CHAPTER 5

TOWARD A MORE JOINT, COMBAT-READY PLA?

By Mark R. Cozad

Military reform has been a central element of Xi Jinping's military program since ascending to the top positions in both the Community Party of China and military in 2012. The need to prepare and equip the People's Liberation Army (PLA) to "fight and win informationized wars" has been a central, if not *the* central, theme driving these reform and modernization efforts. Accordingly, joint operations factor heavily into the PLA's assessments of the capabilities it needs to improve its status as a modern, informationized military. During Xi's tenure, the PLA has placed significant focus on all aspects of improving joint operations, including personnel, architecture, organization, training, and concept development. These renewed efforts under Xi are building on several years of similar programs, all of which sought to build on lessons learned derived from observations of recent foreign military developments, particularly those involving U.S. operations. These lessons have magnified the importance of joint operations in modern warfare. From this standpoint, Xi's interest in joint operations has not been so much a new start as a top-level reinforcement of previous efforts and a recognition that future success will rely upon substantive, sustained progress in joint operations capacity.

This chapter addresses the question of how much progress the PLA has made in the joint operations arena during Xi's tenure. To accomplish this, the chapter examines how joint operations have evolved in the PLA since 2000 in order to identify where Xi's policies have diverged from earlier practices and where they have maintained continuity. Similarly, this chapter provides context on how previous reform efforts relevant to joint operations development have fared. While the PLA has outlined new initiatives in recent years designed to improve PLA readiness for actual combat, previous efforts in similar areas have met with limited success over the past two decades. Lastly, this chapter discusses specific criteria for evaluating PLA joint operations progress.

The overall conclusions provided in this chapter do not address two key areas: organization and service-related personnel decisions within that structure. Clearly, these two areas are essential elements in building a military culture that embraces joint operations; however, these structural questions become significantly less important if the basic building blocks of joint operations have not been developed and put into effect. These building blocks include operational concepts; personnel development, training, and education; and field training, experimentation, and exercises. Absent developments in these three core areas, organizational reforms, personnel changes at senior levels, and information architecture achieve few, if any, tangible improvements in capability.

Recent PLA Reforms in Context

The 1990s were a watershed in PLA history. Military and civilian leaders in the People's Republic of China (PRC) closely observed U.S. operations in the Middle East and North Atlantic Treaty Organization operations in southeastern Europe and realized how far their forces had fallen behind these technologically advanced militaries in several key areas. On further study, PLA leaders identified not only major shortfalls in technology and weapons systems, but also in conceptual development, organizational structure, and personnel. Concerned that China's forces were unprepared

for modern combat, PRC analysts studied the successes and failures of the Gulf War and Kosovo campaigns, drawing lessons for the PLA about "asymmetrical war" and "local wars under high-tech conditions," focusing particularly on joint operations as a means for efficiently fighting in future wars that relied on information technology, networks, and advanced weapons controlled by different parts of the military.[1] Their research led to a wholesale restructuring of all PLA services that encompassed a new military strategy, new operational concepts, the pursuit of advanced technologies, and accelerated purchases of advanced Russian weapons and platforms.[2] Improved joint operations capability was viewed as an imperative.

In particular, the operational surprises and resulting lessons learned from U.S. operations in the First Gulf War and Kosovo compelled the PLA to confront its weaknesses and step up its modernization efforts. U.S. operations demonstrated that modern forces—particularly air forces—equipped with precision weapons; advanced command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capabilities; and aerial refueling offered an unprecedented threat to the survivability of the PRC's most strategically significant infrastructure.[3] Many PLA observers thus argued that joint operations—particularly the effective integration of offensive air and naval operations—would define future conflicts, requiring the PLA to invest in a networked system of systems encompassing precision munitions, automated command and control systems, and intelligence, surveillance, and reconnaissance (ISR).[4]

These same observers also noted that U.S. and allied forces had easily gained and maintained the initiative in each conflict, deploying with impunity around the periphery of the countries under attack and operating with little concern for defending their own assets against attack.[5] In the face of such overwhelming adversary forces, the PLA could no longer rely solely on massive numbers of ground forces. Instead, future conflicts would depend on having significant maneuverability and destructive capacity. In short, many capabilities applicable to future combat resided outside of the

PLA ground forces. The need for developing joint operations concepts and capabilities became understood as the critical link for bringing together the PLA's full range of combat capabilities.

