online, with every article going through a rigorous, multi-step editorial process. "The website provides us with a dynamic platform," John Amble, MWI's Editorial Director, says. "It gives us a voice in important discussions about modern war and how to ensure that the Army is prepared to meet a new generation of security threats." MWI staff members, fellows, and scholars also publish frequently in a range

Above: Medal of Honor recipient SSG Ryan Pitts, U.S. Army, Retired, addresses cadets at an MWI event.

of influential media outlets, including *The New York Times*, *Foreign Affairs*, *The Washington Post*, and others. By creating a range of channels for researchers to connect with a variety of audiences, MWI serves as an interactive hub for thought leadership about modern war, amplifying the contribution that the unique expertise of the West Point community makes to the most important debates facing our nation.

Educate: Contemporary Battlefield Assessments/ Cadet AIADs

MWI also conducts Contemporary Battlefield Assessments (CBA). During these out-of-classroom field study events, which double as Academic Individual Advanced Development programs (AIADs), MWI staff members accompany cadets to “warm” conflict zones to research recently ended wars and subsequently produce scholarly output that informs West Point’s Military Program and provides meaningful findings back to the Army. The 2015 CBA trip to Bosnia-Herzegovina, for example, studied urban warfare and multi-national operations, finding that the positional strategies used in the siege of Sarajevo far more resembled World War I trench warfare than the dynamic urban fighting Americans faced in Baghdad during the early years of Operation Iraqi Freedom. In 2016, the CBA team researched counterinsurgency in Sri Lanka, focusing on the war between the Sri Lankan government and the Liberation Tigers of Tamil Eelam, or Tamil Tigers, a separatist group that popularized the use of suicide bombers, human shields, and child soldiers. Funded through the WPAOG’s Margin of Excellence and highly competitive, CBAs typically have dozens of cadets vying for around five slots. Lieutenant Colonel Mike Jackson ’00, MWI Deputy Director, who accompanied cadets on both above CBAs, says, “These opportunities give cadets invaluable experience in conducting meaningful research on the kinds of issues that will matter most to them as future officers.” This summer, MWI staff and cadets will travel to the Republic of Georgia to research the 2008 Russo-Georgian War.

Integrate: Outreach via Scholarly Conferences, Speaker Series, Panel Discussions

Last fall, MWI hosted its first War Studies Conference, with the intention that it become an annual event. Themed “Reassessing Deterrence in the 21st Century,” the 2016 conference featured several notable speakers, including retired General John Abizaid ’73, PACOM commander Admiral Harry Harris, and Johns Hopkins University Professor Eliot Cohen. Numerous scholars, practitioners, business leaders, and policymakers attended the multi-disciplinary conference to discuss the relevance of deterrence theory in a world shaped by new threats to national security. “While there are academics in their so-called ivory tower theorizing about deterrence, cyber geeks in the business world working to

thwart hackers, and military leaders practicing deterrence virtually every day, these folks rarely meet under one roof to discuss best practices and allow for the intellectual cross-pollination of ideas,” says Dr. Lionel Beehner, MWI’s Director of Research. “MWI provides this kind of unique convening power.”

MWI also hosts a speaker series, organizes panel discussions, and plans other events that directly contribute to cadet development. These events expose cadets to a range of guests—including senior military officials, scholars, writers, and filmmakers—and encourage them to engage with issues of deep importance to the Army in which they will serve. The events can also inspire. After hearing Medal of Honor recipient Staff Sergeant Ryan Pitts, U.S. Army, Retired, speak at an MWI event, Cadet Joshua Martindale ’18 said, “In two years at the Academy, I have never been inspired as much as the way I was today, when Staff Sergeant Pitts reminded us cadets that the men and women with whom we will serve deserve our best.”

Major John Spencer, an instructor at West Point and an MWI scholar who has been part of the Institute since its inception, believes that MWI serves a particularly valuable purpose for West Point’s Military Program. “West Point is respected as the world’s preeminent leadership education institution,” Spencer says. “but MWI has been deliberately positioned to further promote the same recognition for its Military Program—the ‘M’ in USMA.”

In less than two years of existence, and with the support of private funding from individuals like Ed Harshfield former ’62 and Vinnie Viola ’77; the Classes of 1998, 1999, and 2006; and organizations such as Lockheed Martin and Land of the Free Foundation, MWI has made remarkable achievements: With Army leadership and Army units, including ones currently deployed in Iraq, regularly contacting MWI about the scholarship it has published, it is evident that MWI is starting to influence Army operations. However, its director believes much more is in store. “Situated as it is at West Point, MWI is in a unique position to prepare cadets for future challenges and to serve as a resource for them as lieutenants and beyond,” Collins says. “In this way, MWI is a vital tool with which to enable the Army and its leaders at all levels to succeed in the wars our nation will ask them to fight.”

Perhaps Lieutenant General Robert L. Caslen ’75, Superintendent of the U.S. Military Academy, who has made MWI a top priority of his tenure, says it best: “The Modern War Institute will leverage the intellectual capital unique to West Point and serve as a vital resource in the study of modern warfare, not only for the Academy, but also for the Army as a whole.” ★

John Amble is the Editorial Director of the Modern War Institute at West Point. He is a former U.S. Army military intelligence officer and a veteran of both Iraq and Afghanistan.

THE MODERN WAR INSTITUTE || est. 2015

DIRECTOR: COL Liam Collins ’92, Ph.D.

*The Modern War Institute at West Point generates new knowledge for the profession of arms, enhances the West Point curriculum, and provides the Army and the nation with an intellectual resource for solving military problems. MWI has three mutually supporting functions: **Research**, **Educate**, and **Integrate**.*





The Combating Terrorism Center: A Strategic Asset for the Nation

By LTC Bryan Price '98, Ph.D., Guest Writer

On May 2, 2011, a U.S. special operations team conducted a nighttime raid on a compound in Abbottabad, Pakistan, which turned out to be housing Osama bin Laden, the terrorist behind the September 11, 2001 attacks. In the tense minutes after killing bin Laden, the special forces team began searching the compound for information. In the short time they had before exfiltration, they recovered hard drives, thumb drives, DVDs, cell phones, and numerous documents. One of the documents, later released by the U.S. government, was a letter written by bin Laden to one of his lieutenants that stated, "Please send all that is issued by the combating terrorism center of the American military."

The "center" to which bin Laden's letter referred is the Combating Terrorism Center (CTC), which is housed in the Department of Social Sciences at the United States Military Academy. Furthermore, bin Laden's successor, Ayman al-Zawahiri, has referenced the CTC by name on six different occasions in Al Qaeda propaganda materials. Interest by senior terrorist leaders in the CTC's research products demonstrates the significance of the CTC. After all, what is better than producing research that your enemies not only read but feel compelled to respond to? Of course, the primary audience for the CTC's research

is not terrorists, but rather senior counterterrorism leaders in the U.S. government, who value the CTC's research and routinely seek out the CTC for insight and expertise. After all, the CTC produces some of the nation's most objective, rigorous, and policy-relevant research on terrorism and counterterrorism.

Created 17 months after 9/11, the CTC was the brainchild of Brigadier General Russell Howard (Retired), then head of the Department of Social Sciences; General Wayne A. Downing '62 (Retired), former commander of U.S. Special Operations Command; and Mr. Vincent Viola '77, longtime USMA philanthropist. Their intent was threefold: 1) educate current and future leaders about the best ways to combat the threat from terrorism, 2) create a research and education center that could produce research to enhance our understanding of terrorism and our future enemies, and 3) inform and advise policymakers about the threat. Since its inception, the CTC has benefited from Margin of Excellence funding in the form of named endowments and positions from individuals like George Gilmore '71 and the Classes of 1966, 1971, 1977, 1984, 1987, 1989, 1998, and 2001 and support from organizations such as the Audia Group, Morgan Stanley and the Lynde and Harry Bradley Foundation, among other donors.

Above: The CTC staff and USMA leadership brief then-Secretary of Defense Ashton Carter during his March 2016 visit to West Point.

Educating Current and Future Counterterrorism Leaders

The CTC manages the most popular academic minor at West Point, Terrorism Studies, which enrolls more cadets than all of the minors at the Academy combined. One of the reasons the CTC's minor is so popular is because cadets know that fighting terrorism will be an integral part of their Army career. Spenser O'Brien '13 alluded to this importance upon graduation: "The opportunities that the CTC has offered [me] over the past two years are among the most memorable events that I've taken part in throughout my four years at the Academy. [The CTC has] been an amazing influence on my education and dedication to learn more about the complexities surrounding terrorism." Cadets are attracted to the CTC because of its close ties to the operational Army. In his September 2016 address to the Class of 2019, Lieutenant General Charlie Cleveland '78 (Retired), former commander of U.S. Army Special Operations Command (USASOC), focused on this close connection. "The CTC is more connected to the operational Army than any organization at West Point," Cleveland said. "If you want to get involved with the current fight, then get involved with the CTC."

Major Adam Scher, a 2004 USMA graduate and former assistant professor in the Department of Social Sciences, recently attested to the importance of the Center to West Point cadets, often long after their graduation. "As a cadet on 9/11, I didn't truly appreciate the way the attacks on America fit into a larger global terrorist movement until sitting in class with the CTC," said Scher, now executive officer for the 1st Battalion, 508th Infantry Regiment at the 82nd Airborne Division. "As my career has progressed, and through multiple tours in Iraq and Afghanistan, the CTC's work has informed my leadership as an Infantry officer and enabled my soldiers to understand the broader counterterrorism fight, and how our mission, whether in combat patrols or key leader engagements, is of equal importance in winning this conflict."

In addition to providing cadets with cutting-edge curricula in the classroom, the CTC manages a robust internship program in which cadets have the opportunity to apply what they have learned in the classroom to problems facing our nation's leading counterterrorism units and agencies. The CTC has, for example, sent cadets to Joint Special Operations Command (JSOC), the National Counterterrorism Center, the Defense Intelligence Agency, the U.S. State Department, 5th Special Forces Group, and the FBI's Joint Terrorism Task Forces in Chicago, Kansas City, and Washington, DC. The FDNY-CTC Crisis Simulation, now in its ninth year, is also a popular cadet development activity. Cadets are also attracted to the CTC's Irregular Warfare Group (IWG), an extracurricular club that exposes cadets to unconventional warfare

and Special Forces operators. The club blossomed under the CTC's USASOC Fellow, Lieutenant Colonel Kent Solheim. After being awarded the Silver Star and sustaining significant injuries while fighting in Iraq, he remained on active duty and deployed to Afghanistan. He is currently in command of 3rd Battalion, 3rd Special Forces Group. Is it any wonder that cadets flocked to Solheim and the CTC?



Teaching cadets is the Center's most important (and rewarding) mission, but the CTC's faculty also routinely go outside the Academy to educate the nation's most elite counterterrorism units and agencies. It is not uncommon for a CTC faculty member to be teaching a classroom full of cadets one day and the next day stand in front of an auditorium full of seasoned counterterrorism warriors or analysts from the FBI or the Special Forces community. For military elements, the CTC has conducted educational events for the Army's Special Mission Unit, JSOC's Joint Intelligence Brigade, 75th Ranger Regiment, numerous Special Forces Groups (3rd, 5th, 10th), and pre-deployment training for the 101st Airborne Division, 1st Infantry Division, 82nd Airborne Division, and the 4th Infantry Division. For interagency partners, the CTC has led educational events for organizations such as the FBI's Fly Team and the High-Value Detainee Interrogation Group; the Department of Homeland Security's Immigration and Customs Enforcement; and CIA University. These opportunities to teach practitioners provide CTC faculty with unique insights and experiences from practitioners in the field that in turn directly inform the CTC's research portfolio. There is no better way to find interesting and relevant research topics than to hear from those living and breathing counterterrorism at the tip of the spear.

COMBATING TERRORISM CENTER || est. 2003

DIRECTOR: LTC Bryan Price '98, Ph.D.

The Combating Terrorism Center at West Point educates, advises, and conducts research to equip present and future leaders with the intellectual tools necessary to understand the challenges of terrorism and counterterrorism.



The CTC also manages the Army's General Wayne A. Downing Scholarship program. Named for a 1962 USMA graduate, this program competitively selects four to six Army officers per year to attend graduate school at the world's most elite academic institutions and interact regularly with the CTC. Now in its eighth year, the program boasts two recipients of the West Point Association of Graduates' Alexander R. Nininger Award for Valor. Additionally, all five of the first Downing scholars were selected to command at the battalion level, a metric that no other Army advanced civil schooling program can match.

Creating Objective, Rigorous, and Policy-Relevant Research

Most people outside of the Academy know the CTC through its high-quality, enemy-centric, and policy-relevant research on terrorism and counterterrorism. The Center has long prided itself on its ability to do primary source research, including using materials produced by our enemies. The CTC has native-born speakers from the Middle East and faculty members who can study primary source materials in Arabic, French, Spanish, and soon Urdu. Additionally, the CTC's collaboration with SOCOM on the Harmony Program, which involves SOCOM declassifying captured battlefield documents after they have already been exploited for their tactical and operational value and making them available to the CTC for rigorous strategic analysis, provides the Center yet another comparative advantage. Based on the above, the CTC has established a longstanding research history, with 2016 generating perhaps the highest impact research to date. From December 2015 to the end of 2016, the CTC produced six major reports, each receiving national and international media attention. More importantly, these publications led to numerous invitations to brief policymakers and practitioners at the highest levels. For example, in December 2015, *Held Hostage*, featured analysis on the largest open-source hostage dataset ever produced. It included information on almost 1,500 Western hostages and the outcomes of incidents since 2001. The report showed that American hostages taken by jihadi groups were four times more likely to be executed than other Western hostages, and they were more than four times less likely to be released. As a result of this research, the CTC was invited to play an important role in SOCOM's international summit on hostage-taking and in the FBI's first-ever conference hosted by its Hostage Fusion Cell, as well as to brief the results to the National Security Council.

“The CTC is more connected to the operational Army than any organization at West Point. If you want to get involved with the current fight, then get involved with the CTC.”

— LTG (R) Charlie Cleveland '78

The CTC has also undertaken innovative work in understanding the foreign fighter phenomena. Building on the CTC's 2008 report on foreign fighters entering Iraq to fight with Al Qaeda in Iraq, the CTC produced a similar report in 2016 by examining Islamic State personnel records NBC News had obtained from a defector, as well

as a report that utilized Harmony Program data captured by U.S. forces. The result was *The Caliphate's Global Workforce*, an analysis of the largest unclassified dataset of foreign fighters to date, which was featured in a primetime NBC Nightly News special in April 2016. Since then, the CTC has produced two other reports on foreign fighters. In November, the CTC published *From Cradle to Grave*, an open-source analysis of 1,200 Western foreign fighters. In addition to exploring who chooses to fight in Iraq and Syria, it is one of the few works that examines what foreign fighters do while in theater, as well as what they do after redeploying to their home countries. Then, in December, the CTC published *Then and Now: Comparing the Flow of Foreign Fighters to AQI and the Islamic State*, an analysis comparing the Center's 2008 report with its April 2016 report.

Perhaps the two reports that garnered the most attention, however, were on the Islamic State's media apparatus and terrorist use of drones. In *Communication Breakdown*, Dr. Daniel Milton, CTC's Director of Research, analyzed more than 9,000 official Islamic State media products and coded them according to themes over a two-year period. The report was featured on the front page of *The New York Times*' October 11, 2016 web and print editions, was the top story on ABC News' website, and was featured in media from the United Kingdom, Russia, India, and Saudi Arabia. The next day, the CTC's research again appeared on the front page of *The New York Times*, this time for the Center's research on terrorist use of drones. Coming fresh off the heels of the Islamic State's first successful attack using a drone to kill a French soldier in Iraq, this foundational report was also featured in *Time* and *Politico* and was the top story in the *Military Times*' "Early Bird Brief."

The Center also produces the *CTC Sentinel*, a monthly print and online journal which publishes research from the field's top scholars and researchers. While it has consistently received attention from American media over the past decade, the *CTC Sentinel* is now internationally known. For example, a November 2016 article on the linkages between the Islamic State and the Paris attackers received front-page coverage in *Le Monde*, France's largest newspaper. In December, *Le Monde* and CNN reported that coverage from a *Sentinel* article may have led to the confession of Ayoub el-Khazzani, the alleged August 2015 attacker on a train from Belgium to France who was ultimately thwarted by U.S. servicemen traveling on leave. *Le Monde* reported that el-Khazzani had been previously uncooperative until seeing the information found in the *CTC Sentinel*.

Informing The Nation's Policymakers

In the past two years, the CTC has provided briefings to some of the nation's top policymakers and counterterrorism practitioners. The Center has briefed the Secretary of Defense, the CIA Director, the commander of U.S. Forces in Afghanistan, five different combatant commanders (SOCOM, CENTCOM, AFRICOM, SOUTHCOM, NORTHCOM), the JSOC commander, and the commanders of USASOC, 82nd Airborne Division, 101st Airborne Division, and the 1st Infantry Division. The CTC has also briefed the Secretary and Undersecretary of the Army, the Ambassador-at-Large for Counterterrorism and the Undersecretary of State for Public Diplomacy at the U.S. State Department, and senior leaders at the FBI, DHS, and National Security Council.



General Wayne A. Downing Scholars on their annual spring trip to New York City. The program selects four to six Army officers per year for graduate study fellowships.

“The CTC really sits at the intersection of theory and practice. What they do through their research and their activities helps provide information to practitioners like myself, to other members of the academic community, and to policymakers out there so we can understand what is happening.”

— GEN Joseph Votel '80, Commander CENTCOM

During his visit to West Point for the 51st annual Senior Conference in 2015, General Joseph Votel '80—then commander of SOCOM, now commander of CENTCOM—described the unique value the CTC provides to decision makers in the counterterrorism fight: “The CTC really sits at the intersection of theory and practice. What they do through their research and through their activities helps provide information to practitioners like myself, to other members of the academic community, and to policymakers out there so we can understand what is happening. The ability to analyze information and put it into perspective for practice is very, very important. I think research organizations and entities like the Combating Terrorism Center are absolutely essential to understanding the problems we face and helping us moving forward effectively.”

Two recent engagements illustrate the CTC's status as a national leader in the counterterrorism field. Last October, the CTC was invited to testify in front of the House Armed Services Committee for a panel examining the lessons learned in counterterrorism since 9/11. In November, the CTC was asked to provide the keynote speech at an annual conference of the Naval Special Warfare Development Group.

The CTC remains a highly valuable, national resource that helps inform counterterrorism operations and policy at the tactical, operational, and strategic levels. The combination of independence provided by private funding and access to elite national-level counterterrorism units and agencies (and their data) gives the CTC a comparative advantage over other like entities. This unique combination allows the CTC to contribute across the spectrum of U.S. counterterrorism efforts and provide intellectual firepower to the current fight. Whether it is professionally developing cadets both in and outside of the classroom, grooming the Downing Scholars to be the Army's future senior leaders, producing new knowledge in the field of terrorism studies, or advising the nation's top counterterrorism leaders, the CTC is a unique institution unlike any other in the Army. ★

LTC Bryan Price '98, Ph.D., is an Academy Professor in the Department of Social Sciences and has been the director of the Combating Terrorism Center since 2012. For more information about the CTC, or to subscribe to the CTC Sentinel, please visit ctc.usma.edu or follow the CTC on Twitter @CTCWP.

“Act of Force” Meets “Act of Policy”: The Center for the Study of Civil-Military Operations

By **John Melkon**, Guest Writer



In a recent address to The Center for the National Interest, a nonprofit think tank in New York City, the 19th Chairman of the Joint Chiefs of Staff, General Joe Dunford, said, “The United States is the world’s indispensable nation, but that status is not guaranteed, and military leaders must continue to look for new, innovative ways to maintain U.S. leadership in the future.” Since its inception five years ago, West Point’s Center for the Study of Civil-Military Operations (CSCMO) has been leading the charge to educate the next generation of military leaders to understand the United States’ wide array of national power, a power that gives the country a competitive advantage in a conventional conflict but one that also belies its sense of security in an unconventional environment. “While we tend to have a binary perspective of the security environment—that is, we’re either at peace or at war—state actors like Russia, China, and Iran have a much more nuanced view,” maintains Dunford. “They operate in a manner that avoids our strengths and takes advantage of our weaknesses, taking their pursuits right up to the verge of conflict but not quite crossing the red line.” For this reason, CSCMO explores the complex and nuanced environment where our future leaders will operate, and how intergovernmental and coalition responses can advance the United States’ national interest in the 21st century. CSCMO disseminates these lessons to its principal clients, the cadets and future leaders of our nation, through multiple venues—including symposia, distinguished guest speakers, and summer internships.

CSCMO was founded in 2012 through the support of the United States Military Academy and the GPD Charitable Trust, which itself was established two years prior by West Point graduate John DeBlasio ’89. As a civil affairs officer serving in Iraq between 2003–04, DeBlasio witnessed firsthand how unprepared U.S. forces were to interact with local populations and various organizations to achieve non-kinetic military objectives, which garnered his support for CSCMO from its inception.

The Center has already made a tremendous impact on West Point’s cadets and graduates in the study and practice of civil-military operations. Infantry lieutenant Tommy Daniel ’13 has stated that the Center was “one of the best things I ever came across at West Point, hands down, making me light-years ahead of my peers in terms of winning the ‘human terrain.’” Demonstrating how CSCMO can influence the lives of cadets and graduates, as well as enhance U.S. national security, Daniel, who is currently a master’s candidate at King’s College in London, has gone on to represent the Army and NATO in a deployment to Ukraine, using on a daily basis the skills he learned from CSCMO.

Local Pakistani children wait to be evacuated on a CH-60 Blackhawk in Khyber-Pakhtunkhwa, Pakistan, September, 2010. A flood affected nearly 20 million Pakistanis, forcing many from their homes.



Left: CDT Austin Neal '18 completed a 5 week course in Peace and Conflict Studies at RIT's American University in Kosovo. The course pursues different approaches to tackling the toxic appeal of sectarianism and religious extremism in the Balkan region. **Right:** CDT Spenser Copp '17 was fully integrated into the G9 Staff at the US Army Central Command in Kuwait working on Civil-Military affairs with allies throughout the Middle East Region.

CSCMO hosts multiple symposia per year, bringing notable academics, practitioners, and military personnel to the Academy to discuss issues relevant to civil-military operations. The Center also supports additional conferences in the community in order to advance the mission of the organizations that sponsor them, such as the United States Institute of Peace. CSCMO's flagship event, the Student Workshop on Civil-Military Operations (SWCMO) has received the commitment and support of the USMA Class of 1978 with a pledge of a generous endowment, confirming their dedication to advance the awareness and critical skill sets that will be needed to perform future duties. This is accomplished by exposing cadets and students to distinguished lecturers who share insights gained through research and service to country in civil-military capacities. More than 150 students and cadets collaborate each year, setting the foundation for inter-organization cooperation in their careers. At the fourth annual SWCMO in 2016, panelists such as USMA Superintendent Lieutenant General Robert L. Caslen Jr. '75, Iraqi Ambassador to the United States Lukman Faily, and U.S. Ambassador to Iraq James F. Jeffrey spoke to cadets about lessons they learned in their positions. The 2017 SWCMO aims to inform future leaders on the challenges stemming from potential conflict in the rising number of global mega-cities and the difficulties of military operations in such an urban environment.

