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## 1. INTRODUCTION

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It is now generally held by military analysts that the dramatic victories by the United States in the 1991 Gulf War were as much a product of advanced American technology as they were a result of competence in the less sexy but perhaps more important areas of logistics, training, education, systems integration, and information-based C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance). Most observers believe that critical U.S. advances in these latter areas acted as critical “force multipliers,” significantly enhancing the lethal combat effectiveness of coalition forces arrayed against Saddam Hussein. The payoff for years of expensive investment in such human capital and information technologies was the overwhelming dominance over opposition forces and the minimization of U.S. casualties.

For its part, China since 1978 has begun to make the necessary changes in its weapons inventory to be considered a modern military force. Purchases from abroad, such as fourth-generation SU-27 fighters, *Sovremenny*-class destroyers, SA-10 air defense batteries, and *Kilo*-class submarines, have joined indigenous equipment to form the outlines of a future, high-tech military organization. These advances have been carefully documented by numerous outside observers. Less frequently analyzed, however, have been Chinese attempts to reform and modernize their logistics networks, C4I infrastructure, systems integration capabilities, doctrinal frameworks, and force structure. From the conference papers assembled here, it appears that the Chinese are making halting but positive advances in these areas, although they clearly have a long way to go before they can claim to have developed a military on par with that of the United States or many of its allies.

The volume begins with a chapter by David Shambaugh that grew out of his presentation on the “State of the PLA Field” at the conference on the final day. After the conference had adjourned, the resulting paper was judged to be of sufficient merit to warrant inclusion in this volume, even though it does not directly address the topic at hand. Instead, it is a sweeping view of the last thirty years of Chinese military studies. Shambaugh’s chapter examines both the producers and consumers of Chinese military analysis, and concludes that the field has increased in both quantity and quality in recent years. He evaluates the data used by PLA analysts, asking the critical questions: what do we know and what don’t we know? Finally, he lays out a list of challenges for the foreseeable future, emphasizing the need for the

People's Liberation Army (PLA) field to reach out to other disciplines within Asian studies and political science.

Ellis Joffe's chapter builds on a monograph originally published for the Chinese Council of Advanced Policy Studies (CAPS). To update this effort, the author has added an epilogue to include the 15th Party Congress in October 1997 and the National People's Congress in March 1998. He argues that civil-military relations have entered a new mode, characterized by unprecedented potential for the wielding of political power by the military, although this is tempered by professionalization and countervailing political factors. This new potential has manifested itself in the military's new capacity to influence high politics and policies, not routine involvement in political or administrative affairs. Joffe traces the origins of this change to three important trends in the Chinese system: (1) the transformation of the role of the paramount leader under Jiang Zemin; (2) the military's new leverage in narrowly defined policymaking arenas, in particular foreign policy and internal PLA decisionmaking; and (3) a growing party-army separation marked by conflicting interests. The author concludes, however, by pointing out the PLA's new potential power has not been exercised and in fact has led to a decline in interventions, thanks to Jiang Zemin's clear dependence on the PLA and generational change throughout the system. Joffe cautions that Jiang will retain the military's support only as long as he delivers economic growth and social stability.

Andrew Yang and Milton Liao of CAPS offer a deeply detailed analysis of the origins and evolution of Rapid Reaction Forces (RRFs) in the PLA. This chapter examines the PLA's establishment of RRFs within the existing force structure, and assesses the force's stated purpose of fighting regional wars under high-tech conditions and suppressing internal disturbances. The authors' analysis focuses on the various RRF force structures, weapon systems, and logistics capabilities, as well as training and exercises conducted from 1996–1997. Yang and Liao conclude that the RRFs provide the PLA with new operational possibilities, but also create substantial challenges for the existing system, especially in the areas of force coordination, logistics support, and C3I (command, control, communications, and intelligence).

Harlan Jencks' chapter examines the restructuring effort under way in the Chinese defense-industrial complex, particularly since the announcements made at the National People's Congress in March 1998. The author describes and attempts to evaluate the status of that reorganization after its first months, with special reference to the defense scientific, technical, and industrial sectors. He points out that there is considerable confusion even among senior Chinese officials as to which organizations they currently represent or will represent in the near future, as well as which higher-level organizations they are currently answerable to. Jencks concludes that the true outlines of the restructuring will not be clear for several years, especially given ample evidence of discontent and resistance among Chinese officials and institutions. Indeed, he argues there is a significant possibility that the restructuring will never be completed at all.