Calls within the PLA for new programs to develop commanders and improve training highlighted the importance of developing the PLA's joint operations capability. Broad efforts within the PLA to improve the overall quality of its personnel focused on a variety of aspects such as recruitment, retention, technical training, and military education. With the growing demand for technically competent people, PLA efforts required a dedicated program to ensure that its new officers and soldiers were suited for modern military operations. The need for commanders versed in modern warfare was particularly important. These commanders were envisioned as the primary ingredient necessary to "master joint operations under modern high-tech conditions."[6] Moreover, they were expected to possess "keen political insight" and a "deep strategic mind" along with mastery of "high-tech operational theories and compatible science and technology."[7] Programs to cultivate talented personnel were subsequently focused on emphasizing the ability to command joint operations.[8] These efforts culminated in efforts throughout the military regions to improve training for commanders and mid-level staffs and develop the competency of technical personnel needed for future joint operations.[9]

The PLA has also treated training reform efforts as a means for improving joint force readiness. Since 2001, the PLA has issued its third *Outline of Military Training and Evaluation* (OMTE). The 2001 version was largely focused on improving the framework for how PLA training was performed and evaluated. It followed an extended period of study and experimentation in the 1990s to ensure that new training methods could be implemented effectively across the PLA and that innovations had been tested extensively. The 2009 OMTE placed particular emphasis on building joint operations capacity. The new guideline treated joint operations as its primary theme.[10] The most recent iteration of the OMTE has likewise placed joint operations as a core element.

These examples demonstrate that the need for joint operations and the infrastructure required to support its development was recognized well in advance of Xi's leadership. The programs to develop commanders and improve training were widely touted within the PLA as important steps toward creating a modern, high-tech—later informationized—military. Likewise, joint operations concept development began in earnest in the early 1990s and gained significant momentum during the 10th and 11th Five Year Plans.

PLA Joint Operations Concepts

In the 1993 revision of the *Military Strategic Guidelines in the New Era* (still in force today with minor adjustments), the PLA's observations coalesced into the core objective of conducting integrated joint operations, a concept that predates Xi and has, since its inception, guided the development of new systems and operational concepts.[11] The PLA textbook *Science of Campaigns* defines *integrated joint operations* as "using integrated methods and information technology, blending an operational system from all services and arms and other types of armed strengths with operational units to form an integrated whole."[12] The PLA's evolving framework for integrated joint operations forms the foundation for its current joint operations concept and is a driving force behind two key concepts—noncontact warfare and target-centric warfare.[13] In order to achieve success in local wars under informationized conditions, the PLA recognizes that it must link military information systems and networks that will enable PRC military planners to fuse "operational strengths" from each of the PLA's services.[14] These integrated joint operations in theory rely on a flexible system that permits and enables adjustments and coordination over the entire depth of the battlespace and within all domains as the situation requires. This flexibility allows for more precise applications of military force based on new information as it becomes available and is assimilated into the PLA's command automation system. As one senior PLA officer argued in the early conceptual development stages, these types of operations are driven by "the guiding ideology of 'comprehensive supremacy, precision strike, and destruction of systems.'"[15]

Integrated joint operations are linked conceptually with the continuing imperatives to improve the PLA's level of "informationization" that enables "system-of-systems operations."[16] Informationization has been a core concept in PLA modernization formally for over a decade.[17] In turn, informationization is the essence of integrated joint operations, which rely on information networks to integrate and systematize operations designed to obtain information superiority.[18] An informationized architecture forms the basis for nearly all facets of integrated joint operations. Integrated joint operations thus are considered "the basic form and necessary requirement for informationized war," particularly in terms of ensuring real-time information support, effective precision weapon employment, and a system capable of rapidly deploying and configuring the necessary forces for a range of environments and contingencies.[19] Informationization will permit the realization of truly integrated joint operations through the development of precision timing for maneuvers, precise position data for fire strikes, and precision support for forces across the battlespace.[20] Accordingly, efforts to develop informationized capabilities serve as a key unifying theme in much of the experimentation that supported development of important new operational concepts, including noncontact and target-centric warfare.

