The Second Learning Revolution

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THE U.S. EXPERIENCE in Vietnam revealed serious faults in the way the American military prepared for war. In that conflict, Soldiers learned that superior technology alone could not ensure victory. Decades of real-war experience gave the North Vietnamese Army an experiential advantage that U.S. training and educational institutions could not easily overcome. In response, the first U.S. training revolution began during the war with the Navy's Top Gun program, which was soon followed by the Air Force's Red Flag exercises. The successes of both in restoring U.S. air superiority set the stage for similarly imaginative successes in preparing warriors to fight on the ground.

The air services sought to make better fighter pilots. The Army sought to make better combat battalions and brigades. The Army focused on the operational rather than the tactical level of war for two reasons. First, the bitter experience of tactical warfare in Vietnam, particularly during the latter stages of the war, soured many senior leaders on the idea of transforming the Army at the squad and platoon levels. Second, the Israeli experience in the 1973 Yom Kippur War convinced the Army its doctrinal salvation lay with the ability to defeat massive Soviet armored formations as they approached the inter-German border. Thus, the emphasis from the beginning was to become the finest, most formidable operational maneuver force in the world by combining brigade maneuver formations with deep fires provided by Air Force and Army aviation and long-range cannon and rocket artillery.

The Army's first post-Vietnam training revolution began in earnest with the creation of a system of force-on-force free-play exercises. These were scored realistically and fought against a world-class adversary imbued with a serious desire to win. The Army's laboratory for creating the revolution was the National Training Center (NTC) in the California desert. By the time the Army and Marine Corps moved into Kuwait in 1991, both services had embedded the spirit of the combat training centers into their cultures. The results on the ground spoke volumes about the efficacy of realistic training followed by forthright assessments during post-exercise after-action reviews.

By the beginning of the kinetic phase of Operation Iraqi Freedom, 12 years later, the U.S. had gotten it exactly right. For the first time, large Army and Marine armored formations, supported by massive aerial strike forces, were able to execute a truly joint operational takedown thanks mostly to skills learned by Soldiers, Marines, and Airmen in the California deserts.

Subsequent events in Afghanistan and Iraq, however, suggest that the enemy now understands and accepts America's superiority on the sea, in the air, and in space. Acknowledging the ground services' operational dominance, the enemy seeks to win at the tactical level of war. His logic is simple, his intent diabolical. He has learned that the surest way to negate big-war technology is by moving the fight into such complex terrain as jungles, mountains, and most recently, cities. War against such an enemy has devolved primarily into a series of tactical engagements fought principally at squad and platoon levels. As a result, joint warfare and other elements of military power are increasingly being applied at lower and lower levels, to the extent that combat leaders of much lower rank and experience are performing the functions formerly considered the purview of senior commanders.

The challenge today is to create a second training and educational revolution—a learning revolution—that prepares military leaders to fight in this new age of warfare. As the focus of fighting shifts downward, so too must the systems that teach Soldiers and Marines how to fight.

Learning science has evolved to a point where the distinction between training and education has become blurred, so much so that the two often are combined in several important aspects. Training prepares a young Soldier to deal with expected situations on the battlefield. Education prepares him to deal with uncertainty. On the modern battlefield, a Soldier knows that to survive he must be able to use his weapons and follow his leaders' orders. But he is also expected to demonstrate resourcefulness, initiative, creativity, and inventiveness, all demanded by a battlefield where confronting the unexpected and new is routine. Tactical proficiency must be matched with a Soldier's ability to speak the language and

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Teamwork: A squad of the 327th Infantry Regiment conducts a raid on Mosul, Iraq, during Operation Iraqi Freedom, 29 July 2003.

understand the culture of the society he is seeking to protect. In the classroom, a Soldier has access to virtual and synthetic environments that immerse him in a simulated battle closely resembling real war. Thus, the nature of modern war is compressing both ends of the learning spectrum toward the middle.