CSCMO and the Department of Geography & Environmental Engineering, in conjunction with other USMA academic departments, also host an annual African Symposium, focusing on issues relevant to the U.S. military on that continent. Speakers such as the former Ambassador to the Democratic Republic of the Congo William Garvelink, former Ambassador to the African Union Ruben Brigety, and Brigadier General Emmanuel Kotia of the Kofi Annan International Peacekeeping Training Center in Ghana have visited CSCMO to discuss multilevel perspectives on the democratization and development of the African continent. Cadets and students attending the symposium not only learn from the subject matter experts who visit, but also contribute to the event by presenting research projects related to civil-military operations. Engaging in active dialogue about their own personal research helps them refine their premises, ideas, and knowledge. This year's event will feature a keynote from former AFRICOM commander General David Rodriguez '76.

The Center also brings together distinguished speakers to discuss pressing civil-military operation issues through curriculum enhancement across an inter-disciplinary spectrum. The Center has obtained guest lecturers and distinguished visitors for the Departments of Social Science, History, Behavioral Sciences and

CENTER FOR THE STUDY OF CIVIL-MILITARY OPERATIONS || est. 2012

CIVILIAN DIRECTOR: John Melkon || MILITARY DIRECTOR: COL Andrew Lohman '89, Ph.D.

Mission: To prepare West Point leaders to employ an understanding of Civil-Military Operations (CMO) within the framework of challenges they will face in military service; to support transformational changes to professional military education across the Department of Defense and partnering organizations; and to establish West Point as the wellspring of professional military education in the realm of CMO.



MARGIN OF EXCELLENCE



Leadership, and Military Instruction. It has also supported the Debate Society, Model UN, the West Point Negotiations Project, Irregular Warfare Club, and the Explorers Club. CSCMO gives cadets the opportunity to interact in small group and classroom settings with preeminent researchers and scholars, both military and civilian, from government agencies and non-governmental organizations, allowing them to see the coordinated effort that is required in order to achieve policy objectives and illustrating the material that they learn in class. For a workshop on conflict transformation, CSCMO coordinated a presentation by Atifete Jahjaga, President of the Republic of Kosovo, who discussed civil-military operations in Kosovo during and after the Balkans conflict. The guest lecture program ensures that the next generation of Army leaders are prepared to face the complexities of the modern battlefield as they advance U.S. policy objectives across the globe. In recent years, the Center has welcomed General David Petraeus '74 (Retired), Lieutenant General David Hogg '81 (Retired), and Lieutenant General H.R. McMaster Jr. '84.

Lastly, CSCMO has funded research into the complex field of civil-military operations, greatly contributing to commanders' understanding of the battlespace. In the relatively short life span of this dynamic and changing focus, the Center has already explored key themes including "Unity of Effort," "The Human Domain," and "Gray Zone" strategies. "Gray Zone strategies can be defined as a form of conflict that pursues political objectives through integrated campaigns; employs mostly nonmilitary or nonkinetic tools; strives to remain under key escalatory or red line thresholds to avoid outright conventional conflict; and moves gradually toward its objectives rather than seeking conclusive results in a relatively limited period of time," writes Dr. Michael J. Mazarr in his 2015 paper "Mastering the Gray Zone: Understanding a Changing Era of Conflict." Similarly, speaking about "The Human Domain" in 2013, General Ray Odierno '76 (Retired), the 38th Chief of Staff of the Army, and John McHugh, the 21st U.S. Secretary of the Army, said, "America's ability to deliver strategic landpower requires an improved understanding of the convergence of human, cyber, and geographic terrains in which we will operate, [and] success depends as much on understanding the social and political fabric of the situation as it does on the ability to physically dominate it." This effort to build the body of knowledge adds to the academic conversation of civil-military operations and results in many takeaways that soldiers in the field can use to enhance their effectiveness on the modern battlefield.

Cadets affiliated with CSCMO also contribute to the conversation and several have won scholarships in order to continue their academic pursuits. Summer internships for hundreds of cadets have allowed future leaders to practice the theories they are taught during the school year in real-world environments. To date, cadets have completed internships in Washington, DC, Germany, the Netherlands, Italy, Bosnia, Kosovo, Uganda, Rwanda, Honduras, Korea, Hawaii, Kuwait and other global locations. These activities add value not only to the education of the cadets who participate, but also to the communities that they support. After Dr. Michael Brennan '65, an expeditionary physician for International Medical Corps, visited CSCMO to discuss the importance of medicine in civil-military operations, students were able to follow up on his lesson with a spring break trip—organized through the U.S. Embassy in Haiti, the United Nations Stabilization Mission in



CDT Amanda Roper '19 served on the G9 staff of the US 8th Army in Seoul, Korea and had the opportunity to interact with U.S. Forces Korea Commander GEN Vincent Brooks '80.

Haiti, and several local NGOs, including Protect the People—to understand the complexity of international humanitarian assistance operations. Shorter trips during the school year to regional organizations that focus on civil-military operations are also available to cadets. For example, a visit to the UN Office for the Coordination of Humanitarian Affairs in New York City showed cadets how the office brings together humanitarian, state, and non-governmental organizations to promote stability and security in developing nations. Other opportunities to reinforce these principles are made with Habitat for Humanity to improve neighborhoods in Newburgh, New York, constructing new homes for some of the community's most disadvantaged citizens.

To date, more than 1,000 cadets and faculty have participated in CSCMO's various programs, and this number is set to increase in years to come. Each year the Center organizes over 40 internships for cadets in the United States and around the world with partners that have included NATO, the Marshall Center, the American University in Kosovo, the U.S. Institute of Peace, and Partners for Democratic Change (also a GPD grant recipient). Since its launch, CSCMO has held three student workshops on civil-military cooperation in the context of humanitarian assistance and disaster response, engaging experts from Stanford Medical School, the National Disaster Preparedness Training Center, Inter-Action, USAID, and more. Cadets readily acknowledged the Center's critical role in increasing their cultural competency and preparing them to collaborate with non-military entities, and, over the next few years, CSCMO aims to become an informational hub and educational model for the other service academies, the Army, and the nation as well. ★



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Center for Leadership and Diversity in STEM: Reforming and Enriching STEM Education for the Nation



Cadets lead STEM outreach workshops in middle schools through CLD STEM.

Responding to the national need for greater numbers and more diversity of mathematicians, scientists, and engineers, West Point's Center for Leadership and Diversity in STEM (CLD STEM) is dedicated to attracting and retaining science, technology, engineering, and math (STEM) talent for West Point, the Army, and the country, with a specific, though not exclusive, emphasis on ethnically diverse and economically disadvantaged populations. Its programming focuses on introducing STEM to students at the pre-college level, supporting cadets studying STEM at West Point, and retaining talent at the post-graduate and professional levels. In this way, CLD STEM addresses the entire talent pipeline, from primary and secondary students to experts and emerging scholars.

Since 2012, CLD STEM has highlighted the importance of STEM education and encouraged students from underrepresented populations to pursue STEM-related careers. To accomplish this goal, the Center conducts outreach to schools and communities nationwide, with collaboration from a multitude of partners, such as the Society of Women Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, the Underrepresented Students in Topology and Algebra Research

Symposium, various Army and government agencies, and local West Point Societies. West Point faculty and cadets lead experiential STEM workshops with middle school students in targeted areas of need (including both urban and rural communities).

CLD STEM workshops are designed to be engaging and "hands on." In one workshop, for example, students use plastic, Styrofoam, and cardboard to build turbines; in another, they build and program Lego Mindstorm® robots. Feedback from these events shows that students are engaged, excited, and enthusiastic about the projects, and they report important impacts, including STEM "inspiration," after participating. When asked about the impact on their future, 84 percent of students said that their workshop "made them want to learn more about careers in STEM," and three-quarters reported that they now look forward to taking more STEM-related classes.

In addition to introducing students to practical applications of STEM, CLD STEM's workshops are also an effective recruiting tool for the Academy. Participation in workshops provides students the opportunity to interact with cadet role models and to learn about West Point and the Army. Recruitment and retention of underrepresented minority cadets at West Point is one of the top goals of CLD STEM. The Center also supports the hiring and retention of talented minority faculty members, recognizing that minority cadets may look to them as role models of their own potential to succeed in STEM disciplines.

Through donor funding, the Center's impact is growing rapidly. In the last nine months, the Center has conducted 28 Mobile STEM Workshops, brought three "Minority in Mathematics" speakers to West Point, and continued to host the annual four-day middle school STEM camp at USMA. Just as important, it has made great strides to continue to increase diverse participation in STEM programs: female students constituted more than half (53 percent) of all center participants for the first time ever last year, and African-American and Hispanic students constituted 62 percent and 17 percent of participants respectively. Since inception, the Center has seen a 200 percent increase in the number of students involved in its work, and is on track to reach nearly 1,700 participants by the end of 2017. ★

CLD STEM gratefully acknowledges support received from the following donors: Toyota USA Foundation, Northrop Grumman Foundation, Astellas USA Foundation, The Boeing Company, Motorola Solutions Foundation, James & Patricia Anderson, Raytheon Company, and the Procter & Gamble Company.



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West Point
ASSOCIATION OF GRADUATES

Brought to you by the West Point Association of Graduates in partnership with the alumni associations of the U.S. Naval Academy, U. S. Coast Guard Academy, U.S. Merchant Marine Academy, and U.S. Air Force Academy.

A late summer day in New York City is going from bad to worse. A major financial institution suffers system failures, sending shockwaves through the market. Workers struggle to keep the transportation systems operating as critical control systems fail. And seemingly random incidents continue to escalate. A major regional medical center announces it has lost access to millions of medical records. Dire theories buzz on social media. Panic ensues. The city's first response capability begins to strain. Elected officials and emergency response leadership gather in the city's emergency operations center to analyze the situation, straining to respond. News outlets struggle to inform an increasingly concerned public. Then, a sinister reality emerges when a foreign terrorist group claims responsibility and demands ransom: New York City is under siege from cyberspace.

A person wearing a dark hoodie is shown from the side, typing on a laptop. The background is a dark, blurred image with green and yellow digital code or data patterns, suggesting a cyber environment. The person's face is partially visible in profile, looking down at the keyboard.

Redefining the Battlefield: The Army Cyber Institute at West Point

By Major Terence Kelley '01, Guest Writer

In August 2016, the Army Cyber Institute (ACI) at West Point posed this fictional scenario to various New York City organizations spanning the public and private sectors. Their response unfolded over a two-day cybersecurity exercise known as Jack Voltaic. As the West Point Cadet Competitive Cyber Team played the ‘red team,’ actively probing and attacking the city’s simulated networks, executives and technicians representing New York City’s critical infrastructure (city emergency management, public transportation, telecommunications, finance, power and water utilities, and more) collaborated on a coordinated response. Like any emergency response exercise, Jack Voltaic provided a venue for the various corporate, academic, and government participants to gain exposure, train operators, and evaluate hands-on response against a live adversary. But Jack Voltaic had even a larger purpose, which its lead architect, ACI researcher Chief Warrant Officer 3 Judith Esquibel, describes as the first step in building a framework to prepare, prevent, and respond to multi-sector cyber-attacks on major cities. In short, the exercise epitomized the Army Cyber Institute’s mission: interdisciplinary research and cyber partnerships for the U.S. Army.

The Army Cyber Institute was designed with the unique ability (not just within the Army and West Point, but possibly within the entire military) to bridge the public and private sectors and to examine them through multiple academic disciplines. The “interdisciplinary” concept is one of ACI’s core tenets. In addition to the computer scientists, electrical engineers, and mathematicians one would expect to find in a cyber think tank, ACI employs civilian and military experts in public policy, law, ethics, history, behavioral sciences, and more.

ACI’s mission statement is “to develop intellectual capital and impactful partnerships that enable the nation to outmaneuver our adversaries in cyberspace.” The intent is to look for solutions where the Army is not already looking, especially at the strategic and operational levels. At the end of 2016, Army leaders, including USMA Superintendent Lieutenant General Robert Caslen ’75, signed a four-way agreement to coordinate and unify the cyber efforts of the Army Cyber Institute, the Army Cyber Command, the Army Cyber Center of Excellence, and the Army Staff. Informally known as the Army Cyberspace Tetrad, these four organizations are leading the Army into the growing and changing cyber domain. While the agreement formally charges the Army Cyber Institute with conducting cyber research, public-private partnerships, and outreach, this mutually supporting arrangement ensures a collaborative prioritization across the Army.

The institute’s staff, approximately 45 as of January 2017 and slated for 71 at full operational capacity, includes both military and civilians. Lieutenant General Rhett Hernandez ’76 (Retired), former commander of U.S. Army Cyber Command, serves as the

West Point Cyber Chair and provides strategic direction to the institute. The military contingent draws tactically experienced officers primarily from the Army’s Cyber, Signal, and Military Intelligence branches but also includes acquisitions, modeling and simulations, psychological operations, and other specialties. The military members, many of whom have completed a doctorate degree, include a sergeant major and chief warrant officer, and they fill leadership, research, and staff roles. Complementing the military staff are the civilian academic fellows, each an acknowledged expert in their discipline, usually with a doctorate or a law degree, as well as a proven research record prior to joining ACI. Both the military and civilian academics assist West Point’s 13 academic departments by developing cyber-focused lessons within the core curriculum and creating discipline-specific electives that tackle cyber topics.

Dominating the Cyber Domain

Colonel Andrew O. Hall ’91, ACI Director, organizes ACI’s work into three categories. The first is “dominating the cyber domain,” which involves collaborative work with other Army cyber units to develop the Army’s cyber capabilities and to incentivize the best talent to join the Army. The Institute has built three laboratories for original research. The **Internet of Things Lab** investigates how consumer products can impact the everyday security of soldiers, both at home and on the battlefield. The “internet of things” is the ever-growing network of internet-connected objects, such as home appliances, personal fitness trackers, even lightbulbs. The ACI is exploring how tomorrow’s soldiers might be affected by the communications between these objects and other systems. The ACI’s **Realities Lab** explores how commercially available augmented reality and virtual reality systems might affect military technology, training, and operations. The ACI’s **Big Data Lab** provides a space for staff, faculty, and cadets to learn about big data (computer analysis of huge sets of information, such as those generated by smartphones). In this lab, researchers experiment with big data tools (computer programs), helping develop technology for the Army.

Cyber Training for Tactical Units

A relatively new focus for the Army is cyber support to the corps level and below, integrating cyber elements into training scenarios for tactical Army units. The ACI is leading this effort at the Academy and closely collaborating with Army Cyber Command to train Army units. Last summer, ACI worked with the Department of Military Instruction to introduce USMA’s first cyber-enabled tactical scenario during Cadet Leader Development Training (CLDT). The short tactical exercise involved a commercial, off-the-shelf drone and a Raspberry Pi microcomputer, which was used to disable the drone. While the objective was a tactical raid on a military operation in an urban terrain, it challenged cadet leaders to think through and plan for the realistic threats and cyber

THE ARMY CYBER INSTITUTE AT WEST POINT || est. 2012

DIRECTOR: COL Andrew O. Hall ’91

Mission: The ACI is a national resource organized to create knowledge in the cyber domain and to build critical public and private partnerships between academia and industrial cyber institutes. ACI builds the intellectual capital necessary to defend the nation in cyberspace.





Hacking New York City: Class of 2018 cadets Dave Trate, Dale Lakes, and GunWoo Kim, all members of West Point's Competitive Cyber Team, role-play malicious 'Red Team' hackers during the Army Cyber Institute's Jack Voltaic cybersecurity exercise. The event assembled 25 public and private New York City-based organizations to respond to a simulated cyber terror attack.

capabilities they may encounter on a future battlefield. Subsequently, ACI members supported a Cyber Pilot Rotation at the National Training Center (NTC) at Fort Irwin, CA, providing cyber capabilities support to the 11th Armored Cavalry Regiment opposition force through information operations and disruptive technologies. The tactics ACI helped to shape and develop have since been incorporated into NTC rotations.

Cyber Research and Education

The second category of ACI expertise is “research and education.” In this area, it conducts original research led by its civilian academic fellows, studies cyberspace, and builds interdisciplinary academic partnerships. In conjunction with the Cyber Center of Excellence, ACI has been integral to the development of the Army's cyber career field. Talent management, how the Army recruits, trains, employs, and retains military and civilian personnel, is of critical concern to Army leadership. Among ACI's efforts is the Cyber Leader Development Program for USMA and ROTC cadets, providing enrichment opportunities outside the classroom such as competitive teams and internship opportunities with government agencies and private organizations. The institute created the annual Joint Service Academy Cybersecurity Summit (initially hosted at West Point, now rotating through the service academies), which brings together service academy graduates and senior government and industry leaders. It has also begun publication of the *Cyber Defense Review*, an academic journal devoted to scholarly articles and essays on the cyber domain's strategic, operational, and tactical aspects. ACI's researchers have spoken at conferences and published in other academic journals as well, and the national media—such as Fox Business News, CNN International, the AP, Reuters, and CNBC—is increasingly calling on ACI's researchers as subject matter experts who can inform the national conversation on cyber issues.

The ACI's research and partnership culminates at the Cyber Conflict Conference (CyCon), held annually in Washington, DC. Modelled on an event hosted by the NATO Cooperative Cyber

Center of Excellence, the conference brings together academic leaders and thinkers to examine all aspects of cyber conflict. CyCon 2016 featured a number of influential speakers, including Senator Mark Warner of Virginia, an outspoken congressional advocate of cyber research; Ted Koppel, prominent journalist and author of the cyber book *Lights Out*; General Keith Alexander '74, former director of the NSA; and Dmitri Alperovich, co-founder of CrowdStrike, the company that investigated the 2016 Democratic National Committee hack. Panel discussions for CyCon 2016 considered the future of international cooperation, imminent technical challenges and requirements, forthcoming conflicts in cyberspace, and the potential for new legal frameworks, standards, and regulations.

Innovation and Outreach

The third category of ACI's work, “innovation and outreach,” emphasizes the institute's partnership work with the financial sector, infrastructure and utilities, and cybersecurity firms. Some are surprised to find the U.S. Army and the Academy developing such relationships, as such partners are not normally considered within the defense sector. Yet Jack Voltaic, the exercise described above, portends a new threat reality, a world in which clear lines no longer exist between foreign and domestic affairs or private and public sector problems. Preventing strategic surprise speaks directly to the current Army Chief of Staff's number one priority, readiness. Historically, the United States and its military have struggled to predict how new technologies developed in the civilian realm, such as the internal combustion engine or the airplane, would affect future combat. Yet once that transformation is realized, the nation rapidly adapts (take the industrial miracle of World War II, for example). The Army Cyber Institute exists to hasten this transformation both by original academic research, including cooperative work with other universities, and partnership with the private sector. The Army Cyber Institute's location at West Point, only an hour from New York City, the nation's economic center of gravity, is critical to the institute's partnership mission. Its location allows ACI to establish and maintain relationships with both private and public sector entities, and it was this proximity and these relationships that enabled the collaboration and planning necessary for Jack Voltaic.

Cyber warfare has quickly changed our world, and the armed forces must adapt. Just as smartphones, GPS, internet connected devices, and social media have transformed every aspect of the lives of the American people, the Army is anticipating and adapting to this change. The Army Cyber Institute is leading a cultural shift across the Army towards understanding cyber threats and integrating capabilities into all operations. Working alongside the Army Cyber Command and the Army Cyber Center of Excellence, the work being done today will ensure tomorrow's Army is ready to fight and win anywhere, anytime, even in cyberspace. ★

ACI members COL Andrew O. Hall '91, MAJ Natalie Vanatta, LTC Glenn Robertson '95, LTC Daniel P. Huynh '99, LTC James C. Finocchiaro '99, and Mr. Eric Dean contributed to this article.

WPAOG has facilitated support for ACI's Margin of Excellence activities, including commitments from the Lynde and Harry Bradley Foundation, Palo Alto Networks, Lockheed Martin, The Class of 1991, Vinnie Viola '77, Mark and Karen McLaughlin '88, and Daniel P. Sullivan '85.



The Cyber Research Center: Helping Cadets, Government, Industry, and Academic Partners to Solve Real-World Cybersecurity Challenges

One of West Point's oldest research centers, the Cyber Research Center provides undergraduate research opportunities in the fields of cyberspace operations, computer science, information technology and electrical engineering. Originally founded in 1985 as the Artificial Intelligence Center, this center's mission and name changed in 1999 to the Information Technology and Operations Center to reflect emerging dependence on information systems and resulting securities vulnerabilities. The name changed again in 2012 to today's Cyber Research Center (CRC) to align with the growing importance of offensive and defensive cyberspace operations.

Housed in the Department of Electrical Engineering and Computer Science, the CRC has a dedicated staff of four primary researchers and nine affiliates. In addition to assisting cadets, the researchers work with a variety of government, industry, and academic partners to solve real-world problems in a range of areas, including network and document security, artificial intelligence, simulation, and image processing and analysis. Since 2002, the National Security Agency has designated USMA, with the

leadership of CRC and EECS, as a Center of Academic Excellence in Information Assurance, and the CRC is the only non-Army lab to have earned the U.S. Army Research and Development Achievement Award.

Among the CRC's many initiatives is the Cyber Defense Exercise (CDX), supported by Marshall N. Carter '62 and Marshall and Susan Larsen '70. This annual inter-service academy competition challenges participants to build secure computer networks and defend them against attacks. With the education and training provided by EECS, the CRC, and the assistance of WPAOG, the cadets from West Point have won the competition 8 out of 16 times since it began in 2001, including the 2016 CDX. ★

The CRC also wishes to acknowledge other Margin of Excellence gifts and commitments from Neal Creighton '89, Mark Hoffman '69, Vinnie Viola '77, the West Point Society of North Texas, and the Classes of 1969, 1986, 1993, 2000, 2005, and 2006.

Top: The champion 2016 USMA CDX team poses with the Information Assurance Director's Trophy and former Vice President Joseph Biden, GEN Mark Milley, 39th Chief of Staff of the U.S. Army, and Eric Fanning, 23rd Secretary of the Army.

CYBER RESEARCH CENTER || est. 1985

DIRECTOR: LTC Michael Lanham, Ph.D.