Kenneth Allen's chapter analyzes the long, uneven, but positive journey that the Chinese Air Force has undertaken to modernize its obsolescent force of 1950s and

1960s vintage combat aircraft. The analysis updates the research that originally appeared in Kenneth Allen et al., *China's Air Force Enters the 21<sup>st</sup> Century*, RAND, MR-580-AF, 1995. To modernize rapidly, the author argues, the People's Liberation Army Air Force (PLAAF) and China's aviation industry have had to seek foreign assistance for entire weapon systems, subsystems, and technical support. He asserts that they have used this foreign assistance to successfully develop and produce indigenous weapon systems, form a rapid reaction force, train with new combat tactics, computerize some of their command centers, and revise logistics and maintenance support capabilities. At the same time, Allen points out that the PLAAF continues to be plagued by a set of serious deficiencies, most of which will need to be addressed to achieve clear breakthroughs. The author concludes by raising two critical questions: Will the PLAAF be able to carry out these reforms, especially in a joint force arena? Will it be able to support its weapons systems acquired in full or in part from foreign sources?

Using the Army War College model for analyzing strategy, David Finkelstein's chapter offers a notional national military strategy for China. It asks the question, "If China published a national military strategy as does the Pentagon, what would it look like?" To answer this question, the author examines China's national security objectives writ large, derives national military objectives, and then discusses the ways in which the PLA is working to achieve those objectives. The author places the PLA's current reforms within a comprehensive, strategic context, and derives a methodology to explain the future paths the PLA will take. This chapter therefore offers a road map for explaining the rationale for reform of the Chinese military for some time to come.

Nan Li's chapter attempts to flesh out the specific components of the PLA's new campaign doctrine. The author introduces a number of new concepts from the Chinese military literature, including "war zone campaign," "elite forces and sharp arms," "gaining initiative by striking first," and "fighting a quick battle to force a quick resolution." He argues that these doctrinal principles are designed to transform the PLA's technological inferiority into local and momentary superiority in future "local war under high-tech conditions." At the same time, he cautions that more careful analysis is necessary to determine to what extent these theoretical changes may translate into actual changes in PLA practice.

"The PLA and Information Warfare," by James Mulvenon, introduces us to a fertile new area in Chinese military doctrine. Mining tens of books and hundreds of articles by PLA authors, Mulvenon presents key Chinese definitions of IW terminology, compares them with their counterparts in the U.S. literature, and charts the evolution of Chinese IW strategy before and after the 1991 Gulf War. He identifies critical theorists and centers involved in the development of IW doctrine in China, as well as the key principles of the People's Republic of China (PRC) information warfare writings, assessing to what extent the literature is derivative of Western scholarship. He concludes that there is a "uniquely Chinese IW strategy," in particular the emphasis on "preemption," although the vast majority of writings are plagiaristic renderings of U.S. authors. Finally, Mulvenon presents an unsettling IW scenario involving Taiwan, in which the PLA carries out computer network attacks

against civilian and military targets in the United States, with the goal of delaying American military deployment to the Taiwan theater, while simultaneously bringing Taiwan to the negotiating table through a campaign of ballistic missile attacks, fifth column sabotage, and IW attacks against critical infrastructure.

John Frankenstein's chapter on Chinese defense industries provides a comprehensive overview of the experiences of the CDIC (Chinese defense-industrial complex) since the onset of the reform era. The author examines the contradictions of the defense industrial system, identifying the many failures and relatively few successes. Frankenstein then probes the origins of these failures, analyzing the multiple organizational, financial, and bureaucratic problems of China's defense production base. He evaluates the various strategies used by the industry to break out of its downward cycle, especially conversion to civilian production, and concludes that China has achieved little success with either a dual-use spin-off or spin-on approach. In the few cases where military factories have become profitable by switching to civilian output, they paradoxically have become more resistant to continuing their less-profitable military production. The author concludes that the primary motivation behind defense industrial policies in the reform era has been the maintenance of social stability, which argues for a defense industry marked by full employment and inefficiency. Reforms introduced at the March 1998 National People's Congress suggest a new willingness to consider a more Darwinian attitude toward the industry, but economic downturn may foil these attempts, leaving China's defense-industrial base to continue to muddle through its problems.