More than ever, war is a thinking man's game. Wars today must be fought with intellect as well as technology. Reflective senior officers returning from Iraq and Afghanistan are telling us that wars are won by creating alliances, leveraging nonmilitary advantages, reading intentions, building trust, converting opinions, and managing perceptions, all tasks that demand an exceptional ability to understand people, their cultures, and their motivation. While wars have become more complex, responsibility for those who fight them has increasingly slipped down the chain of command to junior personnel. Yet these young, inexperienced leaders have little time to prepare themselves to make strategic decisions. Even the time available to learn strategic tasks is diminishing, thanks to back-to-back deployments. Today's military has become so overstretched that it might become too busy to learn at a time when the need for learning has never been greater.

A second revolution is needed and is possible because of advances in learning science. When General Paul Gorman led the effort in the late 1970s to change the way the military learned how to fight, he had few technological tools available to assess, measure, and propagate the learning that occurred at the training centers. Then, the World Wide Web was just an experiment, and the science of personal and group testing was in its infancy. The centers offered the finest live training experiences in the world, but the science of virtual and constructive training had yet to mature sufficiently to be applied realistically and on a large scale. Today the military can draw on the experiences of academia and commercial and corporate learning institutions to greatly improve how Soldiers learn and to give opportunities to a much larger field of learners.

Creating Superb Small Units and Soldiers

So what must the military do to begin a second training revolution? It must focus on creating extraordinarily proficient small units. No revolution can occur unless supporting systems change to optimize learning opportunities for all Soldiers at any time, in any place. To accommodate these realities, the personnel systems of all services must also change. We must give small units long periods to become proficient at combat tasks. Military learning must shift from an institutional to a Soldier-based system that rewards individual performance rather than institutional efficiency. Soldiers must be given time and support to study and improve fighting skills continuously, over a lifetime, not episodically at a time convenient to the needs of bureaucratic personnel

systems. Leaders must be taught at a much earlier age to lead indirectly, to think quickly, and to "see" a battlefield that is dispersed, complex, hidden, and ambiguous.

Make no mistake; the quality of performance among today's close-combat Soldiers is high. Look at any news report or photograph of tactical engagements in this war and you will notice enemy combatants running about, shooting wildly. American Soldiers move in tightly formed groups and, even in the tensest moments, carry their rifles with fingers outside the trigger wells. These images prove the value of rigorous training, and no one respects and appreciates first-rate training more than close-combat Soldiers. They consistently rate good training higher than pay and benefits because they know first-rate preparation for war is the best life insurance.

Past performance in combat provides no guarantees for the future, however. The compartmentalized, isolated, and unforgiving nature of future war, particularly when fought on an urban battlefield, will require a new, demanding set of close-combat skills. Small units will have to perform as self-contained, autonomous entities that might be forced to perform a multitude of complex tasks without external help. Thus, Soldiers and Marines will have to be proficient in many tasks that supporting units formerly performed, such as intelligence, medicine, fire support, and communications.

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In Vietnam, two-thirds of all small-unit combat deaths occurred during the first 2 months in the field, in part because the training system had mass-produced Soldiers too quickly to prepare them properly for the complex, difficult task of close-in killing. In the future, small units must undergo far more rigorous and definitive precombat conditioning. No unit should be sent into a shooting situation until both leaders and followers have experienced bloodless battle first.

Soldiers will have to possess the flexibility and skill to transform themselves instantaneously from close-combat specialists to providers of humanitarian assistance and social services. Often they will be obliged to shift between the two opposing roles several times during a deployment. Such Soldiers and Marines cannot be mass-produced. Their training regimens might take years rather than months. Think of tomorrow's close-combat Soldier as transitioning from apprentice to skilled journeyman under the tutelage of his master craftsman squad leader.

The isolation inherent in urban fighting puts even greater demands on small units and requires a degree of cohesion never before seen in the U.S. military. A Soldier's bond to his buddy often lasts long after the danger has passed, sometimes for a lifetime. However, not much is known about how to generate this primal bonding, nor are commanders skilled at creating conditions for effective bonding to occur. The one indispensable ingredient for creating a tight-knit unit is time. The Army's effort to create Soldier stability is admirable, but keeping a Soldier stable is meaningless if he goes into combat a stranger within his platoon. Thus, platoons need at least a year to mature. Perhaps the definition of stability might be recast to embrace the centrality of small-unit stability, specifically for close-combat squads and platoons.

