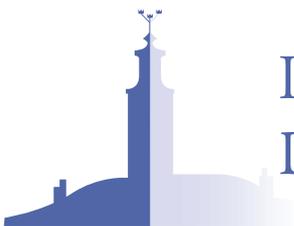


Toward the Transformation of PLA Military Training Under Conditions of Informationization

Leng Feng

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Key Abbreviations

CEME	Complex Electromagnetic Environment
CMC	Central Military Commission
CPC	Central Committee of the Communist Party of China
GSH	General Staff Headquarters
MOOTW	Military Operations Other Than War
MR	Military Region
NPC	National People's Congress
PLA	The Chinese People's Liberation Army
RMA	Revolution in Military Affairs

Executive Summary

In the information era, promoting the transformation from training under conditions of mechanization to training under conditions of informationization is an ongoing and deep evolution in the field of the PLA's military training. This paper analyzes the training transformation in four parts. It begins by reviewing the historical transformation in training within the PLA, before defining the term informationization and analyzing the fourth transformation currently in progress. It then looks more closely at the strategic context of the ongoing transformation, such as adapting to the developments of information technology, enhancing the ability to accomplish missions, and accelerating the Revolution in Military Affairs with Chinese characteristics. After that, it describes how while promoting the transformation of training, the PLA has innovated and developed military training under conditions of informationization, e.g. intensifying integrated training based on information systems, deepening joint training, and conducting training under complex electromagnetic environments as well as expanding training content, innovating training methods, and improving training means. Finally, it examines how the PLA will undertake a series of reforms to accelerate the transformation to improve the level of actual combat training, such as reform of the running mode of training, reform of the contents of training, reform of the mode of training, reform of the management of training, and reform of the support for training.

Editor's note:

This paper has been edited for greater clarity. The editor takes sole responsibility for any errors that may have occurred in this process.

Introduction

The Chinese People's Liberation Army (PLA) regards military training as the basic means of generating and raising combat effectiveness, as well as an important way of fostering and administering troops. For the past more than sixty years since the founding of New China in 1949, the PLA has attached great importance to military training while seeking to strengthen its modernization and regularization. In view of the adjustments to its missions and tasks, the development of weapons and equipment, and the evolution of forms of war and the changes in the social environment during different historical stages, the PLA has carried out reforms of its training at appropriate junctures to promote the transformation of training and has realized constant leaps in the forms of training.

In the process of promoting the transformation of military training, each major transformation in the PLA's training has had a well-defined theme. The first transformation took "regularized training" as its theme; the second transformation was characterized by "enhancing combined arms warfighting capabilities"; and the third transformation took "fighting and winning local wars under high-tech conditions" as its theme. Since 2006, the PLA has embarked on the fourth transformation, with its unequivocal theme being the "promot[ion] of the transformation from military training under conditions of mechanization to military training under conditions of informationization." The latest transformation constitutes an all-around, fundamental, and profound directional change. The decision was made by the Central Committee of the Communist Party of China (CPC) and the Central Military Commission (CMC) after making correct assessments of the situation on the basis of China's national interests and military conditions so as to meet the demands of the times in the development of war. Furthermore, it also reflects a response to the development of China's national defense and military buildup.

China's latest transformation of military training raises the following questions. How do China and the PLA define "informationization"? What impact will informationization have on the PLA's military training? Why is the PLA conducting its fourth training transformation at the beginning of the twenty-first century? How does the PLA carry out military training

under informationized conditions? Finally, how will the PLA reform its military training in order to improve the level of actual combat capability?

This paper attempts to answer these questions. In so doing, this paper is composed of four main sections. The first provides an overview of the historical transformation of the PLA's training since the 1950s. The second section unpacks the definition of informationization as given by the PLA and examines the ongoing transformation of training under informationized conditions. It goes on to outline the strategic context of the training transformation in progress by analyzing the reasons from three angles, i.e. adapting to the development of information technology, enhancing the ability to accomplish missions, and accelerating the RMA with Chinese characteristics. The third section explores how the PLA has innovated and developed military training under conditions of informationization: for instance, by intensifying integrated training based on information systems, deepening joint training, and conducting training under complex electromagnetic environments. Parallel to these efforts, the PLA is also engaged in expanding training content, innovating training methods, and improving training means. The final section examines how the PLA will undertake a series of reforms to accelerate the transformation in military training to improve the level of actual combat training. Accordingly, in response to the CMC's instructions under the new situation, the PLA will undertake scenario-based exercises and drills as the basic means and push forward reforms in areas such as the running mode of training, the contents of training, the mode of training, the management of training, and the support for training.

Overview of the Historical Training Transformation

The PLA regards the transformation of military training as an indispensable part of its overall military modernization program. During the course of its existence, the PLA has therefore undertaken reforms and innovation in a drive to promote the transformation of training aimed at resolving the main contradictions, and at reducing the gap between operational requirements and the level of warfighting capabilities. In brief, the different phases of training transformation the PLA has undergone are as follows: the regularized training of the 1950s and the “great demonstration of and competition in military skills” of the 1960s; the “three strikes, three defenses” training in the 1970s; the combined arms campaign-level tactical training in the 1980s; and the “training of troops by means of science and technology” in the 1990s. The different transformations in training have had a common objective, which is to improve quality and effectiveness under modernized conditions. These different phases are outlined in more detail below.

The First Transformation: From Emergency Training to Regularized Training

At the beginning of the founding of New China, in order for the PLA to adapt to the historical changes from the wartime era to the peacetime reconstruction era, Mao Zedong called on the entire PLA to “carry on regularized training”¹ and demanded that “the PLA should train the national defense forces well to make it become a modernized military.”² From the beginning of the 1950s, the entire PLA immediately carried out a series of preparations for regularized training. This encompassed preparations to establish training organizations, establishing training guidelines, organizing literacy-oriented learning activities, holding concentrated training on teaching

¹ Editorial Board of the Contemporary China Series, *The Military Work of the Contemporary Chinese Military*, volume 1 (Beijing: China Social Sciences Press, 1989), p. 45. Editor’s note: Chinese-language sources have been translated into English by the author.

