

研究生专业英语

SPECIALIZED ARTILLERY ENGLISH FOR POSTGRADUATE

BOOK 2

炮兵指挥学院

研究生专业英语

第二册

(美军野战炮兵 2020 规划)

选编：铁 军 刘四海

审定：赵 鑫 车延连

炮兵指挥学院

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前 言

我军为谋求“打赢高技术条件下局部战争”之目的，应该立足于对强敌作战，开展和加强对军事实力强劲军队的研究。

美军为做好 21 世纪的战争准备，在刚刚出台“21 世纪初战略陆军全维作战构想”之后，又推出了适应 2020 年作战需要的陆军作战理论，《美陆军野战炮兵 2020 发展规划》是其中的一部分。在此规划中，美军首先对野战炮兵的现状作了分析，进而为 2020 年野战炮兵的发展方向、重点、实现目标的途径等作了设想和规划。规划中重点阐述了 2020 年前后野战炮兵的编制结构、武器与弹药、条令、训练与战斗实施、保障支援、目标信息获取、作战模拟等方面内容，并作了可行性分析。规划的基本思路是立足于先进的军事技术，发展武器、改进弹药性能，至力对任何作战对手构成火力优势，同时，结合对现有编制组织进行合理化改造、提高指挥控制效能、加强作战模拟研究，以期达到全面提高野战炮兵未来作战能力的构想。

本教材是对《美陆军野战炮兵 2020 发展规划》进行节选、整理而成，是炮兵战役战术专业和炮兵作战指挥专业研究生学习炮兵专业英语与研究外军炮兵的重要参考。教材中贯穿一个主旨，那就是“我们不能确定明天的战争究竟如何进行，但我们必须为明天的战争作好准备”。读者在研读过程中，由于语言与文化上的差异，对一些问题的理解可能出现较大的差别，希望和编者多加强联系与交流。

编 者

二〇〇〇年四月

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“We cannot predict the future, but we must plan for it.”

[<http://sill-www.army.mil/tngcmd/org/roadmap/toc.htm>]

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FIELD ARTILLERY ROADMAP

FIELD ARTILLERY ROADMAP

INTRODUCTION

On the battlefields of the 21st Century, the destructive power of fires will play an increasingly decisive role in achieving land power dominance. From the killing ground of the close fight through the vast distances of operational depths, Army XXI commanders will attack and defeat the enemy with precision fires which are inherently maneuverable, adaptive, versatile, and tremendously lethal. Major General Randall L. Rigby

1994 marked the beginning of a far-reaching endeavor to envision America's Artillery in the year 2020. The initial result of this effort, *Vision 2020*, offers intriguing insights into the powerful synergy existing between technological advances and future warfighting concepts. In essence, it is a bold assertion of what the field Artillery could and should be by the third decade of the 21st Century.

Vision 2020 serves as a distant aiming point for guiding the evolution of Field Artillery to a position of increased importance on the battlefields of the next century. It combines advanced warfighting concepts with potential technologies to provide a glimpse of the future of combined arms, a dynamic source of combat power describes as the Ascendency of Fires.

Our challenge then is to transform a notional view of the world of 2020 into a 21st Century warfighting reality. The task at hand is to adopt a strategy with sufficient "meat and muscle" for transitioning the Field Artillery to its rightful place in the Ascendency of fires.

Success in this ambitious venture ultimately rests on the ability to assess the myriad known factors impacting on our future development. We can discern the obvious trends affecting our near-term growth. We know the years ahead will be character-

ized by severe fiscal constraints. The ability to focus on a specific threat is difficult and yet the world remains a dangerous place. While we cannot predict the future, we can and must prepare for it. We must have a workable plan.

The Field Artillery Roadmap fulfills this requirement. It charts a course for achieving the full potential of the future Field Artillery. Our goal is clear and unwavering. We will provide Army 21 and the Army After Next with the most effective and lethal fires possible. To this end, the Field Artillery Roadmap provides leaders of today and tomorrow with an invaluable tool for incisive planning and decision making, for checking progress, and above all, for keeping the evolution of the Field Artillery on track toward our vision of the future.