The challenge for the future is to develop training systems and methods that will allow small units to maintain the advantage. The Cold War military learning system was predicated on individuals and units progressing so they could perform tasks sufficiently well to meet the standard. This standards-based system was revolutionary because it induced individual and collective accountability and demanded that all perform to a measurable level: The training proficiency of large organizations could therefore be collectively categorized with some degree of reliability. Today, it is no longer sufficient to merely meet the standard: A revised, more demanding measurement is necessary to determine squad and platoon proficiency. Meeting the standard should be replaced with a new set of open-ended performance criteria. The standard is now a limiting factor in shaping the performance of highly capable and well-bonded units. Thus, units today really do not know how good they can actually be. We should develop more holistic criteria that demand—and reward—truly exceptional individual and unit performance.

As stated earlier, training and education today are episodic. Just before deployments, units are at their peak. Soldier assignments, both internally and externally, have been stabilized and turbulence is at

a minimum. Distractions are few, and leaders concentrate learning solely on those tasks to be accomplished in battle. Most deployments are preceded by a combat training center rotation where leaders get the opportunity to practice skills in rigorous simulated combat. But all too often, even in combat, these skills deteriorate quickly. The deterioration accelerates after Soldiers return to home station, when units dissolve and the learning focus is diffused by the distractions of garrison life.

Unfortunately, the enemy rarely takes downtime. The tempo within a theater of war continues while fighting skills atrophy at home. A first priority for the second revolution must be to keep combat proficiency from dipping so much that a unit cannot reenter the combat zone without extensive train-up or last-minute personnel reshuffling. Individual officer or noncommissioned officer (NCO) learning must be constant, not subject to the same pendulum swings that diminish field proficiency. Keeping units and individuals within the zone of proficiency will demand a new set of attitudes and policies. Training evaluations will have to be random, persistent, and totally objective. Unit commanders will have to be held accountable for the learning of their units both in garrison and in the field. Such a reform will require constant reinforcement and validation, particularly at small-unit and individual levels.

Cultural Preparation for Battle

The native humanity of the U.S. Soldier occasionally gets him killed. Many past enemies have remarked on the naiveté of young Soldiers new to close combat. Thanks to the oceans that surround us, we are a relatively well-protected culture that has rarely faced traumatic intrusions into our homeland, which explains why so many Soldiers recall that their first reaction in a firefight is disbelief that some stranger really wants to kill them. The positive side of this is a congenital pre-disposition for Soldiers to befriend strangers, even enemies. German and Japanese veterans were often astounded at how quickly Soldiers sought to bond with them and forgive their aggressions once battle had ended. Children in particular were often the objects of this propensity to make friends.

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At the Army's Joint Readiness Training Center, field exercises force Soldiers to confront cultural issues.

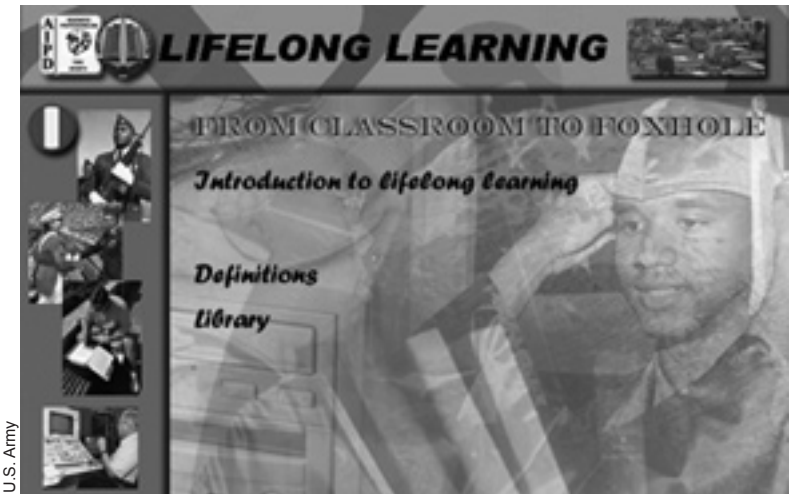
Unfortunately, the gulf between West and East has never been greater than among Soldiers and Iraqis. Few Soldiers speak Arabic or have spent any time in Arab countries or even in the presence of Middle Eastern peoples, so the U.S. Soldier's proclivity to connect is blocked by cultural differences. Close-combat forces cannot again be sent into a tactical environment where they are forced to fight as complete strangers. In this new style of war, the strategic center of gravity is nested in the will of the people. Soldiers cannot hope to fight such a war without possessing an intimate knowledge of how the enemy thinks and acts.