² Mao Zedong, *Selected Works of Mao Zedong*, volume 5 (Beijing: People’s Publishing House, 1977), p. 84.

methods, and compiling and releasing the "First Generation Operational Doctrine," among other things.

In 1963, in order to deal with China's complex national security situation, the CMC emphasized the strengthening of war preparedness centering on regularized training and issued the directives of "preparing for war, consolidating the troops, increasing the [number] of full-time training divisions, and engaging vigorously in training."³ Subsequently, mass training drives and great demonstrations of and competitions in military skills were witnessed across the PLA. Arising out of the needs of actual combat, all the units made great efforts to ensure basic training, especially technical training, common subject training, element tactical training, close combat and night combat training, and adaptability training for operations in special terrain and complex weather conditions. In sum, these training activities vigorously facilitated the transformation from emergency training to regularized training.

The Second Transformation: From Single-Service Training to Combined Arms Campaign Training and Tactical Training

In the mid-1960s, based on the judgment that the risk of war was obviously on the rise, the CMC came up with the guideline that the PLA should transform from war readiness under general conditions to a readiness to fight "an early, large-scale, and nuclear war." From then on, the PLA made great efforts to set up educational units, conducted training in the framework of "three strikes, three defenses" (*sanda sanfang*, 三打三防),⁴ and carried out long-distance camp and field training.

From the late 1970s to the early 1980s, the PLA set out on the road of building a streamlined military with Chinese characteristics. Peacetime reconstruction had become the theme of military building. Deng Xiaoping pointed out that "only by relying on the close coordination between the services and arms and on their interdependence for existence to foster strengths and circumvent weaknesses can overall might be [wielded] and

³ Editorial Board of the Contemporary China Series, *The Chinese People's Liberation Army*, Volume 1 (Beijing: Contemporary China Publishing House, 1994), p. 418.

⁴ "Three strikes, three defenses" refers to striking tanks, paratroopers, and aircraft and defending nuclear, chemical, and biological weapons. Academy of Military Science, *The Seventy Years of the Chinese People's Liberation Army* (Beijing: Military Science Press, 1997), p. 279.

victory be made in fighting future wars.”⁵ In order to adapt to the needs of combined arms operations, a new military training outline was issued to the entire PLA in 1989. For the first time this unified and standardized training contents and training methods and procedures, established a training system which organically connected the four levels of individual, element, combined arms tactical, and campaign training under modern conditions, and realized the transformation from laying stress on single-service training to multiple-service combined arms campaign training and tactical training.

The Third Transformation: From Traditional Troop Training to Troop Training in Science and Technology

Since the 1990s, the Revolution in Military Affairs has been underway across the world. Jiang Zemin keenly perceived that the 1991 Gulf War demonstrated that modern wars were becoming high-tech wars. In 1993, the CMC established the “National Military Strategic Guidelines for the New Period” (*xinshiqi junshi zhanlue fangzhen*, 新时期军事战略方针),⁶ which based preparations for military struggle on fighting and winning local wars under modern technical conditions, especially local wars under modern high-tech conditions. In December 1995, furthermore, the CMC unequivocally put forward the significant strategy of “strengthening the military by means of science and technology.” Following this, the General Staff Headquarters (GSH) issued “The Three-Year Plan for the PLA Cadres to Learn High-Tech Knowledge” (*quanjun ganbu xuexi gaokeji zhishi sannian guihua*, 全军干部学习高科技知识三年规划),⁷ which made arrangements for the acquisition of high-tech knowledge across the PLA. In March 1998, the GSH held the historic “Liaoyang Concentrated Training” (*liaoyang jixun*, 辽阳集训)⁸ at the 39th Group Army, systematically summarizing the achievements and basic

⁵ Editorial Board of the Contemporary China Series, *The Military Work of the Contemporary Chinese Military*, volume 2 (Beijing: China Social Sciences Press, 1989), p. 253.

⁶ “The establishment of national military strategic guideline for the new period,” *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2008-10/08/content_1501006.htm (accessed on April 20, 2014).

⁷ “Three transformations have brought sustainable development for military training,” *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2008-10/13/content_1506946.htm (accessed on April 27, 2014).

⁸ “Liaoyang Concentrated Training blows the horn of training by scientific and technologic means,” *China Military Online*, http://www.chinamil.com.cn/site1/xwpxdw/2008-10/08/content_1502048_3.htm (accessed on May 5, 2014).

experience of the PLA's employment of high-tech knowledge to generalize and deepen training reforms. In December 2000, when inspecting the demonstration of the achievements made in the PLA-wide drive to strengthen the military by means of science and technology, Jiang Zemin pointed out that: "strengthening the military by means of science and technology is the fundamental way to enhance the PLA's capabilities of fighting and winning high-tech wars."⁹ The Sixth Generation Training Program issued thereafter drew fully on the achievements of the drive to strengthen the military by means of science and technology, and effectively promoted the transformation of these achievements into warfighting capabilities.

In sum, after the first and second transformations, the PLA's military training generally still found itself under conditions of mechanization and semi-mechanization. In the course of the third transformation, the application of information technology was at a preliminary stage and the process of transforming PLA training far from complete. Nevertheless, the preceding transformation laid a good foundation for the fourth transformation, as is explored in the next section.

⁹ "Jiang Zemin reviews the demonstration of training by means of science and technology," *PLA Daily*, <http://www.chinamil.com.cn/item/sjyb2000/cont001.htm> (accessed on May 10, 2014).