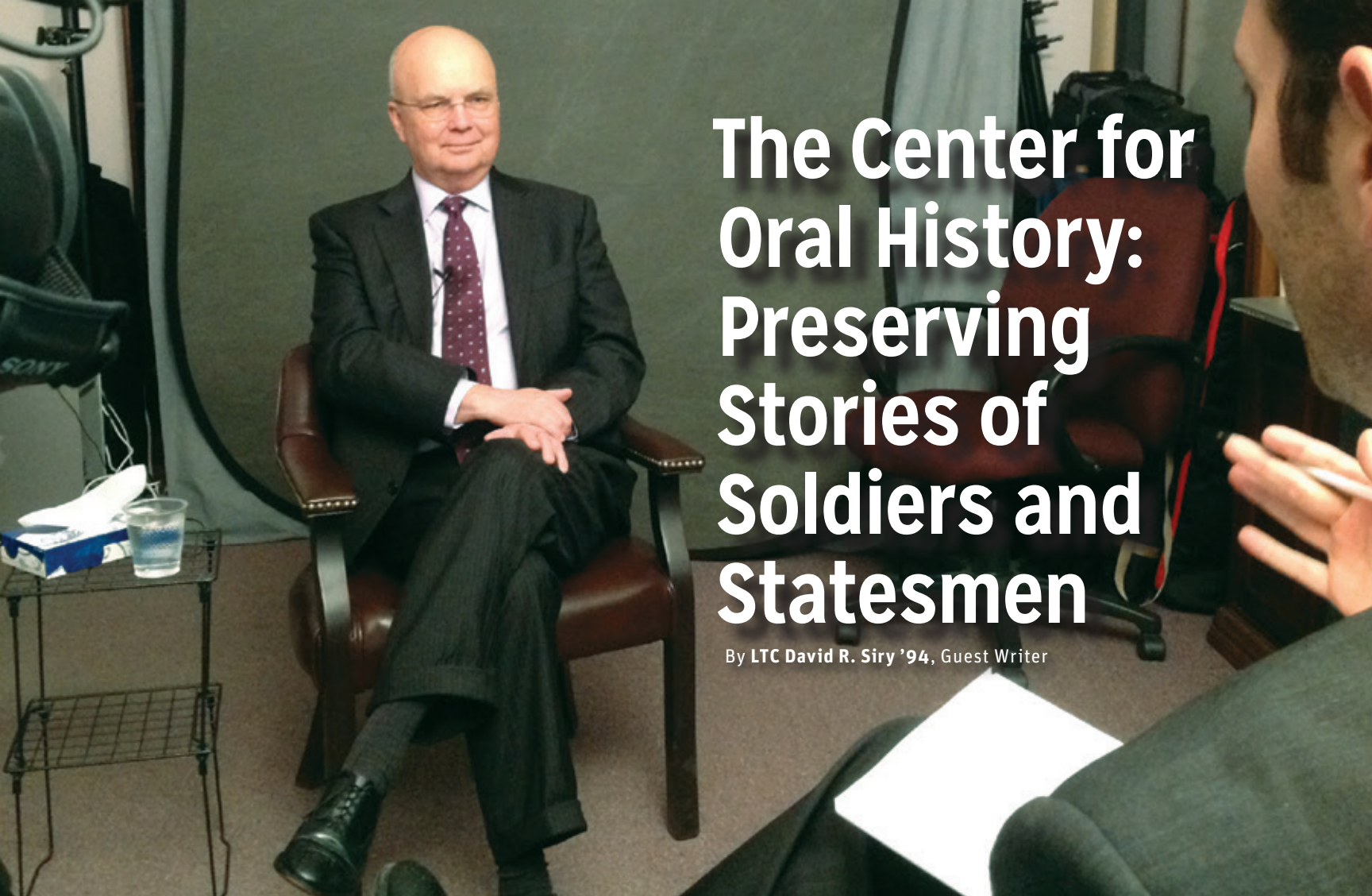
Mission: To educate and inspire cadets and faculty in the acquisition, use, management, and protection of information through innovative teaching, curriculum development, research, and outreach to the Army, Department of Defense, and federal agencies.



MARGIN OF EXCELLENCE



WEST POINT RESEARCH CENTERS
Department of Electrical Engineering & Computer Science



The Center for Oral History: Preserving Stories of Soldiers and Statesmen

By LTC David R. Siry '94, Guest Writer

The West Point Center for Oral History (COH) is one of the United States Military Academy's academic and research centers. It is also a center for the American people, and not just the graduates of West Point. The Center for Oral History provides a resource for cadets, graduates, and the people of America, and has outreach programs that span the globe. The COH is a repository of oral history interviews from soldiers, statesmen, and others who have influenced the profession of arms, and our nation. Currently, the West Point Center for Oral History boasts nearly 300 interviews online with several new additions being posted weekly.

The mission of the West Point Center for Oral History is "To record, preserve, and present the stories of soldiers, statesmen, and others who have influenced the profession of arms, in order to inspire, educate and develop cadets, establish strategic outreach for West Point and the Army, and create new primary source material for scholars, with the purpose of contributing to the development of aspiring Army officers, enhancing the public's understanding of the experience of the soldier, and contributing to analytical discourse in the field of history." In essence, we record and publish online, oral history interviews, primarily for cadets, but available to all, that cover aspects of military service or topics that are significant to the nation. Although the majority of our interviewees are West Point graduates, we do not limit ourselves to only

interviewing members of the Long Gray Line. We have interviewed officers who have graduated from the Reserve Officer Training Corps or Officer Candidate School. Some of our interviewees served as enlisted soldiers, or non-commissioned officers, and a few have even served in foreign militaries, such as the British Army, the Israeli Army, or the Polish Army. We have interviews from individuals who have served in the Navy, Air Force, and Marines as well. Finally, we have interviews with politicians, business people, stars of stage and screen, religious leaders, and military spouses. In short, our interviews cover a wide variety of topics, and offer diverse perspectives.

In 2011, the COH launched its website at an event which featured filmmaker Ken Burns as the keynote speaker and screened *Into Harm's Way*. Produced by the Documentary Group, the film chronicles members of the Class of 1967 and their experiences. The film and the COH have been generously supported by the Class of 1967.

If you visit our web page, westpointcoh.org, you will first notice our "Home Page Interview." This interview is one we've chosen specifically for its relevance, significance, or because we think it is an interview our viewers will especially appreciate. Our home page interview always features a quotation that highlights a particular aspect of the interview, and is designed to grab your attention.

Above: GEN (R) Michael Hayden, USAF, former Director of both the NSA and CIA, discussed cybersurveillance and the balance between liberty and security in his 2015 COH interview.

Below the home page interview are our three most viewed interviews. Currently, those three interviews, Doug Sprowl '15, Joe Anderson '65, and General John Abizaid '73 have been viewed over 16,216 times. Below the top three interviews are our nine most recent postings. Finally, at the top right of the web page, are three tabs, two of which are "Archives" and "Interviews."

The "Archives" tab will take you to a page where we highlight interviews from our four fully funded archives: "USMA Leaders Throughout History," sponsored by the Class of '61, "The Vietnam War," sponsored by the Class of '65, "Combating Terrorism," sponsored by Mr. Vincent Viola '77, and "Soldier to Citizen: Life After the Service," sponsored by Robb and Lydia Turner '84. We also have two additional archives that are in the process of being created: "Honor and Integrity," sponsored by the Class of '77, and "Iraq and Afghanistan Wars," sponsored by the Class of '94. The named archives provide a way of focusing our interview collection and offer a means for viewers to easily find interviews according to their interests. We have several additional themed archives planned and hope to add more in the future, including "Lessons from the Fields of Friendly Strife" (Athletes), "Jewish War Veterans," "The African-American Military Experience," and "Women in the Military: Transition to Combat Arms."

The "Interviews" tab allows the viewer to sort interviews by Conflict, Location, or Theme. When searching within these sub-categories, the viewer can narrow down the types of interviews they are searching for. For example, if one chooses World War II (under conflict), one could then choose to filter by location or theme, thus significantly narrowing the options presented. We routinely update the headings under "Conflicts," "Locations," and "Themes," as our catalog of interviews grows and diversifies. With all of these options available, the viewer or researcher is sure to find interviews of interest on our site.

After we post new interviews, we then advertise them on Facebook, Twitter, and Instagram. You can find us on Facebook as "West Point Center for Oral History," and on Twitter and Instagram as "West Point COH." These different social media platforms each allow us to advertise in different ways. Currently, Facebook provides the greatest flexibility for sharing an interview. Generally, when we share an interview on Facebook, we provide photos that help illustrate the stories our interviewees are telling. For example, for West Point graduates, we post their yearbook photo and class crest, and we try to post pictures of them in uniform, deployed, or otherwise illustrating their lives. Additionally, we are able to post short videos, highlighting the most interesting parts, excerpted from our full-length interviews. Finally, some of our short topical videos are also used to support the *West Point History of Warfare*, History of the Military Art text book. Twitter provides us with outreach to other scholarly organizations. The Oral History



"Pursue Excellence in Everything": In 2015, COH interviewed GEN Vincent Brooks '80, West Point's first African-American Cadet First Captain. In the interview, Brooks discusses his initial interest in West Point, his arrival at USMA, the challenges he faced as an African-American, and his time as First Captain. Brooks has held command at every level, currently serving as Commanding General of U.S. Forces Korea, Combined Forces Command and United Nations Command.

Association, a professional association of oral historians, frequently "likes" and "retweets" many of the interviews we "tweet" about which exposes our center to a wider professional and scholarly base. Finally, Instagram helps us reach some of those who do not follow us on either of the other social media sites. Social media has provided us with a tremendous opportunity to more easily share our wonderful interviews with an ever-growing circle of friends.

Over the past year, we have recorded several outstanding interviews. We were fortunate to interview Mrs. Kitsy Van Deusen Westmoreland about her family, her childhood, and her life with General William Westmoreland '36. We also interviewed Astronaut Frank Borman '50 about his experiences in outer space and his leadership on the Borman Commission. Finally, we recently posted interviews with Staff Sergeant (R) Sal Giunta, a Medal of Honor recipient from the war in Afghanistan, as well as the 17th Secretary of Transportation, Anthony R. Foxx. All of these interviews highlight the diversity that our center boasts.

The West Point Center for Oral History seeks to chronicle every aspect of life experienced by our graduates, our soldiers, politicians and others who help shape the profession of arms. We interview, and publish our interviews online so they can benefit cadets, our graduates, and the American public at large. We advertise our interviews to reach the broadest possible audience and we would love to welcome any of you to view our site, and to connect with us on social media. When you visit West Point, please reach out to us to record your own interview, or feel free to recommend a worthy interview subject to us. ★

CENTER FOR ORAL HISTORY || est. 2005

HOLDER OF DON ACKERMAN '56 COH DIRECTORSHIP: LTC David R. Siry '94

Mission: To record, preserve, and present the stories of soldiers, statesmen, and others who have influenced the profession of arms, in order to inspire, educate, and develop cadets, enhance the public's understanding of the experience of the soldier, and create new primary source material for scholars.



MARGIN OF EXCELLENCE



The Center for Holocaust and Genocide Studies

By **David Frey, Ph.D.**, Guest Writer

The West Point Center for Holocaust and Genocide Studies (CHGS) fills a critical need to comprehensively educate current and future military leaders on how past genocides and mass atrocities have occurred, and what can be done to prevent them in the future. A national study cited the CHGS as one of the most successful government organizations involved in the development of atrocity prevention education, and suggested that it be made an Army Center of Excellence.

Now part of joint doctrine and the National Security Strategy, atrocity prevention requires deep investigation at all levels of military education. As a Margin of Excellence Center at West Point, the CHGS provides cadets and officers opportunities to study the historical contexts, events and consequences of past genocides, specifically focusing on the roles militaries play in both causing and preventing them. It functions as an interdisciplinary and inter-service academy hub, unlike any similar center anywhere in the world. It is beginning to support innovative research projects and foreign study, conferences and workshops, and current U.S. government atrocity prevention and education efforts. Its objective is to instill in the country's current and future leaders a strong sense of history, empathy and pragmatic responsibility.

In October 2015, the Academy hosted former President William J. Clinton, the Center's first presidential address. Invited to speak about his experiences with mass atrocity while in office, Clinton addressed the entire Corps of Cadets and a select group of faculty and invited guests. In his speech, the former President also discussed West Point history and the need for leaders to understand the



Top: Cadets visit the U.S. Holocaust Museum in New York City. **Above left:** Father Patrick Desbois, speaking with Chaplains, faculty and cadets over dinner. **Bottom right:** President Bill Clinton addresses the Corps of Cadets in Eisenhower Hall at the United States Military Academy, October 2015.

complexity of the world. Cadets queried Clinton about a variety of issues, ranging from atrocities in Somalia, Rwanda, and Bosnia to intervention in Kosovo and the continued importance of NATO.

With local and regional partners ranging from the West Point Center for Oral History to the Holocaust and Human Rights Education Center, the CHGS is able to bring a range of speakers to the Academy. In the past year, the center has hosted:

- Dr. Julian Kulski, a veteran of the Polish Home Army who fought in the 1944 Warsaw Uprising
- A Rwandan army colonel who spoke to cadets about the Rwandan Genocide
- Colonel Steven Parker of the African Center for Strategic Studies
- Gábor Kálmán, the director of the documentary *There Once Was...* about the Holocaust in Hungary
- Father Patrick Desbois, President of Yahad-In Unum, a global humanitarian organization dedicated to identifying and commemorating the sites of Jewish and Roma mass executions during World War II

Desbois' visit was perhaps the most impactful. It was on the National Day of Remembrance, and he spoke about the historic work Yahad-In Unum has undertaken to find thousands of previously undiscovered mass graves of many of the nearly 1.5 million Jews murdered by Nazi mobile killing units, known as *Einsatzgruppen*, in the bloodlands of Eastern Europe. Desbois also spoke about the current genocide of the Yazidi in northern Iraq, showing a chilling short video and describing work his organization does with escapees from ISIS.

A variety of programs stem from the CHGS's partnership with the United States Holocaust Memorial Museum (USHMM). One is an innovative "Mass Atrocity Education Workshop: Teaching about the Holocaust and Genocide" in Washington, DC. The three-day program focuses on the evolution of the U.S. government's capacity to prevent, mitigate, and respond to genocide and mass atrocities today, assembling scholars and policymakers from the service academies, Department of Defense, U.S. Agency for International West Point Development, Strategies for Humanity, and Amnesty International. Another program is a collaboration between the CHGS and the West Point Department of Law convening Law and History majors for the "Law, the Legal Profession, and the Holocaust" program. This program brings cadets to Washington, DC to tour multiple exhibits, conduct discussions with a Holocaust survivor, and hear lectures from USHMM senior scholars as well as experts from Georgetown University and the Simon-Skjoldt Center.

In April 2016, the Center and the United States Naval Academy's Never Again Initiative, together with the USHMM's Levine Institute for Holocaust Education, conducted the first ever Joint Service Academies Mass Atrocity Prevention Symposium

(JSAMAPS). This innovative, student-led symposium, had four purposes. First, the symposium enabled inter-academy advanced discussions about the causes, contexts and consequences of atrocity, atrocity prevention, and post-atrocity justice and reconciliation with experts in the field. Second, it offered the opportunity to present research conducted on the Holocaust and other genocides. Third, it encouraged the students, who will be among the first tasked with responding to future atrocities as military officers, to draw lessons from the past and learn about recent studies by peers that could lead to creative means of prevention. Fourth, it provided an unparalleled leadership opportunity for the committee of cadets and midshipmen who designed and led this complex symposium. Their outstanding efforts earned them coins from the Acting Secretary of the Army Patrick Murphy, who attended and spoke on the symposium's first day.

The CHGS also produces publications that contribute to officer education. A joint CHGS/USHMM work, *Ordinary Soldiers: A Study in Ethics, Law and Leadership*, first published in hardcopy in September 2014, has been adopted by ROTC Cadet Command into its national curriculum. In addition, the Center and its affiliated faculty published several works last year. Major Stephen Barker's "And Who Is My Neighbor? American Liberators in Transnational Context" appeared in *Intolerance: Political Animals and Their Prey*. David Frey and Major Bonnie Kovatch published "After Genocide: Rwanda and the African Future" in *What is the Worst that Can Happen? The Politics and Policy of Crisis Management*.

The CHGS has also provided international study experiences for cadets, who have studied the Holocaust at the Bundeswehr University in Germany, and studied the Mau Mau Uprising in London. Cadets also went to the U.S. Army War College to research Nigeria and Boko Haram. ★

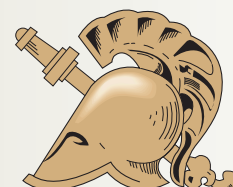
CHGS is grateful for the private Margin of Excellence funding it has received in support of its mission from donors including Ben and Irma Breslauer '54, Stewart and Lynda Resnick, Lorraine and Jonathan Beitler, the David Berg Foundation, the Jewish Chapel Fund, Andrew Gottesman, Ellen Garber, and Robin Gottesman.

David Frey, Ph.D., the Director of CHGS, is a widely recognized expert in his field. The USHMM selected him to be a member of its Education Committee. He has consulted on several international studies on Holocaust education, had input into a national study on the implementation of Presidential Study Directive-10 on atrocity prevention, and participated in the first Genocide Prevention Summer Institute at Keene State College. Frey is currently working with the U.S. Southern Command and several other organizations to develop a comprehensive plan for human rights and atrocity training and education for use throughout South and Central America.

CENTER FOR HOLOCAUST AND GENOCIDE STUDIES || est. 2010

DIRECTOR: David Frey, Ph.D.

Mission: To instill within current and future military leaders a sophisticated understanding of the Holocaust and other instances of genocide, and to inspire them to prevent future atrocities in their roles as military leaders.



MARGIN OF EXCELLENCE





West Point Center for the Rule of Law

By Robert Goldstein, Ph.D., Guest Writer, and WPAOG staff

Established in 2009, the West Point Center for the Rule of Law (CROL) plays a vital educational role in promoting respect for the rule of law, during both peacetime and armed conflict. A Margin of Excellence Center, CROL's mission is three-fold: 1) to serve as a conduit for discussion and cutting-edge scholarship on the Law of Armed Conflict, 2) to engage with constitutional and civil rights issues through conferences and through speakers, and 3) to develop cadets by offering world-class summer and academic year enrichment opportunities. An event that addresses two of these three missions is the West Point Civil Rights Staff Ride, which annually allows cadets and faculty to meet with extraordinary witnesses to the U.S. civil rights movement and uses cultural immersion to promote understanding of the multi-faceted diversity of the United States.

Funded by Michael Boulegeris '82, the West Point Civil Rights Staff Ride is a for-credit course (LW199) offered through the Department of Law. In 2016, nearly 40 cadets endured the rigorous application process to attend the staff ride. In the end, eight were selected to attend. With five required books, and more than a score of articles, legal opinions, and news stories, the eight cadets would have little time to transition from their plebe year final exams to the two-week staff ride. As a military academy, West Point is very familiar with using staff rides, or out of classroom experiences, to teach young officers battle tactics and to understand strategy and tactics of the event through the eyes of its generals, soldiers, and, to a certain degree, the enemy. When viewed from a wider perspective, the long civil rights movement is a series of pitched "battles." Supported by the West Point Department of Law and the Department of History, the Civil Rights Staff Ride was created four years ago by Dr. Robert J. Goldstein, who offers the following narrative regarding part of the 2016 event:

"The June heat was peaking and the sun lingered over Charleston as if it would never set as we began walking from the air-conditioned hotel lobby to the street. Luckily, the Church was just down the block. Except for two tourists taking a selfie, there was no one waiting in front of the Emanuel African Methodist Episcopal Church that late afternoon, and as we walked across the street, there was no obvious entrance with the front doors chained and locked. Nothing betrayed the fact that the Church's Thursday evening prayer meeting was about to take place. The 10 of us, eight cadets and two instructors, circled the graceful white edifice until security guards, visibly relieved at our appearance in uniform, detected our presence. Their vigilance was no surprise, given the events of a year earlier, when a heavily armed individual, intent on starting a race war, burst into a Thursday evening prayer meeting, murdering nine church members. We were escorted to the church basement and warmly invited to sit interspersed with parishioners. In response to their question of what had brought us to them, we explained that the West Point Civil Rights Staff Ride was an intense educational experience designed to study the 'long' civil rights movement in order to try and understand the civil rights issues of today.

The Emanuel AME Church was the penultimate visit in a marathon two-week staff ride which is part of the course in civil rights law and history at the United States Military Academy. The course and the trip are interdisciplinary and were crafted to combine knowledge and empathy to provide a first-hand 'life changing' experience to cadets who had just finished their challenging plebe year.

In 2015, a chance meeting with a West Point grad in Tallahassee, Florida led us to our next stop in Thomasville, Georgia. Henry Ossian Flipper, the first African-American graduate of West Point in

Above: Cadets and faculty at the Southern Poverty Law Center in Montgomery, AL.



Left: During the Civil Rights Staff Ride, cadets attend a prayer meeting with parishioners at the Emanuel AME Church in Charleston, SC.



Left: In Africatown, cadets visit the grave of Cudjoe Lewis (d. 1935), the last of the slaves brought on the ship *Clotilda* to Mobile, AL in 1861. **Right:** Cadets visit the gravesite of Henry O. Flipper, Class of 1877, the first African-American USMA graduate, in Thomasville, GA.



1877, was a native of Thomasville. As Wayne Lambert Jr. '84 related to us, Flipper's remains had been returned to his hometown and were buried in a cemetery that the West Point Society of Tallahassee (WPST) had literally uncovered from neglect. The challenge of plebe year behind them, the staff ride cadets were well acquainted with the lore of cadets past who endured the now-banned practice of hazing. Flipper endured four years of hazing and four years of the silent treatment, as his fellow cadets would not talk to him. He has been recognized by his alma mater more recently as having exhibited 'perseverance in the face of unusual difficulties.' At an early morning ceremony Second Lieutenant Stephen Dunn '16, local dignitaries, members of WPST, and staff ride cadets placed a wreath on Flipper's grave.

The Civil Rights Staff Ride is much more than a trip to landmarks in the South, it is immersive experiential learning, and that means great effort is required to prepare the whole cultural experience. While the main effort is placed on meeting with and talking to people, lodging and dining in local places puts us into communities, and literature and music have a great deal to teach." ★

In addition, CROL would like to acknowledge generous support from Paula M. Keinath (W '56), the family of the late Daniel FitzGibbon '64, the Class of January 1943, John and Caroline Nail '96, the John D. and Catherine T. MacArthur Foundation, Lynde and Harry Bradley Foundation, and the Hatton W. Sumners Foundation.

WEST POINT CENTER FOR THE RULE OF LAW || est. 2009

DIRECTOR: Robert J. Goldstein, Ph.D.

Mission: To take a leading role in the promotion of the rule of law as essential to our security, prosperity, and identity as a nation founded upon this ideal. To educate present and future leaders of our Army and our nation with a deep understanding for the principles underlying the rule of law as a central tenet of our professional military ethic. To inspire and contribute to cutting-edge national and international legal debate and policy development.



MARGIN OF EXCELLENCE





The West Point Leadership Center

The world is changing at an unprecedented pace. In response, the only constant theme in addressing local, national, and global challenges and opportunities is the need for mentally agile, innovative, and culturally competent leaders of character. Although West Point has been well served by its various leader development systems through the years, the Academy recognizes it is not prudent to rely on past or even current ideas and practices to produce the principled leaders needed to overcome the complex challenges of the future.

The West Point Leadership Center's (WPLC) vision is to build on a tradition of excellence so that USMA remains far and away "the world's preeminent leader development institution." A Margin of Excellence Center housed in the Department of Behavioral Sciences & Leadership, which offers majors in Management, Sociology, and Psychology, the WPLC provides thought leadership, outreach, and development programs (detailed below) that elevate the leadership capacity of cadets, faculty and other West Point stakeholders.

Class of 1951 Leadership Chair

The endowed Class of 1951 Leadership Chair for the Study of Leadership was established to enrich the study and practice of leadership and leader development at West Point and throughout the US Army. The Leadership Chair is occupied by an eminent scholar and/or practitioner in the field of leadership and leader development and has frequent interaction with and significant impact on both West Point faculty and Cadets. The Chair achieves this impact through several means including, but not limited to, personal lectures and teaching, assisting in arranging for outside visitors, and the development of research, internship and trip

opportunities. The Chair is currently occupied by General (Retired) Lloyd J. Austin III '75, a retired U.S. Army general who was the 12th commander of the United States Central Command (CENTCOM). Prior Chairs include Tom Tierney (2013-16), Jim Collins (2011-13), Frances Hesselbein (2009-11), Coach Michael Krzyzewski '69 (2007-09) and The Honorable Eric K. Shinseki '65 (2005-07).