All young Soldiers should receive cultural and language instruction, not to make them linguists, but to equip them with just enough sensitivity and linguistic skills to understand and converse with the indigenous citizen on the street. Soldier acculturation is too important to be relegated to last-minute briefings before deployment. The Department of Defense should be required to build databases that contain religious and cultural norms for world populations—to identify key cultural information that soldiers can download quickly and use profitably in the field. Acculturation policy should be devised, monitored, and assessed as a joint responsibility.

The military spends millions to create sites designed to train Soldiers how to kill an enemy in cities. But perhaps equally useful might be smaller home-station sites optimized to teach small units how to cultivate trust and understanding among peoples inside cities. These more intimate and hands-on facilities would immerse individual Soldiers in a simulated Middle Eastern environment, perhaps replicating a mosque or busy marketplace, where they would confront various crises precipitated by role players seeking to incite a local mob to violence. Interagency and international presence should be as evident in the smaller environments as the services and joint agencies, with perhaps a U.S. Department of State, CIA, or allied observer-controller calling the shots during exercises.

Identifying and Preparing Tactical Combat Commanders

Leaders ought to be trained for certainty and educated for uncertainty. On industrial-age battlefields, junior officers were expected to lead their



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TRADOC has fully embraced the need for lifelong learning in which distance learning has a central role.

men by touch and verbal commands. They were trained to follow instructions from their immediate commanders and to react to the enemy. The image of sergeants and captains acting alone in the Afghanistan wilderness, innovating on the fly with instruments of strategic killing power, confirms that today's tactical leaders must acquire the skills and wisdom to lead indirectly. They must be able to act alone in ambiguous and uncertain circumstances, lead Soldiers they cannot touch, think in time, and anticipate the enemy's actions. They must be tactically proactive, not reactive.

Leaders must have the tools and authority to identify and develop those who have the operational capacity and desire, plus the intellectual "right stuff," to rise. History teaches that great combat commanders have one trait in common: a unique, intuitive sense of the battlefield. They can think in time, sense events they cannot see, and orchestrate disparate actions so that the symphony of war is played out in harmony. These same commanders must also demonstrate "cultural court sense." They must possess the personal empathy to gain the allegiance and trust of alien cultures. Often those with the operational and cultural right stuff are found only by accident. Commanders at the NTC frequently observe that the most unlikely commanders perform well in the heat of battle. Perhaps they lack a certain pedigree or are rough around the edges, but they know how to fight and prosper in different cultures.

In the past, the only sure venue for identifying the naturals was battle: Soldier's lives had to be expended to find commanders with the right stuff. But today, learning science can help identify those who can make tough decisions intuitively. The services must exploit this science by conducting research in cognition, problem solving, and rapid decisionmaking in uncertain, stressful environments like combat. Using realistic simulations that replicate conditions of uncertainty, fear, and ambiguity might help identify the natural leaders, perhaps even as early as commissioning. We should then cultivate those leaders and exercise them continuously to sharpen their decisionmaking prowess before they lead Soldiers into real combat.

Military schools must greatly expand their efforts to understand the cognitive decisionmaking process. As much attention should be given to understanding how culture-centric systems interpret and use data as to how net-centric systems collect data. We need to better understand what information is necessary to make decisions and how different commanders use information. Cognitive systems capable of customizing the decisionmaking process will emerge from that understanding. Soon, perhaps, commanders will be offered exercises, environments, and decision aids that will optimize their ability to decide correctly amid the mountain of information that invariably descends on them in battle.

The requirement to better anticipate and shape performance in battle is made more challenging by today's conflict environment. Good commanders know how to lead in combat. Great commanders possess an intuitive sense of how to transition quickly from kinetic warfare to a subtler kind of cultural warfare distinguished by the ability to win the war of will and perception. Rare are the leaders who can transit between these two disparate universes and to lead and fight competently in both.