Informationization and the PLA's Fourth Training Transformation

If the 1991 Gulf War marked the beginning of the Information Age, since then rapid and drastic changes have taken place in the worldwide military field. The world's powers are making readjustments to their security and military strategies and stepping up the transformation of their armed forces by way of developing high-tech weaponry and military equipment and putting forth new military doctrines.

The extensive applications in the military field of new and high technologies led by information technology have deeply influenced all aspects of military building, such as military doctrine, operations theory, military training, weaponry and equipment, and so on. As modern warfare is becoming increasingly information-based, the PLA has stepped up its modernization by increasingly relying on high technology and recognizing the need to enhance the quality of training as a critical element in strengthening its overall operational capabilities, at the heart of which is informationization. In December 2000, Jiang Zemin stressed at an enlarged meeting of the CMC that the PLA should "strive to accomplish the dual-historical task of mechanization and informationization."¹⁰ Hereafter, the term entered the PLA's lexicon. The term "informationization" (*xinxihua*, 信息化) is similar to "informatization," "informationisation," or "informationalization." In contrast to the latter terms, which are used by Western governments and analysts, the former is a Chinese formulation, as can often be seen in China's official papers. In my opinion, the term "informationization" refers to the process and objective, during which information technology is fully used, information resources are developed and utilized, overall military building and military fighting capabilities are enhanced, the command information system and weaponry and equipment are modified and integrated, and the transformation from a mechanized military to an informationized military is finally achieved. The concept of "informationization" therefore

¹⁰ Jiang Zemin, *Selected works of Jiang Zemin*, volume 3 (Beijing: People's Publishing House, 2006).

emphasizes a major change in the nature of warfare brought about by the innovative application of information technology.

In 2004, in order to adapt to the developmental trends in the form of warfare and the modes of operations, the CMC in the “National Military Strategic Guidelines for the New Period,” placed the base point of preparations for military struggle in fighting and winning local wars under informationized conditions and thus further focusing military training on informationization. At the “All PLA Military Training Meeting” held in June 2006, Hu Jintao pointed out clearly that we should vigorously promote the transformation from military training under mechanized conditions to military training under informationized conditions, constructing step by step a scientific system for military training under informationized conditions.

Since then “promoting the transformation of military training” has become the main theme governing military training. In 2007, experiments in military training in complex electromagnetic environments were carried out across the entire PLA. In 2008, the CMC released its “Opinions on Further Promoting the Transformation of Training under Informationized Conditions” (*guanyu jin yibu tuijin xinxihua tiaojian xia xunlian zhunbian de yijian*, 关于进一步推进信息化条件下训练转变的意见), which contained plans for the development of training before 2020. In March 2012, an all army meeting on deepening the reform of military training was held in Guangzhou, the focus of which was the generation and improvement of the “system of systems” (*tixi*, 体系) combat capability based on information systems. The PLA has taken integrated training as its top priority and innovated the training mode, as well as constructed the training system and implemented reforms in the military training field in a planned way, all with a view to enhancing the overall level of military training under informationized conditions.

The PLA accordingly regards informationization as the core of RMA with Chinese characteristics. To roundly accelerate the modernization, the PLA upholds taking mechanization as the foundation and informationization as the driving force of modernization, promoting the composite development of informationization and mechanization to achieve overall capability improvement in the fields of firepower, assault, mobility, protection, and information. The ultimate objective is to “basically complete military mechanization and make major progress in full military informationization

by 2020”¹¹—thus building up scientific systems of military training under conditions of informationization and achieving informationized military training. In the process of informationization, the PLA will adopt military information systems and informationized main battle weapon systems as the mainstay, employ military informationization infrastructure as the support and guarantee, and make full use of various information resources, as well as focus on increasing systems interoperability and information-sharing capabilities.

¹¹ Report of Hu Jintao to the 18th CPC National Congress, *China Net*, http://www.china.org.cn/chinese/18da/2012-11/19/content_27152706_10.htm (accessed on April 15, 2014).

The Strategic Context of the Current Transformation

The section below further considers the strategic context behind the PLA's fourth training transformation and the drivers necessitating the adaptation to conditions of informationization in military training.

Adapting to Technological Developments in the Information Age

Since the beginning of the Information Age, significant advances in technological capabilities have initiated a Revolution in Military Affairs. In the course of quickening their steps to promote the new RMA, some developed countries have focused on military training transformation and materialized a series of major changes so as to vigorously enhance the combat effectiveness of their militaries under informationized conditions. The “generation gap” in military technology between informationization on the one hand and mechanization and semi-mechanization on the other hand is still widening, and the military imbalance worldwide has further increased. The form of war decides the form of training. It is therefore necessary to follow the developments of the era by carrying out systemic reforms of military training in accordance with the requirements of informationized war and accelerating the generation and enhancement of information system-based “system of systems” operational capabilities.

In the keynote report delivered at the 17th CPC National Congress, Hu Jintao unequivocally stated that “to attain the strategic objective of building informationized armed forces and winning informationized warfare, we will accelerate composite development of mechanization and informationization, carry[ing] out military training under informationized conditions.”¹² Informationization has become the key factor in enhancing the warfighting capability of the armed forces. The nature of military training under conditions of informationization is that it involves practical activities aimed at helping service members to master operational knowledge and skills and

¹² “Hu Jintao’s Report at the 17th CPC National Congress,” *Xinhua News Agency*, http://news.xinhuanet.com/newscenter/2007-10/24/content_6938568_8.htm (accessed on May 10, 2014).

improve troops' war-fighting capabilities under conditions of informationization. This is so as to adapt to the form of war and patterns of operations in which information plays the dominant role, to be ready to face an operational adversary whose levels of informationization are higher, and to operate in a battlefield environment that obviously has informationized characteristics.