[<http://sill-www.army.mil/tngcmd/org/roadmap/intro.htm>]

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FA ROADMAP

SECTION 1-Establish a Common Grid

The Ascendency of Fires. 1994 marked the beginning of a far-reaching endeavor to envision America's Artillery in the year 2020. The result of this effort, *Vision 2020*, offers intriguing insights into the powerful synergy existing between technological advances and future warfighting concepts. It describes the development of long range, precision artillery to a place of increased importance in the combined arms dynamic-in essence, the evolution toward an Ascendency of Fires. The challenge in modernizing the Field Artillery is to transform a notional view of the future into a 21st Century warfighting reality. The task at hand is to adopt a strategy with sufficient "meat and muscle" to ensure that the Field Artillery achieves its full potential in the Ascendency of Fires. We must have a workable plan, we need a Roadmap.

Overview. The Roadmap charts a course to the future of fires. The reason for constructing the Roadmap is to assist leaders accomplish the critical task of fielding the FA of Army XXI, and developing the FA of the Army After Next. Mapping is an iterative process, and the Field Artillery Roadmap is no exception. It is a living, analytically supported decision aid which will be revised as new factors impacting modernization become known through analysis and experimentation. Unlike previous master plans and azimuths which once completed became end results, the Roadmap project will be on-going, a useful tool for decision makers in the years to come.

The Roadmap helps focus the development of FA concepts and future operational capabilities. It guides and provides conceptual input to the integrated concept teams (ICTs). More important, the Roadmap is a planning construct for combat and training developments across the domains of doctrine, training, leader development, organization, materiel, and soldiers (DTLOMS). The Roadmap gives equal treatment to each of the DTLOMS domains. Note, the FA Roadmap contains a seventh domain of simulations. Simulations play a vital role in all the DTLOMS, and so for the purpose of the Roadmap, DTLOMS has taken on an extra S for Simulations, i. e. DT-

LOMSS.

The Roadmap consists of three parts. The first part is what you see on this Web Page, i. e. a periodically updated compilation of FA assessments, insights and issues, future capabilities, and developmental thrust lines with critical paths—across the DT-LOMSS. The second part is a comprehensive, automated data base which ultimately will be available on the Internet. This data base contains all that we know about FA modernization and future developments, e. g. mission need statements (MNS), operational requirements documents (ORD), related briefings, and other documentation, etc. It also contains information formerly published in the FA Redbook. The third part will be an automated decision aid which is now being developed. When completed, the decision aid will permit combat and training developers to project possible courses of development and “what if” drills for key FA projects and programs.

This Web Page contains three broad planning categories. The first category is a detailed assessment of the current state of Field Artillery. It identifies strengths and weaknesses of the FA system today, and it serves as the base case for analyzing future developments. It basically answers the question where are we now? The second category lays out conceptual considerations for the future. It proposes answers to the question where do we want to be? The third category contains the “meat and muscle” of the Roadmap, i. e. the developmental thrust lines which link the current state of the Field Artillery and the envisioned state of 2020, or how we plan to get to the future.

Links to Army and Joint Planning. The FA Roadmap supports the objectives of the Army Modernization Plan, e. g. project and sustain, protect the force, dominate maneuver, win the information war, and precision strike. It also tracks with the key pillars of the Joint Vision 2010: dominant maneuver, precision engagement, full dimensional protection, and focused logistics.

Assessing the Knowns. The Field Artillery Roadmap is a comprehensive, analytically supported strategy for modernizing and developing the Field Artillery through the first two decades of the 21st Century. It enables us to better understand the future in terms of threat/capability trends; technology; future warfighting concepts; and resources.

Threat/Capabilities. Regardless of a given threat, the basic requirement to win on the future battlefield with minimal casualties remains in effect. While we cannot know the real nature of the “threat” associated with the 2020 time frame, we can assume that by the second decade of the next century, regional and peer competitors possessing niche technologies and modern warfighting capabilities will exist. In short, we must ensure the Field Artillery can prevail over the forces of a given peer or regional competitor. To do this, the FA must be as lethal and effective as it can possibly be.

Technology Trends. It appears that through the dynamic combination of advanced warfighting concepts and emerging technologies, especially information technologies, we can potentially transform warfare through a Revolution in Military Affairs (RMA). From an Artillery perspective, it is imperative that we fully leverage the RMA to achieve future operational capabilities for the purpose of providing accurate and lethal fires for Army 21 and the Army After Next.

Future Concepts. The Ascendency of Fires is predicated on two basic operational capabilities—Dominant Battlespace Awareness, and Precision Strike. Still, the real potential of the future of combined arms hinges on a more basic function, i. e. the ability to fully integrate fires and maneuver. The effective coordination and integration of direct and indirect fires is a complex and difficult function under the best circumstances with good communications, effective staffs, and clear commanders’ intent. Many of the problems associated with this integration will carry over into the next century despite advances in automated command and control. For this reason, the FA Roadmap focuses on achieving significant improvements in integrating and fusing fires and maneuver into a single dynamic, truly unified combat power. In short, unified combat power enables commanders to apply precision, fully integrated fires simultaneously throughout the battle space with rapid, effective, “hair-trigger” like execution.