Another central element in the PLA's joint operations development is found in its emphasis on system-of-systems operations—an area that presents commanders and their staffs with significant challenges. This concept is based on linking command automation, ISR, precision strike, and mobility in ways that permit rapidly and efficiently striking vital sites and key nodes in an enemy's systems.[21] Conceptually these "combat systems" optimize operational strengths from across the PLA's services. These systems should be optimized to meet specific operational objects and ensure that critical weapons and capabilities are used as efficiently as possible.[22] *The Campaign Theory Study Guide*, an early PLA textbook that addressed system-of-systems, identified the connection between campaigns and combat systems in the following manner:

> Paralyzing the enemy's combat system has become an important means of winning a war. . . . Once there are problems in key links of the system, the entire weapon system and combat system will lose its combat effectiveness, or will even become paralyzed. This illustrates that modern campaigns are the confrontation between combat systems. Advanced weapons and equipment and good strategy and planning both depend upon the integrity and coordination of combat systems. Therefore, in modern campaigns, attacking and paralyzing key nodes in the enemy's combat system while ensuring the integrity and coordination of one's own combat systems has become an important way of winning.[23]

This important PLA teaching text—although an early version—highlighted two imperatives for success in future wars that remain central to PLA thinking on system-of-systems operations and, by extension, integrated joint operations. The first imperative is the need to build and protect one's own combat system, while the second involves simultaneously identifying and attacking an adversary's critical weaknesses. These ideas, developed and tested as part of the PLA's military science research efforts, provide the underpinnings for many of the PLA's most recent joint exercises.

Key Joint Operations Concepts

PLA joint operations capability development efforts have not taken place in a functional vacuum; they have been tailored to correspond to major trends in global military development over the past two-and-a-half decades. The methods of warfare that PLA observers identified during U.S. and allied operations since the 1990s have led to the development of new ideas within the PLA about how future wars will be fought and the capabilities necessary to succeed in this environment. As discussed earlier, these observations focus on information and weapon systems that can be integrated efficiently to target an adversary's war-making capacity. These types of operations placed a premium on air and naval power. Likewise, PLA

observers concluded that future conflicts were much less likely to involve ground-heavy, brute-force conflicts of attrition that characterized military operations in previous generations. The strategic importance placed on gaining superiority in the air, at sea, in space, and in information domains presented an imperative to PRC political and military leaders: reorient the PLA to become more joint, agile, and efficient or fail to keep pace with the demands of the global revolution in military affairs.

One of the most significant developments in modern warfare that shaped PLA recognition for the need for a credible joint operations capability was the emergence of "noncontact warfare." According to several senior PLA writers who developed the concept, this new form of warfare constituted a significant departure from earlier models of warfare in several important respects.[24] Until the 1990s, they argued, warfare was based on a model of attrition that sought the destruction of fielded forces; military success was primarily achieved by mass deployments of mechanized forces. U.S. operations in the former Yugoslavia demonstrated that warfare no longer conformed to this model. The objective of military operations had changed from attrition to the destruction of an enemy's war potential, embodied in strategic targets like leadership, energy, industry, communications, and key infrastructure.[25] Long-range precision strikes on these targets, enabled by advanced C4ISR capabilities, would be the cornerstone of modern warfare. The noncontact warfare model required PLA commanders to bring together each service's firepower capabilities in unprecedented ways. It was therefore necessary for PLA commanders to understand the entire range of kinetic and nonkinetic capabilities at their disposal.