Enhancing Troops' Capability to Fulfill Missions

National interests and requirements of war are the direct impetus for the development of military training and invariably determine the developmental track of military training. In the current and future period, China's national security and development contexts are growing more complex. The tasks of expanding and intensifying military struggle preparedness are arduous and urgent. At the plenary meeting of the PLA delegation to the annual full session of the 10th National People's Congress (NPC) held in March 2005, Hu Jintao urged the PLA to earnestly perform their historical mission in the new century and safeguard China's state sovereignty, territorial integrity, and national interests.¹³

The "new historical missions," otherwise known as "three provides, one play" (*sange tigong, yige fahui*, 三个提供, 一个发挥),¹⁴ put forward new and higher requirements regarding the military's capacity. The PLA not only has to respond to traditional security threats, but also has to deal with non-traditional security threats; not only does the PLA have to safeguard the security of China's territory, territorial seas, and territorial airspace, but it also has to safeguard China's maritime rights and interests as well as the security of outer space and electromagnetic space. Furthermore, the PLA not only has to maintain those interests vital to China's survival, but also has to safeguard those interests vital to China's development.

¹³ "Hu Jintao urges army to perform 'historical mission,'" *People's Daily Online*, http://english.people.com.cn/200503/14/eng20050314_176695.html (accessed on May 16, 2014).

¹⁴ The "three provides, one play" are defined as follows: "providing an important guarantee of strength for the party to consolidate its ruling position; providing a strong security guarantee for safeguarding the period of important strategic opportunity for national development; providing a powerful strategic support for safeguarding national interests, and playing an important role in safeguarding world peace and promoting common development," *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2005-09/29/content_304901.htm (accessed on June 11, 2014).

In March 2009, Hu Jintao voiced his important directive that “the PLA must adhere to the leading task of preparations for military struggle, lay its stress on strengthening the building of core military capabilities, and in the meantime, mak[e] overall and coordinated plans for the building of capabilities for military operations other than war (MOOTW) and bring about an upsurge in making great efforts to engage in military training.”¹⁵ Military training is the most direct means of preparing for military struggle. In light of this situation and fulfilling the new requirements, the PLA needs to further promote the transformation of training through increasing the reform and development of military training. Thus, the PLA will make innovations to the training modes under conditions of informationization, realize high-level integration among combat platforms and among various systems to enable them to act in coordination as an organic whole, improve the information system-based “system of systems” operational capabilities of the troops in an all-round way, and ensure the levels of training correspond with the requirements of the PLA in dealing with diverse security threats and accomplishing diversified military tasks.

Accelerating the RMA With Chinese Characteristics

Since the arrival of the new century, the worldwide RMA has rapidly unfolded with competition and confrontation in the field of international military affairs having become more intense. At that time, the PLA recognized that there remains a major disparity between not only the level of modernization and the needs of national security, but also between its own level of modernization and that of leading military forces around the world. Facing the challenge of the worldwide military revolution, the PLA persists in pushing forward various reforms to accomplish the historical tasks of mechanization and informationization, thereby bringing about a leapfrog development in the modernization of the military. However, the RMA with Chinese characteristics still lags behind. In 2005, Hu Jintao pointed out at a military meeting that: “At present, the main contradiction in our army

¹⁵ Hu Jintao urged in the plenary session of the PLA's delegates for “Comprehensively carrying out the capabilities of performing historical missions at the new stage in the new century and striving to create a new situation of modernizing national defense and military building,” *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2009-03/12/content_1685974_2.htm (accessed on May 8, 2014).

building is that the level of our modernization is incompatible with the demands of winning a local war under informationized conditions, and our military capabilities are incompatible with the demands of carrying out the army's historic missions in the new century and [on the] new stage."¹⁶

The abovementioned "Two Incompatibles" (*liangge buxiang shiying*, 两个不相适应) not only touch upon the main contradictions in the building of the PLA, but also clearly defined the points of application in the transformation of military training. After years of development, the PLA has made major achievements in informationization with military hardware having been improved, including military information systems, new types of weaponry and equipment, and information infrastructure. In the future period, informationization will enter a new stage of accelerated development. Military training is therefore faced with keeping up with new developments and promptly converting such into enhancing realistic combat effectiveness.

To resolve these problems, the PLA will take military reform and innovation in science and technology as the main approach, which should also be regarded as not only the decisive factor and core competency of a modern military, but also the precursor and soul of the RMA. As an important part of the RMA with Chinese characteristics, military training is also a significant force in pushing military reform toward further development. Simultaneously, enhancing the quality of military training is an equally important aspect of the PLA's overall transformation. A top to bottom promotion of the transformation in military training under informationized conditions will more effectively boost innovations in military theory, research, and development of weapons and equipment, promote reforms in system and organization, and lead to the development of new-type, high-caliber military personnel, thus making military training an important and dynamic factor in the RMA with Chinese characteristics.

¹⁶ General Political Department, *Establishing and Implementing the Scientific Outlook on Development: A Reader of Essential Theories for Learning* (Beijing: Chinese People's Liberation Army Publishing House, 2006), p. 201.

The Major Contents of the Transformation

Currently, the PLA's military training under conditions of informationization is still in the initial phase. Military training within the PLA remains generally still mechanized; traditional ideas and habitual practices have not been drastically changed. The level of training support is not sufficient for training under informationized conditions. Further, the PLA is short of experience in fighting actual operations under informationized conditions, and there still exists a gap between its military capability and the requirements of winning a war. Therefore, a major issue faced by the PLA is how to promote the transformation of military training.

In line with the significant strategic concept put forward by Hu Jintao that "we should follow the guideline of strengthening national defense and the armed forces in a scientific way, [adopting] faster change by way of raising combat effectiveness as a major task,"¹⁷ the PLA strives to generate and enhance information system-based "system of systems" operational capabilities, make innovations to training patterns and construct a training system under informationized conditions, and actively promote the transformation of military training.