McDonald Conference for Leaders of Character

The MCLC, endowed by Mr. & Mrs. Robert McDonald '75, is the annual WPLC flagship leadership conference during which executive-level senior mentors from around the globe lead small discussion groups of cadets and students from the most prominent civilian universities worldwide. Through engagement with dynamic speakers and transformational activities over the course of three days, teams develop their capacity to lead in complex environments. At the conclusion of each conference, teams compose editorial essays on topics of global significance raised during the course of the conference. In past years, these articles have been published in *The New York Times* Op-Ed section.

Class of 1983 Distinguished Leader Series

The "DLS," endowed by the Class of 1983, is a faculty-run lecture series that brings the most influential leaders from across all sectors to West Point to address cadets and advance the study of leadership. On average, the series hosts eight leaders per year. While at West Point, visiting speakers are able to discuss their personal experiences in leadership in small group settings with both cadets and faculty. This year's Class of '83 DLS speakers have included Chris Smith '91, former Assistant Secretary of Energy, Chris Hsu '92, COO of

Above: Sheryl Sandberg, Facebook COO and author of *Lean In: Women, Work, and the Will to Lead*, delivered a guest lecture in March 2015, presented by the Department of Behavioral Sciences and Leadership and the Corbin Forum. Here Sandberg meets with Superintendent LTG Robert Caslen '75 and USMA "Lean In" Circle members.

HP Enterprises Co. and EVP, GM of HPE Software, and Bill McDermott, CEO of SAP.

Black and Gold Leadership Forum

The Black and Gold Leadership Forum is a cadet-run forum that provides an opportunity for the WPLC to host world-class leaders from corporate, government, and social-sector organizations who interact with cadets and junior military faculty in an intimate setting. These discussions often center on socio-political issues facing future Army leaders and, through lively question-and-answer sessions with cadets, provide invaluable advice on developing winning teams. Frequently, these invited speakers remain in contact with the cadets and officers they meet, providing mentorship and growth long after they depart from West Point, thus extending the impact of their brief visits.

West Point Negotiation Project

The West Point Negotiation Project annually produces a pipeline between officers with expertise in cutting-edge negotiations skills and cadets. First, these officers teach the “Negotiations for Leaders” course found within the Management Program. This course exposes cadets to a range of professional negotiation techniques and trials, culminating with an exercise requiring them to negotiate with role players in a Global War on Terror setting. Next, officers and cadets travel to provide on-site training courses to deploying conventional military units, Special Operations forces, and professional law enforcement agencies. Finally, the Project executes the West Point Negotiation Conference each year, during which more than 200 officers and NCOs, as well as USMA and ROTC cadets, come together to develop their negotiation and problem-solving skills in preparation for future crises.

Corbin Leadership Forum

Established in 1976, The Corbin Forum is a WPLC-affiliated program named after Revolutionary War hero Margaret Corbin. It is designed to develop the leadership of female cadets and officers, and educate them about inclusive and cross-cultural leadership including gender-specific issues within the military. Supported by donors including the Margaret Chase Smith Foundation, it hosts regular leader development sessions, summer internships, and the Corbin Leadership Summit, a three-day, cadet-run annual conference during which cadets from other service academies and area ROTC detachments come to West Point to discuss topics pertaining to diversity and inclusion.

Cadet Scholars: International and Domestic Internships

WPLC internships develop future leaders with the tools needed to understand the problems facing an increasingly inter-connected

world. These unpaid internships are hosted by a range of organizations, including government agencies, corporations, and non-profit groups across the globe. Individual and corporate donors such as Cargill, General Electric, and EMCOR Group, among many others, make these experiences possible. Upon completion of their three-week summer internships, cadets are required to write a reflection paper detailing the challenges they faced, the tools they employed to meet these challenges, and how the internship aided in their growth as leaders in multiple domains.

Excel Scholars

The Excel Scholars is a WPLC-affiliated program that provides mentorship to underrepresented minority cadets and prepares them to apply for and receive national-level scholarships. In its first five years since inception, Excel Scholars have earned more than 30 scholarships. In the 2016-17 academic year, Excel scholars have been selected for a Rhodes and a Schwarzman Scholarship.

Innovation (Enrichment)

The WPLC’s Innovation Endowment enables the WPLC to send cadets and faculty anywhere in the world, when opportunities arise for innovative collaboration, in order to capture best practices in business, non-profit, and government leadership development, and bring these ideas back to West Point for implementation and further dissemination.

Leadership Innovation Fellows

One of the WPLC’s newest programs, the intent of the Leadership Innovation Fellows program is to host three world-class leadership scholars (including leadership development experts from business, non-profit, and academia) on a term basis, thus ensuring a constant influx of innovation and new ideas about leader development and human performance. These scholars and practitioners will actively partner with cadets, junior military faculty (the nation’s future battalion commanders, brigade commanders, and general officers), and senior faculty to produce scholarship on the future of leadership and leader development so that USMA proactively sets the standard for leadership development for the Army and the world.

In addition to the donors who have named aspects of the Center, WPLC has received support from the Classes of 1964 and 1988 and corporations like The Boeing Company and the Procter & Gamble Company.

When fully resourced, the WPLC will be the premier driver of the ideas, systems, and experiential learning opportunities for leaders that the Academy, the Army and the nation need to build trust and tackle the world’s emerging challenges. ★

THE WEST POINT LEADERSHIP CENTER || est. 2011

DIRECTOR: COL Everett Spain '92

Mission: The WPLC provides an environment to study leadership science, capture the essence of the processes that transform cadets into leaders, and tackle the issues facing leaders in today's global society.





Left: Former CDTs Tirone Young '16, Sam Bradford '16, Jung Son '16, and Molly Shannon '16 experience the radiation field exercise at Camp Buckner in a joint exercise between PaNE and NSERC. **Right:** Joint research between PaNE former CDTs Katie Williams '16, Tirone Young '16, and Justin Hall '16 and NSERC involving experimentation of medical linear accelerators at Memorial Sloan-Kettering Cancer.



Nuclear Science and Engineering Research Center

By LTC Robert Prins '93, Ph.D., Guest Writer

Within the confines of Bartlett Hall resides a research center that serves to partner all the Department of Defense (DoD) Service Academies with the Defense Threat Reduction Agency (DTRA) in those topic areas relating to combating weapons of mass destruction (CWMD). Although the research center offices are simple, the mission space is complex—seeking to build CWMD awareness in the next generation of military leaders.

The Nuclear Science and Engineering Research Center (NSERC), now celebrating its 10-year anniversary, was established to leverage cadet and faculty expertise to reach solutions supporting the work performed in nuclear technologies within DTRA's Research and Development Directorate. The key purpose for the establishment of the NSERC was to link DTRA and the United States Military Academy's Department of Physics and Nuclear Engineering (PaNE). The vision of investing personnel and resources to facilitate a collaborative joint working environment is achieving results far beyond the original hopes and expectations.

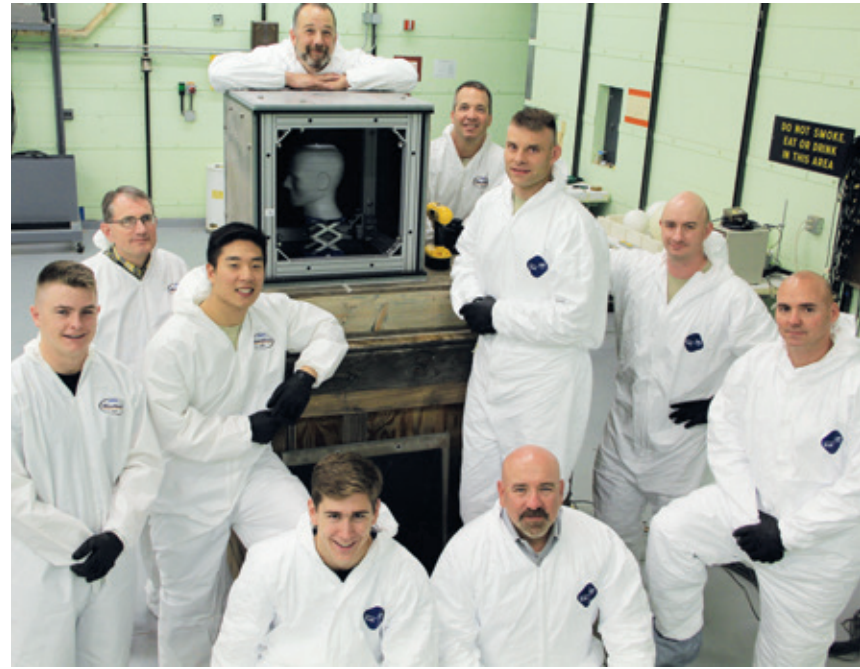
Prior to the establishment of the NSERC, PaNE worked to provide a collaborative research environment for faculty and students pulling from relatively limited resources (faculty time and funding). However, when the vision of a partnered research center was presented to DTRA, shared understanding and goals were immediately recognized and the partnership was formalized. From humble beginnings and an initial annual DTRA project budget of \$25,000, the NSERC has since expanded to an operating budget of more than half a million dollars annually. The NSERC staff

consists of four personnel working at West Point on assignment from DTRA, an Army lieutenant colonel, two Army majors, and one civilian administrative executive assistant.

NSERC jointly supports USMA and the other service academies by supplementing their considerable existing capabilities with state-of-the-art radiation detection systems and high fidelity signal processing equipment, dedicated research support personnel serving as subject matter experts for individual and group projects, and summer internship opportunities for faculty and students.

Helping to build the CWMD knowledge base of the next generation military leaders with a strong awareness and appreciation of nuclear technology issues is an incredibly important mission space for the NSERC. Due to the wide range of CWMD issues, building the base includes providing summer opportunities to students from all the academic majors at West Point. In fact, in the summer of 2016 alone, more than 100 students and faculty from across all the service academies participated in NSERC-funded summer internships. This included 47 cadets from 8 different USMA academic departments traveling to 14 different locations (internationally and within the United States). Ten of the cadets were sent to three Department of Energy National Laboratories.

Many summer internships lead to individual research and group capstone projects during the academic year. Individual research projects have spanned the nuclear technologies spectrum from



Left: CDTs Molly Prins '17 (PaNE) and Brian Quinn '17 (SE) visiting Sandhurst in England while studying Food Security at Harper-Adams University. **Right:** MIDN Kyle Mathes Orr (USNA '17), Dr. Marshall Millett (USNA), CDT Anthony Ha (USMA '17), Dr. Justin Clinton (AFIT), MIDN Drew Brenn (USNA '17), LTC Robert Prins (NSERC, USMA '93), MAJ Sam Heider (NSERC), Dr. John McClory (AFIT), MAJ Andrew Decker (NSERC, USMA '02), and LTC Stephen McHale (USNA, USMA '94) are conducting radiation protection factor research at White Sands Missile Range.

medical use of radiation interactions in the human body, to understanding the physics of the cloud rise from a nuclear weapon detonation, to exploring the societal impacts and long-term effects of a nuclear weapon strike. Group capstone projects are also extremely important as the collaborative opportunities within a group allow for individuals to share ideas and delve into the CWMD issues. Current projects include studying effects in consequence analysis, nuclear detection, and nuclear forensics. The NSERC has collaborated with other research centers on West Point including the Photonics Research Center, the Network Science Center, and the Center for Nation Reconstruction and Capacity Development. Such projects apply interdisciplinary theories to nuclear technology issues, thereby expanding the scope of technology collaboration beyond fundamental science and engineering. In this manner, three of the NSERC's main research areas include consequences of execution and the higher order societal effects following a nuclear blast, personnel radiation protection factor development for current equipment within the DoD inventory, and local area search technology detecting non-traditional radiation source signatures to locate threats.

A strength of the NSERC lies with its state-of-the-art equipment used to research nuclear interactions in a laboratory setting and apply operational techniques in a field environment. The NSERC

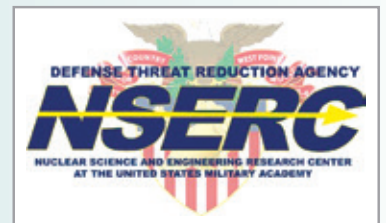
is an ardent supporter of the PaNE Nuclear Engineering Program, providing assistance and expertise for the annual radiation detection field exercise at Camp Buckner. Officers assigned to the NSERC mentor cadets with their senior research projects, instruct courses within PaNE, and direct the nuclear engineering seminar course which brings senior DoD researchers and lecturers from across the country to West Point to speak with cadets and faculty on a wide range of CWMD topics. The NSERC also assists in the professional development of future officers in DoD's nuclear enterprise by hosting colloquia and seminars on many topics including disaster management and effects remediation.

A DoD website (www.dodstem.us) acknowledges the need for creative and imaginative leaders that have outstanding problem-solving skills so that U.S. forces can maintain their fighting edge in a volatile and uncertain global environment. Recognizing that nearly half of all the scientists and engineers in the Federal government are employed by the DoD, NSERC contributes to this effort by building the scientific education and awareness of USMA cadets. Based upon the great amount of success that the NSERC has worked hard to achieve over the past 10 years, the next 10 years and beyond will be positively transformational for the future joint military leaders of tomorrow. ★

NUCLEAR SCIENCE & ENGINEERING RESEARCH CENTER || est. 2007

DIRECTOR: LTC Robert Prins '93, Ph.D.

Mission: The Nuclear Science and Engineering Research Center partners the Defense Threat Reduction Agency with Department of Defense (DoD) degree-granting institutions to conduct combating weapons of mass destruction (CWMD) research which enhances DoD capabilities to combat weapons of mass destruction and develops the next generation of CWMD officers for the DoD.



“The peaceful transmission of power
is what will separate this country from
every other country in the world.”

—George Washington



West Point cadets march in
the January 20, 2017 Inaugural
Parade in Washington, DC.





WPAOG Launches Rockbound Highland Home Program Exclusively for Grads

At some point during their 47-month experience at West Point, many cadets catch themselves referring to West Point as “home.” The gray stone buildings and green athletic fields have become their familiar neighborhood, filled with memories. The people around them have become their closest friends. The hectic pace of life has become their daily routine. Yet, not long after West Point becomes a second “home,” cadets graduate and disperse across the globe, serving where their country calls them and forming their own families and homes.

Yet the Long Gray Line always remains an extended family, and West Point is always happy to welcome back its members.

That is why the West Point Association of Graduates (WPAOG) is proud to unveil the **Rockbound Highland Home** Program (RBHH). The Rockbound Highland Home Program offers personalized benefits to ensure that every graduate coming back home to the Academy feels warmly welcomed back to “Our kind old Alma Mater, our *Rockbound Highland Home*.”

The Rockbound Highland Home Program is designed exclusively for USMA graduates. The program will streamline the process of securing on-post credentials, offer access to select Morale, Welfare and Recreation (MWR) facilities, and provide “insider” tours for graduates and their guests.

“WPAOG is always looking for new ways to enhance the services we provide to the Long Gray Line,” said Todd A. Browne ’85, WPAOG President & CEO. “Our vision is for the Long Gray Line to be the most connected alumni body in the world. To maintain your connection with the Academy, we have designed the Rockbound Highland Home Program to welcome you and your family members back to West Point and to enhance your experience when you visit. My hope is that more graduates and their families will make West Point a destination, so we can welcome you back home.”

Here’s what the Rockbound Highland Home Program includes:

Grad Pass

Last year, the Department of Defense (DoD) established new post access policies. Through the **Grad Pass** component of RBHH, WPAOG has collaborated with West Point Garrison to offer a new, convenient way for Grads and their guests without DoD identification cards to navigate the increased security regulations now in place. To access post and selected Morale, Welfare, and Recreation (MWR) facilities, you will be able to apply for a Grad-specific, West Point-issued identification pass. Request a “Grad Pass” in advance of your visit by completing an application and transmitting it via the encrypted tool on our website. Doing so will enable the post security team to conduct a mandatory background check and have your pass available for pick-up upon your arrival.

WPAOG ROCKBOUND HIGHLAND HOME PROGRAM

There will be two Grad Pass options. Each graduate's choice depends on the frequency of his or her anticipated visits to West Point. The first is a temporary alumni pass, which is valid for two weeks. Those applying for this pass can proceed directly to the second checkpoint at Thayer Gate to pick up the paper pass. The second type of pass option is the Local Area Credential (LAC), a photo identification card that is valid for one year. Before the LAC can be issued, those requesting it will need to proceed to the "Alumni Lane" at the Visitor Control Center on USMA's South Post in order to get their photo taken for the pass.

Grad Perks

Using either the temporary alumni pass or LAC as a credential, the **Grad Perks** program provides alumni with privileged status and access to many recreational facilities and services at West Point, including the MWR Fitness Center, Victor Constant Ski Slope, the West Point Family Bowling Center, Morgan Farm Stables and Kennel, ice skating at Tate Rink in the Holleder Center, Round Pond, the West Point Golf Course, Delafield Pond, the Arts & Crafts Center, and more.

Grad Insider Tour

Did you ever wonder what the Thayer Award Room looks like? Or how many people it takes to make all the cadet uniforms? On the **Grad Insider Tour**, alumni and their guests will receive a behind-the-scenes, historical look at the United States Military Academy, including access to locations usually limited to cadets, staff and faculty. Graduates will be able to share an up-close perspective about their unique experiences of West Point with their guests. Guided **Grad Insider Tours** will commence and conclude at Herbert Hall, and WPAOG will provide transportation to Central Area, where guests will have the opportunity to visit Washington Hall, the Thayer Award Room, period cadet rooms at First Division Barracks in Nininger Hall, Jefferson Library, Arvin Gym, Kimsey Center, and the Uniform Factory. Tours will be conducted Monday through Friday at either 10am or 2pm and can accommodate up to 10 guests. There will be a small fee for tours.

WPAOG, along with its partners at USMA, West Point Garrison and MWR, is excited to announce that the **Grad Perks** and **Grad Insider Tour** programs are available immediately for alumni.

Future Programs

WPAOG is also working to develop a custom, dedicated smartphone app that graduates and their families can use to enjoy an interactive learning experience while touring the Academy.

For more information on the Rockbound Highland Home Program and to book tours, please visit: WestPointAOG.org/RockboundHighlandHome

Questions may be directed to WPAOG's RBHH Program Coordinator, Lindsey Eisenlohr, at: rockboundhighlandhome@westpointaog.org

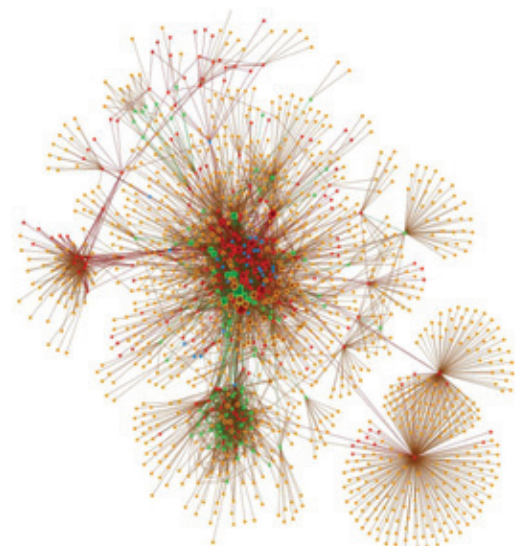
The West Point Association of Graduates gratefully acknowledges the Academy and Garrison teams for their assistance in facilitating the RBHH program launch.

Funding to support the Rockbound Highland Home program comes from your generous donations to the Long Gray Line fund.



Above top: The Thayer Award Room, one of several locations on the *Grad Insider Tour* that is only open to grads and their guests. **Above middle:** The 18-hole West Point Golf Course, one of over a dozen MWR facilities accessible to grads through RBHH *Grad Perks*. **Above bottom:** RBHH *Grad Pass* will offer alumni-specific identification to assist grads with Post access. **Below:** The distinctive WPAOG *Grad Insider Tour* van will transport grads and their guests to locations not open to the general public.





Depiction of collective and individual tasks for an Infantry Company helps prioritize training tasks for the unit.



SCARE S-2 software helps locate weapons caches in Afghanistan.

Exploring the Behaviors of Complex Systems: The West Point Network Science Center

By LTC Jonathan W. Roginski '96, Guest Writer

The West Point Network Science Center (NSC) is many things: a nonprofit knowledge generation machine, an Army think tank, and an application-oriented educational support center. It is an interdisciplinary intellectual community serving to answer the call of Army decision makers—to answer questions and provide insights wherever interconnections between problems are every bit as important as the problems themselves.

The NSC fulfills a need the Army identified in the mid-2000s. At the time, visionaries within the Army regarded the world in which it operated and

recognized the Army had a culture of reductionism that enabled its soldiers and organizations to solve the most complicated problems by breaking them into their constituent parts, solving the smaller problems, then aggregating the individual results to solve the larger problem. This technique ignored a fundamental truth about the world in which we live—that those small, individual problems were likely connected and those connections were likely as important as the problems themselves. Reductionist techniques do not account for the complexity resulting from connections between entities. The Army realized it needed to invest in the science of connections—network science—and the NSC was born.

Network Science is an interdisciplinary field. If a single specialty or discipline could solve the problem, it likely wouldn't exist...the problem would already be solved. As such, no single department or organization can be a sole proprietor of network science research. Though the NSC resides in the Department of Mathematical Sciences, it has actively partnered with three-fourths of the United States Military Academy's departments, five of its research centers, and several Department of the Army and Department of Defense

(DoD) activities to gain insight into and solve significant problems in support of Army and DoD decision makers, in combat and training environments.

The NSC makes meaningful contributions to the field Army. One example is software developed by Major Paulo Shakarian '02 in the NSC, called SCARE-S2 (Spatio-Cultural Abductive Reasoning Engine). It was used during the height of conflict in Afghanistan to locate weapons caches in the provinces with the greatest kinetic activity: Kandahar and Helmand (see picture at lower left). In an environment where every move matters and every decision may cost lives, the areas highlighted by SCARE-S2 for cache searches were 35 times more likely to yield caches than the two provinces as a whole.

In several forums, the Chief of Staff of the Army, General Mark Milley, has declared readiness for combat to be his number one priority. It is well known to any leader who has attempted to develop a training schedule that there are more tasks that must be accomplished than time to accomplish them. The image at the upper left depicts a representation of all the collective and individual tasks for an infantry company. It does not seem possible to make sense of this "spaghetti ball," but the NSC has developed an applet that ingests a unit's mission essential task list and returns a priorities list of training tasks, using network science measures. Ultimately, the cadets hope to see their tool implemented across the Army on the Army's Digital Training Management System.