Lifelong Learning

Where should these skills be learned? Right now, the military turns to universities for access to cutting-edge technology and resources for studying war. But American universities have become less able to provide such wisdom; the study of violence is too removed from the sensitivities of contemporary academia to attract scholars' serious attention. Thus, few civilian universities offer comprehensive curricula in military history or war studies. Think tanks are not the answer either, since they traditionally focus on short-term issues related to weapons procurement or political and diplomatic policies. The only place where the art of war can be studied competently is in military schools and colleges.

Unfortunately, higher level military instruction fails to meet the learning needs of the services. Few military leaders are fortunate enough to be selected to attend institutions that teach war, and those selected are chosen principally on job performance rather than intellect. Personnel policies and statutes have transformed these institutions partly into meeting places intended to achieve interservice, interagency, and international comity. Diminished depth and rigor in war studies is the price of such socializing. The elements necessary to gain a deeper understanding of the nature of war—military history (primarily), wargames, military psychology, and leadership—have often been slighted in an effort to teach every subject to every conceivable constituency at the lowest common denominator.

If the services are to get the greatest benefit from existing war-studies programs, the system of professional education must be reformed to accommodate two imperatives. Every military leader, particularly those who practice the art of war, must be given every opportunity to study war. Learning must be a lifelong process. Every Soldier, regardless of grade or specialty, should be given unfettered access to the best, most inclusive programs of war studies. And every Soldier who takes advantage of the opportunity must be recognized and professionally rewarded for the quality of that learning.

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We must also foster distance learning, which allows us to amplify and proliferate learning, so every Soldier can learn to his or her capacity and motivation. Distance-learning technology permits students to learn in groups, in virtual seminars, even when on the job in some distant theater of war. We should therefore maximize the sharing and distribution of learning. The remarkable success of websites like companycommander.com and platoonleader.com testifies to the need that young leaders have to learn by sharing. Scholars have long known that learning ought to be ongoing, not episodic. Therefore, Soldiers should join a web-based community of learners from the moment they join the service.

Those who demonstrate brilliance and whose capacity for higher level strategic leadership is exemplary should be afforded the opportunity to expand their knowledge to an unprecedented degree. In this scheme, higher level institutions would focus exclusively on a constituency selected principally on intellectual merit. The courses would study war and nothing else. The school's pedagogical model would be based on the successful advanced seminars, such as the Army's intermediate-level School of Advanced Military Studies and senior-level Advanced Strategic Art Program, already extant at all service schools.

The military has too few learning resources to train and educate its leaders adequately. The commodity in shortest supply is time. Soldiers are often too busy to learn, and for that reason learning has taken second place to action in today's operationally focused force. The new learning environment should center on the student, not the institution, with every learning opportunity crafted to ensure that the right methods, both pedagogical and methodological, are used to give the military learner just what is needed when it is needed, in a suitable blend of on-site and web-based instruction. We must do everything possible to enable learning. First preference should go to learning at home over the Web. Schools must monitor and assess the quality of student work while minimizing the time spent in distant classrooms.

Immediately after commissioning, an officer would become part of a joint seminar of a dozen or so peers from across the services who share a common specialty. Operators would be paired with operators, communicators with like officers in another service, and so on. Senior educators from middle and higher level service schools would moderate these seminars. Students' unit commanders would actively serve as their mentors, responsible for counseling and evaluating their progress. Such learning interaction between the commander and young officers would give commanders a great opportunity to thoroughly articulate how they fight and how they solve military problems. Commander involvement will lead to honest debate and shared understanding, thus strengthening the bonds of trust and confidence.

The program should be history-based and thoroughly joint. Young officers would begin early to become indirect leaders by demonstrating their ability to grasp higher order concepts and by learning the essential nature and character of war. These seminars would go on for life; they would be rich in web-based simulations and gaming and would be evaluated and critiqued by monitors, mentors, and peers. Students would produce original research papers in order to gain academic credit leading to a master's degree from an affiliated, accredited institution of higher learning. Those

who demonstrate extraordinary talent would earn the privilege of pursuing a doctorate.

Officers would have to take specialty courses online before assuming specific duties within a unit. For example, an officer would have to demonstrate acceptable knowledge of personnel management before becoming a battalion personnel officer. No officer could proceed to hands-on training at a training center until he had passed the web-based, foundation-setting portion of his training. The limited time available for site-based learning must be strictly practical, with time spent in regional training centers or in collective training exercises.