The PLA's latest operational concept is target-centric warfare, which has been under development since at least 2011. It appears to be a further refinement of the noncontact warfare model primarily oriented toward the joint integration of PLA Air Force and PLA ground forces. The general concept behind target-centric warfare is that by employing ISR sensors and target analysis, PLA commanders can identify—and subsequently aim to destroy—the most critical targets in an enemy's combat system.[26]

This operational concept seeks to make efficient use of firepower assets, provide timely targeting of the most essential targets on the battlefield, and ensure that combat plans are able to adapt in an agile manner that addresses rapid changes in a dynamic environment. Recent target-centric warfare experimentation has focused on engaging mobile targets and employing opposition forces in order to challenge exercise participants.[27] Though this concept is under development, there has been a limited amount of literature available describing its evolution and key elements. Regardless, its existence provides an overarching context by which to evaluate key areas of progress in the PLA's development of integrated joint operations.

Training and Experimentation

The PLA initiated its program to develop joint operations concepts in 2001 with the *Five Year Plan on Headquarters' Informationization Building, 2001–2005*.[28] This multifaceted effort involved conceptual development that brought together a broad body of military science research, technology development, new training guidelines, and operational experimentation. The plan culminated with two exercises named Sharp Sword 2005, led by units in the Chengdu and Nanjing Military Regions (MRs). PLA leaders tasked units from the Chengdu MR with exploring new modes of integrated joint training, along with air-land integration between the PLA Army and Air Force.[29] They also tasked units from the Nanjing MR with experimenting on firepower strike coordination, integrated training methods, and interservice coordination mechanisms.[30] Although this geographically dispersed exercise highlighted several shortcomings in the PLA's capability to perform integrated joint operations, it marked a significant foundational basis that guided follow-on efforts in the next two Five Year Plans.[31]

PLA joint operations training entered a "standardized development" phase as the 11th Five Year Plan ended in 2010, presumably to experiment and test the joint operations concepts and practices that emerged from the Sharp Sword exercises. In 2009, the PLA claimed a total of 18 large-scale exercises that explored a wide range of joint operations subject matter,

including civil-military integration, naval and air force power projection, "systemic operations," joint training methods, and war zone–level command and control.[32] Three key exercises during 2009 and 2010—Firepower 2009, Stride 2009, and Mission Action 2010—demonstrated the PLA's progress in joint operations during the 11th Five Year Plan. More importantly, the underlying themes guiding these exercises and evaluations would serve as the basis for many components of the major exercises seen in the subsequent 12th Five Year Plan.

In August 2009, four PLA divisions subordinate to the Shenyang, Lanzhou, Jinan, and Guangzhou MRs conducted "the first large-scale, intertheater, live-forces, checkout-type exercises since the founding of the Chinese People's Liberation Army," named Stride 2009.[33] Participating units deployed to a PLA combined tactical training base located outside of their respective MRs. Subjects ranged from practical evaluations of training practices and procedures to long-range mobility. PLA training methods were further enhanced through the use of dedicated opposition forces and the newly deployed Army Unit Exercise and Evaluation System.[34] Substantively, exercise participants tested new equipment types, including multiple features of the Beidou navigation and positioning system, electronic warfare systems, and psychological warfare support vehicles, among many others.[35] Stride 2009 also served as a comprehensive test in multiple specialty mobility–related areas, including fuel and material resupply, medical support, war compensation, and political work.[36]

Shortly after Stride 2009 began in October 2009, the PLA General Staff Department's Military Training and Arms Department convened an All-Army Symposium named Firepower 2009, which examined precision strike under informationized conditions. This 3-day event brought together PLA experts and scholars tasked with developing new approaches and models for an advanced warfighting concept capable of integrating "precision reconnaissance, precision command, precision firing, and precision evaluation."[37] In contrast with the evaluation- and test-focused aspects of Stride 2009, Firepower 2009 served almost exclusively as a means for

experimentation using demonstrations and working groups composed of military science researchers and operators. The symposium's content clearly reflected PLA thinking on the intersections between joint operations and system-of-systems concepts.