As with many organizations, it is the people of the Center who enable its contribution to the Army, greater DoD enterprise, and beyond. The NSC's group of innovative, motivated, interdisciplinary-minded thinkers collaborate using a proven model that facilitates growth in scholars at all stages of their academic career. Typically, projects include a cadet or team of cadets, one or more master's-level rotating faculty, and a Ph.D.-level faculty member. The Center also benefits from Margin of Excellence funding from donors such as James A. Anderson who supports its operating fund. Thus, the NSC combines a diverse set of skills and experiences across West Point's academic departments and research centers to realize its vision:

- Develop cadets and faculty through research and education—impacting the Army and beyond.
- Engage the Army and worldwide Network Science community, adding value to both. ★

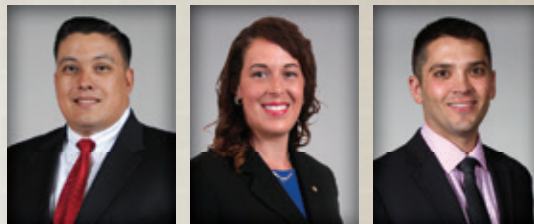
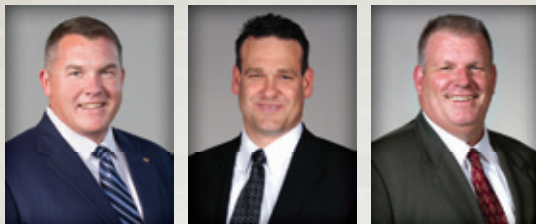
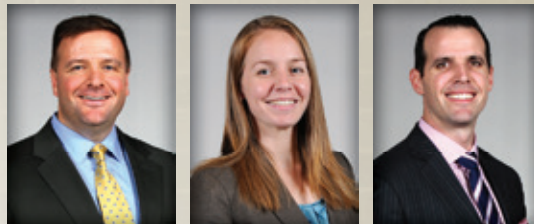
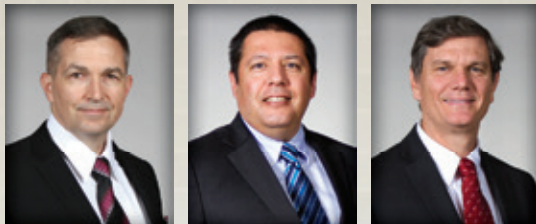
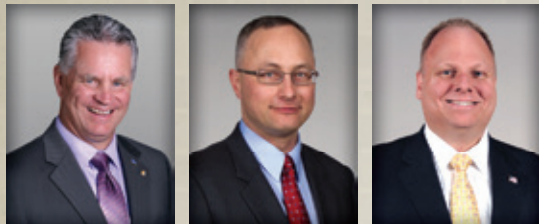
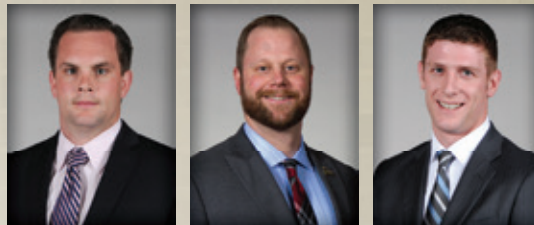
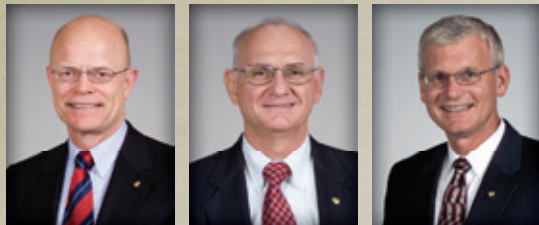
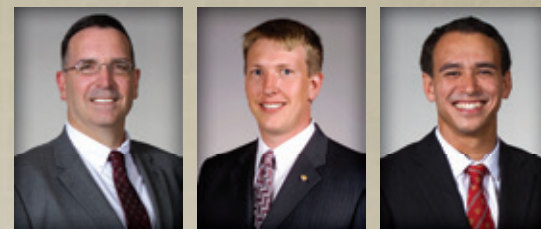
MARGIN OF
EXCELLENCE



NETWORK SCIENCE CENTER || est. 2007

DIRECTOR: LTC Jonathan W. Roginski '96

In a world increasingly characterized by connections, the Center leverages diverse expertise from across the United States Military Academy's academic departments and the greater Network Science community toward multi-disciplinary research efforts that explain and predict the behaviors of complex systems by studying the networks that represent them.



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Almost 70 percent of First Command's nearly 500 Financial Advisors served in the military. Thirty-three are West Point graduates. They accepted the challenge of building their own business because they relished the idea of making a lasting difference in the lives of military families.

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The Conflict and Human Security Studies Program

By **Ruth Beitler, Ph.D.**, Guest Writer

The Conflict and Human Security Studies Program (CHSS) was established in 2007 with a grant from the John D. and Catherine T. MacArthur Foundation, and is administered by the USMA Department of Social Sciences. Under the direction of Ruth Margolies Beitler, Professor of Comparative Politics in the Department of Social Sciences, both faculty members and cadets have multiple opportunities to increase their understanding of the roots of conflict using a human security perspective that sheds light on the comprehensive nature of security. The CHSS program provides cadets of all majors with basic levels of both cross-cultural competence and culture-specific (language and regional knowledge) skills to become leaders of character in the ever-changing world which they will confront upon graduation from West Point.

As a Margin of Excellence program, the CHSS mission is to provide current and future leaders with the intellectual and experiential tools required to operate effectively in complex and culturally diverse security environments around the globe. At West Point, cadets learn the essential leadership, tactical and administrative skills required of lieutenants, but junior officers must also acquire cultural competence. The United States has deployed soldiers across the world to engage in complex operations that include counter-insurgency, counter-terrorism, stability operations, and peacekeeping. In all these operations, graduates of the United States Military Academy must determine how best to address the roots of conflict no matter the country to which they

are deployed. They must analyze the cultural and human security factors feeding these conflicts in an effort to find mechanisms that can prevent conflict or stabilize post-conflict environments.

The CHSS program recognizes that the aforementioned global environments demand junior officers who are not just excellent problem solvers, but who can also identify and solve problems across cultures and societies. One of the best methods of developing these cultural skills in cadets is through relatively short cultural immersion experiences during the summer with non-governmental organizations (NGOs) in the non-Western or developing world. These donor-funded immersion experiences ensure that our recent graduates won't experience both culture and combat shock simultaneously upon their first deployment. Moreover, the experiences provide an opportunity for cadets to develop professional relationships with NGO members who they may perhaps meet again in future operations. Thanks to gifts from individuals like Bill Murdy '64, the Classes of 1972 and 1976, and foundations such as the Lynde and Harry Bradley Foundation, John M. Olin Foundation, and the Starr Foundation among other donors, the CHSS program sends cadets to collaborate with NGOs teaching English, supporting medical professionals, assisting with construction projects, and working in orphanages and with disabled children. These NGO programs are in Tanzania, Ghana, Thailand, Peru, Mongolia, Cambodia, Vietnam, Haiti and many other countries.

Above: CPT Rebecca McGilley '07, CDT Sydney DeWees '18, and CDT Kacie Heinz '18 singing a traditional song with the Masai women and children in Tanzania.

The research on cultural immersion programs at West Point indicates that international enrichment programs significantly increase overall cross-cultural competence more than all other summer activities for cadets, such as military schools or domestic academic trips. More specifically, traveling to non-Western locations and being directly immersed in the culture has had the greatest positive effect on culture-general skills. Cadets have described their cultural immersion experiences as “trips of a lifetime” and through these experiences, cadets become more culturally competent with an increased sense of confidence when interacting with nationals in foreign countries. “This was my first experience truly submerging myself in a culture that was not my own, and the human and social interactions I experienced were far more valuable in contributing to my development as a future Army officer. As a project manager in charge of the construction of three houses, I have gained more experience in leading a team toward a common goal and handling the challenges that come with such a task. Among many others, these challenges have better prepared me to lead a platoon of soldiers and facilitate action toward a common goal,” says Cadet Zachary Cohen '17. Recently deployed USMA graduates argue that their cultural immersion experiences at West Point contributed directly and positively to their performance as an Army officer. Furthermore, graduates saw the value of these experiences in the broader perspective of the professional officer corps.

With cultural immersion experiences through the CHSS, West Point cadets are able to accomplish many tasks necessary to meet the global needs of the larger U.S. Army; however, the CHSS views the two most important as increasing the core competency of future officers and exposing cadets to new cultures. Once deployed, cadets will be catapulted into a foreign culture which could be a truly daunting experience had they never been afforded the opportunity to travel to new regions and experience different cultures. The CHSS program helps provide a holistic and empathetic lens to better understand the global security environment, and, through research and practical experience, cadets gain deeper insights into the problem of human security. ★



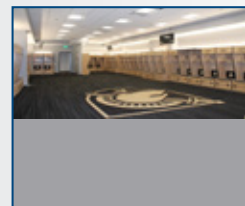
Above left: CDTs Sydney DeWees '18 and Kacie Heinz '18 with their students in Tanzania. **Top right:** CPT Aaron Mann and CDT Nate Thomas '17 shaking hands with a North Vietnamese army veteran. **Bottom right:** Cadets at Tri-Acad—Thmat Puong Military Academy in Cambodia.

WEST POINT PROGRAMS AND SUPPORT CENTERS
Department of Social Sciences

CONFLICT AND HUMAN SECURITY STUDIES || est. 2007

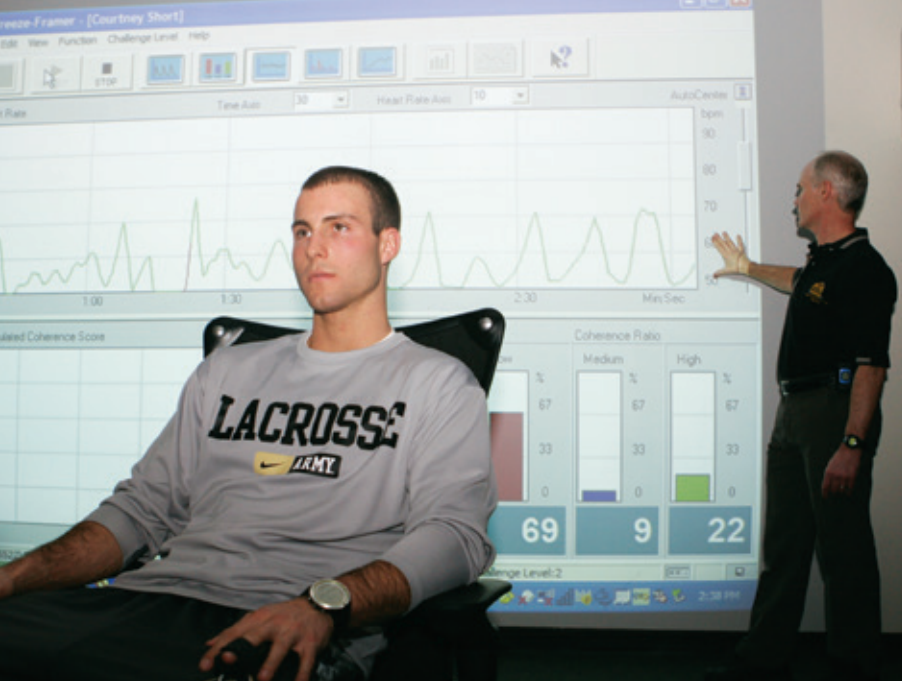
DIRECTOR: Ruth Margolies Beitler, Ph.D.

Mission: To provide current and future leaders with the intellectual and experiential tools required to operate effectively in complex and culturally diverse security environments around the globe.



MARGIN OF
EXCELLENCE





Cadet with emWave biofeedback data chart on projector in AIAD Sports Psychology course.

The Center for Enhanced Performance

By LTC Darcy Schnack '96, Guest Writer

USMA's Center for Enhanced Performance (CEP) was officially created in 1992, though its roots trace back to 1959 when the English Department began a program to help cadets improve their reading and study skills. Academy leadership recognized the need for cadets to develop strong study habits and other abilities to tackle the rigors of life at West Point. In 1964, the library took control of the program and created the Academic Skills Center, offering a comprehensive reading improvement program. This ultimately evolved into the Reading and Study Skills Center, offering diagnosis and remediation of academic areas of challenge through formal courses. In 1989, West Point established the Performance Enhancement Center to train select cadet-athletes in applied sports psychology. Three years later, the two agencies joined to form the CEP. Today the Center educates and trains the Corps of Cadets in comprehensive performance psychology and academic skills to develop their full potential and consists of the Performance Psychology Program (PPP) and the Academic Excellence Program (AEP).

CEP's Performance Psychology Program (PPP) supports athletic teams and interested cadets with seminars and one-on-one appointments with performance psychologists to help them achieve their physical performance-oriented goals, from winning collegiate championships to making it off the high-dive in survival swimming. The PPP teaches a standard three credit-hour academic course called "Psychology of Elite Performance" in support of the Department of Behavioral Sciences and Leadership. The PPP also provides select cadets a two- to three-week summer internship during which cadets support and learn from an Army Performance Psychology program at posts around the United States. The West Point PPP developed the mental skills foundations which the Army features in its Comprehensive Soldier Fitness Training modules.

CEP's Academic Excellence Program (AEP) provides one-on-one academic counseling for cadets wishing to improve their academic performance at all levels. The AEP runs the West Point Tutor Program, training and certifying over 600 cadet volunteer tutors, providing corps-wide study sessions and guidance to company academic officers. It provides Athletic Academic Support Coordinators to Corps Squad teams to monitor the academic status of each player and to provide one-on-one and group support, including a nightly study hall for underclass athletes. The AEP oversees one of the CEP's most significant responsibilities, the Student Success Course, taken by roughly half of the plebe class every year, which blends elements of performance psychology with important study skills such as time management, organization, and note-taking.

In addition to teaching the reading efficiency course to cadets as well as staff and faculty, the AEP also offers a critical thinking course, whose graduates have earned many Truman, Marshall, Rotary, Schwarzman, and Rhodes scholarships. Thanks to private support activities such as the Wedemeyer Strategic Lecture Series, endowed by Dr. Mark R. McLaughlin, cadets are exposed to the practice and pursuit of self-initiated study and a broad education in order to develop a perspective capable of navigating the nation's global strategic challenges. The Lecture Series also hopes to inspire cadets to pursue advanced degrees and training in order to become our country's next great strategists.

As society has become more aware of concussions' impact on cognitive and physical capabilities, CEP's newest responsibilities include supporting cadets who suffer concussions through the "return to learn" protocol. The academic counselors of the CEP also run the First Year and Beyond program which helps select fourth-class cadets who have struggled academically to get back on their feet and move forward. ★



THE CENTER FOR ENHANCED PERFORMANCE || est. 1992

DIRECTOR: LTC Darcy Schnack '96

Mission: To educate and train the Corps of Cadets in comprehensive performance psychology and academic skills to develop their full potential.



LEADERS ARE SHAPED BY THE VALUES THEY EMBODY

As future academy graduates prepare for their military careers and beyond, support and advocacy is essential for their long-term success. Boeing is proud to partner with the U.S. Military Academy at West Point, the U.S. Naval Academy at Annapolis and the U.S. Air Force Academy at Colorado Springs with the shared goals of leadership development and engineering excellence. Together, we're helping shape leaders of character to better serve our nation and the world.





Impacting the Bigger Army: The Center for Innovation and Engineering

By LTC Philip Root '96, Ph.D., Guest Writer

The Center for Innovation and Engineering (CIE) resides within the Department of Civil and Mechanical Engineering (C&ME), and has achieved a wide-ranging impact on the Academy by serving as a key integrator of intellectual capital. Both Civil and Mechanical engineering are inherently interdisciplinary fields, thus the CIE program benefits from many collaborators across West Point and beyond. Interdisciplinary projects are not the primary CIE objective, but rather the means to facilitate the program's Academic Program Goals and support cadet leadership development much more broadly. The CIE program thrives as the nexus of cadet education, faculty development, and Army outreach, and plays a significant role in forming projects to challenge and refine cadets' innovative thinking.

Examples of CIE interdisciplinary projects that have a wide-reaching impact include research performed in January 2016 at the Veterans Affairs (VA) hospital in the Bronx, New York. USMA Instructor Dr. John Rogers from C&ME contributed mechatronics experience with the biomechanical experience of Dr. Greg Freisinger from the VA, which specializes in spinal cord injury research. USMA researchers and cadets also worked with Dr. Ken Wickiser '92 from the Chemistry and Life Sciences Department and Dr. Ken Cameron from the Keller Army Community Hospital to directly contribute to the VA mission. Similarly, Dr. Becky Zifchock leads a team of CIE researchers sponsored by the Natick Soldier Research Development and Engineering Center (NSRDEC) to address significant problems facing Army Soldiers

Above: The CIE Spirit Tank waits patiently on Daly Field before the "Beat Air Force" bonfire last fall.

of today. C&ME cadet contributions include the proposal of improved body armor for soldiers that shifts weight from the shoulder to the hips, and the development of incredibly energy-efficient, easily transportable, and rapidly-constructed barracks huts, also known as “SIP huts,” that are in the process of being deployed to military posts worldwide. This partnership with NSRDEC has presented the opportunity for further CIE-supported projects and will utilize the resources and contributions of Dr. Ericka Rovira from the Behavioral Sciences and Leadership Department, Captain Patrick Kuiper '07 from the Math Department, and Lieutenant Colonel Mark Smith from the Geography and Environmental Engineering Departments.

An Academy-wide, CIE-led research team also supports the Army ammunition plant enterprise. Built during World War II, this enterprise of production facilities continuously seeks to improve efficiency while reducing negative impacts on the environment. Mr. Rahul Verma leads a talented team of civil and mechanical engineers to address hydrology and process cooling issues, and Colonel Jeff Starke and Dr. Mike Butkus from the Environmental Engineering program, along with Dr. Andy Biaglow from the Chemical Engineering program, directly support the pressing environmental concerns from the Holston and Radford ammunition plants. While the CIE coordinates the funding for such initiatives, these external researchers provide an immense return on investment for the project sponsor. Many of these researcher/cadet project teams also travel to Fort Benning, Georgia to meet soldiers from the Experimentation Force of the Maneuver Battle Labs. Past projects include an improved fast roping system

and an M249 automatic weapon muzzle brake that reduced recoil forces and improved accuracy. The benefit from this experience was the leader development skills displayed by all the cadets involved as they raced to finalize their designs in an effort to impress the non-commissioned officers involved in the testing procedures.

Through these projects, the CIE program has found that cadets can significantly contribute to many real-world U.S. Army initiatives. While the impact can be seen across the Army, CIE cadet designs are also highlighted during Army football games when the Army Spirit Tank, equipped with a turret and hull, cannon, cockpit, and chassis, launches t-shirts into a crowd of excited fans. C&ME cadets will be sure to upgrade the tank skirt and suspension in time for the next year's victory over Navy. ★



Above left: Eric Fanning, former Secretary of the U.S. Army, shoots t-shirts into the crowd at Michie Stadium from the CIE cadet-designed Spirit Tank. **Top right:** A cadet demonstrates the Fast Rope Descender design to soldiers at the Maneuver Battle Lab, Fort Benning, GA. **Bottom right:** Soldier from the Experimentation Force, Maneuver Battle Lab, Fort Benning, GA, evaluating the Reduced Recoil design of the M249 Squad Automatic Weapon.



THE CENTER FOR INNOVATION AND ENGINEERING || est. 2011

DIRECTOR: LTC Philip Root '96, Ph.D.

Mission: To use engineering research and development opportunities to enhance the education of cadets, the professional development of faculty members, and outreach to the Army and the Nation.





Enabling Cadet Leader Development: The West Point Simulation Center

By LTC Christopher Hartline, Guest Writer

The West Point Simulation Center's (WPSC) mission is to educate, train, and inspire the Corps of Cadets through the design, development and application of full spectrum simulation training programs. Through models, simulations, and technology, the WPSC enables the development of tomorrow's adaptive leaders of character and serves as a platform for multi-disciplinary research and innovation. Although West Point has long maintained a simulation capability for training cadets, the original Warfighting Simulation Center (WARCEN) focused primarily on martial training tactics. But with emerging technology, it was soon determined that much more was possible. Once that potential was realized, simulation and visualization technologies as training and education methods were quickly implemented into the USMA curriculum to improve leader development and enhance military training.

The United States Army encourages simulation training strategies in order to maximize the delivery of training and promote

readiness. However, inculcating simulations into all aspects of instruction requires a shift from the traditional methods of training and education design. As General Martin E. Dempsey '74 (Retired) laments, PowerPoint is not sufficient for education, training or decision-making. To be most effective, training should "capture the imagination" of the audience. Increased enthusiasm leads to increased performance, and simulations generate that enthusiasm while providing the cognitive framework upon which mental models are formed. These mental models, knowledge, and experiences thus improve performance. As today's cadets will lead tomorrow's soldiers into conflict, simulation training is all the more important in an operational environment. Such technology can simulate foreign locations and better prepare cadets to enter territories previously unknown.

The WARCEN was previously housed within Cullum Hall, and focused on preparing cadets for success in the Basic Officer Leadership Course (BOLC), specifically success on the rifle range.

Above: CPT Guillermo Guandique '07 discusses combat action in the Computer Assisted Virtual Environment (CAVE).

The modern WPSC is housed on the 6th floor of Washington Hall, which is a prime location for cadet accessibility. The center consists of an over-2,100 square-foot computer lab space capable of hosting up to 40 networked computers. There are plans of extending more simulations into other Department of Military Instruction classrooms on the 4th floor, and possibly other related services offered across campus. The WPSC at the United States Military Academy is the only commissioning source to employ multiple Army Program of Record training capabilities and is the second largest user of the larger Army's Virtual Battlespace 3 (VBS 3) simulation. The WPSC plans to increase support to the Military Program while continuing to provide simulation support to all USMA Academic Programs and collaborations across West Point. The WPSC vision is to provide simulation-based training and education whenever and wherever required, and aims to become the Academy's entry into the U.S. Army's modeling and simulation and training support communities. To that end, the WPSC will continue to reinforce relationships and align activities with the Army Modeling and Simulation Office and TRADOC. In this way, the WPSC will incubate, enable and develop tomorrow's agile, adaptive leaders of character and evolve Army training and education.

The WPSC has achieved multiple milestones throughout the 2016-2017 academic year. First, the recently created Computer Assisted Virtual Environment (CAVE), the only one employed in support of military training, reached its Initial Operating Capability and has supported approximately 300 cadet-hours of training from October to December 2016. It's been used in support of military science courses and professional reading programs, and was a big hit with cadet parents and friends during USMA Fall Family Weekend. Second, over the last six months, the WPSC has trained more than 6,700 personnel on the Engagement Skills Trainer (EST) and approximately 6,300 trained through the VBS 3. Both figures place USMA in a position of prominence in regards to the employment of simulation for military training. In March the WPSC will receive the next-generation engagement skills trainer, and a virtual reality (VR) update to the VBS 3 system appears imminent. The WPSC also aims to partner with Behavioral Sciences and Leadership, the Army Cyber Institute (ACI), and other organizations and centers to examine the efficacy of Virtual Reality for military training, and the use of augmented reality to intertwine the real and unreal, or the physical and logical (i.e., network devices, data flow). As new versions of the EST and VBS come online, the WPSC plans to integrate them with the CAVE to provide a single, unified representation of the training environment, thus increasing the utilization of all simulation resources and raising the maximum output of cadet training. Furthermore, this unified capability will provide cadets with simulated cause-and-effect, previously unavailable in the current system. For example, a failure to lift or shift direct-fires in the EST

could produce fratricide in VBS. Conversely, superior emplacement of observed fires through the CAVE could produce a more tactical benefit in VBS or EST. This advanced training develops the tactical artistry required by the complex operational environment. Military science can be learned through books and patient study, but artistry must be mastered through actual hands-on experience and application. This is what the WPSC provides: an experience and the ability to innovate in the application of modeling and simulation.

The WPSC is currently developing cadet research partnerships within USMA's Academic pillar. The Center will examine the use of Unmanned Aerial System-based photogrammetry with the Department of Geography and Environmental Engineering, whereby a drone flown by cadets provides terrain measurements that are eventually processed to produce terrain for a simulation scenario. This development is of great interest to the military simulation community, with application in both the training and operations domains, and the Army Cyber Institute has expressed an interest in such a partnership. The WPSC is also developing a VR project with the Systems Engineering, Electrical Engineering, and Computer Science departments, and, in conjunction with the Department of Strategic Studies, is assisting cadet capstone projects that examine the operational environment and security challenges of the future through simulations.