A web-based method of learning would allow the creation of a lifelong electronic learning portfolio for every student. Portfolios would include an objective assessment of the student's performance in every course, seminar, simulation, field exercise, and game. Portfolios would be managed strictly within the "academy," with access limited to promotion boards and assignment officers. Commander-mentors and academic monitors would share responsibility for maintaining portfolios. Monitors would be free to comment on how well the student grasps the material, the commander on how well the student applies his knowledge.

Of course, the services might exploit each officer's portfolio as dictated by their individual cultures. However, in keeping with established precedents, the Chairman of the Joint Chiefs of Staff would be authorized to use the portfolio to set guidelines for selection or promotion into joint assignments based on an officer's educational preparation.

Unit-Based Learning

Over the last 10 years, corporations have learned the value of educating employees. Some of the best managed companies have created chief learning officers and tasked managers to ensure that subordinates are properly prepared intellectually for promotion. The military can learn from this example. Soldiers do best what their commanders demand from them. Commanders focus energy on what their bosses deem to be most important. Until now, responsibility for learning has been relegated to military schools, but if we are to create a body of future leaders capable of fighting asymmetric wars, we must shift the responsibility for learning to those most responsible for success—unit commanders.

We must recognize unit-based leader development as a condition for overall unit readiness. A cycled rotation system could give commanders enough downtime to establish and actively supervise a disciplined study program for junior officers. Nonetheless, a method of monitoring professional-development time must be established by a disinterested authority divorced from service personnel systems.

NCOs, too, must be educated as well as trained for this new style of war. All NCOs should receive cultural and language training, and those with the greatest promise should be offered the opportunity to study war and foreign cultures either in advanced military or civilian schools.

Nine Learning Initiatives

Facing a new and unforeseen destiny, the military needs a second learning revolution. The ambiguity, uncertainty, and complexity of modern war demands that a new generation of Soldiers and leaders be brought into a new culture of open inquiry, universal access, and heightened regard for combat acumen and intellectual excellence. The services can make a credible start by—

• Creating an attributable, measurable, servicewide system for training small units. Services should consider establishing a consortium of small-unit or even individual equivalents to Red Flag or Top Gun.

• Replacing the Cold War "task, condition, standard" learning paradigm with one that includes universal, open-ended goals, with each level of achievement measured objectively and recognized with an ascending scale of rewards for excellence.

• Reforming service-specific personnel programs so individual accountability for excellence is reflected in promotions and selection for greater opportunities. Learning institutions, not personnel officers, should measure and reward learning.

• Making lifelong learning a requirement for career progress. All Soldiers should be given complete access to learning opportunities, but all should also be held accountable for their progress.

• Formulating an objective, realistic system for identifying small-unit leaders with the special qualities to perform with distinction in combat.

• Demanding a comprehensive, uniform, and accountable standard for cultural immersion of Soldiers and their leaders.

• Creating a training culture that reflects the need for close-combat proficiency and standards for performing well in operations that require cultural sensitivity and the ability to work effectively with civilian, interagency, and international agencies and partners.

• Putting more emphasis on NCO development. Translate the open-ended standards expected of junior and midlevel officers so NCOs can become proficient indirect leaders before they enter a war zone.

• Creating a truly universal and accessible training and learning resource library, one that clearly lays out expectations for excellence and includes the learning tools small-unit leaders need to build their own effective training programs without having to rely on higher level learning institutions.

To be sure, the learning reformation suggested here will require a commitment perhaps as encompassing as the Goldwater-Nichols amendment and as culturally transformational as the Caldwell and Root reforms of the late 19th and early 20th centuries. But such sweeping changes are essential if we want our Soldiers to outthink and outfight our enemies on current and future battlefields. ***MR***

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Our New Camouflage

The Cold War's demise left us underdressed
near the smolder of kommissar campfires.

So we altered the patterns and colors
of our passé battle dress uniforms,

shifting the design so we could keep pace
with a foreign policy of hard steps—

new abstract art for a global footprint.
Museums might call it "Cubist redux"

that mimes the tints of sands, trees, skies, and seas,
and any shadow whorled with absent light;

these outfits for all weather and seasons
shielding skin we hope is still worth a kiss.

—Major Jeffrey Alfier, U.S. Air Force