In recent years, the CMC and the four general departments have guided a variety of different types of units in carrying out bold experiments, resulting in the emergence of a new mode of military training with PLA characteristics under informationized conditions. The major contents of this transformation are outlined below. Lt. Colonel Wang Wenjuan is an Assistant Research Fellow at the Department of Armed Forces Building Studies of the Association of Military Science (AMS) in Beijing. She was a guest researcher at the Institute for Security and Development Policy, Stockholm, from April to June 2013.

¹⁷ "The system of theories of socialism with Chinese characteristics. Socialism research center of the National University. On the guideline and major task of national defense in military building," *PLA Daily*, <http://mil.news.sina.com.cn/2011-03-17/0618638002.html> (accessed on May 20, 2014).

Intensifying Integrated Training Based on Information Systems

Information system-based “system of systems” operational capabilities (*jiyu xinxi xitong de tixi zuozhan nengli*, 基于信息系统的体系作战能力) are the basic form of combat capabilities under informationized conditions. This is essentially a process to optimize and allocate operational forces and resources in order to generate combat power, increase combat effectiveness, and streamline and integrate systems and organizations.

In accordance with the operational requirements of information dominance, systems confrontation, and joint victory, it is very necessary to employ information systems to synergize and integrate various operational forces, operational units, and operational elements into overall warfighting capabilities. In the directive given in 2010 regarding all PLA military training, the GSH emphasized for the first time that “we should get a firm grip on the key links and pivots of information system-based ‘system of systems’ operational capabilities in order to make scientific planning for the line of development, objectives, tasks and main measures of military training.”¹⁸

“System of systems” operations put forward new training requirements to address the lack of personnel with information system-based operations experience; to train units to promote the establishment of operational system of systems; and to move toward greater testing and demonstrations in exercises. The integrated training will assist in forming system of systems capabilities through the vertical and lateral integration of operational elements and units and systems between branches and services in order to generate greater combat effectiveness.

According to the mechanism for generating “system of systems” operational capabilities, the PLA has organized and carried out integrated training on the basis of information systems (*jiyu xinxi xitong de jicheng xunlian*, 基于信息系统的集成训练). On the one hand, the PLA has emphasized networked information systems and conducted training to apply information systems, such as integrated command platforms and data links. On the other hand, the PLA has relied on information systems to strengthen combined training of operational units, integrated training of operational elements, and joint training of all systems and all elements. In 2012, Guangzhou Military

¹⁸ “The General Staff Department arranges the 2010 annual work of all army military training,” *PLA Daily*, http://www.chinamil.com.cn/jfjbmap/content/2010-01/06/node_2.htm (accessed on May 21, 2014).

Region (MR) organized the PLA's first concentrated training on integrated training and explored preliminarily the methods and paths of integrated training. This featured "great efforts to realize accuracy and precision for the individual pieces of equipment and combination of operational units [zuozhan danyuan hecheng, 作战单元合成], integration of operational elements [zuozhan yaosu jicheng, 作战要素集成], and the amalgamation of the operational system of systems [zuozhan tixi ronghe, 作战体系融合],"¹⁹ all of which resulted in a number of theoretical and practical outcomes.

Deepening Joint Training

Joint training is an advanced form of military training which is also important in generating and improving joint operations capability. At the 2006 All-Army Military Training Meeting, Hu Jintao pointed out that "local wars under informationized conditions are confrontations between systems and systems and the basic form of operations is integrated joint operations. Joint operations entail joint training, and therefore we should aim at enhancing the integrated joint operations capabilities of the services and arms and vigorously strengthen joint training. We should make great efforts to carry out joint training at the strategic, campaign, and tactical levels."²⁰ To this end, the PLA has given priority to training with operational tasks. Strategic and campaign training are both viewed as essential, with strategic training being used to enhance troops' joint operation training on a foundation of integrated command platforms, and to make strides in the combination of overall planning and specific assignments to ensure the orderly unfolding and smooth progression of joint training following the principle that "those who would fight in wars must be ready to play a leading role, and the only preparation for warfare is training."

With the development of the command means, at the same time as strengthening strategic training, the PLA began to focus on campaign and tactical level joint training. Since 2008, the PLA has successively held series

¹⁹ "Exploring and standardizing the method and path of the integrated training based on information systems," *PLA Daily*, http://www.chinamil.com.cn/jfjbmap/content/2012-09/16/content_14655.htm (accessed on May 22, 2014).

²⁰ "Hu Jintao gives a keynote speech at the all army military training conference," *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2006-06/28/content_511289.htm (accessed on May 23, 2014).

of exercises, such as “Sharpening,” “Vanguard,” “Stride,” “Mission action,” and so on. Among them, “Sharpening-2008” and “Vanguard-2008” were the first major exercises to test joint operations at the tactical level.

In 2009, for the first time in the history of the PLA, activities for experimenting with and demonstrating first war-zone level joint campaign training were initiated in Jinan MR. This is a useful attempt and exploration in the field of joint training for the PLA. This exercise firstly examined and demonstrated the “basic battle of PLA Corps” (*jiben zhanyi juntuan*, 基本战役军团)²¹ to build a joint operational command organ, operational mechanism, combat style, support mode, and so on. After years of experimentation and practice, a joint training mechanism has been preliminarily established for joint training in Jinan MR as follows: “the four general departments issue directives, the Jinan MR administers in an overall manner, problems act as the tractive force, and training is organized by turns.”²² A joint training path has been normalized, that is, “great efforts will be made to combine operational units in separate service training, great efforts will be made to integrate operational elements in the joint training of task organization, and great efforts will be made to synergize system of systems in joint exercises.”²³

Conducting Training under Complex Electromagnetic Environments

Training is the rehearsal for future war. The kind of conditions in which you expect to fight determines the kind of conditions in which you train. The complex electromagnetic environment (CEME) (*fuza dianci huanjing*, 复杂电磁环境)²⁴ is an important feature of the informationized battlefield and is a new-quality element of the future battlefield environment. As Hu

²¹ The basic battle of PLA Corps refers to an operation jointly organized and implemented by more than two branches, which is usually the size of an Amy Group. *PLA Daily*, http://www.chinamil.com.cn/jfjbmap/content/2010-01/21/content_18715.htm (accessed on June 11, 2014).