Mission Action 2010 marked the culmination of the 11th Five Year Plan's joint operations training efforts. This exercise involved multiple units from across multiple MRs in a test exercise that focused on transregional maneuver and testing of key operational functions, including joint campaign command, joint firepower strike, comprehensive protection, and precision support.[38] Overall, the exercise stretched for 20 days and included participants from the Beijing, Chengdu, and Lanzhou MRs, along with elements from both the PLA Air Force and PLA Navy. Most notably, Mission Action 2010 marked the first time that operational forces crossed MR boundaries to participate in an operationally oriented joint exercise.

More recently, since the beginning of the 12th Five Year Plan, joint exercises have become even more of a centerpiece in PLA military modernization and experimentation. Primarily, they provide a means by which PRC senior leaders can measure PLA progress toward achieving its most important modernization objectives. In contrast to the heavy emphasis placed on experimentation and concept development in the major joint exercises during the 10th and 11th Five Year Plans, more recent joint exercises have focused on testing and evaluating a wider range of operational missions intended to produce a more flexible, adaptable, and deployable military. At the same time, the integrated joint training methods examined in earlier exercises—along with recognition among senior leaders that training quality needed to be improved overall—have evolved into a broader effort to improve realism and more effectively evaluate unit performance. Although many press reports following these events highlight shortcomings that continue to hinder PLA progress in the field of joint operations, they also portray significant improvements in realism and complexity, as the units involved are placed in much more dynamic scenarios away from their familiar surroundings and with dedicated opposition forces providing more-than-token

resistance. Based on these improvements, the capabilities developed during these joint exercises are essential for meeting the PLA's objective of being able to fight local wars under the conditions of informationization. The progression of joint operations exercises spanning the 10th, 11th, and 12th Five Year Plans demonstrates a sustained focus on the key elements of PLA joint operations concepts developed over a decade ago—informationized, system-of-systems-based, high-tempo, multidimensional operations that integrate all PLA combat strengths.[39]

Evaluating Progress Under Xi

The preceding discussion and examples demonstrate that joint operations development was under way within the PLA on many levels prior to Xi's coming to power. In no sense was the effort lacking in resources or high-level interest. In addition, it appeared to make progress in several areas despite some acknowledged setbacks by the commanders leading key pieces of experimentation. Furthermore, a wide range of literature was being made available to PLA professional military education institutions in order to educate future commanders in joint operations theory. In sum, the range of PLA activities dedicated to building joint operations concepts and capabilities increased significantly and methodically attempted to address a wide range of critical questions.

The primary issue related to Xi's impact on joint operations development appears to be greater emphasis and a new organizational structure that ensures responsibility for joint training will be overseen by the theater commands—the PLA organizations responsible for operational planning and warfighting.[40] Although many efforts were in place to develop concepts, improve personnel and education, and reform training, each of these programs had met with mixed success and were heavily focused on theoretical aspects of joint operations. In some cases, personnel and training reforms were rolled out in multiple iterations, each time acknowledging many of the same longstanding shortfalls in key areas. While in many respects these reforms may signal gradual improvements in practice or changes based on

the state of the-art, in most cases they appear to be redesigned efforts to address longstanding problems and shortfalls.

Xi's imprint on joint operations has nonetheless been significant. His guidance to prepare for military struggle has begun taking hold at multiple levels as evidenced by a body of new training guidance. Most notably, at the beginning of 2014, the Central Military Commission released the *Opinions on Raising the Level of the Realistic Battle Orientation of Training*, and in 2015, the General Staff Department issued the *Opinions on Strengthening and Improving Campaign and Tactical Training*.[41] While these directives build on earlier efforts to improve and reform training, they appear to be a corrective to the emphasis under Hu Jintao on nonmilitary operations. Similar programs have been designed to educate and train commanders to better equip them because the requirements of joint operations have gained momentum under Xi's leadership. In general, Xi's imprint will most likely be felt in three key areas: education, training, and personnel.