The United States Military Academy is a national asset that provides unique capabilities and opportunities that ultimately benefits the U.S. Army. It is fitting, then, that West Point would have a world-class facility for the simulated training and education of cadet leaders of character. The WPSC continues to move forward with positive momentum and will bear the mantle of providing such leaders who will excel in the volatile, ambiguous security environment of the future. ★



Above: Cadets using the Engagement Skills Trainer (EST)

THE WEST POINT SIMULATION CENTER || est.: WARCEN in 2007; WPSC in 2016

DIRECTOR: LTC Christopher Hartline

Mission: To educate, train, and inspire the Corps of Cadets through design, development and application of full spectrum simulation training programs. WPSC also serves as a platform for multi-disciplinary research and innovation to improve leader development and enhance military training.





The Photonics Research Center

By LTC Kirk Ingold '96, Ph.D., Guest Writer

Embedded in the basement of the recently renovated Bartlett Hall Science Center, the Photonics Research Center is one of the cornerstones and oldest research centers of excellence at the United States Military Academy. The Photonics Research Center was established in 1987 by a memorandum of understanding between the Superintendent of the Military Academy and the Vice Chief of Staff of the Army with a challenge to fulfill three principal missions for the United States Army: educate future Army leaders, conduct basic and applied research, and support the Army and the Department of Defense in the areas of laser and photonics technologies.

Over the past 30 years, the Departments of Chemistry & Life Science (C&LS), Electrical Engineering & Computer Science (EECS), and Physics & Nuclear Engineering (PaNE) have staffed the Photonics Research Center with highly talented military and civilian faculty. While the faculty continue to support their respective departments through teaching, they also occupy their time in the Center conducting cutting-edge research in the field of lasers and laser technology. Faculty research in the Photonics Research Center involves all levels of participation, starting at our most senior faculty mentoring and developing our junior faculty, as well as sponsoring cadet independent studies and cadet-inspired research projects.

The high-tech research projects and state-of-the-art equipment and facilities used by the faculty and cadets in the Photonics Research

Center would not be possible without an annual commitment of \$250,000 by the Physics Division of the Army Research Office. Additionally, the Center recently saw the tenth year of uninterrupted funding from the High Energy Laser-Joint Technology Office for support of the Center's high energy laser research program. Other supplemental funding has also been received over the years from organizations such as the Space and Missile Defense Command, the Army Research Laboratory, and Edgewood Chemical Biological Center. This continuous funding support has enabled the Center to grow and maintain the technological edge of our Army's leaders.

The influence of the Photonics Research Center is seen at all levels of the Academy and across the nation. Just at the Academy, the Center alumni include Department Heads, Deputy Heads, and Vice Deans. External to the Academy, former Center Directors, Colonel (Retired) Robert Sadowski '86 and Lieutenant Colonel (Retired) Augustus Way Fountain III, hold scientific and professional positions in the Senior Executive Service within the Research, Technology and Integration Directorate at the U.S. Army Tank Automotive Research, Development and Engineering Center in Warren, Michigan and the Edgewood Chemical Biological Center in Aberdeen Proving Ground, Maryland, respectively. As the Photonics Research Center gets older, the Academy and Army continue to see a return on its investment supported by one of the most recent Center Directors, Lieutenant Colonel Louis Florence '93. Florence conducted research in the

Above: David Chacko '15 aligns a microscope objective over a Vertical Cavity Surface Emitting Laser to measure the laser beam properties.

Photonics Research Center as a cadet in 1993, returned to the Center as a junior faculty member from 2003-05, and then served as the Center Director from 2013-16.

At the core of the Photonics Research Center is the ability to conduct basic and applied research in the area of laser and photonics. Through this ability, junior faculty and cadets are able to apply their learned knowledge of laser and optical systems to a project, with one of the major outcomes being able to publish their work in peer-reviewed media or conferences. Stemming from the diversity of the three departments primarily involved, the resume of research projects in the Center is equally as varied, yet also fundamentally similar.

One of the showcase projects within the Photonics Research Center is the ongoing activities of the High Energy Laser Group. Shadowing the foundation of the Center, this is by far the most diverse research program within the Center, comprised of faculty and cadets from C&LS, EECS, PaNE, as well as the current and past participation by the Departments of Civil & Mechanical Engineering, Systems Engineering, Law, and Social Sciences. This project has demonstrated the collaboration of widely different departments and encompasses the ultimate goal of the Center to educate our leaders, conduct research and support the nation's defense in the area of lasers.

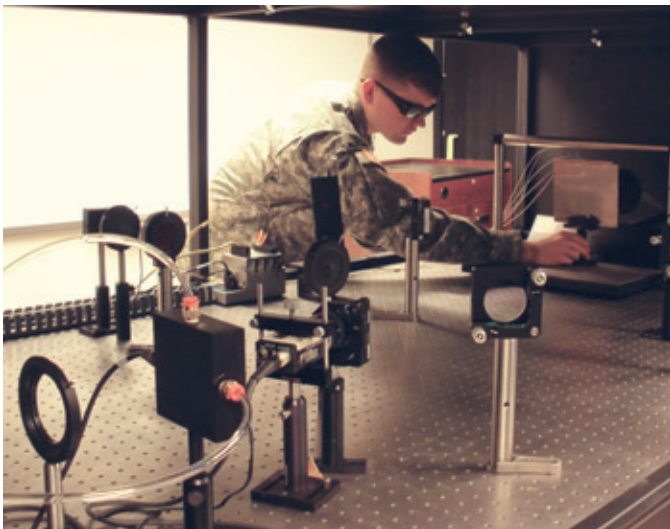
Top quality research is at the forefront of the Photonics Research Center. Most recently, the Vertical Cavity Surface Emitting Laser group was invited to present their research results on a study of the beam quality of the nanoscale lasers in San Francisco, California, at the SPIE Photonics West Conference, one of the premiere

photonics conferences in the world. The work presented was a result of independent studies conducted by cadets in EECS and advised by senior and junior faculty. The invited presentation was presented by one of the junior faculty members, Major Janice Blane '05.

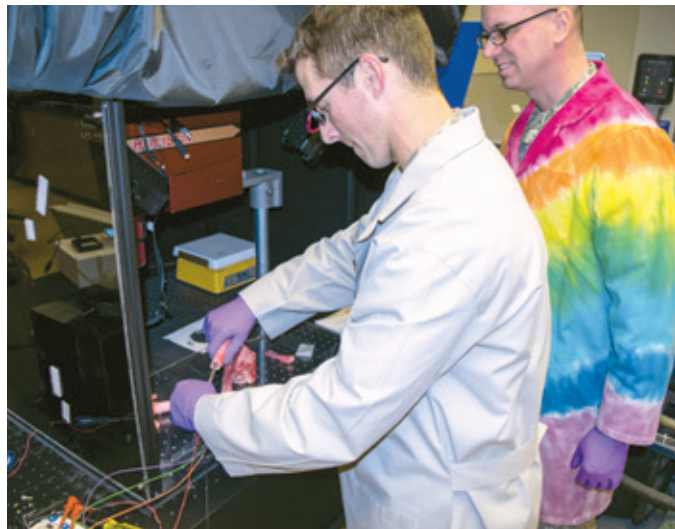
The Photonics Research Center extends beyond the gates of the Academy in support of the Army. During the past year, Lieutenant Colonel Brian Souhan, EECS, has worked with the U.S. Army Institute for Surgical Research and the University of Texas-San Antonio on a method to improve the success rate of endotracheal intubation for airway management. Using a hyperspectral camera and porcine tracheal and esophageal tissue, Souhan and his collaborators discovered an optical discriminator between the two tissues. His work has since led to the issuance of a provisional patent with a full international patent application ongoing.

Essential to these successes of the Photonics Research Center are the numerous cadets that contribute to the research program. The Center's faculty advise roughly 20 cadets a year in independent and capstone research projects. As a result of their hard work and dedication, a number of these cadets have received their own individual awards and honors, including acceptance into the Army Medical School Program, receipt of a Rotary Global Scholarship, and a National GEM Consortium Scholarship.

As one of the oldest centers of excellence at the Academy, the Photonics Research Center has capitalized on the intellectual capacity of faculty and cadets, and will continue to lead the way on providing education, research and support to the Army in laser and photonics technology. ★



Left: Jordan Smith '13 works to align the optical components for the High Energy Laser Project. **Right:** CDT Will Christensen '17 and LTC Brian Souhan test a new probe system designed to discriminate between the porcine tracheal and esophageal tissue.



THE PHOTONICS RESEARCH CENTER || est. 1987

DIRECTOR: LTC Kirk Ingold '96, Ph.D.

The Center's three principle missions focus on education of both cadets and officers, the conduct of basic and applied research, and support to the Army and Department of Defense in the area of lasers and photonics.





Center for Nation Reconstruction and Capacity Development

By **Michelle Eberhart**, Guest Writer

Over the past five years, the Center for Nation Reconstruction and Capacity Development (CNRCD) in the Department of Systems Engineering has had three faculty members earn Fulbright Scholarships. The Fulbright Scholar Program is an international exchange program designed to increase mutual understanding between the people of the United States and other countries. The program is sponsored by the U.S. Department of State's Bureau of Educational and Cultural Affairs, and awards approximately 8,000 grants annually—roughly 1,200 of which are granted to U.S. scholars.

Dr. John Farr, Dr. Bruce Keith and Dr. Kenneth McDonald '85 of the CNRCD pursued their research across the globe, from Vietnam to Africa to the Republic of the Marshall Islands. Colonel Robert Kewley '88, Department Head of Systems Engineering, says their work reflects the mission of the department and the CNRCD. "Dr. Farr, Dr. Keith and Dr. McDonald recognized the value of the Fulbright experience and went the extra mile to apply and find these great applications of our discipline outside the United States," Kewley explained. "It really attests to their commitment to the Center's mission of capacity building."

According to the CNRCD web page, capacity building is a "continuous, gradual and demonstrable movement toward self-sufficiency" whose ultimate goal is to "strengthen national systems so that communities, nations, or regions are capable of effectively

responding to short-term shocks and long-term stressors." Staying true to the Center's goal, the Fulbright winners studied a wide range of issues in each location and have worked to resolve problems to help those other nations achieve self-sufficiency.

"Almost all of our research is designed to try to develop infrastructure, economics, education, and to provide opportunities," Farr said. He spent the summer of 2013 assisting in the reform and assessment of the engineering curriculum at the University of Technical Education in Ho Chi Minh City, Vietnam. Farr was the first of the three scholars to receive the Fulbright scholarship and after returning from his trip, he urged his colleagues to apply.

"We put a priority on it; we wanted to tackle meaningful problems," Farr noted. "Like Dr. Keith's, he took his sabbatical and spent a year in Ethiopia. For me, Vietnam was a tremendous opportunity to go do something meaningful, and Dr. McDonald's work in the Marshall Islands can dramatically impact the youth in much of the Marshall Islands."

Keith spent last year teaching water resource management to Ph.D. students in Ethiopia, working on resource management in Sub-Saharan Africa, and studying issues concerning human displacement due to population growth and climate change in Africa. "More than anything else, it's been an eye opener. It has

Above: CDT Kayla Carpenter '17 and CDT Andrew Maillet '17 talking with Ebeye High School students in support of Dr. Kenneth McDonald's Fulbright project in the Marshall Islands.

created an opportunity to build an international network base to pull cadets into projects that have been quite meaningful,” Keith said of the Fulbright experience. “It was a great opportunity for me to expand my knowledge base, to go out and work with people who see things differently than I do, to empathize with the challenges they will encounter and to determine where there might be intersections that support both the cadets’ research and my research.”

Due to the partnerships he made during his Fulbright experience, Keith says he may have opportunities to continue research in this area with cadets into the future. “Whenever you put cadets in a place that’s outside the classroom, somewhere else in the world, it helps them understand what they’re getting into and the challenges that will confront them in their careers. I think that’s a pretty good thing,” Keith added.

McDonald, the most recent of the Fulbright recipients, shared that sentiment as he prepared to go to the Republic of the Marshall Islands in November, to be joined by cadets for part of that time. “It’s important, from our perspective in the Center, that cadets are doing research to get on the ground,” he explained. “They need to get on the ground in order to understand the culture and the people to come up with solutions to these problems.”

McDonald has done previous research in the Marshall Islands, studying at Kwajalein Atoll, the location of the Ronald Reagan Ballistic Missile Defense Site, as well as the poverty-stricken city of Ebeye, working on education and infrastructure. He used his Fulbright grant to support the College of the Marshall Islands’ education outreach, offering a framework for a cadet capstone project.

“Since the beginning of the semester we’ve begun our systems design process which we use to create solutions for problems,” said Cadet Kayla Carpenter ’17, who joined McDonald in the Marshall Islands. “We’ve done a lot of research and stakeholder analysis to prepare, including literature reviews and stakeholder interviews.”

Prior to the work in the Marshall Islands, McDonald, Carpenter and Cadet Andrew Mailet ’17 had a meeting in Washington, DC with Deputy Chief of Mission in the Marshall Islands, Sarah Nelson, who said that this project would be the first Fulbright in the region, and the research will be crucial in the Islands’ future.



Above: USMA faculty members and Fulbright scholars Dr. Bruce Keith and Dr. John Farr pose with local children during their trip to Ethiopia.

“It’s very unique for three Fulbrights in such a close period of time,” McDonald added. “I think it just shows the importance and the value outside our realm in the Academy. Other agencies are seeing the importance of what we’re doing in the Department of Systems Engineering.”

One agency in particular is the U.S. Army, which has strategic interest in the work of the Fulbright scholars. “The Army cares about emerging countries and developing societies because from the roots is where the next generation of problems are going to come from,” Farr explained. “The more we can take on now and really improve people’s lives, the less tension and conflict we’re going to have.”

Regardless of the location of the Fulbright research, each scholar feels similarly about the work they’ve been able to do. “It makes a difference,” Farr noted. “We want to be able to affect lives for the better, and being able to go to a place and do something that really impacts people in a positive way—that makes you passionate about your job.” ★

“ We want to be able to affect lives for the better, and being able to go to a place and do something that really impacts people in a positive way—that makes you passionate about your job. ”

— Dr. John Farr, Founding Director, CNRCD

CENTER FOR NATION RECONSTRUCTION AND CAPACITY DEVELOPMENT || est. 2010

DIRECTOR: LTC (R) Kenneth McDonald ’85, Ph.D., PE, PMP

Mission: To take an interdisciplinary systems approach in facilitating and focusing research, professional practice, training, and information dissemination in the planning, execution, and assessment of efforts to build partner capacity for communities, nations, and regions.





Left: The Cadet Honor Code is etched in stone at the Honor Plaza, funded by the Class of 1957. **Right:** Cadets on the Gettysburg staff ride learn from the study of battlefield leadership. Here they gather at the monument to MG John F. Reynolds, Class of 1841, the highest-ranking officer killed at the Battle of Gettysburg.



Simon Center for the Professional Military Ethic: Supporting the Mission of Character Development

By **COL(R) Jeffrey Peterson '87, Ph.D.**, Guest Writer

Although it is not classified as an Academic Research Center or West Point Support Center or Program, the William E. Simon Center for the Professional Military Ethic (SCPME), serves as the nexus of the USMA character development program. And like many of its counterparts, SCPME is the beneficiary of Margin of Excellence funding.

History

SCPME was established by the Commandant in 1998. Originally named The Center for the Professional Military Ethic (CPME), the Center was charged with bringing a new cohesiveness to character development. While the Cadet Honor Code provides the foundation of honorable living, the Academy leadership established the Center to deepen cadets' understanding of the Professional Military Ethic and better coordinate character development across the Academy's developmental programs. In November 2000, the Center was formally dedicated to the memory of former Secretary of the Treasury, business leader, adventurer and philanthropist William E. Simon. Located in the First Division Barracks, the SCPME is a visible reminder to cadets of their commitment to integrity and honorable living.

West Point's approach to character development is described in the Character Development Strategy (CDS) published in 2014 and the

Character Development Program ("Gold Book") published in 2015. The Character Development Strategy describes how each developmental program contributes to character development. The "Gold Book" describes SCPME's programs and activities that contribute to character development.

The SCPME mission is to lead and coordinate the planning, synchronization, execution, and assessment of the Character Program (Gold Book) so that each graduate is a commissioned leader of character. There are three primary ways the SCPME accomplishes that mission: providing professional oversight of the Cadet Honor Committee and Cadet Honor System; designing and implementing the Cadet Character Development Program (CCDP); and implementing the Superintendent's capstone course on Officership (MX400). Additionally, the SCPME provides oversight of the Cadet Respect Committee, the Cadets Against Sexual Harassment and Assault (CASHA) Committee, the Gettysburg staff ride, the National Conference on Ethics in America (NCEA), the Mission Command Conference, and the Inspiration to Serve Cemetery Tour. Lastly, the SCPME assists West Point in the synchronization and assessment of the Character Development Strategy.

The Honor Program

The Honor Code is the foundation of character development and establishes the minimum standard for honorable living. The Cadet Honor Committee exercises stewardship of the Honor Code by providing Honor education the Corps and implementing the Honor System. Within the SCPME, the Special Assistant to the Commandant for Honor and the Honor Staff are responsible for providing oversight to the Cadet Honor Committee. They insure all proceedings are conducted in accordance with governing laws and the rights of the individual. The Honor Staff also works with the Cadet Honor Committee to insure quality education, investigation and adjudication for all Honor matters.

The Cadet Character Development Program (CCDP)

The Cadet Character Development Program (CCDP), supported by the Class of 1975, provides character education to the Corps through small group discussions facilitated by the Cadet Chain of Command. The Cadet Chain of Command receives support from the Cadet Respect Committee and Cadets Against Sexual Harassment and Assault (CASHA). The course content includes discussions about the Honor Code and honorable living. The SCPME Education Officer, the Special Assistant to the Commandant for Respect, and the John Hottell Chair for Character Development provide input and oversight for the design and implementation of CCDP. Working closely with Company Tactical Officers, the SCPME works to deliver quality content that develops both the students and the facilitators. The intent of CCDP is to engender a professional attitude that encompasses every aspect of cadet life and is essential for effective leadership in the Army.

Officership (MX400)

SCPME is responsible for the Superintendent's capstone leadership course on Officership (MX400). This course is designed to complete the transition from cadet to officer by discussing the Army Profession, understanding mission command doctrine, and practicing interdisciplinary problem solving. The course uses case studies to highlight the importance of interdisciplinary collaboration to meet the demands of officership upon graduation. Beginning with the Class of 2019, officership will become part of the required core curriculum within the academic program. In addition to the numerous military faculty dedicated to Officership, the SCPME supports MX400 with the Class of 1966 Visiting Scholar & Chair for the Professional Military Ethic, and the Class of 1969 Chair for the Study of Officership.

Additional Character Development Activities

SCPME also provides support for several other important activities that contribute to character development. Each year, the



The annual Inspiration to Serve Cemetery Tour teaches Yearlings about the service and sacrifice of the Long Gray Line.

SCPME hosts the Class of 1970 National Conference on Ethics in America (NCEA). This conference consists of over 200 student delegates who gather for two days to discuss important aspects of character and ethics. The SCPME coordinates with the Brigade Tactical Department and Department of History to host the cadet chain of command during a Gettysburg staff ride. The Gettysburg staff ride occurs twice a year and provides the cadet chain of command time to learn about the demands of Officership while reflecting on their goals for the upcoming semester. Finally, the SCPME hosts the annual Inspiration to Serve Cemetery Tour that allows the Yearling Class and their 50-Year affiliation class to gain inspiration from the service and sacrifice of the Long Gray Line. This event helps cadets understand the implications of the service they will assume when they affirm into the Profession of Arms the following academic year.

The SCPME has been generously supported by the William E. Simon Foundation, USAA, The Boeing Company, Lynde and Harry Bradley Foundation, Leidos Inc., John M. Olin Foundation, Bank of America, BAE Systems, Honorable Michael W. Wynne '66, and Ms. Sharon M. Damon.

The SCPME also receives continued general support from the Class of 1956, allowing the SCPME to continue the important work of developing West Point leaders of character.

WILLIAM E. SIMON CENTER FOR THE PROFESSIONAL MILITARY ETHIC || est. 1998

ACTING DIRECTOR: COL (R) Jeffrey Peterson '87, Ph.D.

Mission: To Lead and coordinate the planning, synchronization, execution, and assessment of the USMA Character Program so that each graduate is a commissioned leader of character.





Center for the Advancement of Leader Development and Organizational Learning

DIRECTOR: LTC Raymond Kimball '95, Ed.D. || est. 2002

Connecting around Content and Conversing in Context

For more than 15 years, Army junior officers have connected with one another via the Company Command (CC) and Platoon Leader (PL) online forums. Since 2002, these professional websites have been stewarded by the U.S. Army via the Center for the Advancement of Leader Development and Organizational Learning (CALDOL) at West Point. Recently, CALDOL introduced a new forum for company-grade officers to connect and converse, Junior Officer (JO). The next evolution of the CC and PL forums, JO is a single integrated online ecosystem that supports the entire life cycle of a junior officer. In addition to the CC and PL communities, JO will have spaces for past, present, and future junior staff officers and executive officers to sharpen one another's skills. JO improves over the earlier forum by offering more robust search results spanning all forum discussions, and, direct access to Company Command's Leader Professional Development content, and more robust membership capability that allows searching for members, private emails between members, and "friending" members. CALDOL's latest innovation in Army Organizational Learning also allows users to directly access and comment on content found at the new Leaders Huddle Podcast, and it continues CALDOL's mission to empower the processes by which Army professionals connect and learn, both individually and collectively, to improve the effectiveness of company-level officers as well as advance the profession as a whole. ★



Operations Research Center

DIRECTOR: LTC Matthew Dabkowski '97, Ph.D. || est. 1988

Established in 1988 inside the Department of Systems Engineering (DSE), the Operations Research Center (ORCEN) provides the Academy with the analytical capability to routinely tackle problems of national significance for the U.S. Army and the Department of Defense (DoD). Leveraging the systems engineering and mathematical modeling skills of a small cadre of full time analysts, ORCEN executes an annual research portfolio of six to eight reimbursable projects across varied domains, including operations assessment, human resource management, geospatial modeling, maintenance process improvement, and force structure decisions. Immaterial of the domain, when the ORCEN analyst's abilities and the project sponsor's needs properly align, history has shown that the results can be quite good. Specifically, since 2005, ORCEN has won the Dr. Wilbur B. Payne Memorial Award for Excellence in Analysis four times. This annual award, given under the signature of the Secretary of the Army, recognizes the best operations research work that makes a significant contribution to the force. In addition to providing invaluable insights to their sponsors, ORCEN projects enrich cadet education, professionally develop Operations

The Center for Environmental and Geographic Sciences

DIRECTOR: LTC Ian Irmischer, Ph.D. || est. 2001



Administered in the Department of Geography & Environmental Engineering (G&EnE), the Center for Environmental and Geographic Sciences (CEGS) facilitates outreach activities and external scholarship of faculty, future faculty, and cadets in areas related to teaching and learning

in environmental and geographic sciences. CEGS serves as a conduit to the local community, the region, the U.S. Army, and the nation in areas related to basic, applied, and academic research, working in close collaboration with the Center for the Study of Civil-Military Operations (CSCMO). CEGS's primary goals include enhancing cadet education, improving professional development opportunities for faculty and cadets, integrating G&EnE's three academic programs (Geography, Environmental, and Geospatial Information Science), and maintaining strong relationships across the Academy, the academic community, and the U.S. Army. CEGS receives faculty and staff support from multiple departments, and its Geosciences Laboratory provides state-of-the-art hardware and software in areas related to geographic information systems, remote sensing, cartography, photogrammetry, and surveying. According to Lieutenant Colonel Mindy Kimball '96, Ph.D., outgoing Director of CEGS, the center is currently conducting research on military geography, environmental security, environmental science and engineering, and geospatial information science. ★

Research/Systems Analysis (ORSA) faculty, integrate emerging technologies into the Academic Program, and sustain ties between the Academy and the Army.