²² “PLA theater-based joint training enters the deepening stage,” Chinese Radio Network, http://mil.cnr.cn/zgjd/lj/201103/t20110303_507746435.html (accessed on May 15, 2014).

²³ *Ibid.*

²⁴ Complex electromagnetic environments encompass communications, radar, optoelectronic devices, battlefield reconnaissance systems, the electronic equipment of the weaponry platform, electronic warfare, and their countermeasures. *China military online*, http://english.chinamil.com.cn/site2/militarydatabase/2007-01/11/content_702382.htm (accessed on June 11, 2014).

Jintao pointed out: "Information dominance is in effect electromagnetic dominance; therefore, we should not only place high-tech weapons and equipment into complex electromagnetic environments to get them trained and tested, but also should carry out comprehensive exercises and drills with tactical backgrounds under such conditions."²⁵ Therefore, training in complex electromagnetic environments has become an important form of training under informationized conditions, as well as an important way to realize new growth in combat capabilities.

To improve the ability to perform operational tasks in an environment pervaded by surveillance, jamming, and electronic attacks, the PLA has since 2006, such as in the drills "Iron Fist-2006" and "Cooperation-2006," integrated training under complex electromagnetic environments into the normal training of troops in order to further exercise and drill operational methods and conduct specialized and refined exercises of technologies and tactics.

What is more, the PLA has quickened its steps in building complex electromagnetic environments in its combined arms tactical training bases; focused on commanders and staff as well as the troops of various services and arms employing information technology to a high degree, including troops (elements) specialized in communications, radar, and electronic countermeasures (ECM); and has vigorously carried out adaptability training, experiment training, confrontation training, and evaluation training to enhance the troops' adaptability to future battlefield environments.

Expanding Training Content

The content of training is the most active factor among all the elements of training. From 2006, centering on the establishment of a scientific system for military training under informationized conditions, the PLA has guided the reform of the training contents of various services and arms with innovations to the contents of joint training, especially in regard to combined arms campaign and tactical training. By doing so, the PLA has aimed, on the one hand, to promote the diversification of contents of training and place

²⁵ "Striving to promote the development of military training thoroughly and fast," *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2006-12/12/content_673828.htm (accessed on June 5, 2014).

an emphasis on informationization, and on the other hand, to promote the pivot of training to develop towards joint training and to boost training standards so as to better simulate actual combat. In 2008, the PLA promulgated the “Outline for Military Training and Evaluation” (*junshi xunlian yu kaohe dagang*, 军事训练与考核大纲),²⁶ which shows that the PLA has successfully constructed content for military training in the current period under conditions of informationization, and that the promotion of transforming military training has basic laws and regulations to abide by.

The new outline is made up of two major aspects, namely joint training and training by various services and arms, and covers all the specialties of various services and arms. Focusing on enhancing joint operations capability, it stipulates the following training contents, among others:

- Training at the operational level of various services, combined tactics, element training, and tactical and technical training;
- Developing training in military operations other than war (MOOTW);
- Increasing knowledge of and expertise in informationization;
- Simulating training in hi-tech weapons and equipment such as aircraft, naval vessels, and missiles;
- Standardizing the methods, procedures, and criteria regarding networked, on-base, and confrontational trainings;
- Defining the conditions, forms, methods, and requirements for training in complex electromagnetic environments, training at night, and training under complex weather conditions, as well as training for psychological bearing capacity;
- Establishing a capability-centered training standard and appraisal system.

Innovating Training Methods

Confrontation training (*duikang xunlian*, 对抗训练) in the PLA started in the 1980s and has gradually evolved into one of the basic forms

²⁶ “Promulgating the new generation ‘Outline for Military Training and Evaluation,’” *PLA Daily*, http://www.chinamil.com.cn/site1/zbxl/2008-07/25/content_1378192.htm (accessed on May 18, 2014).

of actual combat training. In recent years, the General Staff Headquarters has successively organized trans-regional base training, the "Holy Sword" series of electromagnetic countermeasure exercises, and conducted comprehensive tests and drills on plateaus. In addition, all Military Regions, services, and arms have organized multiple actual-force independent confrontation drills at the division or regiment level among various troop units. Furthermore, the use of "blue forces" in exercises is a particularly noteworthy development, because it makes training more realistic and challenging, encourages officers to take the initiative in response to changing situations, and gives troops exposure to possible adversary tactics.

At present, the PLA has preliminarily established basic theories of "system confrontation, precise confrontation, independent confrontation and scientific confrontation"²⁷ and adopted the method of "taking information as the dominant factor, simulation as the means, and objectives as the driving force." In terms of command confrontation for example, since 2010 the GSH has begun to explore the training mode of command-and-staff organs. In the meantime, two training organization modes have emerged: one is the training organized by Military Regions, and the other is the training organized by troop units themselves below the group army level. In June 2012, the PLA held the first academy-based command confrontation drill of command-and-staff organs at the Nanjing Army Command College. At present, the PLA has established a layered confrontation training mode featuring "command confrontation, actual-troop confrontation, and live-ammunition confrontation."²⁸

In order to guarantee the normalization of actual combat confrontation training mechanisms, the PLA will comprehensively bring the roles of military academies, training bases, and combat forces into full play. The principle of "rely[ing] on military academies to carry out confrontation exercises and drills involving commanders and staff and rely[ing] on training bases to conduct force-on-force live exercises and drills as well as live-fire diagnostic exercises"²⁹ will become an important way to generate and enhance information system-based "system of systems" operational capabilities.