In addition, new training regulations clearly outline responsibilities for joint training. Most notably, joint training has been identified as the key driver for service-specific training requirements. As such, the services still maintain their overall responsibility for building general proficiency based on service capabilities while the theater commands—overseen by the Central Military Commission—are given the authority to ensure that combat-related joint training meets PLA specifications and operational requirements.[42] As explained by the Eastern theater's commander, the new system was designed to have "the theater command taking the lead" to ensure "alignment of training with combat operations" and "shaping of systems of systems."[43] Under this system, the theater command generates joint training plans based on its missions and operational training requirements, delegating key training decisions to the theater commanders responsible for combat operations. This approach is a significant departure from the highly centralized system overseen by the General Staff Department prior to the reorganization.

Personnel

The PLA has embarked on a program to train and cultivate talented personnel for command positions in joint operational roles. Key elements of the program were discussed in Beijing at a July 2016 gathering of some two dozen military education and research institutions, theater commands, and the armed services that sought to identify measures to improve the cadre of qualified commanders.[44] The program highlighted several areas by which the PLA could accomplish these goals, generally in the development of strategic leadership, command capabilities, and management commensurate with the PLA's future requirements.[45] Overall, the effort is dedicated to improving the manner in which commanders are selected and trained. From a training perspective, this process will rely on intensified training for commanders and staffs in eight areas that range from emergency situation training to theater joint command organization.[46]

Another critical component in the effort to improve the quality and preparedness of personnel taking joint command and staff positions has been developing common standards and training requirements. These standards range from educational materials to criteria for evaluating performance and progress of individuals in both educational and field training settings.[47] In particular, these guidelines are designed to provide a long-term, structured framework for ensuring that PLA personnel are groomed at early points in their military career for the positions they will ascend to in the future.

Education

A key element of these personnel reforms involves improved education in joint operations. One of the most challenging problems facing the PLA education system is determining "what kinds of ideas and models" should be used in educating future joint commanders.[48] Based on previous military science research and experimentation efforts, this realization is illuminating in terms of the PLA's view of its own progress in the field of joint operations. In line with the effort to "cultivate talented joint operations commanding

personnel" the General Staff Department's Military Training Department (prior to its dissolution) alluded to new programs at the National Defense University (NDU), National University of Defense Technology, and service and branch command colleges to enhance the content and quality of teaching on joint operations topics. Interestingly, the program's development comes shortly following new editions of key joint operations teaching materials used to educate PLA officers.[49] The new NDU Joint Operations College at Shijiazhuang is likely to play a critical role in educating officers for joint positions. It will offer a year-long course for division and "brigadier level" officers and train staff below the rank of colonel who will serve in joint positions.[50]

Training

Progress in training overall has been a notable success for the PLA. Over the past 10 years, exercises have grown in scale, complexity, and number reflecting the priority the PLA has assigned to developing joint operations capability in a number of potential scenarios. These exercises also have attempted to incorporate more realistic scenarios and rigorous evaluation of performance through all exercise stages. Many of the most significant problems highlighted in previous iterations of the OMTE appear to be improving across the board. The primary uncertainty, however, is the extent to which these innovations reflect true improvements or set piece additions that give the appearance of progress. Based on the sources available, it is difficult to make a definitive assessment. Regardless, the joint operations exercise program and quality of the exercises themselves predates Xi. Exercises performed during the 11th Five Year Plan provided an important bridge between the PLA's earlier experimentation and the major exercises that have become routine during the 12th Five Year Plan. Based on this steady progression, it seems that the PLA's progress in this area is real but not attributable to Xi's reforms.

Xi's primary influence is clear in two key areas. The first is in the direction given to the PLA to prepare for military struggle, which came

forward shortly after the 2009 OMTE. Based on the PLA's recent discussions about this directive, it seems clear that new rigor is being applied to exercise content, intensity, and evaluation under Xi.