Resources. The factors covered under resources are funding, both procurement and research and development (R&D), personnel, and experimentation. Today, the Field Artillery leads the Army in the number and diversity of developments. At the same time, resources are severely constrained and will remain so for the foreseeable future. In fact, if the downward trend in the availability of R&D is not reversed, the vision of fires in 2020 will never materialize. As a result, the Roadmap effort looks

for innovative methods to conduct research and development for future fires.

Modernization challenge-The system of systems. The challenges associated with modernizing the FA are unlike those of any other branch or BOS. Fire support is the aggregate of a complex system of systems and functions. For example, the artillery acquires target through many target acquisition systems, some of which are FA systems such as Firefinder radars, but most come from different Army and joint organizations, e. g. UAVs or JSTARS.

The FA attacks targets using different type of weapons and munitions. From light towed howitzers and high mobility rocket systems (HIMARS) for contingency forces, to the self-propelled cannons (Paladin and eventually Crusader), along with the versatile MLRS of heavy forces, the artillery influences the close fight and adds depth and simultaneity to combat. These weapons fire myriad types of munitions from HE, DPICM, FASCAM, APAM-and soon, a suite of smart munitions-SADARM and BAT. SADARM is well on the way to fielding in 1999 giving the army its first true fire and forget munition.

Supporting and sustaining FA is a multi functional operation including the logistics of moving large quantities of heavy ammunition and bulk fuel along with technical functions such as survey and meteorological support, and other functions associated with fire control.

All of these system and functional components are controlled, linked, and coordinated through a fully digitized system of command, control, and communications. For these reasons, modernizing and developing the FA System of Systems requires a balanced approach in the Roadmap strategy. Capabilities concerning lethality or range must invariably take into account target acquisition or C2 abilities and limitations. Similarly, actions or issues involving ammunition supply and distribution will affect requirements for weapons/target pairing or required effects on a given target.

Modernization Goals. The overriding goal of the Roadmap is to first preserve and protect our programs and developments required for Army 21, and second to define future operational capabilities and insights required for the Army After Next. In achieving these goals, several broad objectives must be pursued with equal intensity across the DTLOMSS:

-Enhance Accuracy and Lethality. As a system of systems, the FA has weapons ranging from air-droppable cannons to self-propelled howitzers and the Multiple Launch Rocket System (MLRS) firing a variety of projectiles and warheads, the FA ensures timely and responsive fire support to both light and mechanized forces. We are on the threshold of attaining leap-ahead capabilities with smart munitions such as the Sense and Destroy Armor (SADARM) 155mm projectile and the BAT submunitions for the Army Tactical Missile System (ATACMS). Achieving a first round kill capability where one munition kill one or more target is a high priority goal of the FA modernization Roadmap. The programs associated with smart, munitions must be preserved and brought to fruition.

-Improve Target Acquisition. Effective target acquisition is the linchpin of destructive fires on the battlefield. Attacking throughout the depth of the battlespace ultimately hinges on the ability to locate and recognize targets in a timely and accurate manner. Problems associated with our ability to acquire targets present a critical challenge. We have reached a point where we can clearly outshoot our capability to acquire targets. The FA Roadmap is squarely focused on developing continuous, pro-active, real time airborne and ground based target acquisition means.

-Field Adaptive Artillery Organizations. FA units must be capable of operating on a dispersed, demassed battlefield. Organizations must be able to adapt to rapidly changing situations, and must be logistically supportable.

-Reduce the Logistics Burden. Support and sustainment of Field Artillery includes everything from accuracy enhancements to maintenance and logistics. Accuracy relies on precision location of both weapons and targets. It also requires corrections for errors resulting from weather conditions and individual weapon characteristics, e. g. muzzle velocity. Tremendous demands are placed on commanders tasked with ensuring tons of artillery ammunition are distributed over great distances on a fast-moving battlefield. The Roadmap looks toward the use of precision munitions as a possible means of reducing support and sustainment burdens.