Beyond executing year-long, faculty-led research projects, ORCEN also manages DSE's Academic Individual Advanced Development (AIAD or summer internship) program, placing cadets inside Army, DoD, industry, and academic organizations around the world for three to four weeks. This program broadens the cadets' perspectives and provides an opportunity for them to apply what they have learned in the classroom to the real world. Cadet interns are typically rising juniors or seniors majoring in one of DSE's four majors: Systems Engineering, Engineering Management, Systems Decision Sciences, or Operations Research, and they work on an appropriately scoped project under the mentorship of the sponsoring organization. Without exception, the benefits to both the cadets and the sponsors are substantial. As one organization recently put it, "Not only did the internship program allow cadets to learn about acquisition and the processes we manage, but it also provided new ideas, thoughts, and creative concepts for us." ★














Recently Launched: The Space and Missile Defense Command's Research and Analysis Center

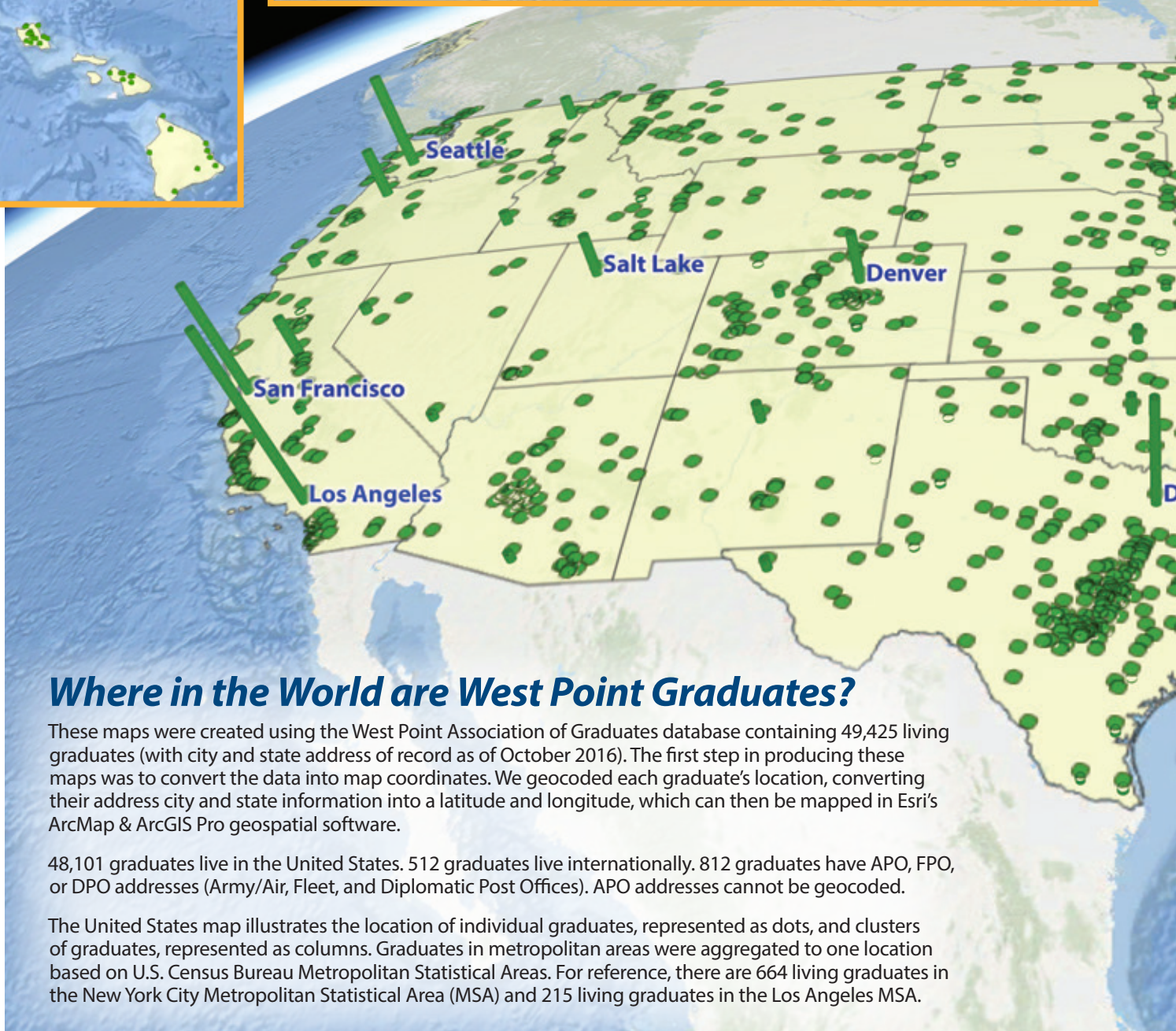
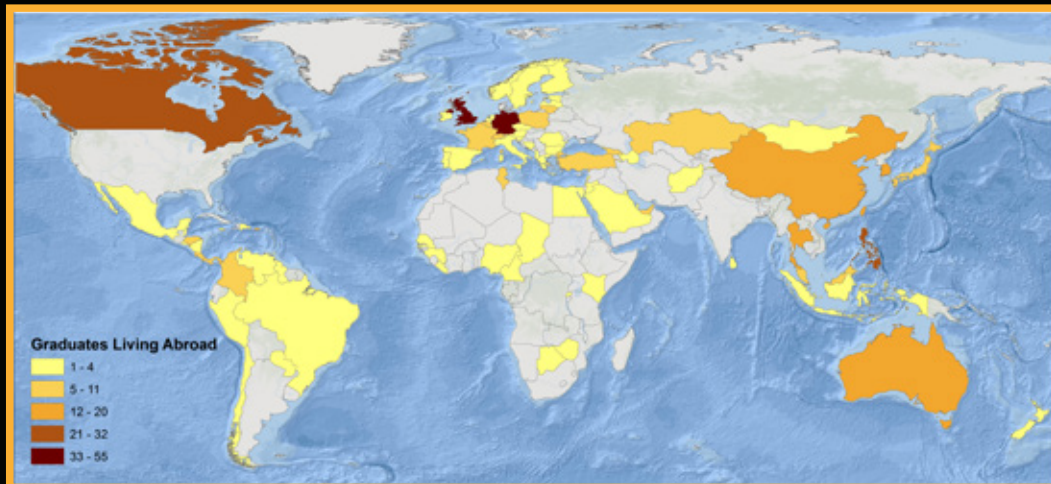
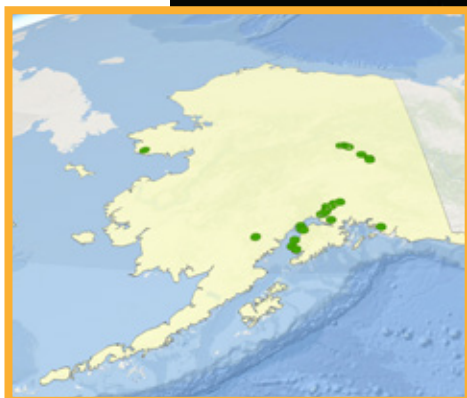
DIRECTOR: LTC Todd A. Book, Ph.D., MBA || est. 2016

The Space and Missile Defense Command's Research and Analysis Center (SMDC-RAC), located in the Department of Physics & Nuclear Engineering, is dedicated to executing high impact, multi-disciplinary research and educational outreach within the space and missile defense domains to provide innovative solutions in support of the Space and Missile Defense Command and the broader Department of Defense community. The SMDC-RAC was established through a collaborative partnership between the Space and Missile Defense Command and the United States Military Academy. As one of the only two partnered research centers at United States Military Academy, the research focus within the SMDC-RAC is directly tied to the Space and Missile Defense Command's mission and objectives in support U.S. Strategic Command, the U.S. Army, and ultimately the warfighter. As the

nexus for this partnership, the SMDC-RAC connects supported research topics with cadets and faculty at the United States Military Academy through design projects, independent research, and summer internship opportunities (AIADs). Research topics are broadly divided among several areas, including small satellites, missile defense, modeling and simulations, and space environmental effects testing. The SMDC-RAC is staffed full-time by a space operations officer from the Space and Missile Defense Command. The founding of the SMDC-RAC occurred in conjunction with the General Committee's approval of a space science major in October 2016 for the Class of 2020 and beyond, and provides an educational framework for producing future leaders of character who are cognizant of the impacts of space and missile defense in modern warfare. ★

	OTHER USMA CENTERS	DIRECTOR	MISSION/ABOUT THE CENTER
	Institute for Innovation and Development (R)	Elizabeth Velilla, Ph.D.	<i>Focused on maximizing effectiveness and synchronization of faculty research, teaching, and outreach to operate at the leading edge of cadet education and development. Through its faculty, West Point will remain a top national college and the nation's primary leader developer, and the Army, DoD, and U.S. Government will have access to a pool of intellectual capital to tackle their hardest problems.</i>
	Center for Languages, Culture, and Regional Studies (R)	LTC E. John Gregory '98, Ph.D.	<i>Strives to improve cultural awareness of cadets and promote further internationalization of West Point's curriculum.</i>
	Center for Molecular Science (R)	LTC Timothy Hill, Ph.D.	<i>Chemistry, chemical engineering, and biological sciences research and outreach activities; leveraging intellectual capital, building strategic relationships, and developing chemical education pedagogy</i>
	Mathematical Sciences Center (R)	LTC G. Jake Laporte '93, Ph.D.	<i>Provides a focal point for faculty and staff to conduct research in the mathematical sciences and to solve problems that extend beyond the classroom.</i>
	Cartographic Center of Excellence (PS)	Mr. Raymond Hrinko	<i>Produced over six campaign atlases for "History of the Military Art" and more than 1,000 maps, illustrating American and global conflicts.</i>
	Creative Arts Project (PS) (Dept. of English and Philosophy)	Elizabeth Samet, Ph.D.	<i>Connects West Point cadets and faculty with talented soldier, veteran, and civilian artists exploring military themes and subjects.</i>
	Center for Faculty Excellence (PS)	Mark Evans, Ph.D.	<i>Supports faculty mission of cadet intellectual development through high quality faculty development programs.</i>
	Mathematics Center for Faculty Development (PS)	COL Gerald Kobylski '88, Ph.D.	<i>Responsible for the overall faculty development program in the Department of Mathematical Sciences.</i>
	Mounser West Point Writing Center (PS)	Jason Hoppe, Ph.D.	<i>MWC offers one-on-one consultations, workshops, and special events for cadets working on writing and communications projects.</i>
	Center for Data Analysis & Statistics (PS)	LTC Krista Watts '96, Ph.D.	<i>Provides expertise for problems requiring statistical analysis methods to the West Point community and Agencies throughout the Department of Defense.</i>
	Office of Economic and Manpower Analysis (PS)	COL David S. Lyle '94, Ph.D.	<i>Provides a sound basis for policy and planning for the Army of the future. OEMA maintains the largest repository of online personnel data in the Department of Defense.</i>

Key: R= West Point Research Centers; PS= West Point Programs/Support Centers



Where in the World are West Point Graduates?

These maps were created using the West Point Association of Graduates database containing 49,425 living graduates (with city and state address of record as of October 2016). The first step in producing these maps was to convert the data into map coordinates. We geocoded each graduate's location, converting their address city and state information into a latitude and longitude, which can then be mapped in Esri's ArcMap & ArcGIS Pro geospatial software.

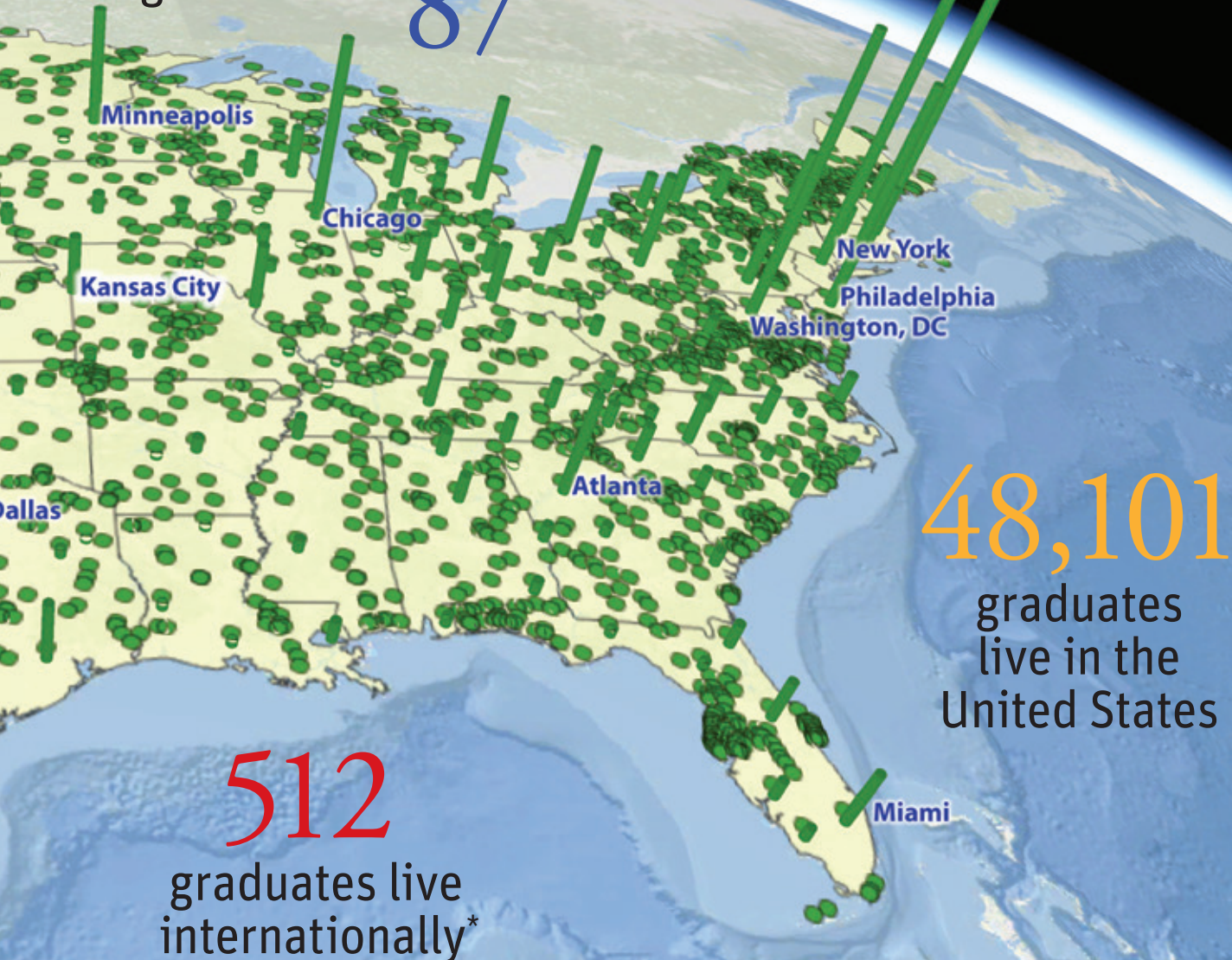
48,101 graduates live in the United States. 512 graduates live internationally. 812 graduates have APO, FPO, or DPO addresses (Army/Air, Fleet, and Diplomatic Post Offices). APO addresses cannot be geocoded.

The United States map illustrates the location of individual graduates, represented as dots, and clusters of graduates, represented as columns. Graduates in metropolitan areas were aggregated to one location based on U.S. Census Bureau Metropolitan Statistical Areas. For reference, there are 664 living graduates in the New York City Metropolitan Statistical Area (MSA) and 215 living graduates in the Los Angeles MSA.

WEST POINT GRADS AROUND THE WORLD

By the Numbers

countries where
grads reside **87**



Maps created by and used courtesy of: LTC Chris Oxendine '96, Ph.D., Assistant Professor, Department of Geography and Environmental Engineering, United States Military Academy

*Excludes APO addresses, which cannot be geocoded.



Army West Point Wrestling:

Perhaps Army West Point Wrestling Head Coach Kevin Ward (Oklahoma State '05) was destined to coach at West Point. He was a successful head coach at Ouachita Baptist University (OBU) which opened up many opportunities for him, and he was happy there. While he never saw himself as a college coach, he was living a dream, having returned to his passion after several years working in the oil industry. But one day he got a call from an old roommate who was an assistant men's basketball coach for Army. He asked if he could mention Ward's name for the Wrestling Team opening—Ward agreed. Ward was not unfamiliar with West Point. In fact, he had been recruited by the Academy out of high school, had visited and even had an offer to enter with the Class of 2005. So when West Point eventually offered him the job, he says he “thought about it for two minutes” before accepting. He realized that he had already said “no” to the Academy once, adding, “I couldn't do it again.”

When Ward arrived at West Point in August of 2014, he thought he had a plan. He was coming from a place where he had built the wrestling program from the ground up and had a hand in everything (student time, resources, etc.). But he soon learned that at West Point, there is actually very little he can control as a coach. With access to his cadet-athletes averaging only two hours per day, he needed to adapt his process. Now in his third season at Army, he

appears much more comfortable and has a better understanding of how his program fits into the 47-month cadet experience.

At the beginning of this season, Ward found himself with 10 seniors on the team, an unusually large number for any program. He recognized it as a positive sign that they had stayed with the program. And while he says it is unusual to succeed with a new coaching staff, these seniors have made it happen. They have stuck with him and each other. He likes to refer to them as the “heartbeat” of the Army West Point Wrestling team. They are very close and work together well, despite the fact that over half of them get limited attention as far as rankings and headlines.

What Ward didn't fully realize at the time was that this team had what co-captain Logan Everett '17 calls an “unbreakable bond.” Everett explains, “We are more than just teammates or best friends, we are ‘family.’ That's what keeps guys around, the desire not only to see themselves succeed, but to take part in the development of each other in order to create better versions of one another.” It doesn't matter that not everyone is in the lineup; it's about the chemistry. Ward describes this dynamic as a contract the team members have with each other: “So when you're on the mat to compete, you agree to focus on being your best—to leverage your

Above: Senior Day, February 19, 2017. L-R: Bryan Pearsall, Head Coach Kevin Ward, Christian Doyle, David Farr, Samson Imonode, Logan Everett, Lincoln Mallinger, Mark Marchetti, Russ Parsons, Tony Risaliti, Dalton Shoop, Trevor Smith, Austin Marsden, Chris Chionuma.



A Family Chasing Greatness

By **Kim McDermott '87**, WPAOG staff

training and call up your skills to win. And if you are on the sidelines, you agree to keep encouraging and believing in your teammate. Don't give up. I've got your back. It must go both ways," he says.

Everett's description of the family fits right into Ward's coaching philosophy, which is basically about getting better every day, in every way. He says that a coaching philosophy could never be set in stone—it should always be evolving—but there are some central items. Prominent on the wall in the wrestling room is a slogan: "Chasing Greatness." Ward must motivate buy-in and belief in this concept, in making progress—incrementally—every day. He has to instill the belief that the wrestlers will give themselves the best chance to win by how they live (discipline), train (focus, attention to detail, attitude, motivation), and compete (intensity, toughness, always fight). He also believes very strongly that he has to consider "who he's building along the way"—character is paramount. It's not just about the sport, it's about being a better man.

He jokes that his team is probably tired of hearing him say, "There's no such thing as a self-made man," but clearly his words hit their intended mark. Everett says, "What makes the Army Wrestling firsties a 'family' is that they want the rest of the guys to excel, and be the best that they can just as much—or more—than they want it for themselves. We recognize that no man is 'self-made' and everyone needs help somewhere along the line."

Ward, himself, has help. He genuinely values his assistant coaches and how they complement each other. His first hire was Bryan Pearsall (Penn State '13), described as "task-oriented, attentive to detail, structured, effective and a good recruiter." Ward says, "He gets it done." Ward had watched his other assistant, Chris Chionuma (Oklahoma State '12), while he was at Oklahoma State. He hired him as a graduate assistant at OBU, where he actually served for a year as interim head coach when Ward came to West Point. Ward trusted Chionuma's background and abilities and asked him to join the Army program. Ward says he's got a huge personality and unique talent to make anything fun, and he's more of an abstract thinker—full of ideas. All three share a solid knowledge of the sport and all come from national title teams. A volunteer coach, Austin Marsden (Oklahoma State '16), is also a very credentialed athlete who has made an immediate impact on Army's upper weights. Ward was impressed with Marsden's strong desire to become a coach, and his desire to learn how to be a good one.

Ward doesn't miss a nanosecond when asked about his best memory of his first season at West Point. He immediately says it was beating Navy in his first star match. It was the first Army victory in the series in 17 years, so completely understandable. When asked if the Army-Navy rivalry is like any other college rivalry he is more thoughtful. "No, no, no. It is so different," he says. He explains how other college rivalries often shift based on



The 1987 Army Wrestling team (the only one in program history to be Eastern Intercollegiate Wrestling Association champions) gathered for a team reunion during the 2017 Army-Navy star match weekend.

win-loss records. Perhaps they aren't such a ubiquitous part of the culture. And while he doesn't know if it's emphasized too much, he does admit that—aside from NCAA championships—beating Navy was the most exciting event he's ever been a part of.

On February 19, 2017 the team did it again—the first time winning two out of three matches since the early 1960s. Ward credited the seniors' leadership, saying, "Here's the most important thing: we have 10 seniors on the team and there is not a single coach on the staff who was here when they were recruited. It's about their leadership and embracing a new coaching staff who does things in a bit of a different way. It wasn't always easy, but they embraced us and bought into what we are trying to accomplish. When you want to see things change, that's what has to happen. Guys have to buy in to the coaches, and the seniors need to lead the way. We're fortunate we have some guys who have done that."

The team has done more than just "buy in" to a new coach. Everett says he admires Ward's "drive, passion and faith. Coach Ward desires to be the best coach and have the best team to ever put on an Army singlet. This is a long and difficult process that requires patience and an immense amount of passion not only for the sport, but to create your athletes into the best men that they can be.



Above left: Celebrating the star match victory on February 19, 2017. **Top right:** The team's slogan is prominent in the Wrestling Room. **Above right:** CDT Russ Parsons '17 scores a takedown as time expires to beat his Navy opponent.

Coach Ward is a man of faith, not only in religion but also in his athletes. Never has Coach Ward lost faith in what he has set out to do. It takes a driven person to create one of the nation's top programs, and I have no doubt Coach Ward will take the Army Wrestling team there."

The mutual esteem is a constant with the program. Ward exhibits tremendous respect and appreciation for the type of candidate that USMA seeks. He knows that they generally have character, a strong work ethic and a will to win. He says, "They are very typical of young people their age—they just have higher standards." He seems almost awed by the fact that cadets are faced with so many types of challenges, and "they just find a way to do it." There are no excuses, and they learn to perform, to persevere.