²⁷ "PLA pushes forward confrontation training reform," *People Daily*, <http://english.peopledaily.com.cn/90786/8037538.html> (accessed on May 20, 2014).

²⁸ "Reform of PLA command training mode deepened," *PLA Daily*, <http://english.peopledaily.com.cn/90786/7873408.html> (accessed on May 19, 2014).

²⁹ "The PLA promotes reform on confrontation training across-the-board," *Xinhua Net*,

Improving Training Methods

In line with conditions of informationization, the PLA has made every effort to develop training methods (*xunlian shouduan*, 训练手段) to adapt to the new generating mode of combat effectiveness. These primarily include training base, simulation, and network training methods. Training bases are a key component to implementing warfighting concepts, promoting continued theoretical research, developing new tactics, and enhancing combat capabilities. Simulation and network training means can provide efficient and cost-effective methods for training. Meanwhile, they also enable increased complexity of training, provide repetitions of scenarios, simulate future operational environments for experimentation, and validate campaign and tactical combat theories while reducing equipment wear and material consumption.

Accordingly, the PLA has pressed ahead with the construction of large and comprehensive training bases adaptable to the needs of joint training. It has accelerated the informationized reconstruction of combined arms tactical training bases, focusing on the construction of complex electromagnetic environments. So far twelve combined arms tactical training bases have been constructed, thus gradually forming a system of training bases.

Second, the PLA has been developing simulation training materials and systems. So far it has basically unified the technical standards used by the information systems in the training of the entire PLA and established the All PLA Military Training Simulation Service Center, the Data Service Center, the Software Testing and Assessment Center, and the Public Platforms Service Center. The means of simulation training have gradually realized the development from simple to complex, from single to integrated, and from technical to campaign and tactical, gradually forming a triadic system of training simulation materials featuring “operational command, equipment operation, and confrontation live exercises and drills.”

Third, the PLA has been improving the information networks for military training. It has established a three-level network management system involving “the general center, regional centers and campus networks” in addition to security protection mechanisms. It has developed over 40 application systems, such as the large-scale Portal Website Construction Platform,

the Information Resources-Sharing Platform, the Online Teaching System for PLA Academies, the PLA Modern Distance Education System, the PLA Education and Training Management System, etc., which have provided effective support for online teaching, online exercises and drills, distance education, and long-distance technical services.

Transforming toward Actual Combat Training in the Future

Although some progress has been made, there remains a lack of operational experience, a fact which seriously restrains the overall combat effectiveness of the PLA. The leaders of the PLA have recognized the force's shortfalls and are focusing on how to overcome the deficiency. The 18th CPC National Congress held in 2012 stated that "building strong national defense and powerful armed forces that are commensurate with China's international standing and meet the needs of its security and development interests is a strategic task of China's modernization drive."³⁰ In line with this strategic requirement, the PLA has firmly embraced the CPC's strong military targets³¹ and implemented actual combat training (*shizhanhua xunlian*, 实战化训练) to further reforms in the systems, mechanisms, content, patterns, management, and support of military training, so as to accelerate the construction of the military training system under conditions of informationization.

In January 2014, the GSH pointed out in "The 2014 Directive on PLA Military Training" (*junshi xunlian zhishi*, 军事训练指示) that the PLA should adhere to the core requirement of being able to fight and win wars; and that it should be well prepared for war at any moment, strengthen actual combat training, promote the integration of training and actual combat, and constantly enhance its deterrence and warfighting capabilities under informationized conditions.³² In March 2014, the CMC issued "Opinions on Enhancing the Levels of Actual Combat Military Training" (*guanyu tigao junshi xunlian shizhanhua shuiping de yijian*, 关于提高军事训练实战化水平的

³⁰ Report of Hu Jintao to the 18th CPC National Congress, *China Net*, http://www.china.org.cn/chinese/18da/2012-11/19/content_27152706_10.htm (accessed on April 15, 2014).

³¹ The CPC's strong military targets under the new situation refer to obeying the Party's command, being capable of winning battles and having a sound work style, *Website of the Central People's Government of the PRC* (hereafter Gov.cn), http://www.gov.cn/2013lh/content_2351851.htm (accessed on June 18, 2014).

³² "The GSH maps out the New Year work of all PLA military training," *PLA Daily*, http://www.chinamil.com.cn/jfjbmap/content/2014-01/13/node_2.htm (accessed on June 3, 2014).

意见),³³ which lays out the general plan for the innovation and development of military training in the new situation.³⁴

To this end, the PLA has established phased objectives for the transformation of military training as follows: boosting training reform with accelerated transformation of the generating mode of combat effectiveness as the main line; promoting military training to focus on informationization, realizing the shift to joint training involving all systems and all elements, integrated training based on information systems, and realizing the transformation of training conditions to complex battlefield environments characterized by complex electromagnetic conditions; and, finally, realizing the transformation of training objectives into promoting the organic integration of information capabilities, forces, firepower, and maneuverability. All these objectives are designed to constantly enhance the level of actual combat military training. The main reforms the PLA will undertake are considered below.

Reform of the Running Mode of Training

Reform of the running mode of training (*xunlian yunxing moshi*, 训练运行模式) is designed mainly to adapt to the profound changes in the basic forms of training under informationized conditions. It involves carrying out categorized and hierarchized training for individual personnel, adjusting the training cycles and phase division for the troops, perfecting the systems, mechanisms, organization, and execution of joint training, and establishing a running mode in which the training of various services and arms will be advanced by joint training.

Reform of the Contents of Training

Reform of the contents of training mainly revolves around designing the training program within the framework of joint training, training of the

³³ "The CMC issues "Opinions on Enhancing the Levels of Actual combat Military Training," Gov.cn, http://www.gov.cn/xinwen/2014-03/20/content_2642564.htm (accessed on June 10, 2014).