-Leverage Information Technology. Fifty years ago, the need to compute artillery firing tables drove the development of the world's first electronic, digital computer. Today, the Field Artillery continues to pioneer advances in the area of command, control, and communications using automated data processing. As the explosion in

information technology continues we must ensure that fire support requirements are met with continuously updated hardware and software. In essence, the Roadmap strategy is committed to developing the requisite command, control, and communications systems (C3) required for relevant combat knowledge and a unified integration of fires and maneuver.

Methodology-A Fresh Approach. The Roadmap serves as a guide for members of FA integrated concept teams (ICTs). It provides team members with a frame of reference for examining DTLOMSS related concepts and potential capabilities while producing key insights which will then be plotted on the Roadmap. Basically, the Roadmap functions as a decision aid in the process of evaluating and resolving conceptual issues, and then determining required capabilities.

[<http://sill-www.army.mil/tngcmd/org/roadmap/Sec1.htm>]

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SECTION 2-The FA Today (an assessment)

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This section addresses the capability of the fire support system to accomplish its assigned roles of close support, counterfire, and interdiction. Specific fire support program assessments address the significant modernization issues in the categories of Target Acquisition, C2, Weapons and Munitions, and Support and Sustainment.

[[http://sill-www.army.mil/tngcmd/org/road map/SEC2. htm](http://sill-www.army.mil/tngcmd/org/road%20map/SEC2.htm)]

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Target Acquisition

Target Acquisition

The ability to find and destroy targets remains the most difficult mission in the artillery. The current counter mortar (Q-36) and counter artillery (Q-37) radars are reaching the end of their effective life-spans. Updates to the Q-36 and the Q-37 will extend their service life and effectiveness. Despite SLEP programs for these radars a more manpower efficient radar with increased range and faster data processing is needed. Firefinder P31 will help meet Army Fire Support requirements for target acquisition when fielded. For close target acquisition a replacement for the Ground/vehicle Laser Locator Designator (GVLLD) is a must. The GVLLD's inability to lazare targets while moving and lengthy set-up and tear down requirements make it ineffective in the fast pace offense oriented environment of modern combat. Until Firefinder P31 is fielded and a replacement for the GVLLD is identified and the program is funded, the overall rating for target acquisition is AMBER.

SYSTEMS	FS ROLES	NEAR-TERM			REMARKS
		FY 97-99	MID-TERM FY 00-03	FAR-TERM FY 04-13	
CS	CF INT	GREEN	AMBER	AMBER	
Q-36	X				INSUFFICIENT RANGE
Q-37	X	AMBER	AMBER	AMBER	MAN POWER INTENSIVE
FF P31	X	FUNDED	FUNDED	GREEN	IOC IN 03, EXTENDED RANGE ENHANCED ACCURACY
LLDR		UNFUNDED	UNFUNDED	UNFUNDED	

	X				REPLACEMENT FOR G/VLLD
G/VLLD		AMBER	AMBER	RED	
	X				HEAVY, AGING TECHNOLOGY, MAINTENANCE INTENSIVE

[[http://sill-www.army.mil/tngcmd/org/road map/Tgtap.htm](http://sill-www.army.mil/tngcmd/org/road%20map/Tgtap.htm)]

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Target Acquisition

SUPPORT AND SUSTAIN

The ancillary equipment used by units remains the least modernized element of the artillery. Modernization efforts focus on decreasing dependency on outside survey and meteorological support agencies. The Gun Laying and Positioning System (GLPS) allows towed and M109A2-5 units to lay artillery batteries without survey teams. The Hydrogen Generator (HG) gives meteorological teams the ability to produce hydrogen. The Meteorological Profiler system modernizes meteorological teams using radiosondes from the ground instead of using balloons. The Muzzle Velocity System replaces the M90 chronograph. However funding is insufficient of the these programs. The overall assessment for Support and Sustain is based on funding is AMBER.

SYSTEMS

	FS ROLES			NEAR-TERM	MID-TERM	FAR-TERM	REMARKS
	CF	INT		FY 97-99	FY 00-03	FY 04-13	
CS							
FAASV	X	X	X	AMBER	AMBER	AMBER	UNDER FUNDED, LACKS 1:1 RATIO W/PALADIN
GLPS	X	X	X	UNFUNDED	GREEN	REEN	UNFUNDED UNTIL MID-TERM, MAN POWER SAVINGS
HG	X	X	X	AMBER	AMBER	AMBER	UNFUNDED FOR RC

MVS	X	X	X	GREEN	GREEN	GREEN	
PROFILER	X	X	X	RED	RED	RED	PROVIDES TARGET AREA MET, UNFUNDED

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