The second area is closely related to recent efforts to cultivate talented personnel and improve education—training joint commanders in realistic conditions. Since the PLA reorganization, each of the major theaters has highlighted efforts to ensure that joint command is a key topic in their specific training programs.[51] In addition, several units have attempted to address perceived shortcomings in joint command, referred to as the "Five Incapables."[52] These examples demonstrate that this critical piece of training reform is at the forefront of PLA joint operations training. As in previous years, the idea of rigorous training has taken hold across the PLA, and units are now attempting to implement these guidelines. The degree to which these new directives are being highlighted in PLA media suggests that there is added impetus behind ensuring that evaluations and commander training are dealt with more substantively than in the past. In April 2016, Xi visited the newly established Central Military Commission Joint Operations Command Center and emphasized the critical importance of developing both operational- and strategic-level command capabilities necessary for modern conflicts.[53] Additional reports, both before and after Xi's visit, highlighted programs and training initiatives across the PLA and within various theater commands designed to implement and test new joint command programs and procedures.[54]

Conclusion

Overall, it is clear that the PLA has made substantial progress in several key areas relating to joint operations capability.[55] Exercises have become considerably larger and more sophisticated. They now involve units from across the PLA, frequently in scenarios that require them to deploy considerable distances from their home bases and familiar training facilities. Attempts to improve realism by adding uncertain situations have also been noted in several PLA media accounts as enhancing the overall quality of

joint training. Similarly, joint training increasingly has involved the use of new command automation systems to exercise the use of capabilities from across the PLA's services and branches. Participating commanders and staffs are being challenged like never before. These developments have built on to earlier experimentation and development efforts in clear, steady progression from a long-term effort. The progress is real, but it is not a result of Xi's policies.

Xi's policies likely will have the most significant impact in the areas of personnel and education. "New" programs to cultivate better joint commanders are evidence of previous failures and a desire to change the PLA culture. Much of the declaratory statements about why these programs are important reveal a recognition that earlier reform attempts fell short of their intended mark. In addition, the stated need to improve military education instruction and content suggests a similar dissatisfaction with the materials that are currently available. This second issue is particularly striking due to the amount of time and energy devoted to joint operations concept development since 2001. The degree to which these two areas are considered shortfalls is uncertain, and the extent to which bureaucratic branding is at play should temper future assessments. However, the attention devoted to these two areas over the past 3 years strongly suggests that PLA leaders, including Xi, perceive a major problem. The reorganization of the PLA military education system announced in July 2017 is intended to address these shortfalls.

Similarly, the most recent training reforms also suggest dissatisfaction with the progress and quality of training across the PLA. Two iterations of the OMTE prior to 2010 were touted as solutions to the very problems that Xi's directive to prepare for military struggle was designed to solve. The new OMTE, issued in January 2018, reinforced Xi's core themes and ensured that recent organizational reforms are embodied in these new training guidelines. In general, directing the PLA to prepare for military struggle following nearly two decades of training reform indicates that Xi and other leaders were concerned the PLA's training was not sufficient.

As with any assessment of the PLA that relies on official media, there are significant uncertainties due to the quality and veracity of the information. While these latest reforms suggest problems continue beneath the surface, visible signs of improved training are readily available. The PLA has made progress in joint operations, and its ability to perform many joint functions is better today than it was in 2001 when these programs were initiated. Regardless, the repeated reintroduction of reform initiatives to address longstanding problems strongly suggests that there are significant impediments to progress.

Over the past two-and-a-half decades, the PLA has devoted considerable time and resources to becoming a modern, informationized military. There is no shortage of PLA analysis of the problems and potential solutions required for China's military to develop the capabilities necessary for bringing it up to the standards of the world's most modern military, that of the United States. Despite some degree of progress, the long lineage of problem identification, experimentation, implementation, and reorganization has not achieved several of the PLA's most important objectives, particularly in the area of joint operations. In part, this is due to the backward state of the PLA when it embarked on its current modernization effort in the early 1990s. Major changes evolve over time. However, a major reason why many of these problems persist is due to the PLA's organizational culture, which has favored the army over other services, fostered a lack of initiative and creativity within the officer corps, and discouraged risk-taking. It appears that reforms under Xi are focused on changing these aspects of the PLA's culture in ways previous reforms could not.