³⁴ "The CMC promulgates opinions on enhancing the levels of warfighting-oriented military training," *PLA Daily*, http://www.chinamil.com.cn/jfjbmap/content/2014-03/21/content_70803.htm (accessed on May 26, 2014).

troops of various services and arms, and individual training according to the new running mode of training. It is to keep close pace with the development of the times and continuously enrich informationized training contents. It is to adhere to the principle of making overall planning and transferring authority to lower levels to reform the management mechanisms for training content and guarantee the dynamic updating and rolling development of training content with the help of institutions.

Reform of the Mode of Training

Reform of the mode of training (*xunlian moshi*, 训练模式) centers on stragem training to strengthen information system-based command training of commanders and staff, placing stress on the following: improving the functions of specialized systems to promote information system-based integrated training of operational elements; coordination between the troops of various services and arms to promote information system-based combined arms training of operational units; and collective joint operations involving all systems and all elements to develop information system-based amalgamation training of operational systems.

Reform of the Management of Training

Reform of the management of training (*xunlian guanli*, 训练管理) centers mainly on developing digitized and networked means for training management and strengthening the refined management of the overall process and all the elements of training. It is to consummate the mechanisms for training evaluation, emphasize the evaluation of commanders and staff, personnel working at key posts, and the overall warfighting capabilities of troops, and gradually promote the running mechanism for the relative separation of training and evaluation. Furthermore, it is intended to improve training inspiring mechanisms, promote a system for certifying the military qualities required of officers and non-commissioned officers (NCOs) specific to their posts, and promote the coupling of training performance with the vital interests of officers and men.

Reform of the Support for Training

Reform of the support for training (*xunlian baozhang*, 训练保障) is mainly to bring the roles of information technology and information resources into full play and boost the informationization of support conditions. It has to adapt to the needs of training under informationized conditions featuring high technology, large levels of investment and consumption, and boosting the intensification of support modes. What is more, it has to be in line with the requirements of standardization and institutionalization and boost the normalization and regularization of support management.

Conclusion

Since the arrival of the twenty-first century, major powers are stepping up the realignment of their security and military strategies, accelerating the transformation of military training. The U.S. armed forces are a case in point. Since the launch of military transformation in 2001, transforming training has been the key driver in achieving the operational goals of the overarching transformation. Its transformation is the third since the Vietnam War and aims to attain advanced joint operational capabilities. The U.S. Department of Defense has successively released documents such as the “Transformation Planning Guidance” and “Training Transformation Implementation Plan” to guide the transformation. In so doing, three training transformation capabilities have been put forward as objectives. The first is joint knowledge development and distribution capability, which focuses on individual education and training; the second is joint national training capability, which focuses on collective training; and the last is joint assessment and enabling capability, which focuses on training transformation program performance assessment and supporting tools and processes.³⁵ In addition, the U.S. military has laid more emphasis on the design of future war by means of training and adjusted the training guidance from “train as you fight” to “fight as you train.” Furthermore, plenty of training simulators and training bases have been employed in the process of training, which have obviously enhanced the combat effectiveness of U.S. troops.

While adhering to its own characteristics, the PLA is paying more attention to drawing on foreign militaries’ experiences in training transformation. In recent years, the PLA has strengthened military exchanges through holding bilateral and multilateral exercises and training together with other countries with the aim also of acquiring knowledge of other militaries’ advanced training modes, training methods, training management, and so on. As is also the case with U.S. troops, the PLA has focused on generating an overall plan for transformation, in which joint training has been

³⁵ Department of defense training transformation implementation plan fy2006-fy2011, <http://www.t2net.org/downloads/briefs/impplan2006/IPlan.pdf> (accessed on June 16, 2014).

identified as the central element, and has improved the means and methods for training. It can therefore be said that the PLA's military training has become more rigorous and realistic.

The Third Plenary Session of the 18th CPC Central Committee, held on November 12, 2013, underlined the idea that the deepening reform of national defense and armed forces should be integrated into China's overall strategic picture of reform. Since then the building of China's national defense and armed forces has greeted a new situation of reform and development. In the field of military training, the PLA will follow the strategic requirement put forward by President Xi Jinping: that is, "we will endeavor to resolve the prominent contradictions and problems that constrain the development of national defense and the armed forces,"³⁶ bear firmly in mind that "fighting strength is the only fundamental criterion,"³⁷ persisting in its orientation toward solving problems, direct itself towards the key and difficult problems involved in the building of warfighting capabilities, further deepen the reform of training, and promote the transformation of training.

The transformation of military training is a long-term undertaking, which can only be accomplished gradually rather than perfected overnight. At present, the contents, methods, and means of the PLA's training lag behind, comparatively speaking. Among other limitations it can be argued that the levels of joint training and actual combat training are not high enough; the quality of the development of high-caliber military personnel is still incompatible with the generating mode of combat capabilities; and that some units fail to pay attention to training quality and efficiency and thereby waste valuable resources, which affects the scientific upgrading of unit combat effectiveness.

In order to resolve these contradictions and problems, the PLA will closely embrace President Xi Jinping's important instructions on enhancing the level of actual combat military training, upholding the principle of training troops in the way wars are actually fought by adhering to the needs

³⁶ The Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Comprehensively Deepening the Reform, *Xinhua Daily Telegraph*, http://news.xinhuanet.com/mrdx/2013-11/16/c_132892941.htm (accessed on April 11, 2014).

³⁷ Xi Jinping stressed firmly embracing the strong military targets in the new situation, Gov.cn, http://www.gov.cn/2013lh/content_2351851.htm (accessed on June 18, 2014).

of actual combat, and seek to bridge the shortfall in whatever troops lack most. To do so, the PLA will make strides through conducting joint training, emphasizing training in mission-oriented subjects, making innovations to operational methods, intensifying its efforts in integrated training and confrontation training, and improving its information system-based system of systems operational capabilities under conditions of informationization. In so doing, the PLA will lay a solid foundation for fighting and winning future wars.

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