The chapter offered by RADM Eric McVadon (ret.) examines a crucial element of military modernization: systems integration. The author argues that the ability of the PLA to carry out systems integration provides insights into the future of Chinese military modernization that are possibly more important than examinations of technology acquisition and assimilation. As an example, he points to the PLA Strategic Rocket Forces, which illustrate how the PLA can succeed domestically by avoiding requirements for systems integration. In addition, he analyzes the newest major combatant ships of the PLA Navy and explains why China must look to foreign sources for the essential integration of complex systems. The concept of systems integration is defined, and five levels of systems integration are explained, with discussion of the state of PLA systems integration achievement at each level. The aspirations of the PLA with respect to systems integration are described as well as the views of American technical specialists of Chinese success (or lack thereof). McVadon concludes that the PLA may be losing ground technologically because other countries are achieving systems integration rapidly. While some in the PLA think Western systems integration will produce exploitable vulnerabilities, McVadon asserts that the ability to effectively conduct such exploitation is almost certainly beyond the reach of the PLA in the foreseeable future. At the same time, he cautions that some of the areas in which the PLA may attain limited success in systems integration could indeed be troublesome. These narrow advances could be significant in the delicate balance of forces with Taiwan in certain warfare areas, and could also cause consternation for U.S. forces in other threat areas.

Mulvenon and Bickford's chapter examines the role of PLA enterprises in the Chinese telecommunications industry up to July 1998 and outlines a number of issues related to these enterprises. First, the authors examine the origins of PLA involvement in the telecommunications industry, arguing that the military's exploitation of both its internal communications infrastructure and priority access to civilian infrastructure was a natural consequence of the military's participation in commercial activities. Second, they outline the extent of PLA activities in this area in the 1980s and 1990s, examining two case studies: the China Telecom-Great Wall code division multiple access (CDMA) project and PLA unit involvement in the radio-paging industry. Third, Mulvenon and Bickford assess the implications of these joint venture telecommunications projects for technology transfer to the PLA's C4I modernization. The authors conclude by arguing that while the PLA's potential for growth in this industry is significant, the PLA's recent decision to divest its economic interests indicates that the civilian sector is likely to dominate the telecommunications industry at the PLA's expense in the medium term.

Dennis Blasko's chapter envisions the outlines of a future PLA force structure, based on the trends of the past twenty years and recent statements in a 1998 defense White Paper. He forecasts that the PLA will be reduced to perhaps 1.5 million, as PLA civilians and business operations are stripped of their active duty roles. The resulting force will still lean toward the ground forces, but the percentage share of personnel in the naval and air forces will increase, as will the numbers of reserve and PAP (armed police force) soldiers. For the foreseeable future, the author predicts that units will have a mix of high-, medium-, and low-technology weapons and equipment, and will strive to find new ways to maximize the use of their existing equipment to defeat a high-technology enemy. The numbers and types of logistics and technical units will increase throughout the force to maintain and support the PLA's modern equipment. The Chinese defense industries, in his view, will be able to produce limited amounts of modern weapons for the PLA, but most truly advanced weapons will be of foreign origin and relatively few in number. Rapid deployment of conventional forces will be enhanced through acquisition of transport ships and aircraft as well as by unit consolidation near points of embarkation. He forecasts that naval and air forces will acquire more offensive capabilities and the ability to operate farther from the Chinese land mass, but an operational aircraft carrier capability will not enter the force until at least the end of the second decade of the 21<sup>st</sup> century. Cruise missile, ballistic missile, and nuclear forces will be improved gradually and incrementally and will remain the key to China's deterrent force. In his opinion, changes in the command and control structure will contribute to better integration of forces and capabilities. Several regional headquarters will be eliminated, resulting in five "theater-like" headquarters. A few smaller headquarters will be formed for the Army, Special Operations Forces, and Space Forces. Tactical units will be restructured during a period of experimentation. Blasko concludes that the PLA must do a better job of explaining these changes to the outside world, lest China's neighbors and the United States misinterpret these reforms as proof of a more aggressive posture.

In sum, the chapters present a picture of a PLA that has learned many of the right lessons about the importance of "software" to successful combat performance, but is

enjoying more variable success in implementing the necessary changes throughout the system. It is our contention that the Chinese military's progress on these more-difficult problems will ultimately determine whether the PLA will transform itself into a peer competitor with the United States in the 21<sup>st</sup> century or remain merely a regional military power.