Absent a crisis that necessitates rapid change to survive, change in organizational culture often requires considerable time for personnel transitions, bureaucratic acceptance, and acculturation. Xi's reforms attempt to tackle these issues. They provide new professional incentives, bureaucratic authorities, and organizational responsibilities that ultimately will guide how current and future military officers will approach joint operations and command. At this stage in the current reform effort,

it is unclear whether these cultural changes will take root and be assimilated successfully. Senior-level interest, although important, is not the sole determinant of success, as evidenced by previous efforts to build a joint culture within China's military. Xi's reforms are an important departure from previous efforts and address several of the PLA's most challenging systemic problems. Assessing the prospects of success at this early point in the reform effort is difficult, largely due to the number of known and unknown variables that might shape the PLA's actions in coming years. However, Xi's reforms offer an important departure from earlier efforts and provide what appears to be a sustainable baseline for cultural change—a critical element in making joint operations reforms viable over the long term.

Notes

[1] Two key studies include Huang Bin [黄斌], *Research into the Kosovo War* [科索沃战争研究] (Beijing: Liberation Army Publishing House, 2000); and Wang Yongming, Liu Xiaoli, and Xiao Yunhua [王永明, 刘小力, 肖允化], *Research into the Iraq War* [伊拉克战争研究] (Beijing: Military Science Press [军事科学出版社], 2003). These two studies, along with numerous other military science journal and military press publications, highlight intense People's Liberation Army (PLA) focus on foreign military developments, particularly those involving the United States. As this chapter discusses, many of these lessons are captured in PLA operational concepts developed to respond to specific operational requirements. For an English language overview, see Andrew Scobell, David Lai, and Roy Kamphausen, eds., *Chinese Lessons from Other Peoples' Wars* (Carlisle Barracks, PA: Strategic Studies Institute, 2010).

[2] For a discussion of the Military Strategic Guidelines and the central role they play in delineating planning and modernization requirements, see David Finkelstein, "China's National Military Strategy: An Overview of the 'Military Strategic Guidelines,'" in *Right-Sizing the People's Liberation Army: Exploring the Contours of China's Military*, ed. Roy Kamphausen and Andrew Scobell (Carlisle Barracks, PA: Strategic Studies Institute, May 2007), 82–87. See also James C. Mulvenon and Andrew N.D. Yang, eds., "A Poverty of Riches: New Challenges and Opportunities in PLA Research," CF-189-NSRD, RAND Conference Proceedings, 2004.

[3] Peng Guangqian and Yao Youzhi [彭光谦, 姚有志], eds., *The Science of Military Strategy* [战略学] (Beijing: Military Science Press [军事科学出版社], 2005), 321–322; and Ge Dongsheng [葛东升], ed., *On National Security Strategy* [国家安全战略论] (Beijing: Military Science Press [军事科学出版社], 2006), 234.

[4] Wang Houqing and Zhang Xingye [王厚卿,张兴业], eds., *Science of Campaigns* [战役学] (Beijing: National Defense University Press [国防大学出版社], 2001), 418–422; Ge, *On National Security Strategy*, 231–235.

[5] Huang, *Research into the Kosovo War*, 140–144; and Wang, Liu, and Xiao, *Research into the Iraq War*, 199. In addition, see Ge, *On National Security Strategy*, 234; and Zhang Yuliang [张玉良], ed., *The Science of Campaigns* [战役学] (Beijing: National Defense University Press [国防大学出版社], 2006), 97.

[6] Zhong Shengqin, "Establish New Train of Thought for Training Commanders," *PLA Daily* [解放军报], February 9, 1999, 6.

[7] Ibid.

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