Apparently, there is a sweet spot at the intersection of Ward's program and the Academy's mission to develop leaders of character. Everett says, "This team has taught me more about what it looks like to be a confident, respectful and hardworking man than any other experience ever could have. Each individual has taught me something about myself that I will take with me for the rest of my life. Being on this team has been a dream come true." ★

Army West Point Wrestling has benefitted from Margin of Excellence support from graduates and friends of the Academy, most notably from the Class of 1954's Gerry Lodge's lifetime support of the program.





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RD=FC*

In the aftermath of a near-fatal accident, a cadet found a simple, but powerful, message: “remaining calm and rational leads others to believe that there is no reason to dwell in fear and doubt.” The complete support he received during his recovery made all the difference and will always be a source of personal inspiration.

What West Point Gave Me By CDT Jack Rector '17, Guest Writer

As I reflect on my time as a firstie at West Point, with 104 and a butt days left until I throw my white cover, I am at a loss for words to describe how much West Point has done for me. From blows to the face in plebe boxing, to several 2am papers due later on in the day that I put off for too long. Furthermore, this school has given me so much knowledge—the five paragraphs of the operations order, how many lights are in Cullum Hall, and how “balance of power” is usually a safe answer for International Relations. I speak lightly, but truthfully. I am incapable of encompassing four years of life, relationships, and experience into an article. I have gone through the spectrum of emotions at West Point, but one experience I had stands out.

For two years I was a proud member of the Army Cycling Team—we traveled to compete, I made fantastic friends on and off the team, and I loved the exertion and competition which bettered me. I appreciate cycling wholeheartedly, along with the camaraderie forged amongst riders in the race. However, during one race, I suffered a crash that nearly defeated me altogether.

A crucible is defined as “a situation of severe trial, or in which different elements interact, leading to the creation of something new.” Crucibles were a topic we discussed at length in PL300 (Military Leadership), and how reflecting upon our own crucibles was important to do as leaders. My defining crucible has been my crash at Penn State University on April 25, 2015. I hit a vehicle and suffered extensive damage to my teeth and face, causing me to be airlifted to a hospital and bedridden for weeks. While my physical injuries have all healed, I have six false teeth along with scarring on my face. But I am so blessed: to be able to graduate on time, to still be alive, and to enjoy my health.

My thoughts have not always been so inclined. There was a time when I harbored what felt like a bottomless amount of anger from the crash. The pain of numerous dental operations to preserve the shards of teeth left in my mouth, the inability to eat solid food for what felt like forever, the shame and ineptitude I felt for hitting a vehicle during a race, the disfiguring scars I now bear on my chin—all comprised my

tremendous resentment towards the events that occurred in the race that day. At a loss of how to cope, I wallowed in self-pity for a long time.

Recovery and healing took time. It was months before I began to look in the mirror without cringing at the sight of my scar. I wish I could say that there was a shining moment of clarity where the world realigned itself and I was magically healed of all effects of my crash, but it was a gradual, arduous process of learning to be okay with my appearance again. There were two essential factors that enabled me to do so, though.

First—the medical personnel that I have met along this journey are just amazing. The entire dentist’s office at West Point all know me by sight and so many people have been invested in putting me back together. I received laser treatment to lessen the scar and many dental operations to improve my teeth and make me normal-looking again. It should never be taken for granted what medical professionals are able to do. Compared to how I looked initially, my recovered appearance is 1,000 times better.

Second—my friends and loved ones saved me. There is no other way of saying it. On my days where I would especially cringe at my appearance, my friends never averted their eyes from my wounds. I received over 40 get-well notes, countless meals (that were soft food, of course), visits every day, and tons of prayers on my behalf. I reflect on, and am entirely humbled by, the amount of love I received due to my crash. During that painful time of healing, having numerous people all care and treat me the same subliminally led me to know that everything would be all right, in the end.

That is what West Point gave me from my crash. It is a simple lesson, but truly powerful. In response to disaster, remaining calm and rational leads others to believe that there is no reason to dwell in fear and doubt. Because my friends did not treat me any differently than before, I began to believe that everything would reach normalcy.

The power of friends and those we love should not be taken lightly. The crash brought me low, but everyone who cares about me built me back up. ★

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*According to *Bugle Notes*: “RD=FC ‘Rough Draft Equals Final Copy.’ The art of completing a paper or project in one sitting.”

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1944	1962	1984
1945	1963	1985
1946	1964	1986
1947	1965	1988
1948	1966	1999
1950	1968	2003
1951	1969	2004
1952	1970	2005
1953	1971	2006
1954	1975	2010
1955	1976	2011
1956	1977	2012
1958	1979	2013
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WPAOG News



2017 WPAOG Election— Call for Nominations for Board and Advisory Council

All USMA graduates may apply for election to the WPAOG Board of Directors and/or election to the WPAOG Advisory Council. In 2017, the WPAOG Nominating Committee will nominate graduates for Board Chair, for Board Vice Chair, for Director, and for Advisor-at-Large. To apply, please see the instructions posted at WestPointAOG.org/NominationPolicy. The deadline for graduates to submit their completed applications (to include a nomination letter from another graduate) is July 1, 2017. The 2017 nomination and election process will conclude on November 21, 2017 at 5pm EST, when the Annual Meeting of the Association of Graduates will take place at the Herbert Alumni Center. Please send applications for nomination to WPAOG, Attn: Laurie Fontana (Laurie.Fontana@wpaog.org; 845-446-1523).

“Ring Melt” Legacy Continues for Class of 2018

In 1999, Lieutenant Colonel Ron Turner '58 (Retired) proposed the idea for a “Memorial Class Ring Program,” in which graduates could bequeath their West Point class rings for the specific purpose of incorporating the gold into the class rings of future graduates. His plan became a reality in November 2000, when the first 29 donated rings were melted, and the metal placed into the rings of the West Point Centennial Class of 2002, with a small amount kept to go into the melts of future programs. Now in its 17th year, the West Point Association of Graduates Class Ring Memorial “Melt” has incorporated a total of 451 rings, with 41 donated this year for the rings for the Class of 2018. “The Ring Melt ceremony blazes our connection to the Long Gray Line,” Cadet Marcos Arroyo, USMA 2018 Class President, told those in attendance at the February 27 ceremony. “The meaning of the rings reaches far beyond any material value—they represent our Duty to the U.S. Army and the American people; they represent the highest standard of Honor to which we hold ourselves and our peers; they represent the Country in which we live and would die protecting.”

WPAOG Earns GuideStar Platinum Level

WPAOG has now achieved the Platinum GuideStar Nonprofit level, the highest level awarded. GuideStar is the world’s largest source of information about nonprofit organizations and a leader in advancing transparency in the nonprofit sector. Reaching this level demonstrates WPAOG’s commitment to nonprofit transparency and accountability.



USMA Superintendent Issues Update on West Point Cemetery Policy

On February 22, Lieutenant General Robert L. Caslen Jr. '75 issued a letter to the Long Gray Line outlining important updates to the West Point Cemetery burial policy. The letter states that on or about July 1, 2017 USMA anticipates lifting the temporary interment criteria imposed in December 2014. The return to the original criteria, along with added plots from completion of the Molly Corbin enhancements, is anticipated to provide cemetery availability through 2024.



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Gripping Hands

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2017 Distinguished Graduates

The recipients of the 2017 Distinguished Graduate Award are:

Mr. Marshall N. Carter '62	GEN (R) Lloyd Austin III '75
BG (R) Daniel Kaufman '68	Honorable Robert A. McDonald '75
GEN (R) Martin Dempsey '74	GEN (R) Raymond Odierno '76

The awards will be presented in a ceremony at West Point on May 23, 2017, with further coverage in the Summer 2017 issue of *West Point* magazine. Visit WestPointAOG.org to learn more about the Distinguished Graduate Award and the recipients.

1990

Gilland Named Commandant of Cadets

Brigadier General Steven W. Gilland has been selected to serve as the 77th Commandant of Cadets. He will assume command of the United States Corps of Cadets this summer.



1984

McMaster Appointed National Security Adviser

President Donald Trump announced February 20, 2017 that he has appointed Lieutenant General H.R. McMaster as National Security Advisor. Senator John McCain, Chairman of the Senate Armed Services Committee said, “McMaster is an outstanding choice for national security advisor. I have had the honor of knowing him for many years, and he is a man of genuine intellect, character, and ability. He knows how to succeed.”



1986

Pompeo Confirmed as Director of CIA

On January 23, 2017 the U.S. Senate confirmed Michael R. Pompeo as Director of the Central Intelligence Agency. “I’m not sure that you can find a glove that fits any better — for the agency, for the Congress of the United States, for the administration, but more importantly for the American people,” said Senator Richard Burr, Chairman of the Senate Intelligence Committee.



★★ Change of Command ★★

The Chief of Staff of the Army announces the following officer assignments:

Major General Malcolm B. Frost '88

to Commanding General, U.S. Army Center for Initial Military Training, U.S. Army Training and Doctrine Command, Joint Base Langley-Eustis, Virginia.

Major General Randy A. George '88

to Commanding General, 4th Infantry Division and Fort Carson, Fort Carson, Colorado.

Major General Leopoldo A. Quintas Jr. '86

to Commanding General, 3d Infantry Division and Fort Stewart, Fort Stewart, Georgia.

Major General Kurt L. Sonntag '86

to Commanding General, U.S. Army John F. Kennedy Special Warfare Center and School.

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4 Projects Day	8-10 Alumni Golf Outing	3 R-Day for the Class of 2021
13-19 Term End Exams <i>Beat the Dean!</i>	 <p>Army West Point Athletics Sports Camps run June through August— Check GoArmyWestPoint.com for details.</p>	
27 Graduation for the Class of 2017		

Upcoming events suggested by West Point staff & faculty.

Events for Aug 2017–Oct 2017 should be sent to editor@wpaog.org by May 15, 2017.

For the entire calendar, go to

WestPointAOG.org/calendar

Be Thou at Peace

Deaths reported from January 1–March 17, 2017.

COL Edward G. A. Chalgren Jr., USA, Retired	1938	Dr. Richard J. Lorette	1950	COL James E. Walsh Jr., USA, Retired	1959
Mr. David Rowland	1942	LTC John T. McKinney, USA, Retired	1950	LTC Jere K. Forbus, USA, Retired	1960
Mr. Charles A. Holt III	1943 JAN	Mr. Oliver W. Parmly	1950	LTC Dan A. Conner, USA, Retired	1961
Lt Col Edward S. Stahl, USAF, Retired	1944	Lt Col William H. Schwoob, USAF, Retired	1950	LTC Francis L. Gibson, USA, Retired	1961
LTC Joseph P. Berg Jr., USA, Retired	1945	COL Patrick D. Tisdale, USA, Retired	1950	Mr. Edgar D. Smith	1961
Mr. Jose L. Carrion	1945	The Reverend John W. Watson Jr.	1950	COL William J. Dieal Jr., USA, Retired	1962
Brig Gen Jesse C. Gatlin Jr., USAF, Retired	1945	Mr. Robert W. Chapman	1951	Mr. Raymond G. McDowall Jr.	1962
COL Richard J. Hesse, USA, Retired	1945	COL Frederick G. Rockwell Jr., USA, Retired	1951	Mr. Donald E. Stewart	1962
LTG Harold G. Moore Jr., USA, Retired	1945	LTC Richard E. Stanier, USA, Retired	1952	Mr. Ralph P. Brown	1963
Col Joseph T. O'Neal, USAF, Retired	1945	MG Albert N. Stubblebine III, USA, Retired	1952	Lt Col Richard A. Puckett, USAF, Retired	1964
Col Daniel C. Perry, USAF, Retired	1945	Mr. Stephen A. Belgau	1953	Mr. Richard D. Bunn	1965
COL Vernon W. Pinkey, USA, Retired	1945	Lt Gen William J. Campbell, USAF, Retired	1953	Mr. Warren H. Albrecht Jr.	1966
MG Donald V. Rattan, USA, Retired	1945	Mr. Milton A. Chojnowski	1953	Col Daniel J. Coonan III, USAF, Retired	1966
Mr. William M. Ryan	1945	COL Robert L. Crosby, USA, Retired	1953	COL C. H. Dunn Jr., USA, Retired	1966
COL Bickford E. Sawyer Jr., USA, Retired	1945	Mr. William H. Stuart	1953	LTC Michael E. Oshel, USA, Retired	1966
COL Robert F. Zeidner, USA, Retired	1945	Dr. William A. Gager Jr.	1954	Dr. William N. Campbell	1968
Mr. Anthony A. Cucolo Jr.	1946	LTC Joseph E. Palumbo, USA, Retired	1954	Mr. John M. McClellan	1970
COL Francis G. Gosling, USA, Retired	1946	Mr. Arthur W. Wild	1954	MAJ John C. McDugald, USA, Retired	1970
Col John E. Molchan, USAF, Retired	1946	MG Joseph P. Franklin, USA, Retired	1955	Mr. Glenn D. Carriere	1973
COL Robert B. Tully, USA, Retired	1946	Lt Col Jerome D. Hawkins, USAF, Retired	1955	LTC John C. Matousek, USA, Retired	1974
Mr. Ralph A. Beuhler	1947	COL Charles R. Johnson, USA, Retired	1955	Mr. Robert C. Nelson	1975
Mr. James E. Colburn	1947	COL Robert C. Bacon, USA, Retired	1956	LTC Cornell McKenzie, USA, Retired	1976
Mr. Alan H. Gould	1947	Col Richard H. Hansen, USAF, Retired	1956	Mr. Jeffery C. Benchich	1978
Brig Gen Michael J. Tashjian, USAF, Retired	1948	Lt Col Gerald L. Irwin, USAF, Retired	1956	Mr. William J. Sander	1979
MG John G. Waggener, USA, Retired	1948	Honorable Edward B. Kime Jr.	1956	COL David J. Lemelin Jr., USA, Retired	1983
Lt Gen John G. Albert, USAF, Retired	1949	Mr. Randolph A. McCreight	1956	Mr. Mark E. Lassiter	1986
Mr. Gerard F. Helfrich	1949	Mr. Leslie T. Prossner	1956	Mr. Kevin S. Walrath	1986
Mr. Irving N. Judd	1949	LTC Frank P. DeSimone Jr., USA, Retired	1957	LTC Michael R. Bridges, USA, Retired	1987
LTC John J. Petranck, USA, Retired	1949	MAJ Jon E. Dunning, USA, Retired	1957	Mr. Michael J. Fitzpatrick	1987
Dr. Harry M. Coyle	1950	Lt Col John E. Setnick Sr., USAF, Retired	1957	COL David W. Bottcher, USA, Retired	1990
LTC Ernest T. Hayes Jr., USA, Retired	1950	COL Richard D. Garlick, USA, Retired	1958	Mr. Daniel L. Rucker	1994
COL Mark E. Jones, USA, Retired	1950	COL Milton S. Newberry, USA, Retired	1959		
BG Edwin L. Kennedy, USA, Retired	1950				

Past in Review

Flying Cadets, Flying Grads

By Keith J. Hamel, WPAOG staff

Shortly before the end of World War I, the United States Military Academy and the U.S. Army underwent several changes that, decades later, demonstrate the important roles these institutions played in aviation history. Even before The Great War, West Point and the Army's ties to flying had a remarkable history. First Lieutenant Thomas Selfridge, Class of 1903, was the first Army officer to fly solo in a heavier-than-air machine, and he was also, unfortunately, the first Army air fatality when his plane, piloted by Orville Wright, crashed at Fort Myer, Virginia during a demonstration flight on September 17, 1908.

Army aviation began in the Signal Corps but became its own branch, the U.S. Army Air Service, by executive order of President Woodrow Wilson on May 24, 1918. Its first commander, given that it began as part of the American Expeditionary Force (AEF) in France, was General John J. Pershing, Class of 1886 (technically, the term "Air Service" was first used in June 1917 when aviation units were attached to the AEF), and the second Chief of Air Service AEF was Brigadier General William L. Kenly, Class of 1889.

Nearly two years after the Armistice, Charles T. Menoher, Class of 1886, who helped reorganize the Air Service after the war as Director of Air Service, was named the first post-AEF Chief of Air Service upon passage of the National Defense Act of 1920, which statutorily recognized the Air Service as a combat arm of the Army. One of Menoher's first acts as Chief was to urge Brigadier General Douglas MacArthur, Class of 1903, then Superintendent of West Point, to include Air Service training and related subjects as part of the Academy's curriculum. Perhaps influenced by his first-hand observation of air use during World War I, MacArthur agreed to an Air Service course of study for the 1921-22 academic year: approximately 60 hours of classroom instruction in various topics (aerodynamics, engine operations, communication systems,

etc.) and 30 hours of flight training at Mitchell Field on Long Island, New York. In his memoirs, *Views of an Early Bird*, Major General Edmund C. Lynch, Class of 1922, positively recalled his cadet air training at the Academy, particularly the time Lieutenant C.C. Mosely, the Academy's Air Service Liaison Officer at the time, landed an experimental SE-6 (Sopwith) pursuit airplane on the Plain.

Despite most cadets seeming to enjoy their Air Service training, commissioning numbers hinted there was more work to be done. For example, as reported by West Point historian George Pappas '44, although the Air Service established a quota of 50 spaces for the Class of 1923 only 30 cadets opted for commission in the branch. The Air Service felt that Academy should have been doing more in aeronautical instruction and began petitioning for a separate Aeronautics Academy, which would graduate officers for both the Army and Navy qualified for flight. Shortly after the Air Service was renamed the Army Air Corps in 1926, it approached the Superintendent with a plan that cadets who wanted to branch Air Corps be given additional training during summer camp. This plan was rejected, as was an improperly sent proposal by the Commandant of the Air Corps Tactical

School in 1931 recommending the establishment of a Department of Aeronautics at West Point. However, that same year, Superintendent Major General William R. Smith, Class of 1892, persuaded the Army to purchase the Morgan property south of Highland Falls in order to construct an airfield for training purposes. Congress approved its construction, but the site turned out to be too restrictive. Fortunately, Samuel L. Stewart had given his large farm to the city of Newburgh, New York, under the stipulation that the property be developed into an airfield by a specified date. With that date nearing, Newburgh agreed to sell its rights to the property to the War Department for \$1. In 1936, President Roosevelt signed a bill authorizing the purchase and development of the land, and in 1942 Stewart Field was formally dedicated as an Army Air Force installation, as the Army Air Corps had become the Army Air Forces a year earlier under the command of Major General Henry "Hap" Arnold, Class of 1907.

Upon the formation of the Army Air Forces, Superintendent Brigadier General Robert L. Eichelberger, Class of 1909, requested 20 pilots and additional aircraft to be assigned to Stewart to train cadets. Arnold approved his request, but before the plan took effect,



Air Corps training for cadets pictured in the June 1943 *Howitzer*.

the Japanese bombed Pearl Harbor, significantly affecting flight training at the Academy. On August 31, 1942, the War Department recommended that West Point reduce its course to three years, which Congress approved. With this reduced curriculum, flight training at Stewart became year round (weekend and nights included), and cadets even lived at Stewart during the summer months. When the Class of 1943 graduated early in January of that year, 164 of 410 graduates had earned their wings; 206 of 514 from the former Class of 1944 became pilots upon their graduation in June, 1943. June Week of 1944 reportedly reflected the status of West Point as an air academy, as 160 First Class air cadets (out of 474) conducted a flyover of the Plain in echelon formation. The Class of 1945 graduated the most pilots: 294 out of 852. Shortly after the end of World War II and the return of the four-year course of study, flight training for cadets was discontinued, with the last class of air cadets graduating in June 1946, but approximately

1,600 USMA graduates from the Classes of 1947 through 1958 continued to make an impact in the U.S. Air Force, which became a separate service on September 18, 1947, until the founding of the U.S. Air Force Academy (USFA) in 1955. Forty-two paid the ultimate price in the Korean War, and 36 were killed or missing in action during the Vietnam War.

In 1954, President Dwight D. Eisenhower, Class of 1915, signed legislation establishing USAFA. Lieutenant General Hubert R. Harmon, Eisenhower's classmate, who was once the only Air Corps officer on the Commandant's staff in the early days of cadet air training at West Point, was named the first Superintendent of USAFA. Ten of USAFA's first 11 Superintendents were West Point graduates, as were its first nine Commandants (and most of the early USAFA faculty were also members of the Long Gray Line, many of whom had already taught at USMA). West Point graduates also made an impact on the newly-formed U.S. Air Force. The original Air Force organizational staff chart listed 27

principal officers, 11 of whom graduated from USMA, including Chief of Staff General Carl Spaatz, Class of 1914. According to Colonel Clarence C. Elebash '48 (USAF Retired), USMA graduates continued in top leadership positions for more than 40 years after the Air Force became a separate service. "All but 3 of the first 13 Chiefs of Staff were West Point graduates, two of whom also served as Chairman of the Joint Chiefs of Staff: General Nathan F. Twining, Class of 1919, and General George S. Brown, Class of 1941."

To recognize the role West Point once played as the Army Air Corps and Army Air Forces Academy, two monuments stand within a few yards from each other on the north side of Lusk Reservoir: one is the Air Cadet Monument, dedicated to cadets who lost their lives undergoing flight training (specifically 13 cadets from the Classes of 1943 January through 1946), while the other is the Flight Memorial, which recognizes graduates who died flying in combat. ★

MAILBOX

West Point



Submit comments or questions to Editor@wpaog.org, or chat with us on one of our WPAOG social media channels!

FROM: Benjamin Breslauer '54

In the 63 years that I have been receiving *West Point* magazine and its predecessor, *ASSEMBLY*, I think the current issue is the best. It truly brings us old grads up to date. Congratulations!

FROM: Jeff Alt '62

Congratulations on an excellent 2017 winter issue: wonderful photos (finally, an Army victory to celebrate!) and a very interesting and informative explanation of USMA leadership development, which could have been a very dry subject. There are many things going on at West Point. Thanks for keeping us up to date on them.

RESPONSE:

Thanks to all our readers who took the time to call, email, write, or stop by our Herbert Alumni Center office to tell us how much you enjoyed the 2017 winter issue of West Point magazine. It is great to hear that so many of you are reading the magazine from cover to cover and learning new things about the Academy. We always strive to publish a quality product, and your praise means a lot to us, and inspires us to strive even harder going forward.

FROM: Randy Wilson '69

I thoroughly enjoyed the 2017 winter issue's "Past in Review" regarding Ducrot Pepys. The article notes, "Though its origins are long since forgotten, the first name was slang for a plebe." While I don't have first-hand knowledge, I remember reading somewhere that the name came from a French grammar exercise during which students were asked to translate various sentences (e.g., "Mister Ducrot has a son and a daughter" or "Mrs. Ducrot has three children"). Upperclassmen naturally seized upon the obvious implication, and plebes were henceforth called "Mr. Ducrot." When I was a cadet, plebes were called "crot," as in, "Sit up, crot. Let's have The Days." I suspect the word was a shortened version of the original with an English pronunciation.

RESPONSE:

Good memory! George Pappas '44 raised this theory in an issue of ASSEMBLY once, and it seems to be confirmed by the 1889 book An Analytical and Practical French Grammar by Jean Gustave Keetels. One lesson in the book refers to the name "Ducrot" 19 times. Genealogy sites also show that nearly 4,500 people had the name "Ducrot" around 1890. "Connaissez-vous Monsieur Ducrot?"



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